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Jolanta Kowal (Ed.)
Narcyz Roztocki (Ed.)
Roland Weistroffer (Ed.)

ICT Management for Global Competitiveness and Economic Growth in Emerging Economies (ICTM)

International Conference on ICT Management for Global Competitiveness and Economic Growth in Emerging Economies

Wrocław, Poland, September 16-17, 2013

Proceedings

The College of Management "Edukacja", Poland
University of Wrocław, Poland
AIS Special Interest Group on ICT and Global Development (SIG GlobDev), USA

ICT Management for Global Competitiveness and Economic Growth in Emerging Economies (ICTM)

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Conference title:

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ICTM 2013

Edukacja
Wyższa Szkoła Zarządzania
Edukacja we Wrocławiu

Proceedings of the Second International Conference on ICT Management for Global Competitiveness and Economic Growth in Emerging Economies

Conference Theme: Economic, Social, and Psychological Aspects of ICT Implementation

College of Management "Edukacja"
University of Wrocław, Institute of Psychology
Wrocław, Poland, September 16-17, 2013

Sponsored by AIS Special Interest Group on ICT and Global Development (SIG GlobDev)

Edited by the Conference Co-Chairs
Jolanta Kowal, College of Management "Edukacja", Wrocław, Poland
Narcyz Roztocki, SUNY at New Paltz, USA
and Programme Co-Chair Heinz Roland Weistroffer, Virginia Commonwealth University, USA

A conference managed by College of Management "Edukacja" (WSZ E Poland)

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1. From the Conference Co-Chair

Emerging economies with their dynamic development and rapid growth are often considered the engines of the global marketplace. Unfortunately, despite this vigorous economic growth, most emerging economies still lag behind the mature, developed countries in economic output and standard of living. To truly close this gap, new management techniques, new business models, and new regulatory policies, among other factors may be needed. Moreover, information and communication technologies (ICTs) will likely play a vital role in this development process. Thus, the objective of this conference is to provide a forum for interested researchers and practitioners to exchange their experiences and creative ideas related to ICT management for global competitiveness and economic growth in emerging economies. Possible topics may include but are not limited to the following:

- Social, political and legal frameworks as they relate to ICT and ICT Management
- Unique ICT management techniques for emerging and transition economies
- Methods for measuring the benefits and costs of projects involving the adoption of ICT
- The role of human and social capital
- Innovative ways for generating revenues and creating commercial knowledge products
- Educational systems and training as they relate to ICT and ICT Management
- ICT to support small and medium enterprises
- ICT as a path to economic growth
- ICT productivity with specific reference to the prevalent social and business conditions
- Global supply chain management in emerging and transition economies
- Country specific case studies, with specific reference to the prevalent social and business conditions
- ICT off-shoring/outsourcing into emerging and transition economies
- ICT project management, with specific reference to the prevalent social and business conditions
- Digital divide in emerging and transition economies
- E-commerce impact in emerging and transition economies
- E-government in emerging and transition economies
- Psychological, social, and economic aspects of Internet use in emerging and transition economies
- Quantitative methods and information technology in management

We hope that you have a productive and enjoyable conference.
Jolanta Kowal, Narcyz Roztocki and Heinz Roland Weistroffer

2. Biographies of Conference Co-Chairs

Dr **Jolanta Kowal** is Vice Rector and a professor at Wrocław College of Management "Edukacja" in Wrocław, and a tutor and researcher at the Institute of Psychology of Wrocław University. She is a member of scientific associations PTS and PTPA accredited by IAAP. A researcher and lecturer, Jolanta is the author of over 60 scientific publications (published among others in University College London, C.G. Jung Institute of San Francisco, PWN and ENETEIA) and delivers lectures and seminars on methodology of management, applied statistics in socio-economic, psychological and multicultural research. She reviewed also papers and books for(among others) ECMLG PROCEEDINGS 2010-2011 (ACI, Reading, UK), Information System Management, Taylor & Francis Comp, Scholar Manuscript, US, UK, Hawaiian International Conference on System Sciences-HICSS-44, 2011, US, Hawaii, Journal of European Psychology Students, EFPSA. Her interests and research specializations are: organization and management, information technology in organization, methodology, quantitative and qualitative research, analytical psychology, cross-cultural research. Jolanta acted as the conference chair for the 6th European Conference on Management Leadership and Governance (ECMLG) hosted at the College of Management "Edukacja" and the Professional Development Center "Edukacja", Wrocław, Poland, 28-29 October 2010. http://academic-conferences.org/ecmlg/ecmlg2010/ecmlg10-home.htm

Narcyz Roztocki is Professor of Management Information Systems at the State University of New York at New Paltz. His research interests include IS/IT investment evaluation, IS/IT productivity, IS/IT investments in emerging economies, technology project management, and e-commerce. He has published in numerous journals and conferences including: the European Journal of Information Systems, the Journal of Computer Information Systems, the Electronic Journal of Information Systems in Developing Countries, Electronic Journal of Information Systems Evaluation, International Journal of Service Technology and Management, Journal of Global Information Technology Management, Journal of Information Science & Technology, and proceedings of the AMCIS, DSI, ECIS, ECITE and HICSS.

Heinz Roland Weistroffer is an Associate Professor of Information Systems in the School of Business at Virginia Commonwealth University in Richmond, Virginia, USA. His research interests include computer assisted decision-making, systems analysis and design, and information technology for development. He has published in Journal of Strategic Information Systems, IEEE Transactions on Software Engineering, Journal of Multi-Criteria Decision Analysis, Socio-Economic Planning Sciences, Information Technology for Development, and Computational and Mathematical Organization Theory, among many other journals, as well as in numerous conference proceedings such as AMCIS, HICCS, and ECIS. He is an associate editor of the journal Information Technology for Development.

3. Honorary Co-Chairs

Marek Lewandowski - a graduate of the Academy of Physical Education in Wroclaw, specializing in teaching.
In the 1986-2012 academic teacher at the Academy of Physical Education in Wroclaw. The College of Management in Wroclaw industry since 2012, author of over 70 scientific peer-reviewed publications, including two books, editor of nine monographs. He has research and teaching internships at the Hochschule für Musik und Darstellende Kunst "Mozarteum" Abteilung Orff Institute in Salzburg, Austria, Deutsche Sporthochschule - Institut für Sportdidaktik in Cologne, Germany, the University of Olomouc - Czech Republic, Academy of Physical Education in Warsaw Academy of Physical Education in Gdansk.
Work experience: developing a theory of physical education in the context of the culture of health behavior, recreational and aesthetic man. Research activity is focused on the study of the role of the environment: the school and the family in the child's acquisition of cultural competence and psychomotor.
Interests: listening to music, collecting records, drawing and painting, hiking.

Anna Oleszkowicz (born in 1956), psychologist, professor at the Institute of Psychology at the University of Wroclaw. Her research interests focus on developmental issues of adolescence, adolescent rebellion, criteria and forms of adulthood. The author of numerous scientific and popular works in this field, including the monograph crisis youthful - the essence and process (1995), youthful rebellion. Conditions, forms, effects (2006), How to truancy (2010) co-author, psychology of adolescence. Developmental changes in the age of globalization (2013), co-author. Since 2008 he has been the Director of the Institute of Psychology. PhD 1989, habilitation in 2007.

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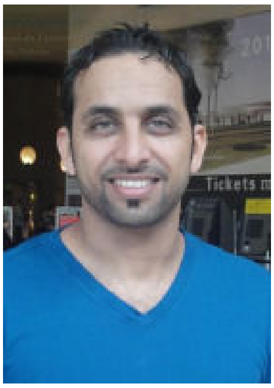

Yousuf S. AlHinai is an Assistant Professor of Information Systems at the College of Economics and Political Sciences, Sultan Qaboos University, Oman. He is also the Assistant Dean for Training and Community Service in the college of economics. He completed his PhD in Information Systems from The University of Melbourne, Australia. Dr. AlHinai is experienced in both teaching, research and administration. He has a number of published and under-review conference and journal research papers. He continues to work with a recognized network of scholars and researchers in different countries.

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Alicja acted as the conference chair for the 3rd, 4th and 5th Interdisciplinary Scientific Conferences "Man against mass social phenomena" hosted at the Univeristy of Wrocław, Poland. The topics included: "Faces of passivity" 11-12 June 2007, "Femininity and masculinity - contexts (not) daily," 19-20 May 2008, "Transgressions, innovation and creativity" 18-19 May 2009.

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He has developed his own theory assuming that the psychological organisation of human beings consists of four evolutionarily shaped functional layers which may be subject to progressive development throughout four periods of human life.
He is now engaged in research aiming to falsify this theory. In particular, the research examines the mutual relations between the traits of temperament, adaptation patterns, lifestyles and worldviews, as well as the significance of socialisation determinants (family, peer and cultural).
His main publication is "Life-long psychological development of human beings" (2010, a monograph). He has supervised thirty-six Master's theses.

Prof. dr hab. Engineer **Jerzy Łunarski** (ur.1937) Rzeszów University of Technology professor employed at the Faculty of Management and the Committee of Experts of the Institute of Mechanised Construction and Rock Mining in Warsaw. Editor-in-Chief of the quarterly Science and Technology "Technology and Automation Installation" and a member of the Technical Committee of PKN "Quality Management". Research activities related to technology, equipment and management technology. He published more than 500 scientific articles, four scientific monographs, six academic books, 18 scripts and obtained 22 patents (including seven independent). Doc.dr inż.Aiman Gabdulina an employee kazakhstan im.K.I Satpujewa National Technical University in Almaty, a specialist in the field of metal processing technology, employed at the Institute of Mechanical Engineering.

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Janusz Martan was born 1 April 1950. in Wrocław. In 1973 he completed a degree in electronics at the Technical University of Wrocław. In 1977 he received his PhD ("Investigation of ion extraction conditions on the parameters of ion beam."). In 1997, obtained post-doctoral degree ("Modeling of the concentration distribution of implanted ions in solid-state"). In 2004, transfers from the Faculty of Microsystem Electronics and Photonics to the Department of Computer Science and Management. Since 2005, the exercises the function of the vice-dean.. His research covers the field of the production of molding and applications of ion beams, ion implantation and fractal calculus applications in various fields of science and knowledge.

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In order to conduct research study focused on bankruptcy prediction model validation on German companies, she spent 3 months in Berlin this year. She has been participating on international project CentraLab.

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In the past eight years the project proposer is working on the Institute for Research on Children, Youth and Family. This institute is part of Psychology Department on the Faculty of Social Studies at Masaryk University in Brno and its main interest is long-term research on children, youth and their families. Research institute is taking part on unique European project (coordinated by the Institute of Child Health University of Bristol, Great Britain) called ELSPAC (The European Longitudinal Study of Pregnancy and Childhood).
The project proposer research activities within the Institute are focused on these areas: vocational plans in adolescence in relation to the self-concept and achievement motivation, career development, cognitive development and professional training. In the year 2009 she was the editor of monograph Sebepojetí dětí a dospívajících v kontextu školy (Self-concept of children and adolescents in the school context), Brno, MU. Several years she cooperates in the research activities of the Institute of Psychology of the University of Wrocław, Poland. One of the results of this cooperation is her contribution to the polish monograph on aggression Zachowania agresywne dzieci i młodzieży (Aggressive behavior in children and youth), Warsaw, Difin 2013.. As the author of several psychodiagnostic methods she cooperates long term with the Psychodiagnostika Brno publishing.

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I am a PhD student at the Wrocław University of Technology. Concurrently, I work as a Financial Regulations Analyst in Credit Suisse Poland. I hold Masters' degree in International Relations from the Wrocław University of Economics and Masters' degree in European Parliamentary Studies from the University of Leeds. My professional experience includes working in the parliamentary office of English Member of the European Parliament and as a lobbyst for the European Aggregates Association in Brussels. My research interest are organizational structures, organizational complexity and risk management

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Elena Rogova had graduated from the Leningrad Institute of Economics and Finance in 1991. She had her post-graduate degree at the same institution in 1995 and the Doctor degree at the State University of Economics and Finance (St.-Petersburg) in 2006. Her thesis was devoted to financial issues of technology transfer processes in innovation-based companies. Since 2006 she has a position of a professor and the head of the chair of Financial Markets and Financial Management in National Research University Higher School of Economics (St.-Petersburg campus). Her academic interests are in the sphere of Innovation Management and Finance.

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6. Papers

Introduction

Information and Communication Technologies for Competitive Advantage in Emerging Economies: Analysis of Research

by

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ABSTRACT

Information and Communication Technologies (ICT) play a vital role in gaining and maintaining competitive advantage. In this study, we analyze twenty-two papers presented at the International Conference on ICT Management for Global Competitiveness and Economic Growth in Emerging Economies – ICTM 2012 hosted in Wroclaw, Poland. This analysis provides valuable insights into the role of ICT in emerging economies as compared to highly developed economies, as ICTM 2012 hosted authors from a wide range of both developed and developing countries.

Keywords:

Emerging Economies, Information and Communication Technologies, Literature Review, Transition Economies

INTRODUCTION

Emerging economies refers to countries with relatively low absolute, but fast and continuously growing, per capita income (Roztocki and Weistroffer 2008; Roztocki and Weistroffer 2009). Typically, emerging economies possess administration dedicated to development and economic liberalization. However, even though ICT plays a vital role in this development process in emerging economies, research in ICT in the context of emerging economies is very underrepresented in mainstream information systems (IS) research. In order to help narrow this gap in IS research, we analyze papers published in the Proceedings of the International Conference on ICT Management for Global Competitiveness and Economic Growth in Emerging Economies (ICTM 2012) hosted in Wroclaw, Poland, September 17-18 2012.

Papers from such a conference, dedicated to this specific topic area, provide a unique opportunity for analyzing trends in the application and research in the field for several reasons. For one, papers are more current than papers that have gone through a long reviewing process, as is typical for academic journals, often taking several years, and thus conference papers are more representative of currently researched topics. And secondly, such a conference specifically attracts authors from emerging economies, particularly when the conference is held in an emerging economy, like Poland.

The main research question guiding our analysis is “What is the current landscape of research on ICT for global competitiveness in emerging economies?” The remainder of our paper is structured as follows. After this introduction, we first provide a brief overview of the topic of ICT in emerging economies as a backdrop to our analysis. Next, we describe our methodology and introduce a framework for our analysis. We then present the content of our analysis, and follow that with a discussion of our findings and the implications thereof. We conclude our paper with a synopsis of this study and an outlook for future research.

INFORMATION AND COMMUNICATION TECHNOLOGIES IN EMERGING ECONOMIES

While there is only limited academic research on ICT in developing and emerging countries, there is a wealth of practical experience. This practical experience has been largely disregarded by main stream IS research, as much scholarship is still based on the assumption that the best practices derived from developed countries can also be successfully applied in the very different business environments of developing and emerging economies. Looking at successful ICT implementations and examining the specific factors that contributed to success or failure in emerging economies may avoid future missteps and misdirected efforts.

Much of the mainstream IS research applies theories and models that assume a predictable business environment, with emphasis on long-term strategic planning and hard data. However, the business reality in many emerging economies is less predicable and long-term strategic planning is difficult, as hard data is often lacking. Furthermore, rigid long-term strategy may not always be the best approach, as unexpected hurdles and opportunities may arise. Thus, unlike managers in developed countries, business leaders in developing and emerging economies must repeatedly redefine their business models and apply flexible and often incremental business strategies (Kozminski 2008).

Typically, emerging economies have a substantial rising middle class population, resulting in rising demand for products and services, and thus creating new business opportunities for domestic industries, but also draw the attention of global competitors. In general, firms in emerging economies tend to be younger than their counterparts in developed economies, with many new business start-ups.

Companies in emerging economies generally have fewer resources to build on (Hitt, Dacin, Levitas, Arregle and Borza 2000). In emerging economies, ICT is often seen as a communication and collaboration-enabling tool that can compensate for a scarcity of other resources. The objectives for ICT investments in developed countries are often intended as a substitute for expensive human labor (Bingi, Leff, Shipchandler and Rao 2000), but in emerging economies where labor costs are relatively low and capital is short, technology may rather be intended to compensate for an otherwise poor infrastructure.

METHODOLOGY AND ANALYTICAL FRAMEWORK

Initially, all submissions published in the proceedings of the International Conference on ICT Management for Global Competitiveness and Economic Growth in Emerging Economies (ICTM 2012) were reviewed for their suitability to our study. Since our objective was an in-depth analysis of the research reported, we decided to only use full papers in our analysis, while omitting abstract-only submissions. We also excluded several papers that were too technical and some that had only a weak link to ICT. In addition, we excluded one literature review paper.

Our analysis of the remaining twenty-two papers was conducted in three major steps. In essence, we followed the analytical model proposed by Roztocki and Weistroffer (2012), which is based on the analytical framework for literature review developed by Wiener et al. (2010). First, we examined the papers for their research focus. In this context, we identified the country that the research related to, looked at ICT issues addressed in the papers, and tried to identify the specific objectives of the research. In the second step of our analysis, we identified the research approaches the authors took in their work, as well as the data sources, analysis methods, and the units of analysis (e.g. individual, company, or country). Finally, in the third step, we examined the papers for their theoretical foundation and any theories or frameworks the authors applied. Our analytical framework is summarized in Figure 1.

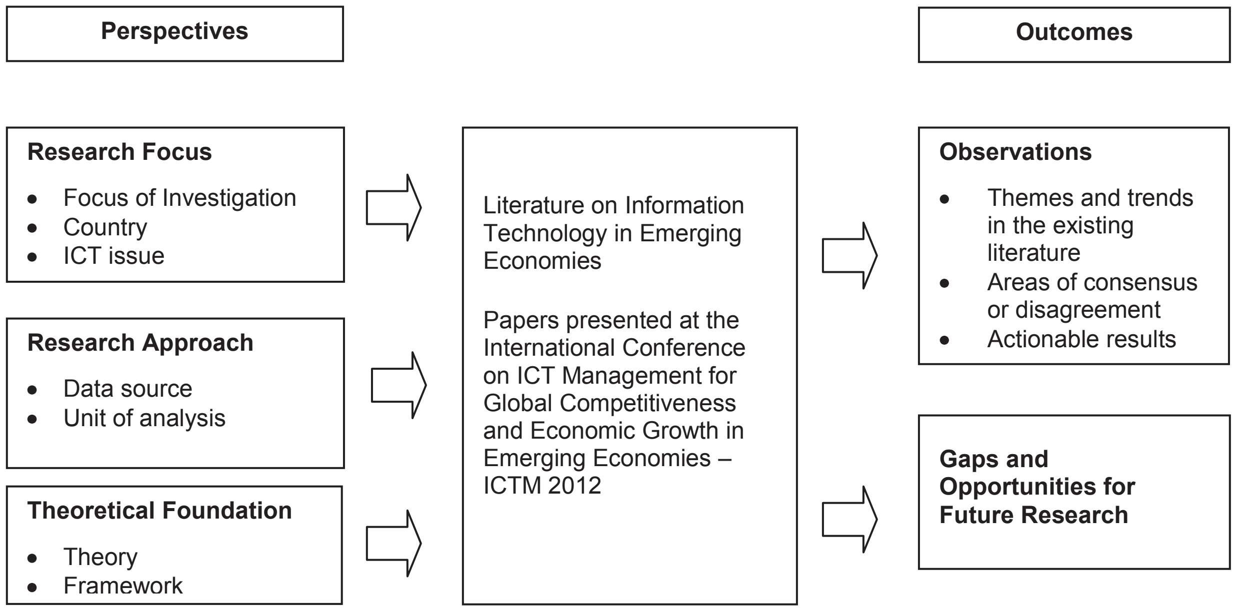

Figure 1. Analytical Framework – Perspectives and Outcomes
(Adapted from Wiener et al. (2010) and Roztocki and Weistroffer (2012))

ANALYTICAL PROCESS AND RESULTS

Research Focus

In the first step of our analysis we examined the twenty-two papers for their research focus. We determined the country that was the main focus of the investigation and we conducted an analysis of keywords included in the papers. In total, authors provided one hundred keywords, varying from two keywords to seven keywords for individual papers. Besides keywords that described the location of the study or reference to emerging/transition economy, the most commonly repeated keywords were "RIFD" and "innovation. " In addition, we examined the papers using the ICT issues classification proposed by Roztocki and Weistroffer (2009), as shown in Table 2. The results of this analysis are summarized in Tables 1 and 2.

Author(s)	Focus of Investigation	Country/Region
Al Mosawi and Sahraoui (2012)	Education in emerging economies	Bahrain
Ali and AlHinai (2012)	Education in emerging economies	Bahrain
Diaz Andrade et al. (2012)	Crime in emerging economies	Peru
Haromszeki and Jarco (2012)	ICT Leadership in emerging economies	Poland
Jarco (2012)	Professional career in emerging economies	Poland
Kowal (2012)	Statistical methods in ICT research in emerging economies	Not specified
Kwanya et al. (2012)	Technology adoption in libraries	Kenya and South Africa
Lee et al. (2012)	Transformative role of ICT in emerging economies	Central and Eastern Europe; Latin America
Leniartek (2012)	Tourist industry in emerging economies	Poland
Matei and Savulescu (2012)	Impact of ICT on economic growth	27 EU countries
Mrowka (2012)	Innovation in emerging economies	Poland
Riedel and Sonntag (2012)	Contribution of social media to human and social capital	Multiple
Rohatynski (2012)	Reverse logistic in emerging economies	Not specified
Soja and Paliwoda-Pekosz (2012)	Enterprise system (ES) live cycles: emerging vs. developed economies	Poland
Soloducho-Pelc and Radomska (2012)	The effect of human capital on competitive advantage in emerging economies	Poland
Sultanow et al. (2012)	Delivery of drugs	Not specified
Tan, Deng, Yang and Chen (2012a)	E-Government	China
Tan, Tan and Tan (2012b)	Implementation of electronic legal system	Singapore
Turcu and Turcu (2012)	Traceability platforms	Not specified
Tusanova and Paralic (2012)	Software as service	Not specified
Wali (2012)	Education in emerging economies	Bahrain
Wei et al. (2012)	Supply chain management in emerging economies	China

Table 1. Focus of Investigation

ICT Issue	Explanation	Papers in our Sample
Adoption and Diffusion	Selection of particular ICT for use by individuals, organization, or country	(Diaz Andrade et al. 2012; Lee et al. 2012; Riedel and Sonntag 2012; Soja and Paliwoda-Pekosz 2012; Tan et al. 2012a; Turcu and Turcu 2012; Tusanova and Paralic 2012; Wei et al. 2012)
Strategy	Creation of a plan for using ICT to achieve a specific goal	(Al Mosawi and Sahraoui 2012; Leniartek 2012; Matei and Savulescu 2012)
Planning and Design	Creation of particular ICT	
Implementation	Execution of a plan to use a particular ICT	(Ali and Alhinai 2012; Jarco 2012; Kwanya et al. 2012; Mrowka 2012; Soloducho-Pelc and Radomska 2012; Sultanow et al. 2012; Tan et al. 2012b; Wali 2012)
Service	Creating of intangible ICT commodities	
Management	Using available resources efficiently and effectively to provide ICT	(Haromszeki and Jarco 2012)
Security	Protection of ICT assets	
Economics	Generation, distribution, and consumption of ICT assets	
Impact on Organizations and Society	Effect of ICT on individuals, individuals, organization, or countries	
Sourcing	Procurement of ICT services	
Other Topics	Papers not fitting the above categories	(Kowal 2012; Rohatynski 2012)

Table 2. Classification of ICT Issues

Research Approach

In the second step of our analysis we examined all papers for source of data and unit of analysis. The results of our investigation are depicted in Table 3.

Author(s)	Source of Data	Unit of Analysis
Al Mosawi and Sahraoui (2012)	Experiment (students in class room)	Organization
Ali and AlHinai (2012)	Experiment (students in class room)	Organization
Diaz Andrade et al (2012)	Research-in-progress – planned interviews	Country
Haromszeki and Jarco (2012)	Secondary data (e.g. on-line reports)	Country
Jarco (2012)	Survey; secondary data (e.g. on-line reports, research reports)	Country
Kowal (2012)	Not applicable – recommendations derived from literature review	Not applicable
Kwanya et al (2012)	Survey	Country
Lee et al (2012)	Publicly available databases	Country
Leniartek (2012)	Case study	Country
Matei and Savulescu (2012)	Databases (e.g. Global Competitiveness Reports)	Country
Mrowka (2012)	Secondary data (e.g. on-line reports, research reports)	Organization
Riedel and Sonntag (2012)	Not applicable – conceptual paper	Country
Rohatynski (2012)	Not applicable – conceptual paper	Country
Soja and Paliwoda-Pekosz (2012)	Literature analysis; interview	Country
Soloducho-Pelc and Radomska (2012)	Survey	Organization
Sultanow et al. (2012)	Not applicable – conceptual paper	Organization
Tan, Deng, Yang and Chen (2012a)	Website analysis	Country
Tan, Tan and Tan (2012b)	Interviews, questionnaire	Country
Turcu and Turcu (2012)	Not applicable – review	Organization
Tusanova and Paralic (2012)	Not applicable – conceptual paper	Organization
Wali (2012)	Experiment (students in class room)	Organization
Wei et al. (2012)	Survey	Country

Table 3. Research Approach

Theoretical Foundation

In the third step, we examined the papers for theories and frameworks applied. The results are displayed in Table 4.

Theory/Conceptual Foundation	Application of Theory/Framework	Papers	Remarks
Actor-network theory	Explains the use of IT in the workplace	Diaz Andrade et al (2012)	
Concept of media literacy	Explains the creation of media content	Riedel and Sonntag (2012)	
Concept of the tipping point	Describes the spread of information	Riedel and Sonntag (2012)	
De Freitas and Oliver (2006) framework	Explains the learning process	(Ali and Alhinai 2012)	
DOI: Diffusion of Innovation	Provides technological factors	Wei et al. (2012)	
Endogenous growth theory	Explains impact from ICT	Lee et al (2012)	
Habermas's communicative competence	Explains the communication process	Riedel and Sonntag (2012)	
Theory of social capital	Explains collaboration	Haromszeki and Jarco (2012)	
TOE: Task-Organization-Environment	Explains the RFID assimilation processes	Wei et al. (2012)	Related to Soja and Paliwoda-Perkosz (2012)
Total cost of ownership	Explains the decision-making process	Tusanova and Paralic	

Table 4. Theoretical Foundations

FINDINGS AND IMPLICATIONS

Observations

As may be expected, many of the papers are by authors from Poland, the conference venue being in Poland. Somewhat surprising is the diversity of the remaining authors, coming from Bahrain, China, Peru, and Singapore, in addition to the USA and Western and Eastern Europe. Also interesting is that many papers focus on the country level as the unit of investigation, following by the organization level in frequency. The individual as unit of analysis is rare.

Many of the papers are non-empirical research, based mainly on ideas, frameworks, and speculations rather than on systematic observations. Though several of the papers do use observations and hard data, such as government reports and statistics, these data play mostly a supporting role, thus these papers can be classified as non-empirical according to Alavi and Carlson (1992). Moreover, many of the non-empirical papers may be described as "illustrative" according to Alavi and Carlson (1992) and intended to guide praxis and give recommendations and focus on "what" and "how" instead of "why." Also. use of established theories is modest in the research presented at ICTM 2012. We were able to identify only ten theories and frameworks.

There seems to be consensus that management of ICT is different in emerging economies from developed countries. Some of the results presented suggest that modern technologies such as "RFID" are highly useful to improve operational efficiency in emerging economies. Innovation seems to be the key to improving competitiveness in emerging economies; four papers used "innovation" or "innovation diffusion" as keywords. Also, e-government initiatives may help to improve governmental efficiency. Haromszeki and Jarco (2012) found that people who use the Internet are more proactive. Some other specific recommendations made include making better use of statistics in IS research (Kowal 2012) and increase empirical research in the context of emerging economies.

Mostly observations are reported in the papers presented at ICTM 2012, but most fail to clearly formulate and provide actionable recommendations.

Gaps and opportunities for future research

Our observations show little empirical research conducted in the context of emerging economies, and little use of established theories as a basis for research. It may be that many of the established theories are not that useful in explaining ICT implementation and use in emerging economies, and indicate an opportunity to develop new theories that are better applicable in the context of ICT in Emerging Economies.

Also, only a modest number of papers focus on individuals as the unit of analysis, possibly providing further opportunities for future research. For example, it may be interesting to investigate employee competencies and the impact on promotions and compensations.

Much of the reported research seems to be conducted in isolation, and comparisons across multiple, similar countries are rare. It may be interesting to investigate what is really "typical" for a country and what is similar to a group of countries with similar culture or demographics.

None of the papers used "IT management" or "management" as a key word; however two papers used "IT leadership" (Tan et al. 2012b) and "local leaders" (Haromszeki and Jarco 2012). This may be an indication that authors feel that management in the traditional, western context is not able to cope effectively with the problems and obstacles in emerging economies. This may be another topic that deserves further academic attention and future research.

LIMITATIONS AND CONCLUSIONS

Our findings are based on only twenty-two papers presented at the ICTM 2012 conference, making any general conclusions to be viewed cautiously. However, the specific focus of the conference, the location of the conference in an emerging and transition economy, and the diversity of the participants seem to make the scholarship from this conference particularly interesting for indications of trends in ICT research in the context of emerging economies.

For future expansion of our analysis, we may compare the findings from this conference to research on ICT in emerging economies presented at other conferences, like the ICT for Global Development track (SIGGlobDev) at the Americas Conference on Information Systems (AMCIS), or one of the SIGGlobDev workshops.

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Chapter 1

Methodology, Psycho-Social Aspects and Educational Systems and ICT Management in Emerging and Transition Economies (1)

CONSCIOUS AND UNCONSCIOUS INFLUENCES IN INTERNET ADVERTISING IN TRANSITION ECONOMIES

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ABSTRACT

We examine the effect of archetypal symbolism in reception of information technology educational services Internet advertising, in Poland, a transition economy. This study sought to answer questions regarding subconscious effect of color and symbolic incentives and susceptibility to social influence methods for Internet users - consumers, based on a knowledge of the unconscious patterns and methods of social influence in the light of analytical psychology. Various aspects of the unconscious and conscious effects of archetypal symbolism in educational services Internet advertising reception are investigated. The necessary data is collected by an enhanced and structured interview web, combining elements of qualitative research and structured survey conducted among 52 IT specialist in different regions of Poland. The results of this survey indicate that in transition economies conscious logical and informed assessment of aesthetics, value, usefulness, quality has an effect on global positive impression of advertising leading to the purchase of the product (information technology educational services). More over consciousness and unconsciousness via archetypal symbolism, including colours by stimulating sensations, emotions, moods, associations, needs, values, psycho-physical and overall response to the picture have an effect on global positive impression of advertising leading to the purchase of the product. In addition the symbolism of Jungian unconscious archetypes (the Self, the Old Wise Man and the Great Mother) has the highest effect on global positive impression of Internet advertising leading to the purchase of the product. The results of this study are important for Internet marketing in transition economies because they show that users are influenced by subliminal stimuli, even if they have some knowledge of neuromarketing and methods of social influence.

Keywords

Communication, consumer, global competitiveness, Internet advertising, Internet marketing, IT professionals, information technology, neuromarketing, purchase decisions, symbolism, transition economies, unconscious influence.

INTRODUCTION

In this paper we investigate the effect of archetypal symbolism in reception of information technology educational services advertising, based on the analytical psychology and its conscious and unconscious aspects and neuromarketing in online communication in Poland, a transition economy located in Central and Eastern Europe. The three research questions guiding our research are:

- Has conscious logical and informed assessment of aesthetics, value, usefulness, quality an effect on global positive impression of advertising leading to the purchase of the product?
- Have conscious and unconscious via archetypal symbolism, including colours by stimulating sensations, emotions, moods, associations, needs, values, psycho-physiological and overall response to the picture an effect on global positive impression of advertising leading to the purchase of the product?
- Has the archetypal symbolism of the Self, the Old Wise Man and the Great Mother the highest effect on global positive impression of advertising leading to the purchase of the product?

Our intended contribution is to expand the existing stream of research related to the knowledge of the influence of unconscious elements, in particular archetypal symbolism of the advertising on the attitudes of educational services on the Internet, in transition economies. Our work can cock a good complement to the analysis of the environmental impacts in marketing and advertising in the field of information technology in transition economies (Roztocki, and Weistroffer, 2008, 2009, 2011). We show that the impact factors can be studied unaware not only with the use of electronic devices, such as computer tomography, EEG and others, but also with qualitative projective methods. They are based on the theory of depth psychology, and combined with modern quantitative methods, especially statistical, guaranteeing accuracy and objectivity of the research.

The next part of the paper has following structure. The proceeding section contains short literature as also our earlier research review related to proposition of three main hypotheses. These hypotheses were tested using data from an enhanced and structured interview web, combining elements of qualitative research and structured survey conducted among IT professionals working in different regions in Poland. Next, the results of this research are presented and implications are discussed. After presenting some ideas for future research, we conclude the paper by outlying our contribution.

Background and Hypothesis

Neuromarketing, the unconscious and the concept C.G. Jung

The purpose of neuromarketing is to exploit measuring tools used in scientific research and knowledge of psychophysiological human behavior in the process of optimizing the marketing stimuli. Neuromarketing focuses on three areas that pertain to the development of traditional marketing research, creating a communication message according to neuroscientific knowledge and using neuro techniques to support the activity of marketing.

A significant gain[1] of neuromarketing is to use brain research indicating the unconscious processes involved in marketing activities. They are connected (subconscious processes) to make decisions on an offered product or performing a task (Hannaford, 2013, Suomala, Palokangas, Leminen, Westerlund, Heinonen and Numminen, 2012; Žaltman, 2003). This type of behavior to a large extent is related to the activity of the oldest right part of the brain. Other parts of the brain are involved in making decisions, while processes running in them are slower. The central part is responsible for the emotions that arise as a result of the sales incentive, and some left-associative processes for logical reasoning (Pradeep, 2010; Żurawicki, (2010). Studies have shown that a key to the success of manufacturers is the impact of the oldest parts of the human brain.

Neuromarketing is also open to different concepts and theoretical approaches that help to explain human functioning in marketing.

One such approach, which could bring interesting content and research proposals in the field of neuromarketing, is the theory of Carl Gustav Jung, the eminent disciple of Sigmund Freud. Jung as a result of thorough research work and long-term psychiatric and psychotherapeutic practice has developed a concept of personality (psyche) of man, in which a major role is played by unconscious processes[2].

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[1] *Unconscious processes - the mental processes that occur below the threshold of consciousness, independent of man's will.*

[2] Unconscious processes - in terms C.G. Jung contain a psychological reality, that is, beliefs, feelings, sensations derived both from experience and from the experience of the human species.

The psyche - conscious and unconscious

According to Jung (Jung 1962, 1989a, 1989b) the structure of the psyche consists of the conscious and unconscious. The elements of consciousness are: *ego* or 'I' units, responsible for the sense of continuity and identity of *the person*, which is a social personal representation of the *ego* that allows contact with other people and to adapt to the social environment, the *type of attitude* which expresses the direction of the flow of psychic energy that can be extravert or introvert and *mental functions* - thinking, feeling, perception, intuition, providing orientation to reality. The combination of such attitudes and mental function which creates a kind of psychological *type of preferences* of human beings which have an impact on their decisions and behavior in different situations. Today, psychological type is referred to as a type of personality. Some unconscious psyche consists of two levels. The first level is the *personal unconscious*, the content from the experience of the group to form mental complexes[3]. The second level is called. collective unconscious (archaic psyche) common to all mankind, which contains the reference response (instincts) and thinking, living and *human behavior* (archetypes). The center of the whole psyche of both the conscious and the unconscious is *the Self,* a self-focusing of all of one's human potential and one's functioning. According to Jung, during the life of the individual one is subject to constant change and transformation, they have the character development. This process aims to fully balance a person and arrive at internal integration and is called *individuation*.

Elements of the human psychic in neuromarketing

Each element of the human psychic structure presented by Jung could become interesting for neuromarketing. However, it seems that the functioning of the psyche due to the activity of the unconscious realm can provide new information, the more so as the latest research in neuroscience[4], to which the neuromarketing refers confirm the thesis of Jung's concept of the unconscious and the archetypes (Damasio, 1999; Gazzaniga, 1992 , Hoss, 2012; LeDoux, 1998, 2002, Panksepp, 1998).

Archetype as a key element of the collective unconscious that contains original ideas and patterns of behavior established in the psyche of man since the beginning of humanity. Archetypes express themselves well in the images and emotions. They are inherited along with the structure of the brain - in fact they represent the psychological aspect. This does not

[3] The complex is structured constellation of feelings, thoughts, perceptions and memories, it consists of a nucleus of the complex which is the archetype and its related groups of elements.

[4] The neuroscience research area of the brain that integrates different areas of expertise together starting from the morphology, biochemistry and physiology of the brain, the brain and genetics, psychology, and related areas of computer science and philosophy and ethics.

mean, however, that we inherit some ideas, rather we inherit more opportunities to express ideas. (Stevens, 2006).

Language by which the archetype *in se* may be perceived by consciousness and worked on, is the language of symbols.

It is possible to understand symbols, by which the archetypes are being expressed, as it can be understood that the specific messages are appearing through awareness of the image, metaphor, or allegory. Symbols are expressive and impressionistic, apart from the image containing meaning, in both fact and circumstances all at the same time, the link between the unconscious and the conscious part of the psyche. Symbols must be distinguished from the sign. The sign is the ratio between the significant and the signified. Most of the signs do not have their own ideas and values, but perform mostly instrumental value, such as road signs. The sign is quite clear, while the symbol has many meanings, and context dependency can be read differently.

Basic archetypes

Jung distinguished six basic archetypes representing the main types ~~of~~ governing human experience in a lifetime. These archetypes are the Shadow, Anima, Animus, the Great Mother, the Old Wise Man and the Self (the Ego) (Mead, 1993, Kowal and Węgłowska-Rzepa, 2009). In our research we concentrate on the last three of them.

The Shadow archetype represents unacceptable, repressed aspects of one's own psyche (the shadow of an individual), or is showing the dark, destructive side of humanity (the collective shadow). Its polar opposite is the wisdom and the knowledge contained in what is unwanted, crippled and weak. Symbolic representations of the Shadow are a beggar, a witch, a werewolf, drug addicts, alcoholics, a dragon, monster, Satan, death, hell and war.

The Anima Archetype reflects the feminine aspect of the male psyche and represents the emotional and intuitive way. In terms of the hallmarks of excessive negative capriciousness and emotional instability, in terms of positive recognition - balanced sensitivity and empathy. Personification of this archetype are a female seductress, princess, woman *femme fatale*, female witch or a whore.

The Animus Archetype is in addition to the aspects of the female psyche of men. It reflects the logic of thinking, the ability to argue and decision making. These features may be present in positive and negative marking. When there is an excessive increase of mental aspects of the Animus, the woman becomes too masculine, when there are too few women take on the characters of naivety and childishness.

The archetype of the Great Mother is the image of a spiritual mother and maternal attitudes. It expresses the universal law of life and death. Typical of this archetype is the environmental movement vegetarianism, the great goddess worship, and matriarchy. The positive aspect of the Great Mother represents the characteristics of welfare, vitality, sensitivity and kindness. In the negative - characteristics associated with domination, destruction and death, as well as spells and magic. The symbols of this archetype are often images of the goddess, mature woman, parent or mother nature.

The archetype of the Old Wise Man reflects the wisdom of the culture and all its spiritual aspects. Positive features, maturity, ability to integrate and co-operation based on both the emotional elements and rational sense of the ability to perform miracles or knowledge of the mystical arts. The negative aspects of this archetype are pride, vanity, overconfidence or abuse of power. The Old Wise Man is symbolized by the prophet, seer, Lord spiritual guru, therapist, healer, magician, wizard and the king.

The archetype of the Self (the Ego) represents fullness, completeness and synthesis of opposites in perfect harmony. It expresses a move towards the target and increases the motivation to act in spite of opposites. It is symbolized by the magic number, mandalas, images of the cross, four, wheels, and God. It corresponds to the religious and mystical experiences (Kowal and Wegłowska-Rzepa, 2009).

The use of the concept of C.G. Jung's in marketing and advertising

Application of analytical psychology of C.G. Jung's in marketing and business already has its own story. The most frequently used is the concept of psychological types based on the MBTI questionnaire (Bayne, 2005; Brancaleone and Gountas, 2007, Briggs-Meyers, McCaulley, Quenk, and Hammer, 1998). Another area is the use of the concept of the unconscious and the archetypes in order to better understand brands and consumer behavior. (Mark and Pearson, 2001). Jung's concept in terms of personality development and the Persona archetype is used to conduct research on the importance of working for the development and life of employees (Svendsen, 2008). The idea of living in crisis moved into the business world shows the risks that are associated with this issue for managers and the organizations that they manage. The problem with the use of Jung's concept is discussed by A. Storr (1991). Another problem is the aging of the population and the potential that older people have the experience, knowledge and wisdom. Understanding the needs of this social group provides opportunities for the development of marketing strategies appropriate for older audiences. However, this requires understanding of the psychological transformations that occur in late adulthood and connections inherent in this age of potential energy, mobility and the creativity of young with people of age (Moschis, 1992).

Research on advertising

Jung's interest in the concept can also be found in the advertising market. Advertising is a form of communication and communication with the customer. In many ads there are images, symbols and motifs inspired by Jungian archetypes. The analysis is based on ~~the~~ finding advertising links between themes and images used in advertising and archetypes, to demonstrate their attractiveness and the impact on consumers by gender, as well as referencing ads to specific values (Konecki and Potomska, 2002; Maso-Fleischman, 1997; Panteado, 1997; Siemaszko, 2003, Williams, 2002). There have also been studies examining whether there is a difference between archetypal and nonarchetypal advertisements in remembering their content, in their opinion, emotional evaluation, as well as to recognize the advertised brands and their preferences (Gorbaniuk and Malek, 2005). The authors of this study showed that the archetypal ads were not more effective than non-archetypal advertising in the impact on customers. They explained this effect, inter alia, the more complex image-based archetypal ads and excitation of their mixed feelings, they may act defensively for remembering the information contained in the advertisement.

In our study of advertising (2002-2012) we concentrated on the types of archetypal symbols appearing in commercials, their preferences by customers and the impact on consumer behavior by communication (Kowal and Weglowska-Rzepa, 2002, 2004, 2009; Weglowska-Rzepa and Kowal, 2002a, b). Comparison of the impact on the public of archetypal symbolism of advertisements with the archetypal symbolism of images that are not advertising in the context of preference data symbols and their significance for the process of development (individuation) of respondents (Weglowska-Rzepa, 2006). See also the possibility of using images containing archetypal symbolism in the study of the functioning of the managers (Weglowska-Rzepa and Kowal, 2012)[5].

In our study in 2013 we examine the effect of archetypal symbolism in reception of information technology educational services advertising, based on the unconscious and neuromarketing in online communication in Poland, a transition economy. We assume that there is conscious and unconscious impact on consumer attitudes and global positive impression of advertising via archetypal symbolism, including colours by stimulating

[5] *We analyzed the importance of archetypal symbolism for samples in Polish, Korean and Philippino in terms of cultural differences.*

sensations, emotions, moods, associations, needs, values, psycho-physiological reactions and overall response to the picture.

For the reasons above, we formulate the following hypotheses:

Null Hypothesis H01: The symbolism of the Self, the Old Wise Man and the Great Mother doesn't have the highest effect on global positive impression of advertising leading to the purchase of the product (education services in the field of information technology)

Alternative Hypothesis HA1: The symbolism of the Self, the Old Wise Man and the Great Mother has the highest effect on global positive impression of advertising leading to the purchase of the product (education services in the field of information technology)

Null Hypothesis H02: Conscious and unconscious via archetypal symbolism, including colours by stimulating sensations, emotions, moods, associations, needs, values, psycho-physiological and overall response to the picture has no effect on global positive impression of advertising leading to the purchase of the product (education services in the field of information technology)

Alternative Hypothesis HA2: Conscious and unconscious via archetypal symbolism, including colours by stimulating sensations, emotions, moods, associations, needs, values, psycho-physiological and overall response to the picture has an effect on global positive impression of advertising leading to the purchase of the product (education services in the field of information technology)

Null Hypothesis H03: Conscious logical and informed assessment of aesthetics, value, usefulness, quality has no effect on global positive impression of advertising leading to the purchase of the product (education services in the field of information technology)

Alternative Hypothesis HA3: Conscious logical and informed assessment of aesthetics, value, usefulness, quality has an effect on global positive impression of advertising leading to the purchase of the product (education services in the field of information technology).

Our research model is depicted in Figure 1.

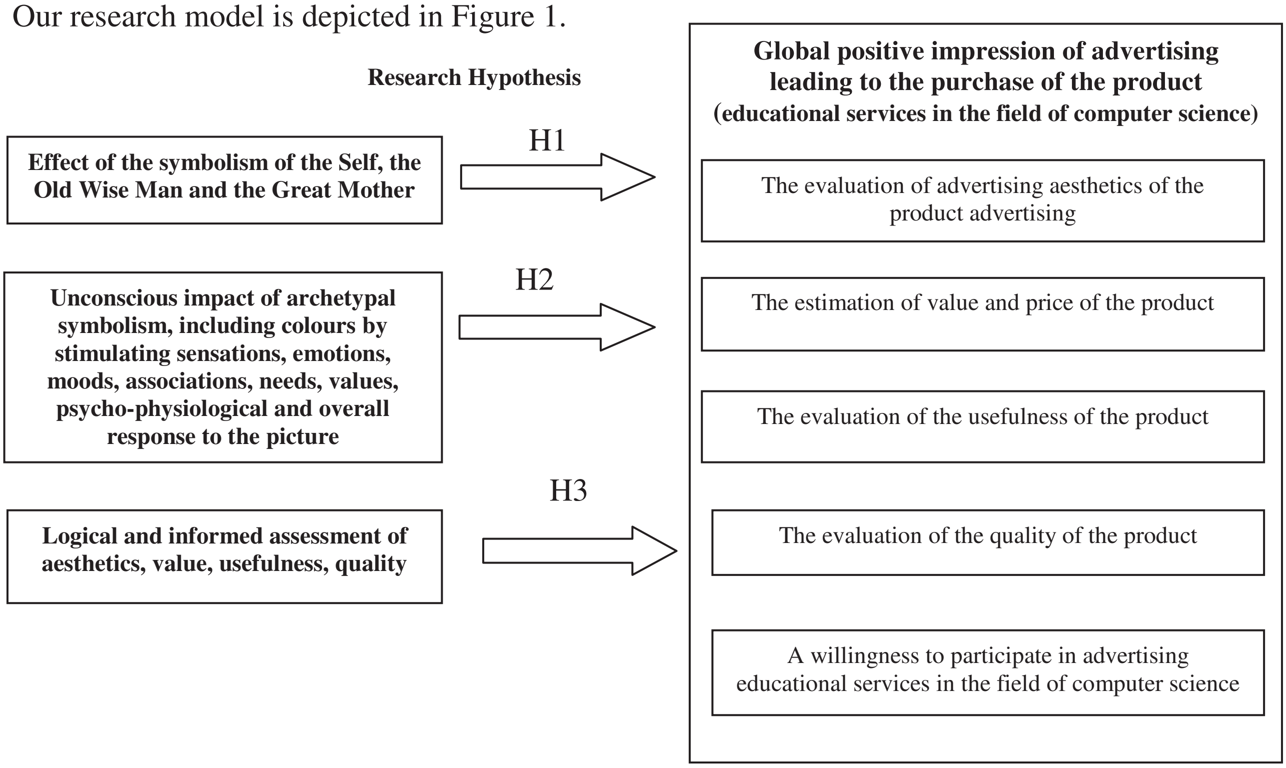

Figure 1. Research Framework

Methodology

To test the three research hypotheses, we decided to use a qualitative and quantitative method such as an enhanced and structured interview web, combining elements of qualitative research and structured quantitative survey.

Research Questionnaire

For the purpose of our data collection, we decided to use elaborated by us earlier extended survey instruments like Dimension of services advertising valuation (see Kowal, Janda-Dębek, Kuczyńska 1998), and projective method 'Symob' (Węgłowska-Rzepa and Kowal, 2008-2012) . The survey structure and questions are depicted in Appendix A and on the website: **http://moje-ankiety.pl/respond-49951.html**.

The questions test contains' Dimensions of services advertising valuation', like 'Aesthetics', 'Interest', 'Value and price', 'Usefulness', 'Quality', 'A willingness to participate in advertising', 'A willingness to purchase advertising educational services in the field of computer science'.

The dimension of 'Unconscious impact of archetypal symbolism, including colours by stimulating sensations, emotions, moods, associations, needs, values, psycho-physiological and overall response to the picture' comprises 'Associations', 'Impressions of picture symbolism', 'Calling emotions and moods by advertising', 'Positive emotions', 'The strength of positive emotions induced', 'Negative emotions', 'The strength of negative emotions induced', 'Calling needs by advertising', 'The strength of needs induced', 'Calling values by advertising', 'The strength of values induced', 'Impressions of picture colours', 'Calling emotions and moods by colours in advertising', 'Calling psycho-physical reactions', 'Usefulness-utility', 'Opinion s- attitudes towards neuromarketing and manipulative techniques'.

Research Questionnaire Adaptation and Testing

The test questionnaire in Spring of 2013, the first author invited a small group of IT professional working in various companies in Wroclaw, Poland to participate in a pilot survey. The validation included the method of competent judges, items discriminatory power, scales validity (CFA) and reliability (Cronbach's α) analysis. For all dimensions, standardized Cronbach's alpha coefficients were greater than 0.8.

Participants and Data Collection

The data collection was conducted by the first author via an enhanced and structured interview web, combining elements of qualitative research and structured survey posted on the website of the College of Management Edukacja, located in Wroclaw, Poland. Invitations to taking part in our research were sent by the first to a random sample of IT professionals working for enterprises that are located in different regions in Poland. From April to June 2013, 52 participants completed the on-line questionnaire, as depicted in Table 3.

Variables and categories	**Quantity**	**Percent**
Age in years		
less than 24	9	5
24-34	15	42
34-44	11	37
44-54	11	11
55-65	5	5
Gender		
Female	31	60
Male	21	40
Education		
High school	3	6
Bachelor	29	55
Master	9	18
Doctor	8	16
Missing values	3	6

Variables and categories	Quantity	Percent
Firm size		
Micro – up to 9 people	7	14
Small – from 10 to 49 people	10	20
Medium – from 50 to 250 people	17	33
Large – from 250 people	17	33
Level of salary		
Much lower than average	8	16
Lower than average	11	22
Average level	18	35
Above average	11	22
Much above average	3	6

Table 1. Sample Characteristics (N=52)

The tested population seems to be representative for IT professionals, who work in Poland. For example, about 67 percent of the respondents work in companies with 250 or less employees. Due to the information published by the Polish Agency for Enterprise Development (2010), just about 70 percent of employees in Poland were working in companies with 250 or less people.

Statistical Methods

The statistical optimization method was applied to test of population representativeness. Testing variables comprised: age in years , gender, level of education, the firm size, level of salary (Kowal and Węgłowska-Rzepa 2002).

Measurement scales and statistics methods

The analysis was based on the continuous, ordinal and binary coded variables. The statistical measures were applied due to variable scales. There were used descriptive statistics and the methods of statistical deduction. The methods of the point estimation, the section estimation and the statistical hypotheses verification were applied to generalize conclusions from the research sample to a general population. Statistically significant results and conclusions were presented only.

Results

H1. The biggest influence on opinion concerning the aesthetic, interest in the product, the assessment of price, usability, quality, and willingness to use the educational services in the field of computer science had the symbolism of the Self (picture of a landscape with the sea), the Old Wise Man (picture of a Buddhist physician), the Great Mother (picture of a harvest field).

The symbolism and color of a given image affect rather unconsciously the opinion in terms of the evaluation of aesthetics, price value, usability, quality, and willingness to use and purchase the service by arousing excitement, emotion and mood, which imply connotations associated with the needs and values. They can be seen by liking or dislike towards certain symbols and colors, and the occurrence of mental and physical reactions. These are usually the first reactions, not subject to rational treatment that requires time. The most common tastes, sensations, moods and emotions are described below.

Analysis of election of archetypal symbolism and color

Respondents were asked seven questions related to aesthetics, popularity of the product, evaluation of price, quality, usefulness, willingness to use and purchase of educational services in the field of computer science. Questions and corresponding percentage distribution is shown in the table below.

	Dimensions of services advertising valuation	**Harvest fields**	**Buddhist physician**	**Lanscape with sea**	**Sum**
1	Which picture do you like best?	27	6	47	100
2	Which image, according to you should be used to advertise such product as educational services, that would attract the strongest interest in the product?	8	35	20	101
3	In your opinion, the presence of which image at the advertised education service of computer science serves best its sale and could raise its price value most?	10	22	35	101
4	How do you think the image qualities of the image can affect in the most positive sense, the quality of the presented services?	22	24	29	101
5	In your opinion, the presence of which image at the advertised service would increase most positive feedback on its usefulness?	20	31	20	101
6	In your opinion, the presence of symbols and colors of what image would evoke the strongest desire to participate in advertised learning service learning?	16	16	39	101
7	In your opinion, advertising of educational services using symbolism of which image would encourage you to purchase the service, if you had the money?	8	24	39	101
	Sum, average=98,3	111	160	229	

Table 2. Response distribution concerning Dimensions of services advertising valuation (N=52)

Landscape with the sea.

Analysis of response structure in percentage. The majority of respondents most liked the symbolism of the landscape with the sea (47%). Also, the highest percentage of people decided that the symbolism of that image would serve the best selling educational services in the field of computer science and could raise its price value (35%), its characteristics may affect most strongly the positive sentiment concerning the quality of the presented services (29%). The presence of symbolism and color image would arouse strongest desire to participate in the promoted service learning (39%), what is more, advertising educational services with the use of the landscape with the sea symbolism would encourage the respondents to purchase the services if they had the money (39%).

Correlation analysis.

Basing on the analysis of statistically significant positive correlation, at least moderate strength (from 0.4 to 0.6) and regression models, in the opinion of 76% -78% of the respondents, advertising with symbols and colors of the landscape with the sea was most liked, and it would establish the greatest desire to attend and purchase the educational services in the field of computer science, it would serve the best of the sale and could raise its price value most, it would also increase the most positive opinion on its quality and usability. The symbolism and color of the picture in the opinion of respondents provides a high quality impression connected to the product, creates the mood and emotions of peace, relaxation, social support, and the color blue appearing in it is ecological and corporate in characteristics, and orange – is a symbol of good contact. Correlations of aspects of aesthetics, value, quality, utility, willingness to participate in the service and its purchase with the aforementioned traits were positive, of at least moderate strength.

The canonical correlation between the first impression associated with liking of the image and overall, total assessment of value, usefulness, quality, willingness to participate and purchase is statistically significant, it equals 0.3, so its strength is of a little less than moderate.

Buddhist physician.

Analysis of response structure in percentage. The symbolism and color of a picture of a Buddhist physician used in the advertised service would increase the most positive feedback on its usefulness according to 31% of the group, whereas in the opinion of 35% - the picture should definitely be used to advertise a product in the field of the educational services, as the picture would attract the strongest interest in the advertised product.

Correlation analysis.

Some people preferred to choose the image of a Buddhist doctor, as it is had the strongest appeal, it would enable them to purchase services in case if they had money. These people also considered that the symbolism of the picture was to improve the sense of price value and utility. Picture of a Buddhist doctor raised environmental associations. At the same time respondents pointed out that the colors of yellow, gold and brown were typical of enthusiasts of the product, the color turquoise stands for high quality and luxury, and black represents the impression of protectiveness. Those who preferred the image of Buddhist physician observed that it is easier for them to remember certain things and facts. The above-described conclusions were drawn on the basis of not only a statistically significant correlation (correlation was positive, of at least a moderate strength, from 0.4 to 0.6) but also the regression model, which related to about 75% of cases.

Harvest fields.

Analysis of response structure in percentage

Subsequently, the most liked picture was of harvest fields (27%), it was in third place (20%) due to the advantages that can affect the most positive sense in reference to the quality of the presented services. Together with the marine landscape (20%) it was marked as important for increasing positive opinion on the usefulness of the product and in the second place (with a Buddhist doctor 16%) in terms of inducing the strongest desire to participate in service learning promoted.

Correlation analysis

The respondents associated usability, quality, willingness to participate and purchase of services with harvest fields most, but usually together with a picture of a Buddhist doctor landscape with the sea. According to the respondents the symbolism of these images can increase their value. It is interesting that the people who considered the symbolism of harvest fields as increasing the feeling of usefulness of educational services, observed some psycho-physical reactions associated with symbols and colors of a Buddhist doctor such as goosebumps, the overall increase in tension in the body, faster and varied associations. Harvest fields rather induced sedation and changes in visual acuity. The study participants also stressed that actions using handling and neuromarketing techniques can serve organizational development, reducing unemployment and increasing prosperity, they are considered to be ethical, thus, can be used. Such opinions were very often expressed by sellers, persons engaged in hotel and restaurant business, people with science background and persons with no children. All correlations, on the basis of which the above conclusions were drawn, were positive, with strength from 0.4 to 0.5. Regression models developed on their basis fit to 78% of cases.

Sensations, emotions and moods occurring in contact with the rated picture.

Sensations, emotions and mood occurring in contact with the rated picture often appear as unconscious as a reaction to stimuli presented and they have influence on decisions about interest in and purchase of the product.

Sensations, emotions and moods evoked by the pictures are shown below in Table 3.

	Impressions – images – archetypal symbolism	Harvest fields	Buddhist physician	Landscape with the sea
Impressions evoked in respondents by pictures	passionate about the product	10	35	10
	gambler	4	4	0
	play, playful	12	16	27
	approachable	25	20	16
	ecological	63	12	24
	conservative	10	37	2
	elegant	4	16	12
	high-quality, elegant	6	8	29
	powerful	2	4	35
	overwhelming, dreadful	6	12	16
Moods, emotions in advertising that respondents would like to call up by the symbolism used in images	light	43	12	20
	serious	12	25	6
	corporate, social	12	22	20
	exciting	4	6	37
	compassionate and caring	10	29	6
	happy	31	14	39
	contacting	8	14	14
	calm, relaxed	29	12	33
	creative, ingeniuos	14	33	37

Table 3. What impressions do the presented images evoke in you? Distribution of responses in percentage.

Percentage distribution of responses with reference to the mood and impressions evoked by the archetypal symbolism of all images.

About 60% pointed to harvest field (the symbolism of the Great Mother) as the best ecological symbol, more than 20% associated the term 'powerful' with the landscape with the sea (the symbolism of the Self).

The mood and emotions that respondents would like to evoke in advertisement recipients are related primarily to the landscape with the sea, which, to more than 35% of the respondents, is creative, peaceful, happy, exciting and powerful symbolic. A slightly smaller percentage of people (about 30%) pointed to the symbolism of the Buddhist doctor, evoking on one hand a very creative, compassionate and caring mood, but on the other - also a feeling of passion and conservatism towards the product.

The picture of harvest fields evoked impression connected to ecology (over 60%), whereas the dominant moods and emotions aroused were - lightness and happiness (over 30%).

Negative impressions linked to expressions 'overwhelming and dreary', were not high in the selected images. Most respondents (16%) commented in this way in relation to the picture landscape with the sea.

Attempt to create the mood and emotions related to creativity and ingenuity through symbolism and colors of the landscape with the sea is often accompanied by greater strength of positive emotions attached to them (r = 0.4).

Impressions concerned with colors

The questions concerning impressions connected to colors that accompany the pictures brought the following answers:

- passionate about the product: red (18%), orange (18%),
- risk: red (43%), orange (20%),
- play, funny: yellow (25%), pink (22%), turquoise (22%),
- approachable: blue (14%), green (22%),
- ecological: green (57%),
- conservative: black (24%), silver (24%), brown (20%),
- elegant: blue (18%), black (35%), silver (20%),
- high quality, elegant : black (16%), silver (20%),
- powerful, giant: red (24%), black (33%),
- overwhelming, dreary: black (37%), grey (31%).

Moods, emotions in advertising associated with colors appearing in the pictures in the opinion of the IT specialists should be:

- light: blue (18%), pink (16%), turqoise (18%),
- corporate, social: blue (16%), yellow (12%), green (14%),
- exciting: red (18%), orange (12%), pink (12%), turqoise (14%),
- contacting: blue (16%), green (29%),
- calm, relaxed: blue (14%), green (31%),
- creative, imaginative: blue (18%), orange (22%), green (14%), violet (14%),

Advertising would be repulsive, damaging to the company, if the colors used would be: black (39%), brown (16%), grey (20%).

Analysis of associations.

	1. Landscape with the sea:	2. Buddhist physician:	3. Harvest fields:	Sum, average=15,5
Knowledge and experience	6	10		16
Peace, rest	14		7	21
Spirituality, exotic	16	10		26
Health		8		8
Wildlife, nature			11	11
Care, memories, work			11	11
Sum	36	28	29	93
Chi-square = 100,5; df=10; p<0,0001; Vc=0,73,				

Table 4. Associations with pictures and their symbols - distribution in numbers

The analysis of the associations of images and their symbolic shows a strong correlation (Vc = 0.73) between the type of associations and the type of image symbolic. Thus, knowledge and experience were often associated with Buddhist doctor and rest with the landscape with the sea, spirituality and exotic were also associated with the landscape with the sea, health with a Buddhist physician, nature and care, memories and work with harvest fields.

It can be assumed that the images used in educational services selected by the respondents indicate a role ascribed to educational services in contemporary culture. The knowledge and experience acquired in the course of education should not only incorporate spiritual and even exotic aspects but should also connect to the possibility to experience peace and rest. This aspect can also be interpreted as not overloading the potential users with abundance of information, responsibilities and requirements. Educational services should also facilitate keeping in mind the memories and events of the past that are part of the history and culture of the community, and should indicate the importance of wildlife and nature. All the above mentioned associations consequently constitute human health. Thus, it can be said that the 'healthy' education should include all the table above aspects from the table as important in the promotion of services in this area.

Analysis of needs

Needs evoked by the images and their symbolism are presented in the following table.

Categories	1. Landscape with the sea:	2. Buddhist physician:	3. Harvest fields:	Sum, average=8,0
Rest and peace	10		6	16
cognitive	7	8		15
aesthetic	4			4
health		6		6

Categories	**1. Landscape with the sea:**	**2. Buddhist physician:**	**3. Harvest fields:**	Sum, average=8,0
Protecting oneself			4	4
satiety			3	3
	21	14	13	48
Chi-square = 52.5; df=10; p<0.0005; Vc=0,74				

Table 5. Needs evoked by the images and their symbolism - distribution in numbers

An analysis of the needs evoked in contact with the three analyzed images shows that the landscape with the sea was often combined with the need for relaxation and tranquility, whereas cognitive needs occurred to a similar extent in case of not only the landscape with the sea but also the Buddhist doctor; aesthetic needs appeared under the influence of the landscape with the sea, whereas health needs were triggered in case of the image of the Buddhist doctor, and the need to take care of yourself and satiety was observed in case of the harvest fields image. The correlation between the evoked needs and the symbolism of the three images was very strong and it equaled 0.73.

It can be stated that the pictures chosen to advertise educational services in the first place evoked the need for rest, peace and cognition, and later the needs related to health, feeling of security and aesthetics.

Values associated with symbolism of images.

Categories of values indicated by the respondents were strongly correlated with the pictures elected by them (Vc = 1, see the following table).

Values	**1. Landscape with the sea:**	**2. Buddhist physician:**	**3. Harvest fields:**	**Sum, average=5,2**
cognitive - spiritual	8			8
authority		6		6
connected to work			6	6
humanitarian		5		5
spiritual values			4	4
connected to peace and relaxation	2			2
Sum	10	11	10	31
Chi - square = 21; df=10; p<0,00001; Vc=1				

Table 6. Values associated with images and their symbolism – distribution in numbers

Cognitive and spiritual values associated with peace and rest were present in case of the landscape with the sea, authority and humanitarian values emerged in relation to the image of the Buddhist doctor, whereas work-related and spiritual values - with a picture of harvest fields.

Taking into account all the types of values found in the table it can be stated that the advertisements related to educational services should firstly relate to the cognitive and spiritual values as well as they should present a role model of an authority and show the importance of work. Next, the advertisement should refer not only to the humanitarian and spiritual values but also to peace and rest.

Positive emotions

Positive emotions	Harvest field	Buddhist physician	Landscape with the sea	Sum
security and trust	1	3	1	5
bliss and happiness	1	0	1	2
hope	0	0	1	1
nostalgia	1	0	0	1
rest	1	0	1	2
repose	0	0	1	1
composure	0	1	0	1
relaxation, tranquillity	5	4	6	15
freedom	2	0	0	2
liking	0	1	0	1
calming	0	0	1	1
interest	0	0	1	1
satisfaction	0	0	1	1
meditation	0	1	0	1
Sum	11	10	14	35
Chi-square = 25.7 ; df=26; p<0.5 ; Vc= 0,6				

Table 7. Summary of positive emotions in numbers

The most frequent positive emotions were: relaxation and peace (15 indications in similar proportions in all three pictures), slightly less appearing - security and trust (5 responses).

Correlations between categories of emotions and images were not statistically significant and they were difficult to generalize. Significant correlations mainly concerned the strength of emotions. Sometimes respondents had difficulties to name their emotions and give verbal response, but they emphasized the strength of emotions instead that occurred when looking at the picture. The higher the power of positive emotions in the symbolism and color of the landscape with the sea, the more the respondents would like to use it in advertising of educational services to generate an exciting mood (r = 0.5 It is worth noting that the subjects often stated a greater power of positive emotions and values for the symbols and colors of harvest fields (r = 0.5) and the landscape of the sea (r = 0.4), pointing at the same time to the color grey as 'overwhelming and dreary'

Clearly positive emotions are linked with return to nature, associations with freedom, peace, relaxation, and spirituality.

The most frequent positive emotions induced by the selected images focused on relaxing, peace, security and trust. Educational service is likely to get the interest of the public, if such emotions were aroused.

Negative emotions evoked by symbolism and color of images are shown in the table below.

Negative emotions	Harvest field	Buddhist physician	Landscape with the sea	Sum Average=2,1
fear, dread, anxiety	1	2	4	7
uncertainty, weakness		1	2	3
Depression			1	1
boredom and stillness	1	1	1	3
Distrust		1		1
Infirmity		1		1
Reluctance	1			1
Repetitiveness	1			1
Emptiness	1			1
Suma	5	6	8	19
Chi-square = 16.3 ; df=16; p<0.8 ; Vc= 0.7				

Table 7 Summary of negative emotions in numbers

Most negative emotions were aroused by the picture of the landscape with the sea (8), followed by the image of the Buddhist doctor and harvest fields (6; 5). Negative emotions such as fear, dread and anxiety were the most numerous and occurred mainly at the picture of the landscape with the sea (4). Other types of emotions like uncertainty, weakness, boredom and peace had fewer indications (3). Other negative emotions appeared in single numbers.

Analyzing the strength of positive and negative emotions caused by the different archetypes - it can be seen that only in the case of the archetype of the Self - the landscape of the sea (the highest average for positive emotions, more than 4, on a scale of 1 to 5), clearly positive emotions were dominating, whereas in case of the archetype of the Wise Old Man it was to a lesser extent (the average for positive emotions around 3). For other archetypal images the power of positive emotions did not differ statistically from the negative. The least negative emotions aroused lady with an ermine (average 2.18) and the Buddhist physician (average 2.25).

Strength of emotions	Positive emotions		Negative emotions			
	Average	**Standard deviation**	**Average**	**Standard deviation**	**Test statitsics t**	**Observed probability level p**
Harvest field	2.92	2.02	2.51	2.06	1.43	0.16
Buddhist physician	2.90	1.98	2.25	1.93	2.20	0.03
Landscape with the sea	4.02	2.02	2.61	2.10	4.01	0.00

Table 8. The comparison of the strength of positive and negative emotions – the results of Student's test

Respondents who chose the image of Buddhist physician and in response to it showed negative emotions at the same time pointed to the color black as funny (Pearson linear coefficient r = 0.4) and contact (r = 0.4).

Symbolism	Needs	Needs	Values	Values	Positive emotions	Positive emotions	Negative emotions	Negative emotions
Statistics	Average	Standard deviation	Average	Standard deviation	Average	Standard deviation	Average	Standard deviation
Harvest field	2.71	2.11	2.51	2.14	2.92	2.02	2.51	2.06
Buddhist doctor	2.63	2.15	2.96	2.31	2.90	1.98	2.25	1.93
Landscape with the sea	3.08	2.37	2.67	2.24	4.02	2.02	2.61	2.10

Table 9. Comparison of the strength of the needs, values, emotions, positive and negative emotions, evoked by the respondents

Colors and symbols of images caused the emergence of positive emotions, which was the most apparent in case of the landscape with the sea (the average about 4). The next revealed needs appeared in the following order: landscape with the sea (average about 3).

The majority of respondents stated the greater strength of positive emotions, and values for the symbols and colors of harvest fields (r = 0.5) and the landscape of the sea (r = 0.4), pointing out at the same time to color grey as 'overwhelming and dreary'.

Taking into account the educational services it is worth remembering that both the excess of induced fear and anxiety, and an excess of boredom and peace additionally combined with grey are not preferred. In the case of the analyzed images positive emotions dominate over negative ones, which in the context of other results gives them an advantage over other images to advertise the proposed educational services.

Psycho-physical reactions induced by advertising

Percentage summary of psycho-physical reactions are presented in table 10.

Reactions	Harvest fields	Buddhist physician	Landscape with the sea
presence of psycho-physical reactions	14	8	12
faster/slower heart rate	14	8	10
changes in breathing	10	6	25

Reactions	Harvest fields	Buddhist physician	Landscape with the sea
perspiration	12	10	6
saliva release	8	2	8
changes in muscle tension	14	6	22
movement of the stomach and intestines	6	14	8
goosebumps	2	6	22
overall increase of body tension	10	6	12
changes in visual acuity	25	4	33
changes in voice (lower/higher pitch)	8	14	8
faster thinking	6	22	25
faster and more varied associations	16	10	22
better remembering different things	16	12	25
increase/decrease in body temperature	10	8	14
overall increase in tension in the body	10	14	27

Table 10 Psycho-physical reactions induced by advertising - frequencies

The image of the landscape with the sea caused the strongest reactions and was dominated by: changes in visual acuity (33%), an overall increase of emotional tension (27%), changes in breathing (25%), faster thinking (25%), easier remembering different things (25%).

H2. The effect of conscious and unconscious via archetypal symbolism, including colours by stimulating sensations, emotions, moods, associations, needs, values, psycho-physiological and overall response to the chosen pictures

To verify the three main hypotheses and answer the research questions, the Pearson's linear correlation coefficients, Cramer's V correlation coefficients and multiple regression correlation coefficients were used, as depicted in Table 11, Table 12 and Table 13. We could observe and better interpret the tendencies of effects , where the correlations are significant and have at least moderate strength.

Variables	Global impression	Usefulness
Total psycho-physical reactions	0.7	0.7
Utility- **u**sefulness	1.0	1.0
Needs – symbolism	0.5	0.4
Values - symbolism	0.4	0.3
Positive emotions – symbolism	0.4	0.4
Negative emotions – symbolism	0.4	0.4
Associations - the sum – symbolism	0.3	0.3
Colours + impressions	0.5	0.4
Colours + emotions. Moods	0.7	0.7

Variables	**Global impression**	**Usefulness**
Colours	0.6	0.6

Table 11. Correlation Matrix for general dimensions of the research (Pearson Correlation Coefficient. N=52. one tailed probability p<0.05)

It could be seen from the Table 11 that there are strong enough positive correlations between unconscious aspects of advertising perception (psycho-physical reactions. needs. values. emotions. associations. impressions and moods caused by symbolism and colors) and global impression and usefulness of advertising. which confirms our hypothesis number H2. It is puzzling that even the negative emotions in relation to some kind of symbolism or colors can increase the interest in the advertised service. The analysis of canonical correlations and regression models indicated that relationship between the group of unconscious factors mentioned earlier and global impression of product (educational services in the field of information technology) advertising is strong. The multiple regression coefficient is equal to R= 0.7 and concerns about 50% of IT specialists.

Dependent variable - Global positive impression of advertising leading to the purchase of the product; Independent variable – SR1+total: the best predictor: Sum of psycho-physical reactions					
Variables	**Pearson's linear correlation coefficient r**	**Standardized regression coefficient b***	**Source regression coefficient b**	**Degrees of freedom t(46)**	**Observed two-tailed probability p**
Constant			10.02	2.73	0.02
SR1+total: Sum of psycho-physical reactions	0.69	0.62	0.69	3.00	0.01
R= 0.64 R^2=0 .54; Corrected. R2=0 .38; p<0.05; N=51					

Table 12. Linear regression model for the dependent variable - Global positive impression of advertising leading to the purchase of the product

As you can see from the Table 12 the best predictor of global positive impression of advertising leading to the purchase of the product is as an independent variable – sum of psycho-physical reactions. Psychophysical responses arise as a result of the impact occurring under the influence of archetypal symbolism. including color. associations. needs. emotions and values. The tendency concerns about 38% of IT specialists. This phenomenon is illustrated by Table 12 and Table 13, where it can be seen some detailed strong enough correlations between respondent's opinions – reactions and overall increase of emotional tension – as a sum of psycho-physical reactions.

Respondents' opinions	Overall increase of emotional tension – as a sum of psycho-physical reactions
1. Orange is an exciting color in advertisement	0.66
2. Stronger impressions are evoked by color red	0.64
3. Color gold in advertising stimulates moods and emotions associated with creativity and ingenuity	0.64
4. Color gold used in advertisement is repulsive and destructive color in the ad is gold	0.64
5. Yellow is an exciting color in advertisement of educational services	0.47
6. Turqoise is a contact color in advertisement of educational services	0.47
7. It would be broadening of possessed skills for personal use	0.46
8. I realise that I am under subconscious influence of color and symbolic stimuli.	0.46
9. Color grey used in advertisement of educational service might evoke the feelings or mood of play or joyfulness	0.45
10. Brown is the color that evokes lightness in advertisement	0.45
11. Violet is the color that is repulsive and damaging in advertisement	0.44
12. Landscape with the sea evokes more associations with needs	0.43
13. Yellow is an high-quality and luxurious color in advertisement of educational services	0.43
14. Silver used in advertisement evokes the feeling of lightness	0.43
15. Buddhist physician causes quicker and more varied associations	0.42
16. Turquoise used in advertisement evokes the feelings and mood of lightness	0.42
17. Red is the color that evokes creativity in advertisement	0.42
18. Blue used in advertisement is an ecological color	0.42
19. Landscape with the sea evokes bigger strength of needs	0.40
20. Red used in advertisement is exciting	0.40
21. Respondents passionate about their product use color gold	0.40
22. Respondents passionate about their product use color yellow	0.40

Table 13. Summary of Pearson correlation coefficients between the opinions of respondents and the general increase of emotional tension (N-52)

H3. The effect of logical and informed assessment of aesthetics. value. usefulness. quality

Analyzing the conscious choices of respondents in the evaluation of educational services in the advertising field of information technology. it can be seen that the largest impact on global positive feelings about the advertised service training and a willingness to purchase information technology services has its aesthetics (b*=0.6). the possibility of interest (b*=0.6) and the usability (b*=0.2). (Table 14).

Dependent variable - Global positive impression of advertising leading to the purchase of the product

Variables	**Pearson's linear correlation coefficient r**	**Standardized regression coefficient b***	**Source regression coefficient b**	**Degrees of freedom t(46)**	**Observed two-tailed probability p**
Constant			6.75	90.76	0.00
Advertising LIKE	0.5	0.6	1.19	3.96	0.00
Advertised service is useful	0.3	0.2	0.28	2.30	0.03
Advertised service is of interest	0.6	0.5	0.68	4.51	0.00
R= 0.74 R^2=0 .54; Corrected. R2=0 .50; p<0.05; N=52					

Table 14. Multiple regression model for the dependent variable - Global positive impression of advertising leading to the purchase of the product

Our results of research model testing is depicted in Figure2.

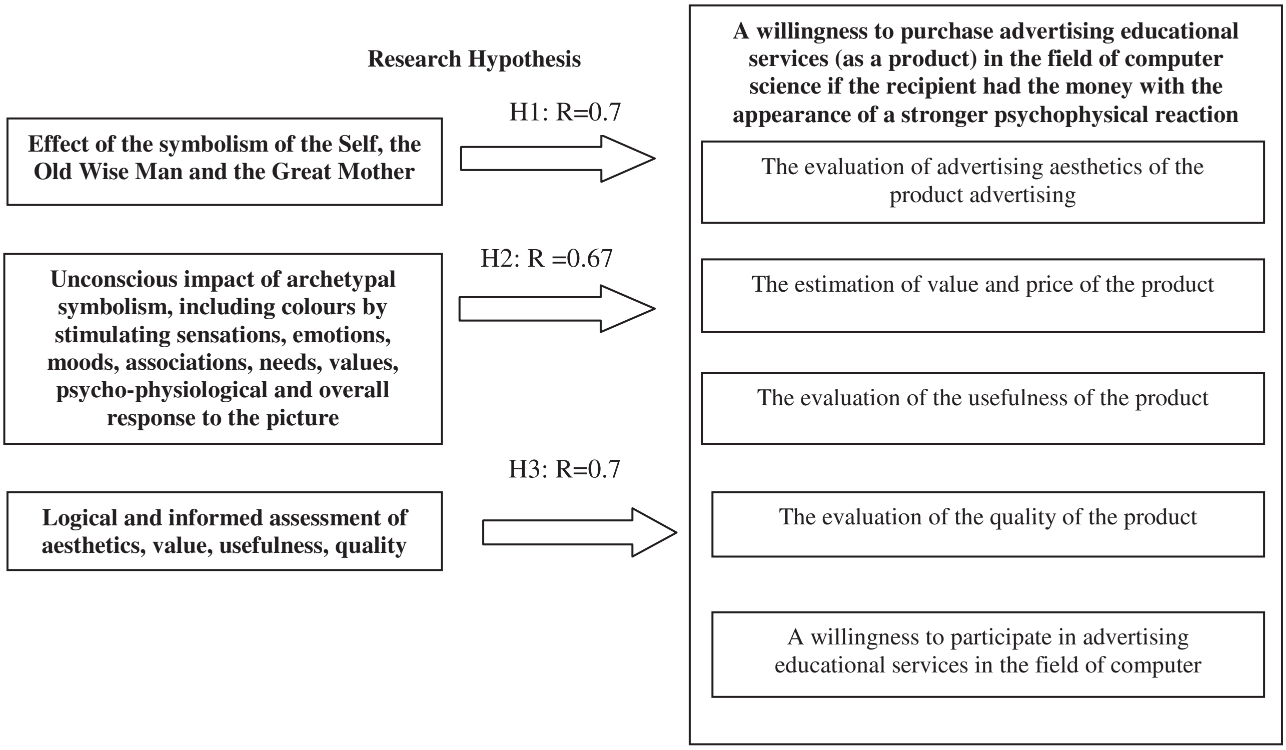

Figure 2. Research Framework

Hypothesis	Supported	Comments
1	Alternative Hypothesis	The symbolism of the Self. the Old Wise Man and the Great Mother has the highest effect on global positive impression of advertising leading to the purchase of the product (education services in the field of information technology)
2	Alternative Hypothesis	Conscious and unconscious via archetypal symbolism. including colours by stimulating sensations. emotions. moods. associations. needs. values. psycho-physiological and overall response to the picture has an effect on global positive impression of advertising leading to the purchase of the product (education services in the field of information technology)
3	Alternative Hypothesis	Conscious logical and informed assessment of aesthetics. value. usefulness. quality has an effect on global positive impression of advertising leading to the purchase of the product (education services in the field of information technology)

Table 6. Overview of Results

Contributions

Our study contributes to existing knowledge of body on Internet advertising in transition economies where no many research is reported. The results of our study indicate that Internet marketing can influence the Internet consumers. This is perhaps the first study using projective method of Jungian approach in Internet marketing. This study could benefit the companies in transition economies to conduct effective marketing and selling products and services on the Internet and so increase their competitiveness in the global markets.

Discussion. Limitations and Future Research

Three images selected by the respondents, according to our analyzes carried out on the basis of the concept of C.G. Jung, represent symbolism of the three archetypes: the Self (illustration of the landscape with the sea), the Old Wise Man (Buddhist physician image) and the Great Mother (the image of harvest field). In the process of development of man as well as in development of social groups. the emergence of interest in the symbolism of these archetypes indicates the growing importance of meaning and content related to the need to understand the deeper truths of nature, culture and universal values and redefining the meaning of our existence. This process occurs when a person worked on various positive and negative aspects concerning its own self (the Shadow archetype) and functioning in relationships with people (the archetype of Anima and Animus) and acquired a greater awareness of oneself and the presence in the world. They also often have the opportunity to be realized in a variety of roles: family. social and professional ones. This is the so-called first phase of the process of individuation. Archetypes of the Great Mother. the Old Wise Man and the Self belong to the second phase of the process. Understanding the truths related to the archetypes of the second phase is necessary to go beyond our current knowledge and understanding, often focused on the self and the awareness of reality which is the closer and further environment. It also means noticing new opportunities in our reality and new interconnections between the individual, culture and nature. In this way, an individual or social group are not only consumers but also creators of culture nature and our own selves.

The fact that the respondents chose images with archetypal symbolism of the second phase to advertise educational services shows that education and educational services are seen as valuable and important for the further development, in which they wish to participate. As a result of education a man changes his consciousness.

The strongest reactions in the respondents evoked a picture of the landscape with the sea representing the archetype of the Self. It was correlated most strongly and most frequently with the sales, psychological and physiological parameters. The following in the order was the image of a Buddhist physician (the Old Wise Man archetype) and harvest fields (the archetype of the Great Mother).

Detailed analysis allowed us to make the following observations:

The impressions evoked by the chosen pictures pointed out to ecology. conservatism. power and passion. The dominant moods and emotions focused on lightness. happiness. excitement and creativity. A detailed analysis of the positive and negative emotions arising in contact with the three analyzed images also helped to identify the feelings of relaxation and peace. security and trust. as relevant to the subjects. Among negative emotions. fear. dread and anxiety emerged as dominant. next - uncertainty and weakness. boredom and peace. The ratio of the induced positive emotions over negative ones. however. was in favor of the former. which is beneficial because it prevents one-sided emotions and one-sided feelings of fascination. it makes us think before making decisions and facilitates making the right choice of service. It may be beneficial to education and educational services if they were able to combine opposing elements such as environmentalism. conservatism. power and passion and appropriately through the symbolism of the image trigger different emotions and feelings. Such integration feature is inherent in case of the symbolism of the Self and similar to the symbolism of the archetypal Great Mother and the Old Wise Man. which are usually endowed with a remarkable power of impact. determined also by the force of mana (Jung. CG "The Mana Personality." The Collected Works of C.G. Jung: Two Essays on Analytical Psychology. Vol. 7. second edition. Princeton: Bollingen. 1966.)

An analysis of associations assigned to selected pictures shows that it is advisable to include in educational advertising the content such as images and symbols that relate to the knowledge and experience. which can be purchased during the education and should also incorporate spiritual and even exotic aspects and provide associations linked to the ability to experience peace and rest. Other elements of such advertising should show the importance of memories and events of the past and the importance of nature and wildlife. All highlighted aspects make up the human health and thus emphasize the 'healthy' approach to education and the role it plays or should play in the culture.

The main needs induced by the chosen pictures are: the need of rest. peace and cognition. whereas the dominant values that appeared relate to cognitive and spiritual aspects. the role of authority and importance of work.

The above mentioned associations. values and needs correspond to distinctive content of the Self. the Great Mother and the Old Wise Man archetypes. This is shown by education perceived as an element belonging to these archetypes.

When it comes to psycho-physiological reactions, taking into account the three analyzes pictures, they were the strongest in case of the picture of landscape with the sea. In contact with the above picture the respondents experienced: changes in visual acuity (33%), an overall increase of emotional tension (27%), changes in breathing (25%), faster thinking (25%), easier remembering of various things (25%). Similar reactions occurred in case of the remaining two the pictures but to a lesser intensity. Other emotional reactions, sometimes with greater force, emerged in case of the rest of the pictures, nevertheless, they were not selected as the best to advertise educational services (picture of a wolf and picture of wrestlers), so we omit their detailed analysis. Their symbolism may, however, be considered as auxiliary and supplementary to the main images.

Analyzing the colors that are suitable for advertisement of educational services, it appears that the election of respondents are focused on such colors as red, orange, yellow. silver. blue. turquoise and brown. Gold color is controversial, it may be - on one hand - both repulsive and destructive but on the other it may point out to passion. Color purple and grey were identified as negative, oppressive and gloomy. While planning to create an advertisement of educational services it is worth to take into account the above mentioned colors.

The major findings this research shows that images containing symbolic archetypes of the Self. Old Wise Man and Great Mother can be used to advertise educational services because of the symbolism and meaning contained in them. More over pictures of Self symbolism – the landscape with the sea. Great Mother - fields of grain and Old Wise Man - Buddhist physician are more appropriate to advertise educational services than the other representing the symbolism of the Shadow, Anima and Animus. Pictures of: the wolf. the lady with an ermine and wrestlers representing archetypes of the Shadow. Anima and Animus can be used as a support in advertisement of educational services. Emotional response, impressions, associations, needs and psycho-physical reactions occurring while analyzing the pictures indicate the involvement of the unconscious and subconscious processes.

Finally further check on participation of unconscious processes activated when in contact with the analyzed images requires the use of sophisticated equipment controlling brain responses and psychophysiological reactions.

To conclude, this paper is perhaps the first step to understand the Internet advertising in transition economies on the example of Poland using projective method of Jungian approach in Internet marketing. We hope that more scholars will continue this research avenue and our paper will serve as a foundation for the future investigations.

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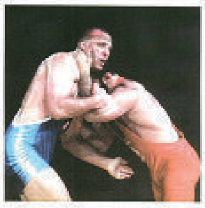
Appendix A

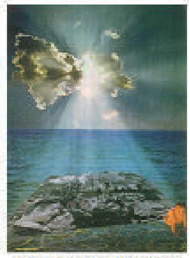

Wilk


Dama z łasiczką


Zapaśnicy


Żniwne pole


Buddyjski lekarz


Krajobraz z morzem

niebieski	czerwony	pomarańczowy	żółty	zielony	różowy	turkusowy	czarny	srebrny	fiolet	złoty	brązowy	szary

Tested aspect of services advertising	**Variable Name**	**Question**
Dimensions of services advertising valuation		
Aesthetics	W1	Which picture do you like the most?
Interest	W2	How do you think. which the image should be used to advertise such a product. as they are educational services that attracted the strongest interest?
Value and price	W3	In your opinion. the presence of which image at the advertised service education of computer science serves the best of the sale and could raise its price value the most?
Usefulness	W4	How do you think. which image qualities can affect the most positive sense. the quality of the presented services?
Quality	W5	In your opinion. the presence of which image at the advertised service would increase the most positive feedback on its usefulness?
A willingness to participate in advertising	W6	In your opinion. the presence of which symbols and colors would image the strongest wish to participate in service learning promoted?
A willingness to purchase advertising educational services in the field of computer science	W7	What do you think. advertising educational services using the symbolism of which image would encourage you to buy the service. if you had the money?
Unconscious impact of archetypal symbolism. including colours by stimulating sensations. emotions. moods. associations. needs. values. psycho-physiological and overall response to the picture		
Associations	A1-A6 (text variable)	With what do you associate with the picture? Write please.
Impressions of picture symbolism	P1I1-P6I12 . …. P6I1-P6I12 (list of 12 impressions towards each picture. zero-one coded variables)	What impressions caused pictures in you?? • honest and trustworthy • passionate about your product • daredevil • fun. funny • accessible

Tested aspect of services advertising	Variable Name	Question
		• ecological • conservative • guardianship • elegant • high quality - luxury • powerful • overwhelming. gloomy
Calling emotions and moods by advertising	P1E1-P6E9 . …. P6E1-P6E9 (list of 9 emotions and impressions towards each picture. zero-one coded variables)	
Positive emotions	PE1-PE6 (text variable)	
The strength of positive emotions induced	SPE1-SPE6 (1-5 point Likerrt scale variable)	
Negative emotions	NE1-NE6 (text variable)	What arouses negative emotions in you a picture? Write please.
The strength of negative emotions induced	SNE1-DNE6 (1-5 point Likerrt scale variable)	What is the strength of emotion the symbolism of this image? 1 - very poor. .... 6 - very strong
Calling needs by advertising	NEE1-NEE6 (text variable)	What you need to raise in the picture? Write please.
The strength of needs induced	SNEE1-SNEE6 (1-5 point Likerrt scale variable)	What is the power needs caused by the symbolism of this image? 1 - very poor. .... 6 - very strong
Calling values by advertising	V1-V6 (text variable)	What values can connect to your picture? Write please.
The strength of values induced	SV1-SV6 (1-5 point Likerrt scale variable)	How large can the force of the impact of these values on the recipient? 1 - very poor. .... 6 - very strong
Impressions of picture colours	P1C1-P6C32 . …. P6C1-P6C13 (list of 13 impressions towards each picture. zero-one coded variables)	What impressions evoke in you presented the colors on the pictures? • honest and trustworthy • passionate about your product • daredevil • fun. funny • accessible • ecological • conservative • Guardianship • elegant • High quality - luxury • powerful • overwhelming. gloomy • repellent. repulsive
Calling emotions and moods by colours in advertising	P1CE1-P6CE9 . …. P6CE1-P6CE9 (list of 9 emotions and impressions towards each picture. zero-one coded variables)	If you wanted to design advertising of your company. using the presented images. what feelings you would like to call? What emotions to pass? • lightweight • serious • corporate. social • exciting

Tested aspect of services advertising	Variable Name	Question
		• compassionate and caring • happy • contact • calm. relaxed • creative. resourceful • repulsive. destructive
Calling psycho-physical reactions	P1R1- P6R16 (list of 16 psycho-physical reactions towards each picture. zero-one coded variables)	When viewing the image (color image). as reactions to it. you can also feel some changes in the body. which are listed below. Highlight the reactions of the body that you observe by yourself. • faster / slower blood circulation • faster / slower heart rate • changes in breathing • sweating • saliva • changes in muscle tension • the movement of the stomach and intestines • goosebumps • changes in visual acuity • changes in voice (lower / higher tone of voice) • an overall increase in tension in the body • faster thinking • faster and / or varied associations • easier to remind yourself of things • increase / decrease in body temperature • an overall increase of emotional tension
Usefulness	U1	I do not think about its utilization
	U2	It would broaden my knowledge for my own
	U3	I'd feel that I develop in the field
	U4	I would like to get a better job in the country
	U5	The knowledge and practical skills allow me to change jobs and go abroad
	U6	The knowledge and skills would allow for a lifestyle change and create new prospects for the future
	U7	It would broaden my skills for personal use
Opinions- attitudes towards neuromarketing and manipulative techniques	Spol1	I know that I am under the subconscious influence of color and symbolic stimuli.
	Spol2	I think I'm sensitive to influence of the methods of social influence. based on a knowledge of the unconscious patterns and social norms.
	Spol3	I have knowledge about neuromarketing and methods of influencing of the subconscious messaging on consumer attitudes.
	Spol4	I aware of the fact that of the social character formation by online media.
	Spol5	I believe that the actions using manipulative techniques and neuromarketing are ethical.
	Spol6	I believe that the actions using manipulative and neuromarketing techniques should be used.
	Spol7	I believe that the actions using manipulative techniques and neuromarketing can be used.
	Spol8	I believe that the actions using manipulative and neuromarketing techniques can be used for organizational development. reduce

Tested aspect of services advertising	Variable Name	Question
		unemployment and increase prosperity.

(e-Governance substantiated on ICT and Knowledge Management. An exploratory study in Romania)

by

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ABSTRACT

Public administration modernisation involves not only public service provision more efficiently, faster and at lower costs. It mainly involves rethinking the processes and procedures associated to governance based on the use of ICT and knowledge management. It also refers to applying the Europe's Digital Agenda, national strategy and actions plans aimed at administration modernization in the knowledge society. The use of ICT applications triggers the change in public administration by valorising the opportunities and instruments determining important benefits for society and improving the public value.

The paper is achieving an analysis concerning local e-Governance in Romania. Thus the paper operationalizes a conceptual model which analyses e-Governance substantiated on ICT and knowledge management in the Romanian municipalities through identification, analysis and evaluation of the factors contributing to the enhancement of public service quality, improvement of their efficiency, transparency and citizen participation, strengthening trust and legality.

The pilot survey aims to identify, analyse and evaluate the perception on e-Governance, ICT and knowledge management of the municipality city halls in Romania as key actors in the development of digital administration in view to achieve the wider Europe 2020 Strategy goals.

Keywords: e-Governance, ICT, knowledge management, emerging transition economies, Romania, public administration modernisation

INTRODUCTION

The fact that we are living in the knowledge society is broadly accepted at the beginning of the new century. It is well known that the pace of increasing the knowledge sphere has never been so fast in the history of mankind and science has never been so daring and productive.

In this context, the public administration is facing significant challenges with impact on its legitimacy, effectiveness and efficiency. For the time being, the most visible challenge consists in the economic and financial crisis in Europe, exerting pressures on the public administrations in view to rethink the ways for improving the public value, the public service provision and accomplishment of the administrative activities. Taking into consideration the important role of public administration in the knowledge society and knowledge economy, the public administration capacity to respond to that challenge influences powerfully its viability.

Virtually we experiment new things at job, at home, in society. This profound transformation may be called digital revolution. Although many people wish a pace of change rather incremental than supersonic, for the time being the reality is completely different.

The new technologies have produced a revolution in our society and the networks have begun to shape the way we are living, working, communicating. In the digital era, it is imperative to rethink the structure and operation of the public administration, which will trigger a radical transformation of the relationships: administration – citizens, administration-businesses. The digital revolution is shaping two interconnected relationships between citizens and public administration: the relationship between administration and citizens as customers or users of the public services, and the second between administration and citizens as active partners who are influencing and customising the public services.

Castells' assertion (1996) is confirmed, emphasising the fact that the digital revolution „refers especially to applying information and knowledge for knowledge generating and information processing in a continuous cycle. Those features are combining with creative users, who are holding the control on technology".

The public administration is also facing important challenges in the field of e-Governance:

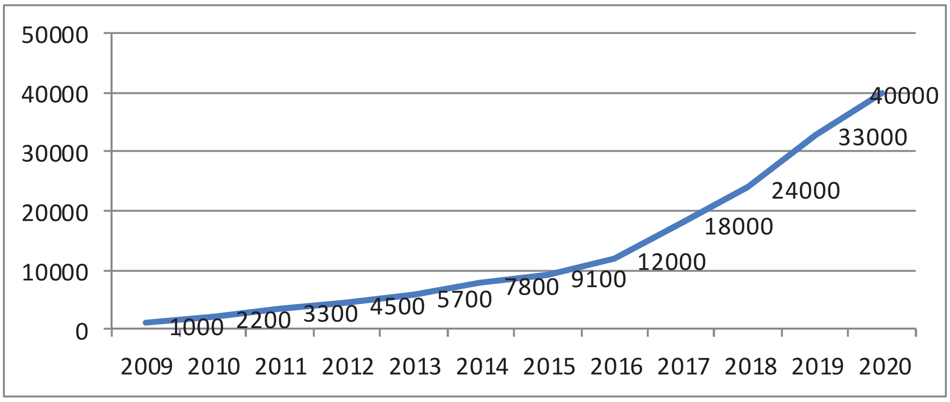
- Using the new technological channels and ways for service provision through mobile cellular telephones, interactive digital television etc.;
- Ubiquitous administration, which will eliminate the spatial and temporal barriers in the relationship between public administration and citizens;
- The administrations will be permanently at the citizens' service, all by a „touch" or a „click";
- Human resource development, creation of a generation of civil servants and public employees with a powerful ethical and social commitment, who believe in information technology as a vital instrument for flexible, efficient, fast, transparent, integrated public services.

Science and technology are developing continuously and the change represents a constant variable. It depends on us how we perceive the change and how we adapt in the digital universe.

Fountain (2001) emphasises in his book “Building the Virtual State”: “dot.coming of government is only just beginning … Yet inside the machinery of the state, amid a web of institutional structures that offer incentives for innovation and efficiency gains, the action of this lever is complex, indirect and mediated significantly by institutional and organisational arrangements”. Other author, Bardach (2001) concludes on the same topic: “traffic in the cyberspace still has to slow down and wait for institutions and human beings to do their thing”. Similarly, in his book “Digital Government”, West (2005) asserts: “revolutions do not have to be quick and abrupt for there to be widespread change. It may take a while for technological innovations to diffuse throughout a country... While we have uncovered little evidence of transformational change in the e-Governance area, there is the possibility of more extensive change emanating from the Internet in the longer term”.

The volume of information increases very fast, and according to the actual estimations it represents 1 million Terabytes. The digital universe tends towards 40000 Exabytes! (Gantz, J., Reinsel, D. (2012)), of which 50% moving, 40% local and 10% global! Achieving an analogy, the human brain has 100-1000 Terabytes!

Figure 1. The digital universe (Exabytes)



Source: the authors, based on data from Gantz, J, Reinsel D, 2012, IDC Digital Universe Study

According to estimations, by 2020, the digital universe will grow by a factor of 400, from 100 Exabytes to 40,000 exabytes, or 40 trillion gigabytes and the digital universe will double every two years (Gantz, J., Reinsel, D. (2012)).

The investments in spending on IT hardware, software, services, telecommunications and staff that could be considered the "infrastructure" of the digital universe will increase by 40% between 2013 and 2020. As a result, the investment per gigabyte during the same period will drop from \$2.00 to \$0.20. Of course, investment in targeted areas like storage management, security, big data, and cloud computing will grow considerably faster. By 2020, nearly 40% of the information in the digital universe will be "touched" by cloud computing providers (Gantz, J., Reinsel, D. (2012)).

"The most important benefits of ICT derive from their effective and efficient use. At the same time, ICT investments are enhancing the labour productivity. The use of ICT allows the institutions/organisations/companies to enhance their efficiency and to make them more competitive. Enhancing the efficiency of the channels of distribution, intensifying the collaboration and partnerships, by a rapid pace of financial transactions, by achieving more dynamic and transparent processes, ICT can speed up the flow of products and services" (Matei, Savulescu, 2012).

In the knowledge society, it is also important for public administration to hold an active role in the field of knowledge management. In light to be efficient, the public administration role should substantiate on a clear and flexible vision in order to achieve well defined objectives. Public administration has numerous opportunities for human resource development. Knowledge management in public administration is based on collaboration of various actors, on ICT use, enabling the application of the best practices. But the practices should be firstly known and accessible to each public organisation, department and employee in view to be integrated in daily activities, to achieve daily tasks and the objectives of organisation. Efficient knowledge management development is based on the fundamental change of thinking concerning the modality to valorise the human and electronic resources, on a powerful organisational culture which promotes learning and creative use of information resources.

PUBLIC ADMINISTRATION MODERNISATION

As above mentioned, public administration has to face the fast and accelerating economic-social changes, to turn into account the opportunities provided by new technologies and to develop new services, focusing on openness, transparency and citizen participation. The administrative reforms should be achieved "during times when fiscal constraints and budget consolidation pressures become increasingly tighter" (OECD, 2011).

In view to enhance Europe's competitiveness, public administration modernisation in the EU Member States should focus on:

- "reforms of the institutional framework conditions under which private enterprises operate;

- implementation of internal measures in light to improve the quality of service provision by increasing the capacities and incentives of public administration in order to provide goods and services in an integrated, reliable, flexible, efficient and effective manner" (EC, 2012).

The field literature highlights high quality institutions and governance structures, physical capital, human capital and knowledge as key drivers of economic growth (Knack, Keefer, 1995; Mauro, 1995; Olson et al., 2000; Acemoglu et al., 2001; St. Aubyn, 2008).

Thus, public administration modernisation should focus on improvement of efficiency, effectiveness and speed of service provision, and accomplishment of high standards of predictability, reliability and accountability.

In the public administration "the innovative activities include new services or new methods of providing services in interaction with users, as well as a re-organisation of work responsibilities, new support and logistics systems and new management systems" (DG Enterprise and Industry, 2011).

"The internal public sector excellence potentially benefits from ICT through several channels: public sector employees are relieved of routine tasks, several procedural steps can be outsourced, the quality of transmitted information increases while transaction costs decrease, and some tasks can be centralised, for example at shared service centres" (OECD, 2010). The electronic information exchange of administrative units "may speed up decision-making, reduce internal processing times and thus improve regulatory management and policy enforcement" (Gourmelon et al., 2011). Human resource management reflects "changes that have been brought about to enhance the skills and capabilities of administrative staff in dealing with the challenges of a modern public sector" (Horton, 2009). Improving recruitment strategies, education and flexibility, and fitting motivational structures account for the fact that public servants are the major resource of a service-oriented public sector. "Motivated and competent employees represent a key determinant of an excellent public administration" (Demmke, Moilanen, 2010). Storey (1995) emphasises a hard and a soft approach towards managing public sector employees. "While 'hard' HRM is more resource-centred and understands staff as a cost to be minimised and controlled, 'soft' HRM refers to a more people centred approach, including development, training, communication, motivation and leadership" (Horton, 2009, p. 126).

By 2015, the European public administrations must be "recognised for being open, flexible and collaborative in their relations with citizens and businesses. They use e-Government in view to increase their efficiency and effectiveness and to constantly improve public services in a way that caters for user's different needs and maximises public value, thus supporting the transition of Europe to a leading knowledge-based economy (EC, 2012)".

The Digital Agenda and the e-Commission strategy are aimed at making life easier for users, the effective and efficient use of resources, ensuring the security and privacy of citizens and businesses, based on the principles of subsidiarity and proportionality; user-centricity; inclusion and accessibility; security and privacy; multilingualism; administrative simplification; transparency; preservation of information; openness; reusability; technological neutrality and adaptability; effectiveness and efficiency (COM 2010 744 final). "The European Commission will lead by example in delivering user-centric digital services and IT solutions to support the EU policies" (Šefčovič, SEC(2012) 492 final).

Concerning the *overall public administration performance*, Romania's score is below the EU average, signifying the negative perception of the quality of public services and the quality of policy implementation (EC, 2012).

In terms of the use of *tools for administrative modernisation* (i.e. ICT-based solutions, performance orientation and evidence based steering), Romania's performance is also below the EU average (EC, 2012). The causes refer especially to lower availability of business related e-government services (i.e. electronic submission and payment of corporate tax returns, submission of social security contributions and the registration of start-ups) as well as "limitations in the implementation of modern human resource management tools such as flexible modes of tenure and salary systems as well as decentralisation of powers and responsibilities for human resources" (EC, 2012).

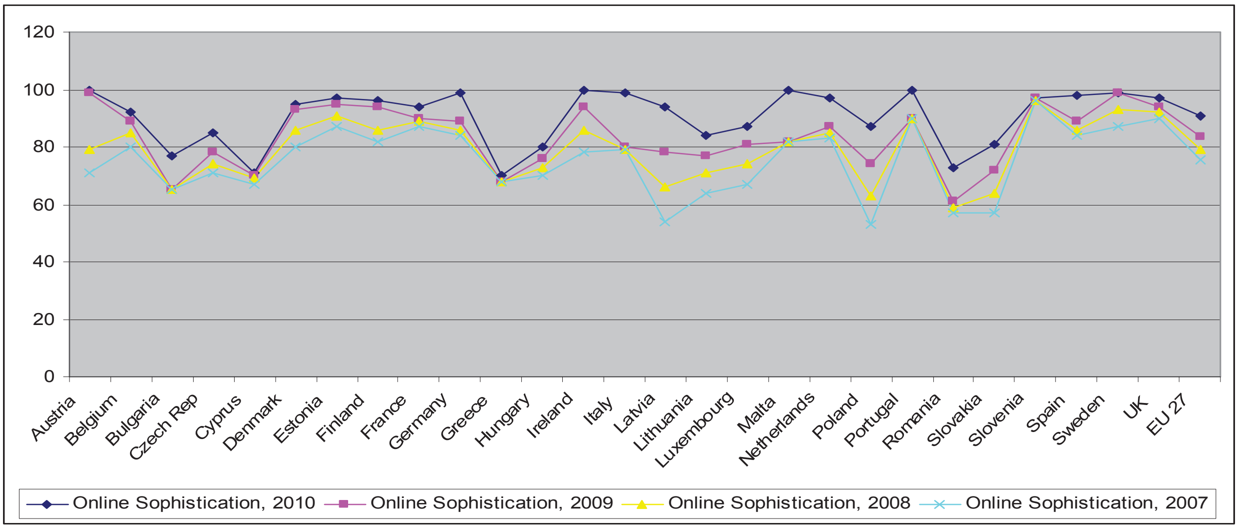
The European Commission has issued eight country specific recommendations for Romania in light to improve its economic performance. Thus, concerning "Better public administration", EC stated: "Poor administrative capacity is a core concern for Romania which contributes to the low absorption of EU funds. The governance and quality of public administration should therefore be strengthened" (EC, 2013).

EMPIRICAL ANALYSIS OF e-SERVICES IN THE EU MEMBER STATES DURING 2007 – 2010

In view to achieve the empirical analysis of the e-services, the European Commission's indicators have been selected.

The analysis of online sophistication and fully online availability is based on the websites of e-service providers, which are evaluated related to Capgemini model of maturity, examining if the websites are informational, enable one or two-ways interaction, are transactional or pro-active.

Figure 2. Evolution of sophistication of e-services in the EU Member States during 2007-2010

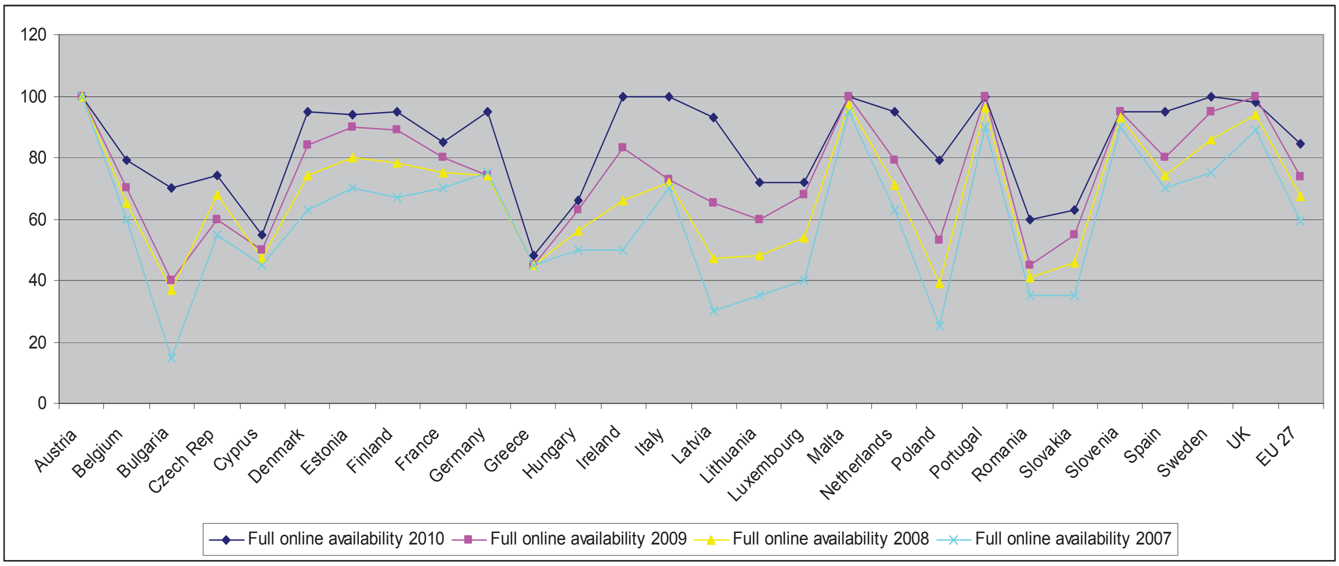


Source: Matei, A., Săvulescu, C. (2012) „E-government services. A comparative conceptual framework in the EU 27 in view to substantiate the public marketing strategies", in *Public and Nonprofit Marketing*, Proceedings, Matei, L., Vazquez-Burguete, J.L. (eds.), Editura Economică, Bucureşti, pp. 79-109

The comparison in Figure 2 illustrates the speed and extent of convergence in performance of the EU Member States. Online sophistication evaluates the maturity of the 20 e-government services in the 27 EU Member States, focusing on the interaction between service provider and user from the simple information provision to personalised pro-active case handling.

The EU27 score for this indicator represents 90.7% in 2010, compared to 83.74% in 2009, 79.15% in 2008 and 75.30% in 2007. The score of 90.7% places Europe at the top of the fourth level of sophistication for full electronic case handling. On average, the Europe's relative growth is moderate, with 15.4% compared to 2007. In this comparison, the top performers are Austria, Ireland, Malta, and Portugal (all at 100%), obtaining the maximum achievable sophistication, followed closely by Germany, Italy and Sweden (all at 99%). Slovenia and Estonia are best performers in Eastern Europe. The weak performers are Greece (70%), Cyprus (71%) and Romania (73%). The discrepancies between the performances of countries are moderate, within a range of 30%.

Figure 3. Dynamics of full online availability in the EU Member States during 2007-2010



Source: Matei, A., Săvulescu, C. (2012) „E-government services. A comparative conceptual framework in the EU 27 in view to substantiate the public marketing strategies", in *Public and Nonprofit Marketing*, Proceedings, Matei, L., Vazquez-Burguete, J.L., (eds), Editura Economică, Bucureşti, pp. 79-109

The comparison of full online availability during 2007 – 2010 highlights, as the other indicator, the speed and extent of convergence in performance of the EU Member States.

The EU 27 score for this indicator represents 84.44% in 2010, compared to 73.93% in 2009, 67.52% in 2008 and 59.52 in 2007. Thus, Europe has continued to progress steadily in terms of full online availability. Figure 3 provides a suggestive overview of the progress. The top performers are Austria, Ireland, Italy, Malta, Portugal, Sweden and UK (all at 100%), followed closely by Denmark, Finland, Germany, Netherlands, Slovenia and Spain (95%). The weak performers are Greece (48%), Cyprus (55%), Romania (60%). The difference among countries is quite significant with an overall range of 52%. As expressed by Figure 3, the countries from Eastern Europe provide a mixed overview, with a few countries such as Estonia and Slovenia, very well performers.

In general, the performance of Europe's e-government has greatly converged in geographic terms since the expansion of the EU in 2004 and 2007, as both "old" and "new" EU Member States are among the leading e-government nations.

LOCAL e-GOVERNANCE IN ROMANIA

The Central and South-Eastern European countries had to face two challenges: on the one hand, democratization of public administration as a prerequisite for becoming an EU Member State and, on the other hand, the enhancement of government management performance.

In the European countries, the emergence follows „a line with two successive anchors: the first, corresponding to the interior transition, of abstract nature, and the second, specific to the exterior transition, of contingent nature" (Dinu, 2007). The specificity of the emerging economies in Central and South-Eastern European states (especially the former communist countries) is twofold: the shift from the planned market economy models towards the capitalist market economy models, and achieving the European integration process. Both targets involve stages of a change process under the impact of the strategic options for different transition forms, and on the time axis, establishing genuine emergence stages.

„Local development presupposes economic, social, technical aspects, and has the features of a development process in a particular region or geographic area with the aim of increasing the welfare and the quality of life at that particular level. At the same time, local development refers to the evolution of the capacity of a local or regional economy with a view to stimulating a stable economic and social growth, aimed to determine creation of new jobs and conditions in order to substantiate the opportunities which are specific to rapid changes at economic, technical, social levels" (Matei, A. et al., 2009; Matei, A. et al., 2010).

In Romania, local e-Governance is focused on: complying with the "local" needs for citizens and businesses; visibility of local democracy; promotion of local financial viability; designing local development strategy; providing efficient, effective, transparent, flexible e-services; assessing e-service quality, transparency; effective and accountable decision-making; improvement of the public value.

Recent analyses on local e-governance in Romania (Vrabie, C., 2011; Tiron Tudor, A., Popa, A.S., Blidisel, R.G., 2011; Matuescu, C., Glavan, O.R., 2012) reveal that local e-government is heterogeneous and its development is uneven. The websites of local public institutions are operational but they are not designed according to "a common set of standards or requirements which allow integration into a single portal".

As long as the citizens' interaction with administration becomes more complex, it is imperative to analyse the factors determining e-Governance improvement.

In the actual context, the citizens may influence the dynamics of the citizen-administration relationship and therefore the electronic applications should be compatible with the citizens' needs, requirements, expectations and preferences.

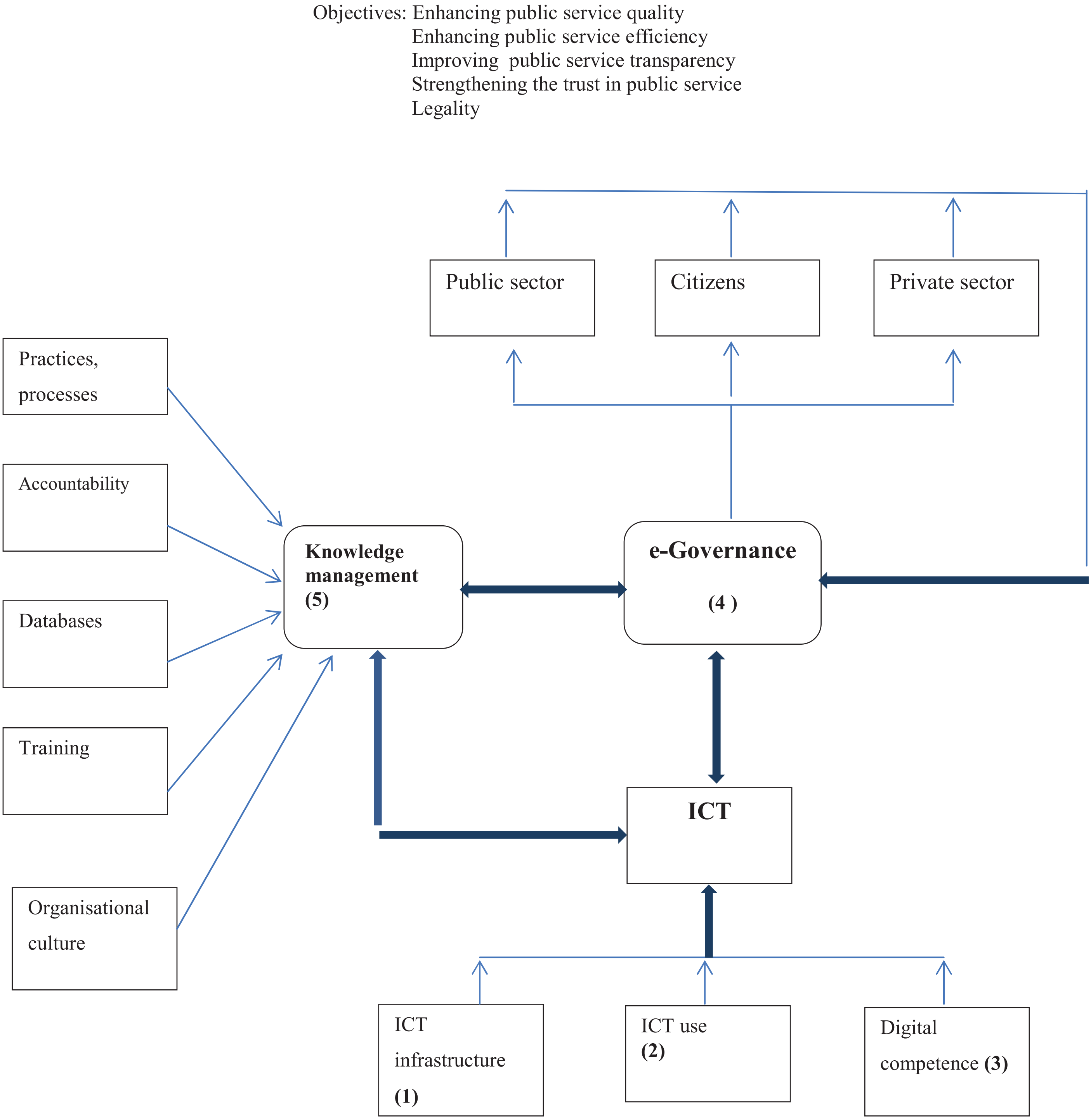
CONCEPTUAL MODEL OF THE RELATIONSHIP BETWEEN E-GOVERNANCE, ICT AND KNOWLEDGE MANAGEMENT

The study aims at operationalizing a conceptual research model in view to analyse the key aspects of e-Governance, ICT, knowledge management in municipality city halls in Romania by *identifying, analysing and evaluating the factors contributing to the enhancement of e-service quality, efficiency, improvement of transparency and citizen participation, strengthening the users' trust and legality.*

Concerning ICT, three components were evaluated: ICT infrastructure, ICT use and digital competences. ICT infrastructure (corresponding to point 1 in the questionnaire) comprises hardware, software, communication environment, and access to Internet. The ICT development strategic plan and the budget allocated to ICT are also relevant. ICT use (corresponding to point 2 in the questionnaire) refers to intensity of ICT use by employees, how it improves the outcomes of the institution, the internal and external communication, as well as the improvement of sharing information and knowledge. The evaluation of the digital competences (corresponding to point 3 in the questionnaire) refers to employees' experience in software, hardware, Internet use. The percentage of the employees holding ECDL is also important. For e-Governance, (corresponding to point 4 in the questionnaire) the following components are relevant: evaluating the key aspects of online service delivery by the public institution, evaluating the advantages of e-services, evaluating the concept of transparency and citizen participation, as reflected by the website of the respective public institution, the degree of improving the relationship with the citizens, businesses further e-service development.

Concerning knowledge management (corresponding to point 5 in the questionnaire) the focus is on the degree of using the most usual practices and processes on knowledge management, the advantages of the institution further their application, aspects holding potential in successful development of knowledge management systems, database with the employees' competences, database with useful presentations, documents which is updated systematically, how the organisational culture encourages the knowledge sharing, organisation of interdisciplinary project teams, rewarding the employees for information and knowledge sharing, accountability for knowledge management, opportunities for (general, specific, IT) training programmes, number of training days, percentage of the total budget allocated to employees' training.

Figure 4 Systemics of the relationship between e-Governance, information and communication technology and knowledge management



Source: the authors

SURVEY CONCERNING THE EVALUATION OF THE PERCEPTION OF MUNICIPALITY CITY HALLS TOWARDS E-GOVERNANCE, ICT AND KNOWLEDGE MANAGEMENT

The pilot survey developed by the authors has aimed the *identification, analysis and evaluation of the perception towards e-Governance, ICT and knowledge management of municipality city halls, as main actors in digital administration development.*

The research *objectives* focused on:

- Identifying relevant aspects for e-Governance development and knowledge management;
- Initiating a database containing information on e-service delivery and knowledge management in local public administration;
- Ensuring data comparability in time and possibility to create chronological series of averages and sampling dispersions;
- Identifying significant sampling variables and the structure of optimum statistic community, which is reproducing with accuracy the structure of the general population;
- Understanding the interactions between citizens and administration;
- Identifying the interest and attitude of city halls versus e-Governance, ICT, knowledge management;
- Identifying the actors who are holding the essential role for knowledge management in city halls;
- Enhancing the awareness of city halls on the importance of investments in the development of electronic, human resources, and for speeding up e-service development.
- Determining the factors which lead to speeding up e-Governance development.

The pilot statistic community comprised 104 municipality city halls, sampled by authors in view to design a survey with several variables, aimed to ensure the best representativeness and minimisation of survey errors. The questionnaire was addressed to 104 Romanian municipality city halls in terms of objectivity and privacy, under the authors' direct coordination. During January-February 2013, 74 questionnaires were received, of which 71 were valid.

A. ICT Infrastructure

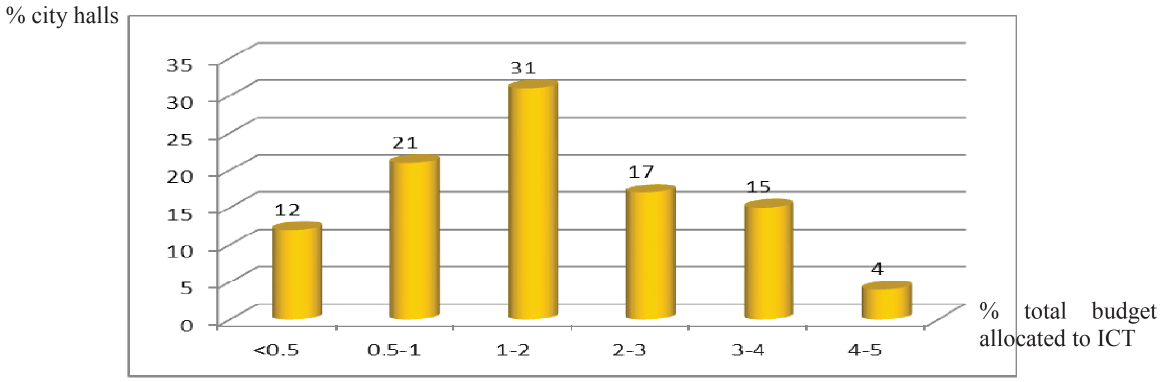
1.Concerning the question ***«Does the city hall own an integrated IT system for activity management*?»**, the breakdown of responses is as follows: 38% city halls assert that they own an IT system for activity management, 32.4% provide a negative answer and 29.6% do not know/do not respond.

2. In terms of the question « ***Does the city hall own specific IT applications?***», the breakdown of responses is as follows: 81.7% city halls own IT system for Financial, and Human Resource Management, 56.3% own IT system for the Urban Database, 36.6% own IT system for the Electronic Archive, 69% own e-mail system, 71% hold Document and Workflow Management System, 50.7% own CRM System, 93% own Intranet, 54.9% own GIS, 23.9% city halls have EDI, and 80.3% city halls own antivirus programmes.

3. In terms of the question « ***Does the city hall own an ICT Development Strategic Plan?***», the breakdown of responses is as follows: 43.7% city halls own ICT Development Strategic Plan, 49.3% provide a negative answer and 7% do not know/do not respond.

4. Concerning the question «***Percentage of the total budget allocated to ICT***», Figure 5 reveals the breakdown of responses. Thus, 10% of the studied city halls allocate below 0.5%, 13% allocate between 0.5 - 1%, 21% allocate between 1 - 2%, 18% allocate between 2 - 3%, 23% allocate between 3- 4%, and 15% allocate between 4 - 5%.

Figure 5 Evaluation of the percentage of the total budget allocated to ICT

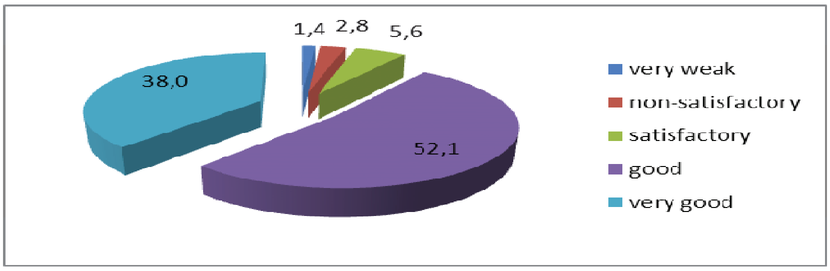


5. Concerning the question « ***Has the ICT budget increased during the last 5 years? If yes, how much?*»,** the breakdown of responses is as follows: in 36.6% city halls, ICT budget has increased in the last 5 years from 2% to 12%.

B. ICT use

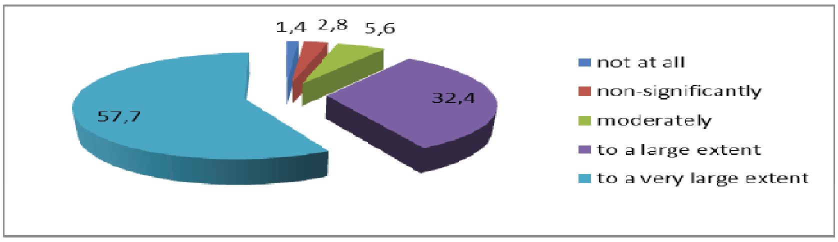
6. In terms of the question «***How do you evaluate the intensity of ICT use by employees***?», Figure 6 expresses the breakdown of responses: 1.4% city halls evaluate ICT use by employees as being very weak, 2.8% evaluate as being non-satisfactory, 5.6% consider to be satisfactory, 52.1% consider to be good, and 38% appreciate to be very good.

Figure 6 Evaluation of the intensity of ICT use by employees



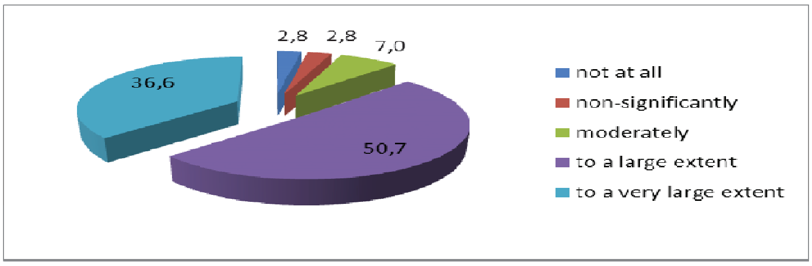
7. Concerning the question «***Do you consider that ICT use improves the outcomes of the activity in the city hall?***», the breakdown of responses is as follows: 1.4% city halls consider that ICT use by employees does not at all improve the outcomes of the activity in the city hall, 2.8% appreciate that it improves non-significantly, 5.6% consider that it improves moderately, 32.4% appreciate that it improves to a large extent and 57.7% consider that it improves to a very large extent.

Figure 7 Analysis of how ICT use improves the outcomes of the activity in the city hall



8. In terms of the question «***Do you consider that ICT use improves the internal communication in the city hall***?», Figure 8 reflects the breakdown of respondents' considerations. Thus, 2.8% city halls appreciate that ICT use by employees does not at all improve the internal communication, 2.8% consider that it improves non-significantly, 7% appreciate that it improves moderately, 50.7% appreciate that it improves to a large extent and 36.6% believe that it improves to a very large extent.

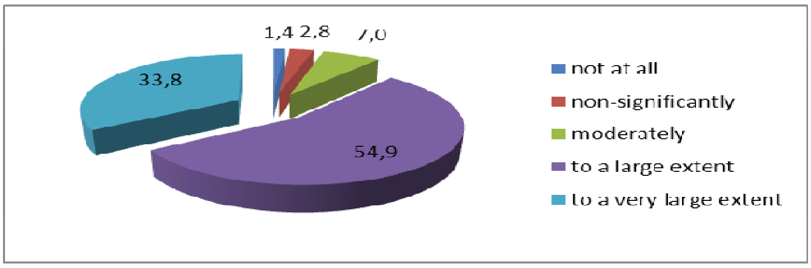
Figure 8. Analysis of how ICT use improves the internal communication in the city hall



9. In terms of the question «***Do you consider that ICT use improves the external communication of the city hall?***», Figure 9 reveals the following structure of responses: 1.4% city halls appreciate that ICT use by employees does not at all improve the external

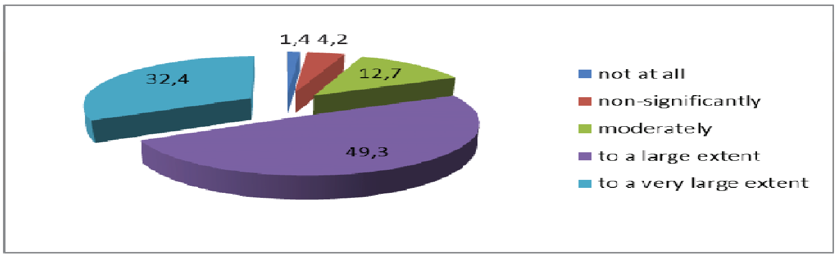
communication, 2.8% believe that it improves non-significantly, 7% appreciate that it improves moderately, 54.9% appreciate that it improves to a large extent and 33.8% believe that it improves to a very large extent.

Figure 9. Analysis of how ICT use improves the external communication of the city hall



10. Concerning the question ***«Do you consider that ICT use improves sharing of information, knowledge?»***, from Figure 10, the following assertions have resulted: 1.4% city halls consider that ICT use does not at all improve the sharing of information, knowledge, 4.2% appreciate that it improves non-significantly, 12.7% assert moderately, 49.3% appreciate "to a large extent" and 32.4% believe "to a very large extent".

Figure 10. Analysis of how ICT use improves the sharing of information, knowledge



C. Digital competences

11. In terms of the question ***„How do you evaluate the employees' experience in the field of software?»***, the respondents have assigned scores according to the scale: "-2": inexistent, "-1": weak, "0": good, "+1": very good, and "+2": exceptional, to the sentences from Table 1, which contain positive and negative statements concerning the evaluation of employees' experience in the field of software. An average score was calculated for each statement. Not all averages proved to be representative, as resulted from the calculation of the coefficients of variation of the individual scores assigned to each statement.

Table 1. Analysis of the employees' experience in the field of software

Software	Average score	Coefficient of variation
Word Processing	+1.87	0.57
Spreadsheets	+0.76	0.55
Presentation (PowerPoint)	+0.93	0.88
Using databases (Access)	-1.27	0.29
Others (please specify)	+0.79	0.77

The respondents have also identified the employees' skills to use other IT applications, such as those in the field of finance and accounting.

Analysing the average scores awarded to each statement, it is worth to note that the city halls have a clear perception concerning the following issues:

- Necessity of lifelong learning in the field of ICT, even if for the time being the employees have high competences, skills and knowledge;
- Improving the employees' efficiency and labour productivity, as immediate effects of ICT use.

12. In terms of the question «***The percentage of employees holding ECDL (European Computer Driving Licence)?***», the responses have been structured into three categories: municipalities with population higher than 100,000 inhabitants, municipalities with population higher than 50,000 inhabitants, municipalities with population higher than 20,000 inhabitants.

Table 2. Analysis of the percentage of employees holding ECDL

	Number of municipalities	**Number of respondent municipalities**	**Percentage of participation in the survey (%)**	**Percentage of employees holding ECDL (%)**	**Dispersion (%)**
Municipalities, population > 100,000 inhabitants	25	19	76.00	61.15	20.33
Municipalities, population > 50,000 inhabitants	21	16	76.19	44.31	25.52
Municipalities, population > 20,000 inhabitants	58	36	62.00	38.27	30.41
Total	104	71	71.40	41.29	25.42

It is worth to remark that in the municipalities with population higher than 100,000 inhabitants, the percentage of employees holding ECDL represents 61.15%, with a dispersion of 20.33%, in the municipalities with population higher than 50,000 inhabitants, the percentage is 44.31%, with a dispersion of 25.52%, and in the municipalities with population higher than 20,000 inhabitants, the percentage is of 38.27%, with a dispersion of 30.41%. Overall, in municipalities, the percentage is of 41.29% with a dispersion of 25.42%, thus remarking the decrease of the number of employees holding ECDL in the same time with the decrease of the number of inhabitants.

13. Concerning the question «***How do you evaluate the employees' experience in the field of hardware?***», scores have been assigned as follows: "-2": inexistent, "-1": weak, "0": good, "+1": very good and "+2": exceptional, to the sentences from Table 3, which contain positive and negative statements concerning the evaluation of employees' experience in the field of hardware.

Table 3. Analysis of the employees' experience in the field of hardware

Hardware	**Average score**	**Coefficient of variation**
Using IT devices (printers, scanners, web cam)	+1.22	0.59
Configuring computers/networks	+0.23	0.68

Analysing the average scores, we remark the city halls' perception on the necessity to improve the employees' competences in this field.

14. In terms of the *question* « ***How do you evaluate the employees' experience in the field of Internet use?*** », scores have been assigned as follows: "-2": inexistent, "-1": weak, "0": good, "+1": very good and "+2": exceptional, to the sentences from Table 4, which contain positive and negative statements concerning the evaluation of employees' experience in the field of Internet use.

Table 4. Analysis of the employees' experience in the field of Internet use

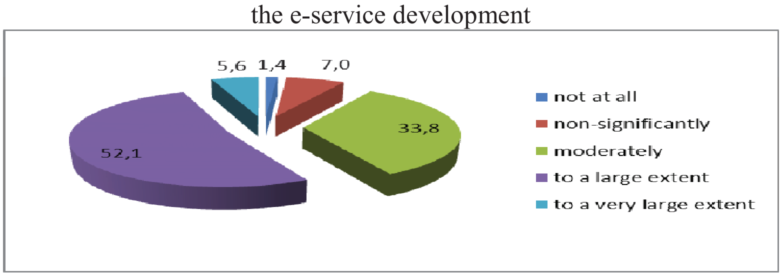
Internet	**Average score**	**Coefficient of variation**
Web browsing	+1.24	0.19
Databases	- 1.16	0.28
Social networking (Facebook, LinkedIn, Twitter)	+0.79	0.23
Cloud computing	-1.76	0.83
Digital communication	+0.79	0.23

The employees have better experience in browsing, digital communication, social networking. The experience in databases and cloud computing is quite low, thus resulting the necessity of developing the employees' competences in this field.

D. Relevant aspects on e-services

15. In terms of the question «***Evaluate to what extent the relationship with the citizens, businesses has improved further the online service development in the city hall***», the breakdown of responses is reflected by Figure 11. In 5.6% city halls, the relationship has not at all improved, in 1.4% it has improved non-significantly, in 7% it has improved moderately, in 33.8% it has improved to a large extent and in 52,1% it has improved to a very large extent.

Figure 11. Evaluation of the improvement of the relationship of city halls with the citizens, businesses further the e-service development



16. For the question « ***Evaluate the advantages of e-services provided by the city hall, awarding a score from 1 to 5***», the respondents assigned scores as follows: "1": very weak, "2": non-satisfactory, "3": satisfactory, "4": good and "5": very good, to the sentences from Table 5, which contain positive and negative statements concerning the e-service advantages.

Table 5. Evaluation of e-service advantages

e-service advantages	**Average score**	**Coefficient of variation**
1. Cutting down the public expenditure	3.19	0.17
2. Improving accessibility to public interest information and public services	2.76	0.26
3. Enhancing the degree of transparency of online services	4.53	0.21
4. Fighting against corruption	0.82	0.11
5. Decreasing the costs of public services	1.29	0.23
6. Enhancing the efficiency of the administrative activities	2.79	0.24
7. Others	1.67	0.13

Analysing the average scores, we emphasise the following advantages in the order evaluated by respondents: enhancing the degree of transparency of online services; cutting down the public expenditure; enhancing the efficiency of the administrative activities; improving accessibility to public interest information and public services; decreasing the costs of public services; fighting against corruption. The city halls have also identified another advantage, namely saving of time.

17. and 18. Concerning the website of the city hall, the respondents awarded scores on a scale from 1 to 5 for evaluation of the concept of transparency and concept of citizen participation in city halls, as reflected by their websites. Table 6 reflects the breakdown of responses.

Table 6. Evaluation of the concept of transparency and concept of citizen participation in city halls

Website	**Average score**	**Coefficient of variation**
1. Reflecting the concept of transparency	3.78	0.19
2. Reflecting the concept of citizen participation	4.21	0.23

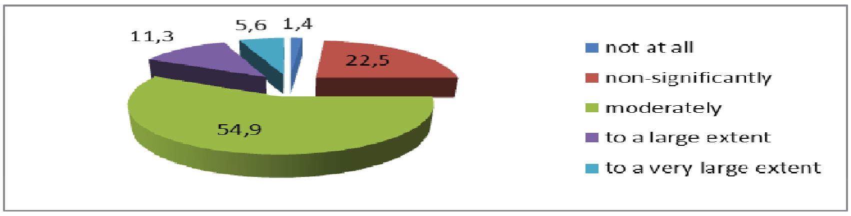
Analysing the average scores, it is worth to note that up-dated website, with coherent, useful content, attractive design leads to increasing the transparency degree as well as the citizen participation degree at the city hall level.

19. Concerning relevant aspects on online service delivery, the city halls had the opportunity to provide multiple responses, i.e. choosing from several alternatives, such as: access to administrative information (90.1%); possibility to download reports, publications (86.5%); possibility to access statistic data (83.1%), possibility to download forms/ certificates/authorisations (88.7%); possibility to complete online the forms (87.7%); possibility to pay online (taxes, charges, fines - 86,4%); possibility to customise the e-services (5,6%).

E. Practices concerning knowledge management and learning organisations

20. In terms of the question ***«Does the city hall use practices and processes on knowledge management?»***, Figure 12 reflects the graphic representation of the respondents' statements. Thus, 1.4% city halls sustain that they do not use at all practices and processes on knowledge management, 22.5% use them non-significantly, 54.9% use them moderately, 11.3% use them to a large extent and 5.6% use them to a very large extent.

Figure 12. Analysis of the use of practices and processes on knowledge management



21. Concerning the question, ***«Which are the advantages of city halls further the application of practices on knowledge management?»***, the respondents had the possibility to provide multiple responses. Thus, further the city halls evaluation, the following results are relevant: improving the capacity to respond in due time to citizens' needs (74.3%), enhancing the efficiency (71,8%), improving the service quality (70.4%), improving the decision-making (63.4%).

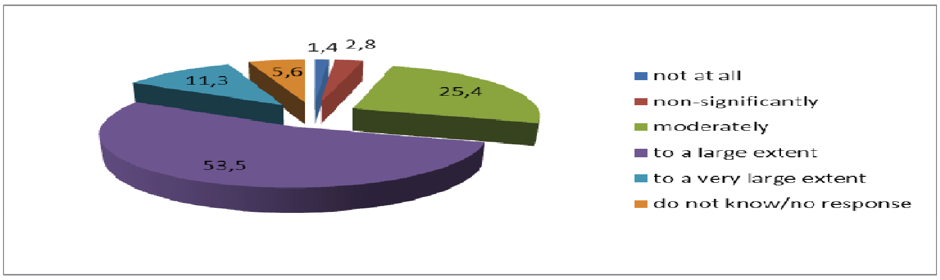
22. The question ***«Which aspects have potential in successful development of knowledge management systems?»*** has aimed to identify the main advantages with potential in successful development of knowledge management systems. According to the respondents' opinion, the advantages may be expressed in the development of databases (83.1%), development of efficient methods for obtaining information and knowledge (69.5%), development of the organisational culture (70.4%), awarding financial incentives, career promotion, awarding prizes (43.7%), encouraging the civil servants and public employees to be creative, innovative (73.9%). Another advantage identified by respondents refers to promotion of the institution image (19.2%). Generally, the city halls do not award financial incentives for creativity and innovation.

23. Concerning the question, «***Does the city hall own a database with employees' competences ?***», the breakdown of responses reflects that only 66,2% city halls own such a database.

24. In terms of the question, «***Does the city hall own a database with useful presentations, documents, which is updated continuously?***», only 71.8% city halls own such a database.

25. The responses at the question, ***«In your opinion, the organisational culture encourages knowledge sharing?»*** are reflected by Figure 13. Thus, 1.4% city halls consider that a powerful and positive organisational culture does not at all encourage the knowledge sharing, 2.8% believe that it encourages non-significantly, 25.4% consider moderately, 53.5% appreciate to a large extent, 11.3% consider to a very large extent and 5.6% do not know/do not respond.

Figure 13. Analysis on how the organizational culture encourages knowledge sharing



26. Concerning the question, ***«Do you organise interdisciplinary project teams?»***, 73.2% city halls sustain the organisation of interdisciplinary project teams.

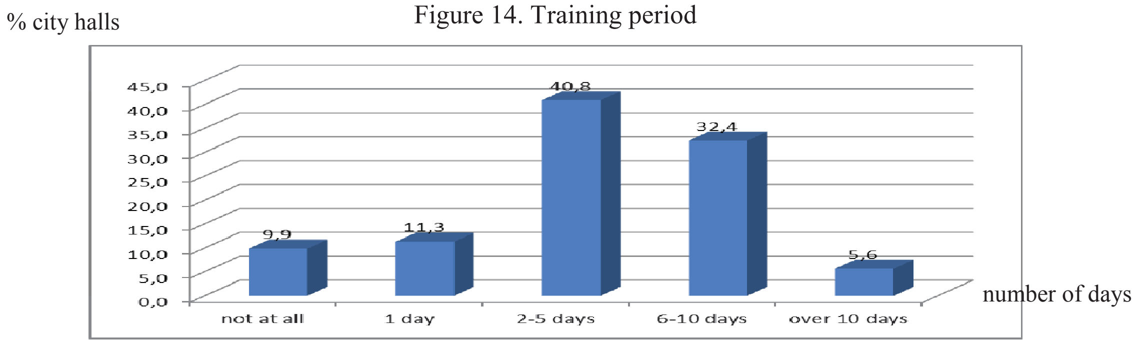
27. For the question, ***«Are the employees rewarded for information and knowledge sharing?»***, the results show that the employees are rewarded for information and knowledge sharing by financial incentives (9.9%), prizes (1.4%), career promotion (33.8%).

28. The question on ***«Accountability for knowledge management in the city hall»*** has aimed at identification of city halls' opinion on the actor holding the greatest accountability for knowledge management in the city hall. Thus, most affirmative answers were for Human Resource Management Department - 75%, IT Department - 18%, mayor - 6%.

29. Concerning the question «***Does the city hall provide opportunities for (general, specific, IT) training programmes***?» 88.7% city halls provide such opportunities.

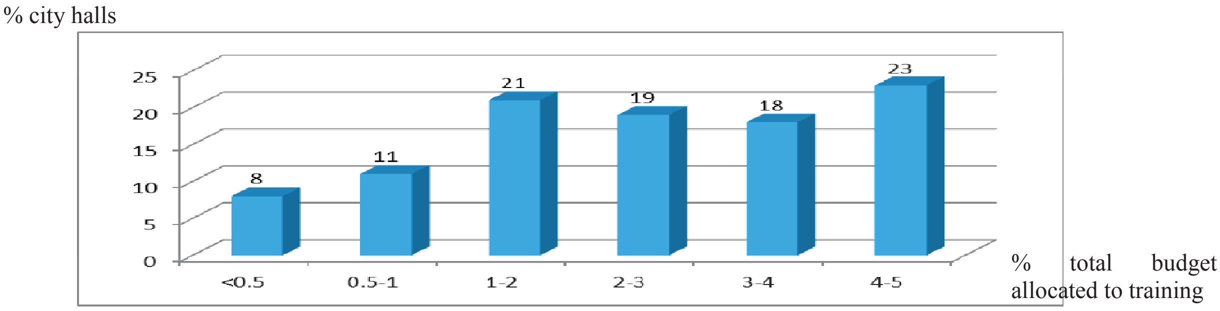
30. In terms of the question «***How many days of training/year does the city hall provide***? », 9.9% city halls assert that they do not provide training days, 11.3% assert that they provide one day/year, 40.8% award 2 - 5 days/year, 32.4% award 6 - 10 days/year while 5.6% provide over 10 days/year.

Figure 14. Training period



31. Concerning the question, «***Percentage of the total budget allocated to training?***», Figure 15 reflects the breakdown of responses. Thus, 8% city halls allocate below 0.5% of the total budget for employees' training, 11% allocate between 0.5-1%, 21% allocate between 1 - 2%, 19% allocate between 2 - 3%, 18% allocate between 3 - 4%, 23% allocate between 4 - 5%.

Figure 15. Percentage of the total budget allocated to training



32. In terms of the question, « ***Has the budget allocated to training increased during the last 5 years? If yes, how much?***», the breakdown of responses is as follows: in 25.4% city halls, it has increased in a range from 2% to 20%.

CONCLUSIONS OF THE SURVEY

The pilot exploratory research provides significant outcomes concerning the city halls' perception on the evaluation of local e-governance development based on ICT and knowledge management:

- Enhancing the efficiency and labour productivity as immediate effects of ICT use;
- Necessity of improving the transfer of information among the employees;
- Reducing the citizens' waiting time for various problem-solving;
- Need of increasing the degree of communication between city halls and other institutions/organisations/companies;
- Necessity of employees' lifelong learning, even if for the time being they hold adequate competences, skills and knowledge.

The analysis of the city hall's responses validates what the public administration already knows, namely that e-Governance applications represent a reality and the citizens are prepared to use them. The administration should analyse the citizens' feedback on e-service delivery, which triggers the improvement of e-service quality and customisation.

The public administration progress depends on technological, organisational and especially human changes. The speed of the technological changes, the pace of developing new technologies requires the enhancement of the knowledge management role.

Thus, lifelong learning, transfer of knowledge, implementation of new technologies are of crucial importance. On the other hand, the organisational culture represents an essential element for the employees' attitude and behaviour.

The operationalisation of the conceptual model from Figure 4 contributes to better understanding the principles and practices of modern e-Governance.

The lack of the plans of ICT development at the level of some city halls contributes to un-coordinated ICT application in the institution. Some public institutions revealed the lack of understanding the importance of allocating funds for investments in ICT infrastructure, e-service development, employees' training.

The study outcomes might represent a milestone for all stakeholders, especially in the actual context of a modern, citizen-centred administration.

CONCLUSIONS

Countries with developed and emerging economies consider e-governance a national priority. The current level of e-government services in Romania is modest comparative with developed EU countries as Romania has not a strong leadership to accelerate the development of e-government. The main barriers refer to resistance to change in government structures, technical barriers, administrative barriers, digital divide, lack of civil servants' training in ICT.

The conceptual model, operationalized by the pilot survey demonstrates that ICT infrastructure, digital competences, training, using modern practices of knowledge management, represent key drivers for e-Governance development.

As revealed by comparative analyses at international and European level, Romania is ranked on the last positions concerning the sophistication, fully online availability of e-services, ICT development. This research aims to emphasise the importance of all the above mentioned factors for the successful e-Governance development.

The feedback of the public institutions reflects the following conclusions:

- The public institutions are not enough centred on achieving the objectives set in the Digital Agenda;
- The lack of openness towards establishing new channels of communication with the citizens;
- The need to change the civil servants' and public employees' perception on the role of public administration in knowledge society;
- Integrating new channels of communication (intelligent television, smartphones);
- The necessity of investments in the public infrastructure and employees' digital competences development.
- Enhancing the citizens' awareness about the contents and range of online service provision.

Overall, the benefits of e-services have a significant added value, expressed in improving flexibility and adaptability, reducing the administrative burden, improving the effectiveness and efficiency, risk reducing, transparency, administrative simplification, improving the work conditions, acknowledging the achievements and competences of public administration. In view to develop efficient e-services, intensely used by citizens and businesses, the administrations should have a holistic approach, should evaluate the e-services and create new services in a systemic approach, which will valorise the whole spectrum of e-service advantages.

Taking into consideration the increase of the social media popularity, it is obvious that the dialogue between administration and citizens will develop in this direction and the administration task is to valorise at maximum the potential of this communication channel.

At the same time with the enlargement of the e-service range, the challenge for administration will be to find the most modalities of digital interaction with the citizens. The digital solutions of administration should be compatible with the citizens' needs who start to become digital citizens. But at the same time, the interaction of administration with the citizens should not be difficult and complex. The administration should solve the aspects related to the digital divide, should concern to improve the employees' digital competences and should incorporate EU best practices into a common service delivery architecture for local government.

For the time being, the administration is facing the necessity to cut down the costs in public service delivery and the pressure to reduce the public expenditure. It is recognised the fact that the countries investing highly in ICT and improvement of digital competences, the impact of investments will be found in competitiveness, economic growth and productivity (Matei, A. et al., 2013).

This study demonstrates the speeding up of e-Governance development based on: intensifying the citizens' access to ICT; decreasing the prices for the e-service so that they are accessible for everybody; improving the digital competences of employees and citizens in view to be able to use the e-services; extending the digital content: the public institutions should provide the required information and infrastructure, achieving adequate websites for online payments.

The current research results are relevant for other similar countries for the following aspects:

- creating and strengthening a comparative framework based on real, empirical outcomes, designed to contribute to monitoring the progress of South-Eastern European states in implementing ICT and public administration modernising;
- integrating the digital realities from the above states in the broader context defined by the EU documents;
- emphasising the best practices and supporting their transfer towards other emergent states.

The relationship between public administration and competitiveness is multidimensional and complex. In view to improve the competitiveness of the European economy, public administration modernization in the Member States will comprise reforms of the institutional and legislative framework, implementing internal measures aimed at improving the value and quality of public service delivery more efficiently and effectively.

The challenge for public administration modernization consists in improving the efficiency and speed of public service delivery. A modernised public sector valorises ICT opportunities, improves strategic management, knowledge management, human resource management based on performance, is centred on citizens and businesses' needs. The most important tools with significant impact on the relationship between competitiveness and excellence of public administration refers to e-Governance, human resource management centred on performance, institutional reorganisation.

The citizens should learn what e-Governance represents, which are its benefits and on the other hand, e-Governance should be managed. In Romania, e-Governance is managed with relatively low speed. Most developed countries have made huge efforts for successful managing e-Governance at national level (for example, Austria, United Kingdom, Denmark, Finland, Sweden), reflected by outstanding outcomes in this field.

e-Governance represents a solution to multiple general problems of the public sector: accessibility, enabling the internal and external administrative processes, reducing the administrative burden and ICT offers to public administration new means in view to deal the daily challenges.

Although the pace of progress is quite low in Romania, there are perspectives and opportunities for improving e-government services by using the European funds in projects focused on ICT or with ICT component.

Benefiting of strong actions of public administration at local, national, regional and global level, ICT may contribute as dynamic factor to public administration modernization, to the economic-social development, being relevant for achieving wider Europe 2020 goals.

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Information Technology Investments and Stock Market Reaction: Evidence from Czech Republic, Hungary and Slovakia

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ABSTRACT

This study examines stock market reactions to announcements of information technology investments in three transition economies: Czech Republic, Hungary, and Slovakia. Based on 95 investment announcements in the period 1998 to 2013, our study confirms some previously published results from a study conducted on Polish companies.

Keywords:

Czech Republic, event studies, Hungary, information technology, Slovakia, stock market reaction, transition economies

INTRODUCTION

The market performance of their stocks is an important proxy measure of publicly traded companies' business success. Good market performance of a company's stocks makes it easier for the company to obtain additional capital for expansion, whereas underperforming stocks may damage trust in a company's leadership and make it difficult to get financing. This access to private funds is of particular significance for companies in transition economies, many of which developed out of previously state-owned enterprises that underwent privatization and considerable restructuring. In many countries, information technology (IT) has been an important strategic tool in moving from a centrally planned to a market-oriented economy (Roztocki and Weistroffer 2008; Roztocki and Weistroffer 2009b), and the stock market is a key source of capital for companies in these economies (Jermakowicz and Gornik-Tomaszewski 1998).

In spite of the particular importance of capital markets for companies in transition economies, very few published studies have examined the impact of IT investment announcements on stock performance in transition economies, other than China. To our knowledge, the only such study in the context of a European transition economy is one by Dobija et al. (2012), which investigated the market reaction to IT investments announcements in Poland. This is particularly unfortunate as the event study methodology has been known, accepted and used in information systems (IS) research for more that two decades, beginning with the study by Dos Santos, Peffers and Mauer (1993). The majority of the published event studies in IS research used only stock data from the USA, while investigations about other countries has been rare.

The purpose of the current research is to validate the study conducted by Dobija et al. (2012), which found some similarities, but also many differences as compared to similar studies in highly developed economies (mainly USA). To validate the results of Dobija et al. (2012), we decided to use combined data from Czech Republic, Hungary, and Slovakia. Similar to Poland, these three countries are transition economies that are members of the European Union, and thus have similar societal and business environments. As compared to Warsaw Stock Exchange in Poland, their stock markets are smaller, however. Therefore, combining the three markets appears to be reasonable.

The indented contribution of this work is to further expand the repository of event studies in general and the very scant repository of event studies in European transition economies in particular.

RESEARCH HYPOTHESIS

Since the objective of this research was to validate the results of Dobija et al. (2012) with stock data from Czech Republic, Hungary, and Slovakia, we used the same hypotheses as in that study:

H1: The stock market will react more positively to IT investment announcements when the system is acquired from a global, large vendor, as compared to a small, local vendor.

H2: The stock market will react more positively to announcements of IT investments when the investments are by companies with high beta factor, as compared to similar announcements by companies with low beta factor.

H3: The stock market will react more positively to IT investment announcements conducted during a bull market, as compared with similar investments under declining market or bear market conditions.

H4: The stock market will react more positively to announcements of completed IT investments or projects already in progress, than to announcements of future planned projects.

H5: There will be a difference in stock market reaction, when the investment is announced in local language (Czech, Hungarian, or Slovak) and targeted at existing shareholders, as compared to announcements made in English and targeting global prospective investors.

METHODOLOGY

Event study research is based on the assumption of an efficient market: any pertinent happening will be fully reflected in the stock market (Fama, Fisher, Jensen and Roll 1969). Thus monitoring the stock market allows assessing the relevance or various events. In other words, event studies can make use of unexpected movements in stock prices to judge corporate transactions and from an investor's perspective.

To spot unexpected changes in stock prices, the concept of abnormal (or excess) returns (AR) is commonly used (Peterson 1989). AR_{it}, for company i on day t, is the difference between the actual return R_{it} and the projected return, where the latter is calculated as:

$$AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt})$$

with R_{mt} being the market return (based on a major market index) on day t. The parameters α_i and β_i are derived by regression analysis of daily market returns against the index. The most commonly estimation periods used range from 50 to 250 days (McWilliams and Siegel 1997). A standardized abnormal return SAR_{it} for company i on day t, can be calculated by dividing the abnormal return by its standard deviation (Henderson 1990; Peterson 1989).

Different lengths event windows may be used to determine the stock price reaction to a specific event, with common event windows for event studies looking at IT investments being the day before the event and the day of the event, denoted as (-1,0), or the day before the event, the day of the event, and the day after the event, denoted as (-1,1) (Roztocki and Weistroffer 2009a). The day before the event is generally included because often investors receive advance information before an official announcement of an IT investment is made. Cumulative abnormal returns (CAR) or cumulative standardized abnormal returns (CSAR) are typically calculated by summing the AR or SAR for the days of the event window.

RESULTS

Data collection was conducted in winter 2012 and spring 2013, so announcements until February 2013 were included. We found 46 announcements from the Czech Republic, 40 announcements from Hungary, but only 9 announcements from Slovakia. Though we included announcements from 1998 on, most announcements were from the last five years. Table 1 summarizes our sample characteristics.

Year		Country		Total
	Czech Republic	Hungary	Slovakia	
1998			1	1
1999				0
2000				0
2001		1		1
2002			1	1
2003			2	2
2004				0
2005			1	1
2006	3	3		6
2007	3			3
2008	2	1	1	4
2009	7	3	1	11
2010	7	7	1	15
2011	11	11	1	23
2012	13	12		25
2013		2		2
Total	46	40	9	95

Table 1. Sample Characteristics

The results of our analysis are shown in Table 2. Four different event windows were used, [-20,5], [-15,5], [-1,1], and [-1,0], ranging from 26 to two days, the longest window starting 20 days before the event. We used these longer windows in order to compare our results with those of the study by Dobija et al. (2012). In that study the justification for the long windows was that large IT investments in transition economies often are revealed in steps to various stakeholders over several weeks, starting long before the official announcement.

Sample/Subsample		[-20,5]			[-15,5]			[-1,1]			[-1,0]	
	N	CSAR	Z	N	CSAR	Z	N	CSAR	Z	N	CSAR	Z
Full Sample	95	-0.009	-0.09	95	-0.004	-0.04	95	0.225	2.19**	95	0.074	0.72
Breakdown by Vendor												
Local	9	-0.337	-1.01	9	-0.236	-0.71	9	0.536	1.608	9	0.266	0.80
Global	40	1.015	0.25	40	0.992	0.10	40	1.028	0.34	40	0.916	0.39
Breakdown by Company												
Beta below 0.9	45	-0.269	-1.81*	45	-0.205	-1.37	45	0.142	0.96	45	-0.011	-0.07
Beta 0.9 or above	50	0.225	1.589	50	0.176	1.24	50	0.300	2.12**	50	0.151	1.07
Breakdown by Market Conditions												
Bull Market	68	0.148	1.22	68	0.091	0.75	68	0.253	2.09**	68	0.031	0.25
Declining Market	15	-0.821	-3.18***	15	-0.494	-1.91**	15	0.062	0.24	15	0.07	0.29
Bear Market	12	0.111	0.39	12	0.069	0.24	12	0.270	0.94	12	0.321	1.11
Breakdown by Investment Status												
In-Progress/Future	17	0.097	0.40	17	0.141	0.58	17	0.199	0.82	17	-0.031	-0.13
Completed	73	-0.049	-0.42	73	-0.048	-0.41	73	0.220	1.88**	73	0.086	0.74
Breakdown by Announcement Language												
English	18	0.059	0.25	18	0.210	0.89	18	0.418	1.78*	18	0.038	0.16
Local	53	0.028	0.20	53	-0.033	-0.24	53	0.242	1.76*	53	0.157	1.14

* Significant at 10 percent **Significant at 5 percent *** Significant at 1 percent

Table 2. Summary of Results

In addition to looking at average returns for the full sample, we analyzed subsamples broken down by vendor (local or global), by beta factor of companies (below or above 0.9), by market conditions (bull, bear, or declining market), by investment status (projected or completed), and by announcement language (English or national language). These are the same breakdowns as used by Dobija et al. (2012). Significance was tested using Z values, were a Z value close to zero would indicate chance variation (Dobija et al. 2012).

As can be seen from Table 2, none of the results were significant for the [-1,0] event window. The stock price reaction for the full sample was significant at the 5% level for the [-1,1] event window. Low beta factor was significant for the [-20,5] window at 10%, and high beta was significant for the [-1,1] window at 5%. Bull market showed significance at 5% for the [-1,1] window, and declining market showed significance at 1% for the [-20,5] window and 5% for the [-15,5] window. Completed projects results were significant at 5% for the [-1,1] window. Language of announcements showed significance at the 10% level for the [-1,1] window.

Hypothesis	Supported in Dobija et al. 2012	Supported in this Study	Comments
1	Yes	No	Significant, positive stock price reaction for global vendors in Poland, but not for global vendors in this study.
2	No	Yes	Not significant in Poland, but negative reaction for low beta and positive reaction for high beta in this study.
3	No	Yes	Significant negative stock price reaction during declining markets. Significant positive reaction during bear markets.
4	Partially	Partially	Significant stock price reaction for announcements of completed projects, but not for planned projects. The evidence is, however, limited to only one event window.
5	Partially	No	In contrast to announcements in Polish that are more likely to result in positive stock market reaction, in the current study both announcements in English and in local language receive positive stock market reaction.

Table 3. Overview and Comparison of Results

Table 3 summarizes our results and compares them to those of Dobija et al. (2012). Whereas the previous study found significant stock price reaction for global vendors, our study did not support that. On the other hand, where we found beta factor to be significant in our study for some event windows, the previous study did not find similar results. Our study did confirm the previous study's findings of significant impact of declining market conditions on the stock price reaction to IT investment announcements. Also the status of IT projects, i.e. announcements of completed versus expected investments, showed similar impact in our study as in the previous work, though the results were limited to only one of the event windows used. Language of announcements, unlike in the previous study, did not show any significant impact in our results.

DISCUSSION

One surprising result is that unlike the previous study, which found significant stock price reaction for global vendors, our study did not support that. One explanation could be that in contrast to the study by Dobija et al. (2012) where Polish vendors (29 vs. 24 global vendors) dominated the sample, in our study only nine announcements were for purchases from local vendors. Moreover, in our data, many announcements do not disclose the vendor, or in some cases, both local and global vendor were involved. This may be an indication of dominance by global vendors in Czech Republic, Hungary, and Slovakia. It is also quite possible, that because of size economics, local firms in these countries are more successful than in Poland in competing with large, global players.

Similar to the results from Dobija et al. (2012), our study also showed stock price reaction for announcements of completed projects to be more positive than for planned or incomplete projects. This finding may be typical for transition economies, however this conclusion must be viewed with caution and be further validated in future studies.

Of interest from a methodological viewpoint is that our replication of the study by Dobija et al. (2012) with stock data from Czech Republic, Hungary, and Slovakia may call attention to the need for using longer time windows when conducting event study in transition economies. In our study, three significant stock market reactions were evident in 21 day and 26 day event windows.

LIMITATION, CONTRIBUTION, CONCLUSIONS, AND FUTURE RESERARCH

A limitation of our study may be that it used data from only three small transition economies that are now part of the European Union (EU), and the results may be indicative only for similar settings, but not apply to transition economies in general.

This work is significant in that this is one more event study in IS research that is not focused on the highly developed economies, like the USA and western Europe, but rather uses data from transition economies. Other than the study by Dobija et al. (2012) this may be the only such study in the context of Central and Eastern Europe.

Since this research and Dobija et al. (2012) focus specifically on the four transition economies that make up the Visegrád Countries (Czech Republic, Hungary, Poland and Slovakia), a very natural research avenue will be to expand this kind of research to other transition economies, both within the EU, such as Bulgaria and Romania, and outside of the EU, such as Russia or other Commonwealth of Independent States (CIS) countries. We hope our research will inspire other researchers and may serve as a model and basis for many future research projects.

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Attitudes Towards Globalization and Styles of Internet Use

by

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ABSTRACT

The main aim of this presentation is to discuss the results of the research aimed at finding relations between the styles of using the Internet and the attitudes towards globalization. The sample included 597 people aged 15 to 39 years from Lower Silesia Province, Poland.

This presentation discusses the results obtained by the use of two methods, each based on their own theoretical assumptions. The *World and I Questionnaire* (WIQ), created by A. Senejko and Z. Łoś to diagnose attitudes toward globalization, is based on the assumption that people nowadays experience the globalized reality in different ways. Some people embrace all that is related to the processes of globalization (those people are diagnosed as having the acceptance attitude), while others reject the globalized reality (they are characterized by the critical attitude). Still another group are those who fear their inability to cope with the challenges posed by globalization (those people exhibit the fear attitude toward globalization). The second of the methods: The *Internet-Interpersonal Relations Questionnaire* (IIRQ), created by D. Chmielewska-Łuczak, diagnoses the ways of using the Internet, focusing on the character of Internet communication. Its basic assumption involves the disinhibition effect that can be diagnosed in people using the Internet, and which is associated with the limitation of social influence. The IIRQ diagnoses the positive/negative experiences resulting from using the Internet, the perceived change in the quality of face to face social relations influenced by Internet communication, as well as the dependency on using the Internet.

The presentation discusses the results obtained by the use of both methods. Significantly, the research was based on an idiographic analysis focused on the results obtained for the specific cases of people under examination. The interpretation of the results focuses on the observed relations between the attitudes toward globalization and the ways of using the Internet by the participants of the research.

The results revealed the relationships between the distanced and omnipotent styles of using the Internet and the accepting attitude toward globalization, between the frustrated style and the critical attitude, and between the ambivalent style and the fearing attitude toward globalization. The discussed research can be used to increase the awareness of the Internet users of the fact that it is necessary to look for a strategy for coping with the challenges posed by the Internet that is best adjusted to a particular individual. The competence of choosing such an appropriate strategy is a valuable asset of any contemporary manager who would like to target his or her offer at a variety of customers representing different styles of using the Internet.

Keywords:

attitudes towards globalization (accepting, critical, fearful); attitude towards the Internet (open, overwhelmed); styles of using the Internet (omnipotent, ambivalent, distanced, frustrated)

1. MANIFESTATIONS OF GLOBALIZATION

The aim of this paper is to explore the possible relations between the attitudes of people aged 15 to 39 towards globalization and their attitudes towards using the Internet – the most commonly used product and tool of the contemporary globalized reality.

For a dozen or so years, globalization, defined as a process of strengthening relations and growing interdependence on a worldwide scale (Giddens, 1990, 1991), has attracted keen interest from scholars representing various disciplines of science, and more recently also from sociologists and psychologists (see, for example, Bauman, 1999, 2000; Fukuyama, 1992; Giddens, 1990; Wallace, 1999; Arnett, 2002; Turkle, 2005). The development of the media, the Internet and mobile phones has been accompanied by a gradual intermingling of cultures, which has also stimulated profound changes in social functioning. They are expressed in the changing of social customs, the blending of value systems, the development of popular culture setting new trends and fashions, the consumerist lifestyle promoted in advertisements and in propagating behaviour that is not necessarily advantageous to individuals or to society at large.

As a rule, those scholars depict the present time as a phenomenon that is heterogeneous, dialectical, and full of contradictions and reactance (Giddens, 1991; Bauman, 2000). The following list of dialectical characteristics of the present reality may be offered in an attempt to make sense of the paradoxes of this contradictory diversity:

- **Globality versus locality:** the interdependence on a worldwide scale is accompanied by centrifugal processes, the desire of ethnic groups to preserve their identity, etc. – but also the reciprocal influence between the global and the local (glocalization[1]);
- **Unification versus fragmentation:** *globalization* facilitates the creation of a uniform culture, but it also enables the individuals to emphasize their identity, "breaking out" of the unified whole (see anti-globalization movements according to Castells, 2000, 2004, as result of networking);
- **Control versus powerlessness:** a number of global institutions control the processes that influence the entire world; on the other hand, growing powerlessness against global risk can also be witnessed;
- **Authority versus uncertainty:** a growing need for authority and experts is accompanied by methodological doubt, the undermining of the role of authorities and the revising of ideas, methods, etc.;
- **Devaluation of the past and the future versus the primacy of the present:** the processes of globalization are so qualitatively new that the past, preserved in traditions and culture, is no longer regarded as a signpost for the present or, even more so, for the future directions of social and individual development. The present, therefore, is that which should be fully

[1] Glocalization – the effect of globalization resulting from the tension between the local and the global. Initially, the term had only an economic connotation and signified the process of adapting global marketing strategies to individual localities. The term was transferred to the field of social sciences by Roland Robertson, who defined glocalization as an adaptation of global actions to local conditions. Its philosophy can be best summarized by the catchphrase: "think globally, act locally." Various complex processes occur within glocalization: interpretation, translation, mutation and adaptation of global contents, as well as delocalization. It also gives rise to indigenization (localization), creolization (mixing) and hybridization (Robertson, 1994).

utilized by people who are burdened with the task of shaping their identities (Giddens, 1991; Bauman, 2000; Arnett, 2002; Dasen, 2000; Szlegel, 2001).

2. ATTITUDES TOWARDS GLOBALIZATION IN POLAND

It is often emphasized (see, for example, Bauman, 2000; Fukuyama, 1992; Arnett, 2002, 2003) that globalization also affects the personal life of an individual, influencing his or her way of thinking about him- or herself and his or her relations with others. This provides both opportunities and threats (Łoś, Senejko, in print).

It is assumed for the purpose of the present study that the diverse ways in which globalization influences the life and development of an individual depend most of all on the individual's attitude towards those processes. It is this assumption that forms the basis for the World-I Questionnaire developed by Alicja Senejko and Zbigniew Łoś. The following three attitudes towards globalization can be distinguished:

a/ *accepting* (focusing on the positive aspects, benefits and opportunities that are made available by functioning in the globalized reality);

b/ *critical* (focusing on the threats posed by globalization and an active or passive protest against its negative aspects);

c/ *fearful* (focusing on the fear caused by various aspects of the globalized reality, the uncertainty of whether one will cope with the challenges created by globalization).

In Poland, two major political phenomena have exerted considerable influence on the psychological condition of young people within the last two decades. The first was the 1989 change of political system, as a result of which the country embarked on the path of democracy, while the second was Poland's joining the European Union in 2004. In principle a positive phenomenon, the transformation of Poland's political system that took place in the 1990s brought a lot of negative experience to the social life. This affected mostly young people, who, having no authorities or mentors with knowledge adequate for the changing conditions, faced challenges which were difficult to handle. They could not even rely on their parents, who were focused on their own everyday problems and desperately seeking their place in the new reality. It is also important to remember that the period witnessed increasing social differences and unequal distribution of the negative consequences of the transformation. In contrast, Poland’s accession to the EU opened up opportunities for many people to improve their living conditions and fulfil their dreams. The open borders, the possibility of studying and working in Western Europe and the opportunity to contact their peers living abroad and to compare their lifestyles and living conditions, all influenced young Poles in a positive way. On the other hand, the insecurity concerning the economic situation, vague criteria of social and professional success, as well as an uncertain and unforeseeable future, all contribute to the fact that young people today are disoriented and full of doubts (Oleszkowicz, Senejko, in print).

3. THE INTERNET AS A TOOL OF THE INFORMATIONAL SOCIETY

This article focuses on the role of the Internet and its influence on communication between people.[2] It is emphasized that globalization is an outcome of political, economic, cultural and social processes. The development of globalization has gained momentum due to the progress of information and communication technologies, particularly the Internet, which have caused a considerable increase in the speed and range of human interactions worldwide. The three most distinctive characteristics of the Internet are its reduction of the time and space dividing people, the interactive character of online activities and the wealth of easily accessible information circulating on the Web.

Most crucially, the Internet has transformed social relations. It has made obsolete the principle of the flow of information produced and stored in particular centres, introduced new subjects to public discourse (by providing people with the means to create and process information), and enabled the receivers of information to function in a new capacity of creators and subjects (Shirky, 2008, 2010; Bernstein, Monroy-Hernandez, Harry, Andre, Panovich, Vargas, 2011; Bhuiyan, 2011; Burgess, Green, 2009). What is more, a new category of participants of culture has emerged: the transmitters, who provide information and work with the final image (and its importance) by replicating, multiplying and mutating cultural memes (Blackmore, 1999; Brodie, 2004).[3]

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[2] The enormously dynamic development of the Internet took place within just thirty years. Being increasingly efficient in satisfying people's needs, the Internet transforms their behaviour, perceptions and functioning – and these changes reach beyond the virtual reality (Turkle, 2011).

[3] Meme – a term introduced by Dawkins, designating a replicator that spreads similarly to the transmission of genes (Dawkins, 1976, continued by Blackmore,1999 and Brodie, 2004).

But apart from the new opportunities it offers, scholars also underline the emotional, social, behavioural and cognitive problems associated with Internet use. These problems are the consequence of a disturbed ability to self-regulate with respect to individual commitment to Internet or computer activities (cf. Morahan-Martin, 2005; Shaw, Black, 2008; Young, 1998 and others).

4. CHARACTERISTICS OF INTERNET COMMUNICATION

In the literature on the subject, the characteristics of communication through the Internet are described by sociological models, of which the model of Computer-Mediated Communication (Hiltz, Johnson, Turoff, 1986; Rice, Love, 1987) is the most popular,[4] but they are also analysed from the psychological perspective, emphasizing the users' reactions to an incomplete interpersonal situation in the Internet environment. Particular attention should be given to the effect of the "cold impression" on the Web (after Wallace, 2005), the "Net effect" described by Aboujaoude (2011),[5] the disinhibition effect, both toxic and benign, according to Suler (2004), the duality of functioning in the Internet environment (feeling isolated and being in contact) described by Turkle (2011)[6] and the escalation of narcissistic traits (Buffardi, Campbell, 2008).

It is on such an understanding of Internet communication that the present study was based in an attempt to diagnose the general attitude towards Internet use expressed in two orientations: openness to various opportunities and functions offered by the Internet (*open attitude*) or the feeling of being dominated by the Internet and losing control over the

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4 Computer-Mediated Communication (CMC) – a term introduced by the Social Presence Theory (Hiltz, Johnson, Turoff, 1986; Rice, Love, 1987).

5 Aboujaoude describes the "Net effect" as comprising impulsivity, dissociation, disinhibition, grandiosity, narcissism, darkness and regression (Aboujaoude, 2011).

6 Suler (2004a, b) distinguishes benign disinhibition and toxic disinhibition. One of the reasons for disinhibition on the Internet is the feeling of anonymity, which enables people to separate their online activities from their personality and individual lifestyle. As a result, they feel less vulnerable to getting hurt and thus are more willing to open up and express their emotions. Negative disinhibition may share certain points of convergence with the "Net effect" explored by Aboujaoude. In contrast, although it has the same cause, positive disinhibition gives rise to many positive emotions and experiences – people become more confident and affectionate, more willing to open up to others and less guarded about their emotions. They make friends, fall in love and help others more often.

processes, which overwhelm the user (lack of control over the influx of information as well as over one's reactions and behaviour, both his or her own and the partner's – *overwhelmed attitude*).

The second type of attitude being explored by the present study is the attitude towards globalization (*accepting*, *critical* and *fearful*). Whereas the globalization trend appears to be a macrosocial and cultural phenomenon, which is superior to the psychic processes of individuals, one's attitude towards globalization is a subjective psychological phenomenon, one which, in the opinion of the authors of the present paper, is not among the most important psychic processes. It is assumed that the attitude towards globalization is interrelated with other dimensions of human experience, such as experiencing self-efficacy, interpersonal approval or the Internet environment. Therefore, it is not one-sided cause-and-effect relationships, but rather reciprocal ones, that should be expected to exist between the variables under examination. Furthermore, the possibility is taken into account that such an analysis of the observed relations would emphasize a relative advantage in the reciprocal influence of one phenomenon over others.

The discussed problem was operationalised in such a way as to measure experiences of using the Internet (styles of Internet use) using the Internet-Interpersonal Relations Questionnaire, and attitudes towards globalization using the World-I Questionnaire.

5. AIM OF THE STUDY, RESEARCH QUESTIONS AND HYPOTHESES

The study aimed to explore the question of whether there is a relationship between styles of Internet use and attitudes towards the experienced manifestations of globalization. The literature provides no previous research offering such a perspective on the subject. The question of the existence of such relations is a complex one, since people experience the Internet in a direct and personal manner, whereas the manifestations of globalization are experienced in an indirect way that requires an over- and extra-personal (pertaining to the world view) perspective to be adopted. With respect to the above aim of the study, the following research questions and related hypotheses were proposed:

Research question no. 1

What are the characteristics of people under examination as regards their attitudes towards globalization and towards the Internet, taking account of the respondents' age and length of Internet experience?

With regard to the fact that a substantial majority of the respondents are young people, under thirty-nine years of age, it was assumed that a relatively higher percentage of them would be characterized by an open attitude, expressing both acceptance of globalization and an open style of Internet use (see the results of research on the development of identity and the dominant informational identity style for people aged 17 to 35 years – Berzonsky, 2012; Oleszkowicz, Senejko, 2011).

Hypothesis no. 1: Irrespective of age and length of Internet experience, the majority of the respondents will exhibit an accepting attitude towards globalization and an open attitude towards using the Internet.

Research question no. 2

Since it was assumed that the attitude to the Internet may be expressed in particular styles of Internet use (*distanced*, *frustrated*, *omnipotent* and *ambivalent*)[7], the second research question was formed as follows:

What are the characteristics of people under examination as regards the four styles of Internet use, taking account of the respondents' age and length of Internet experience?

Because there are currently no results that would allow us to advance a hypothesis about the styles of Internet use taking into consideration the age and Internet experience of people using the Internet, no specific hypothesis was proposed in relation to the second question.

Research question no. 3

What are the relations between styles of Internet use and attitudes towards globalization?

It was assumed that the above mentioned styles of Internet use are related to various attitudes towards globalization, a relationship that is addressed in the third hypothesis.

[7] According to Turkle, technology and the unique medium of the Internet largely contribute to the fact that people avoid closeness in their relations with others and that they feel both alone and surrounded by other people at the same time. They perceive others as objects to which only limited access can be acquired, or rather, that access can be acquired to the "elements" of these objects that the other person engaged in the relationship deems useful, funny or soothing (Turkle, 2013).

Hypothesis no. 3: People characterized by different styles of Internet use will exhibit different attitudes towards globalization.

6. CHARACTERISTICS OF THE METHODOLOGICAL TOOLS USED IN THE STUDY

6.1. Internet-Interpersonal Relations Questionnaire (I-IRQ).

The questionnaire was developed by Chmielewska-Łuczak (in print). It includes an introductory section, which gathers basic information about the respondent, and the main part, which consists of fifty-nine items describing the respondent's personal experiences of Internet use. The items of the I-IRQ form two larger scales.[8] The respondent's answers are given on a four-point scale (Strongly Agree, Agree, Disagree, Strongly Disagree) and are graded accordingly (three points for an answer that is entirely consistent with the key, 0 points for an answer that is wholly inconsistent, and intermediate points for partial consistency with the key).

The overview of the psychometric properties of the scales is shown in Table 1.

Table 1: Characteristics of scales of the I-IRQ (N=647)

Parameter	Scale of the open attitude	Scale of the overwhelmed attitude
Cronbach's alpha based on standardized items	**0.85**	**0.80**
No. of items	15	14
Mean	13.99	16.49
Standard deviation	8.09	7.28
Potential range	0-45	0-42
Observed range	0-37	0-38
Skewness	0.28	-0.01
Kurtosis	-0.55	-0.35
Mean inter-item correlation	0.27	0.23
Range of discriminant function coefficients	0.40-0.59	0.31-0.49

[8] An exploratory factor analysis of data reveals that more than two factors could be distinguished. Nevertheless, given the limitation of this paper, only the first two factors were taken into account.

As is demonstrated in Table 1, both scales have almost normal distributions and solid reliability coefficients.[9] Their significance has been explained above.

6.2. World-I Questionnaire (W-IQ).

The World-I Questionnaire was developed by Senejko and Łoś (in print). The items were formed on the basis of fourteen domains of globalization that were singled out for the purpose of the study (e.g. political, financial and banking, industrial, consumer, ecological, cultural, civic). The respondents' answers were provided on a four-point scale (Strongly agree, Agree, Disagree, Strongly disagree). At present, the W-IQ consists of three weakly correlated scales (within the range -0.08 - 0.25 for this data sample). The present research used a 35-item version of the questionnaire that measured three attitudes towards globalization (accepting, critical, fearful).[10] The overview of the psychometric properties of the scales is shown in Table 2.

Table 2: Characteristics of scales of the W-IQ (N=647)

Parameter	Scale G–accepting	Scale G–critical	Scale G–fearful
Cronbach's alpha based on standardized items	**0.70**	**0.73**	**0.68**
No. of items	9	10	11
Mean	15.23	18.72	12.65
Standard deviation	5.06	5.29	5.15
Potential range	0-27	0-30	0-33
Observed range	0-27	0-30	0-28
Skewness	-0.21	-0.33	0.09
Kurtosis	-0.27	0.33	-0.20

[9] It must be noted that in the present sample, the scales are positively correlated (Pearson's correlation coefficient r=0.36), even though a varimax orthogonal rotation was used in the process of the factor analysis of items, and items with high weights in both factors were deleted from the scales.

[10] The wording of the items was intended to encourage the respondents to talk about their personal attitudes, opinions or behaviour even if the item concerned macrosocial phenomena, such as “fleeing” jobs or the loss of social control over international corporations.

Mean inter-item correlation	0.21	0.22	0.16
Range of discriminant function coefficients	0.22-0.54	0.31-0.47	0.25-0.45

The relatively low reliability coefficients of the scales (within the range 0.68 - 0.73) is the consequence of the intended wide content variety of the questionnaire scales (as many as fourteen domains of globalization). On a different sample (constructive, N=806), the reliability coefficients of those three scales were slightly higher (within the range 0.73 - 0.79). This level of internal consistency of the scales appeared sufficient for the research.

7. RESPONDENTS

The respondents were 597 people aged fifteen to thirty-nine living in the Lower Silesia Province, Poland. They were school pupils, students and employed persons. The research was conducted between January and March 2013, in groups (school pupils) and individually (students and employed persons), in the places where the respondents studied, worked or lived.

8. ANALYSIS OF THE RESEARCH RESULTS

The results are presented in the order corresponding to that in which the research questions and hypotheses have been given above.

8.1. Characteristics of the respondents in relation to age, length of Internet experience, attitude towards using the Internet and attitude towards globalization.

The results of the study (see Table 3) show that, with respect to Internet experience, both the younger (aged 15–19) and the older (aged 20–39) respondents having more than five years' experience are more often characterized by low levels of open attitude towards using the Internet ($p< 0.0001$ for the older respondents). Conversely, in the case of respondents with less than five years' experience, significantly higher percentages of both younger and older respondents are characterized by high levels of open attitude towards using the Internet ($p< 0.01$).

Table 3: Age, length of Internet experience and attitude towards using the Internet

Age	Length of Internet experience	Attitude towards using the Internet				Total
		Open		Overwhelmed		
		Low	High	Low	High	
Younger (aged 15–19)	Over 5 years	116	115	131	100	231
		50.22%	49.78%	**56.71%**	43.29%	
	Less than 5 years	23	37	26	34	60
		38.33%	**61.67%**	43.33%	56.67%	
Older (aged 20–39)	Over 5 years	162	88	134	116	250
		64.80%	35.20%	53.60%	46.40%	
	Less than 5 years	10	46	11	45	56
		17.86%	**82.14%**	19.64%	**80.36%**	
Total		311	286	302	295	597

As regards the overwhelmed attitude, higher percentages of both the younger and the older respondents having over five years' Internet experience are characterized by a low level of the overwhelmed attitude ($p< 0.003$ for the younger respondents; $p< 0.06$ – for the older group). In contrast, both the younger and the older respondents having less than five years' Internet experience are characterized by a high level of the overwhelmed attitude ($p< 0.0001$ for the older respondents). Therefore, longer Internet experience is related to low levels of both open attitude and overwhelmed attitude, whereas shorter Internet experience is related to high levels of both open and overwhelmed attitudes. The age of the respondents was not a significant predictor of attitude.

The discussion of the findings concerning the styles of Internet use must be preceded by a brief description of how they were acquired. Due to the fact that the I-IRQ comprises two scales (the open attitude and the overwhelmed attitude towards using the Internet), the categorization of the scales involved converting the standardized results of the two scales to those greater than zero ("high") and those less than zero ("low"). This enabled identification of four categories of Internet use styles. These were: the distanced style (low open, low overwhelmed), the frustrated style (low open, high overwhelmed), the omnipotent style (high open, low overwhelmed) and the ambivalent style (high open, high overwhelmed).

Table 4 shows that irrespective of age, among the respondents having the longer Internet experience[11], those exhibiting the distanced style are in the majority (in pairwise comparison, the majority of differences are highly statistically significant).

Table 4: Age, length of Internet experience and attitudes towards using the Internet

Age	Length of Internet experience	Styles of Internet use				Total
		Distanced	Frustrated	Omnipotent	Ambivalent	
Younger (aged 15–19)	Over 5 years	76	40	55	60	231
		32.90%	17.32%	23.81%	25.97%	
	Less than 5 years	10	13	16	21	60
		16.67%	21.67%	26.67%	35.00%	
Older (aged 20-39)	Over 5 years	96	66	38	50	250
		38.40%	**26.40%**	15.20%	20.00%	
	Less than 5 years	5	5	6	40	56
		8.93%	8.93%	10.71%	**71.43%**	
Total		187	124	115	171	597

Among the respondents having shorter Internet experience, irrespective of age, the majority are those exhibiting the ambivalent style. In the older group of respondents, the level of the ambivalent style is significantly higher than any of the other three styles, whereas in the younger group, the ambivalent style is significantly more frequent than the distanced style. Therefore, the length of Internet experience is again a more significant predictor of style than the respondents' age.

Furthermore, certain regularities can also be observed with respect to the respondents' attitudes towards globalization. While the accepting attitude towards globalization is the most prominent (at a level ranging from $p< 0.08$ to $p< 0.01$) among the younger respondents having over five years' experience in using the Internet, the older respondents with the longer Internet experience are mostly characterized by a critical attitude (at a level ranging from $p< 0.03$ to $p< 0.0001$).

[11] Among the respondents with more than five years' Internet experience, 85% use the Internet several times a day, while the remaining 10% use the Internet once a day. Therefore, almost all of them use the Internet

Table 5: Age, length of Internet experience and attitudes towards globalization

Age	Length of Internet experience	Attitudes towards globalization			Total
		Accepting	Critical	Fearful	
Younger (aged 15–19)	Over 5 years	92	65	74	231
		39.83%	28.14%	32.03%	
	Less than 5 years	22	14	24	60
		36.67%	23.33%	40.00%	
Older (aged 20-39)	Over 5 years	84	107	59	250
		33.60%	**42.80%**	23.60%	
	Less than 5 years	13	6	37	56
		23.21%	10.71%	**66.07%**	
Total		211	192	194	597

In contrast, both the younger and the older respondents having less than five years' Internet experience are predominantly characterized by a fearful attitude towards globalization (in pairwise comparison, the majority of differences were highly statistically significant).

8.2. Styles of Internet use and attitudes towards globalization

No other research results were available to the authors of the present study that would enable a meaningful comparison, but certain relations between styles of Internet use and attitudes towards globalization were assumed to exist, given the psychological content of those categories and the developmental characteristics of the respondents (adolescents and young adults).

The results shown in Table 6 indicate that the accepting attitude is mostly exhibited by respondents characterized by the distanced and omnipotent styles (in pairwise comparison, the significance of the differences varies from $p<0.05$ to $p<0.0001$); the critical attitude is mostly exhibited by respondents characterized by the frustrated style ($p< 0.01$ to 0.001), whereas the fearful attitude characterizes those exhibiting the ambivalent style ($p< 0.001$ to 0.0003).

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systematically.

Table 6: Styles of Internet use and attitudes towards globalization

Styles of Internet use	Accepting attitude	Critical attitude	Fearful attitude	Total
Distanced style	89 **47.59%**	59 31.59%	39 20.86%	187
Frustrated style	35 28.23%	61 **49.19%**	28 22.58%	124
Omnipotent style	50 **43.48%**	29 25.22%	36 31.30%	115
Ambivalent style	37 21.64%	43 25.15%	91 **53.22%**	171
Total	211	192	194	597

Furthermore, to obtain a full view of the findings, the study also assessed whether there existed statistically significant correlations between the four styles of Internet use and the scales of attitudes towards globalization.[12] The results of that assessment are presented in Table 7.

Table 7: Spearman's correlations between styles of using the Internet and attitudes towards globalization

N=597	Accepting attitude	Critical attitude	Fearful attitude
Distanced style	0.00	-0.07	**-0.28**
Frustrated style	-0.06	**0.19**	0.02
Omnipotent style	0.05	**-0.09**	**-0.13**
Ambivalent style	0.01	-0.01	**0.38**

The statistically significant correlations are written in bold ($p< 0.05$)

Table 7 shows significant correlations between Internet use styles and two out of the three scales of attitudes towards globalization: the critical attitude and the fearful attitude. These

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[12] The three-factor solution was accepted based on factor analysis (principal components analysis with varimax rotation). It was assumed that even if it was complex, the respondents' attitude towards globalization was primarily categorized by the strongest of the three components – accepting, critical or fearful (the idea was borrowed from Berzonsky, 2012, who classifies identity styles in this way). This analysis was performed through the standardization of raw scores in the scales of the W-IQ, which revealed the highest result for each respondent, constituting his or her category of attitude towards globalization.

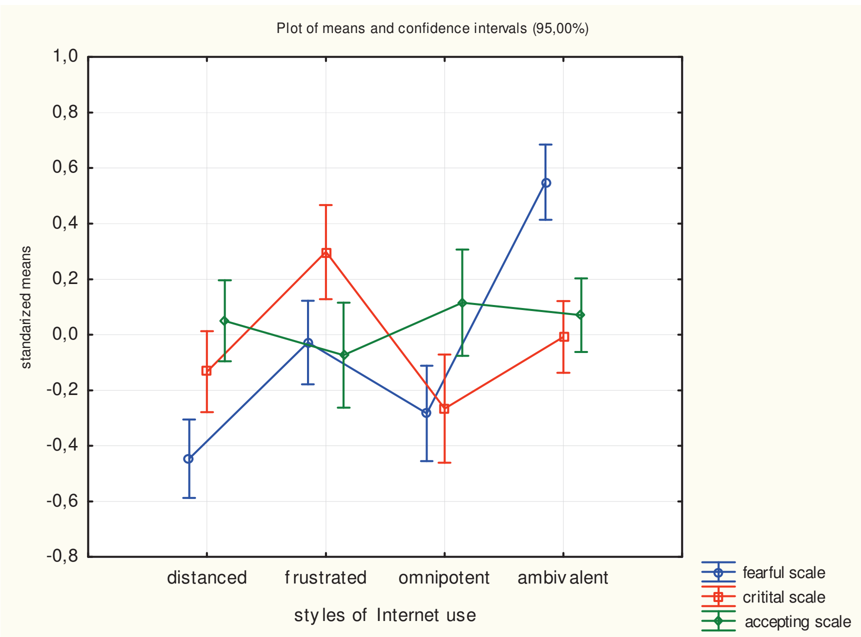
correlations are consistent with those obtained in the idiographic analysis (cf. Table 6). Conversely, no significant correlations with styles of Internet use were obtained for the accepting attitude, even though such significant relations were obtained in the idiographic analysis, which took account of the results categorized individually for each respondent. These correlations are shown in Figure 1 – the result of the analysis of variance of the attitude scales to globalization in the subgroups of the styles of Internet use.

Table 8: Analysis of variance of the W-IQ scales in the subgroups of the styles of Internet use (df effect = 3, df error = 593)

Scales of attitudes towards globalization	F	p<
Accepting scale	0.82	0.48
Critical scale	7.79	0.00004
Fearful scale	38.23	0.000001

As it turned out, the variance of the results of the acceptance scale among the styles of Internet use was not statistically significant. This is illustrated in Figure 1 (green line).

Figure 1: Means of three attitudes toward globalization and four styles of Internet use.



9. DISCUSSION

According to the literature on the subject, no previous research using idiographic analysis has been conducted on relationships between Internet use and attitudes towards globalization. The results thus achieved are more interesting and produce greater insight into the essence of the relations than would be possible if the classic quantitative analysis had been used. Taking into account the developmental characteristics of people under examination – adolescents and young adults – it was expected that the age of the respondents would constitute an important variable that should be included in the study (Bee, 2000; Newman, B.M., Newman, P.R., 2006; Oleszkowicz, Senejko, in print). Another variable which was deemed important to the present study was Internet experience, often regarded (Kraut, Kiesler, Boneva, Cummings, Helgeson, Crawford, 2002; Sum, Mattews, Pourghasem, Hughes, 2009) as crucial to the mental state of Internet users.

Indeed, the results of the research indicate that in some cases the age of the respondents significantly modifies the acquired data, while Internet experience, or both of these variables, would appear to be of crucial importance in others. Based on psychological knowledge about the development of human beings, Hypothesis no. 1 assumed that, irrespective of age and Internet experience, the majority of the respondents would be characterized by openness to experiences, as expressed in an accepting attitude towards globalization and an open attitude towards Internet use. However, the achieved results do not confirm this hypothesis, as it turns out that longer Internet experience may decrease openness towards the Internet irrespective of the respondent's age. Such openness is observed only in respondents, both younger (nineteen years of age and under) and older (thirty-nine years of age and under), who have less than five years' experience in using the Internet. The results, paradoxical in light of developmental psychology and other research (Kraut, Kiesler, Boneva, Cummings, Helgeson, Crawford, 2002),[13] are in accordance with psychological analysis of

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[13] Robert Kraut and his associates carried out in the 1990s an experiment known as the "Home Net Study," in which a number of families, which had no previous experience in using the Internet, were provided with computers and unlimited access to the Web. The results of two years' observations of the changes in the families' functioning, wellbeing and emotions shown that the new Internet users felt much more lonely and frustrated. However, observations that were made after an additional period of three years revealed that virtually all of the negative emotions diminished. The researchers also observed a positive correlation between frequent

Internet users indicating that the Internet environment is psychologically difficult and exposes Internet users to various frustrations (Aboujaoude, 2011; Turkle, 2011; Suler, 2004a, b). It is worth mentioning at this point the interesting results concerning the level of the overwhelmed attitude towards the Internet that characterizes the younger and the older respondents alike. As it turns out, the respondents having longer Internet experience are often characterized by a low level of the overwhelmed attitude, while those with shorter Internet experience feel more overwhelmed. Arguably, the obtained results may be interpreted within the categories of the strategy adopted by experienced Internet users, involving a controlled limitation of openness to online information, contacts or emotions related to the experience of using the Internet. It allows experienced users to avoid feeling overwhelmed by the Internet (cf. Young, 1998).[14]

Both the respondents' age and Internet experience prove significant with respect to their attitudes towards globalization. In the younger respondents, longer Internet experience is related to the accepting attitude towards the globalized reality, whereas in the older respondents, longer Internet experience is related to the critical attitude. Conversely, the respondents with less than five years of Internet experience tend to exhibit a fearful attitude towards globalization. This may be attributable to a number of factors. It may be supposed that the older respondents with at least five years' Internet experience may be under the influence of socio-political phenomena related to political transformation and global interdependencies, such as recession, unemployment, professional qualifications becoming outdated, unfavourable forms of employment, etc. They experience these phenomena directly, trying to remain in work in an unstable labour market or making decisions about starting a family and securing its future at a decent level, etc. In contrast, the younger respondents with longer Internet experience are susceptible to ideologies of acceptance and a wealth of opportunities related to the ubiquitous globalization. It may be suggested that the less experienced Internet users, both younger and older, are worried by their insufficient

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Internet use and social commitment and mental equilibrium (Kraut, Kiesler, Boneva, Cummings, Helgeson, Crawford, 2002).

[14] These findings appear particularly interesting when juxtaposed with the notion of Internet addiction. The results of the present study suggest that experienced Internet users may individually develop strategies for regulating their commitment to the Internet.

competence and potential informational exclusion (Chmielewska-Łuczak, Nowak, 2007). It appears necessary to conduct intercultural studies in respect of this issue.

The most important results with regard to the styles of Internet use (obtained on the basis of two types of attitude) show that the majority of the respondents with at least five years' Internet experience, irrespective of their age, are characterized by the distanced style (low open attitude towards the Internet and low overwhelmed attitude). In contrast, among the respondents with less than five years' experience, irrespective of their age, the majority are those characterized by the ambivalent style (high open and high overwhelmed attitude). The results suggest a dynamic transformation of attitudes towards the Internet conditioned by online experiences (cf. Turkle, 2011). The initial stages of exploration of the possibilities offered by the Internet may be intense, unlimited and lacking conscious control, leading, as a result, to positive but also many negative experiences and events. In consequence, the inexperienced users may feel overwhelmed and trapped by the Internet. Gradually, they tend to increase self-control and reduce the intake of information as well as their own participation in online activities.

Furthermore, a relationship between the distanced and omnipotent styles and acceptance of globalization can be observed. To reiterate, both styles are characterized by low overwhelmed attitude towards the Internet, a fact which may be related to self-efficacy, controlling the situation as well as identifying and understanding the principles governing the Internet environment (Yan, 2006). It is possible that these competences predispose users to fully utilise the opportunities offered by both globalization and the Internet.

A relationship between the frustrated style (overwhelmed attitude and no openness to the Internet) and the critical attitude towards globalization may be partly explained in terms of "digital exclusion."[15] Moreover, a mass of negative emotions arising from the failures experienced may incline people to a generalized criticism of the globalized reality.

A relationship between the ambivalent style (high openness and high overwhelmed attitude towards the Internet) and the fearful attitude towards globalization appears to be the

[15] For the purposes of the present study, "digital exclusion" is understood not only as a lack of access to the Internet or limited technical skills, but also encompasses various limitations with respect to the competences of self-efficacy, controlling the situation as well as identifying and understanding the principles governing the Internet environment.

consequence of an unskilfully set balance between the user's own predisposition and provocative online advertising campaigns.[16] As a possible result, the uncertainty people experience in the Internet environment becomes generalized to fears concerning the globalized socio-cultural environment that do not have their source in the Internet activity. The observed relations are consistent with Hypothesis no. 3 in that it is possible to indicate a relatively explicit relationship between the styles of Internet use and attitudes towards globalization.

Based on idiographic analysis, this study took into consideration individual configurations of styles of Internet use and attitudes towards globalization. The results revealed a number of interesting relationships that are important from psychological, socio-political and technological perspectives. As has been emphasized throughout, these relations would probably have escaped the researchers' attention if the study had been based only on a typical quantitative analysis. The results of the present study may be used in the interests of Internet users to make them aware of the opportunities and threats offered by the Internet, but also, more importantly, to increase their awareness of the process of finding strategies of coping with the challenges posed by the Internet that best suit the needs of individual users.

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[16] For example, the YouTube advertising campaign.

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Appendix

Selected items of Open and Overwhelmed Scales (I-IRQ)

Open Scale

12. I like serious talks through the Internet.

29. I have more internet friends than the ones I stay in touch with in other ways (phone, snail mail, direct meetings).

33. I prefer contacting people online.

51. I feel more free to communicate through the Internet.

61. I have won more good friends since I started using the Internet.

Overwhelmed Scale

11. I feel overwhelmed with the huge amount of information I get from the Web

30. I am incessantly flooded with information from the Web.

39. Some misunderstandings others arise in the internet communication and I do not know where they come from.

41. I am tired of constantly having to answer my friends' mails.

49. People on the Net make me irritated.

Selected items of Fearful, Critical and Accepting Scales (W-IQ)

Fearful Attitude Scale

9. I have the feeling that the great number of inventions and discoveries does more harm than good.

11. I am tired of continual coming across new devices and software, which I have to learn to operate.

23. I can see so many different possibilities in the contemporary world that I do not exactly know which way I should choose.

31. I feel overwhelmed by the abundance of new pop music bands and styles.

Critical Attitude Scale

2. I would like the egoism of the companies or countries, which do whatever they want ignoring ecological, health or financial problems they can cause, to be restricted.

28. I think it to be an unacceptable practice to lay off people just because their company moves to another country.

30. I get indignant to see that little businesses providing traditional services (shoemaker's, tailor's, repair shops etc) or selling goods (haberdashery, stationery, vegetables or DIY things) in my neighborhood are disappearing.

32. I get angry to see that our country's problems are caused by the decisions made by someone in a different part of the world.

Accepting Attitude Scale

8. I consider choosing to live in quite a different place in the world.

10. I keep on trying food (cuisines), cosmetics and cures coming from distant exotic countries.

18. I feel I am a citizen of the world or at least I perceive in me many non-Polish features.

25. To relax or see something interesting I travel to a distant place, to another country.

Cyberbullying as a Form of Violence against Teachers in the Czech Republic

by

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ABSTRACT

The aim of the study was to analyze cyberbullying as a form of violent behaviour of students directed against their teachers. For this purpose, we conducted a survey on a sample of Czech secondary school students. Significant connections emerged regarding the communication style of the teacher.

Keywords

Cyberbullying; teacher communication style; Czech students, education system, transition economy

INTRODUCTION

There has been much debate recently both in the media and among behavioural and educational experts concerning violence in schools. A whole range of prevention programs were developed to help reduce school violence, primarily aiming at students. Not even in our country are cases of student violence against teachers uncommon. In the Czech Republic, research up until now was mostly focused on violence or bullying among students themselves. Little effort was invested into a more in-depth study of violence students use against their teachers, despite the fact that many teachers today have to face aggressive behaviour on the part of the students which includes, apart from peer aggression, damaging school property, thefts, bullying and drug use, also violence directed against the teachers themselves. The problem of student violence against teachers can have many adverse consequences, negatively influencing the teacher's psychosomatic and psychological state as well as their job performance, which in turn may have an impact on the quality of students' education.

Violence and Cyberbullying Directed against Teachers

Anderson and Bushman (2002) define **aggression** as any kind of behaviour directed against another individual which is performed with the primary intention of causing harm. **Violence** is sometimes viewed as a specific sub-category of aggressive behaviour, defined, for example, as an "intentional attempt to harm another physically" (Čermák, 1999). In our own conception violence and aggression represent one and the same thing, i.e. *intentional behaviour aimed at causing physical or psychological damage to another person*. In the school setting, the way the teacher behaves can influence reactions of the students in different ways, reducing or fuelling their aggression without even realizing that he or she acts as the major trigger of students' violence. A significant cause of these problems can also be the unreadability of the teacher's educational approach to students, which is why it is highly advisable to explore the ways in which interaction between the student and the teacher takes place. Another term that is frequently used in connection with school violence is **bullying**. Although the term is predominantly used to signify a special case of aggressive behaviour of students against other students, one can also think about the teacher becoming a victim of bullying on the part of the students, since in the class the teacher usually stands alone against a whole group of students. Greene (2000) points out five basic features of bullying: 1. The bully intends to cause damage to or arouse fear in the victim. 2. The attacks occur repeatedly. 3. The victim does not provoke violent response in the bully by verbal or physical aggression. 4. Bullying occurs in familiar social groups. 5. The bully possesses greater strength (real or subjectively perceived) than the victim.

Mobbing refers to a specific form of violence among adult individuals in the workplace. The term encompasses incidents of crude behaviour, threats, or even direct assaults happening in situations directly connected to one's job. Mobbing can have serious negative implications for the worker's safety, both physical and psychological well-being, and health (Tomášek, 2008). Fehlau (2003) lists the following criteria which must be met in order to classify a situation as mobbing: The attacks must be systematic, occurring at least on a weekly basis during no less than six months, aiming at causing the exclusion of the victim from the collective activities of the work staff. The aggression may come from the team colleagues, but also from one's superiors (bossing) or subordinate employees (staffing). Violence of students against the teacher can in certain ways also be perceived as staffing, if students are viewed as the teacher's subordinates.

Cyberbullying is defined as aggressive behaviour which occurs by means of modern information technologies, especially mobile phones or the internet (Slonje & Smith, 2008; Privitera & Campbell, 2009). Compared to ordinary bullying, CB has several specific features. Especially, one can come across CB any place, any time. Approximately 40% of victims never learn who the actual source of aggression is. Moreover, unlike with bullying, anyone can become the aggressor, regardless of their social or physical status. The only requirement is a sufficient level of IT proficiency. The victim can face CB any time, for example at home, which makes it difficult to avoid. No physical violence is usually involved. Yet, attacks may be much more frequent than in the case of bullying, with SMSs flooding the victim for the entire day, and humiliating websites available for anyone to view virtually all the time. With CB, there can also be a countless number of bystanders, since internet connection is the only thing needed to view the humiliating content, and pictures and videos can easily be spread all across the world (Vágnerová, 2009). Research did not find any gender or ethnic differences regarding either aggressors or victims of CB. Higher risk of CB seems to be connected with previous experience with classic bullying (Hinduja & Patchin, 2008). The most common form of CB is email messaging, while the greatest impact on victim was observed with the picture/video clip variant (Slonje & Smith, 2008). And what forms does CB of teachers usually take? One possible way is hacking into the teacher's computer and stealing data, or infecting the computer with a virus. Other ways include creating web pages showing caricatures, jokes, embarrassing videos or pictures. Also, using mobile phones, they can shoot videos of the teacher in class and share them using various community video servers (e.g. YouTube).

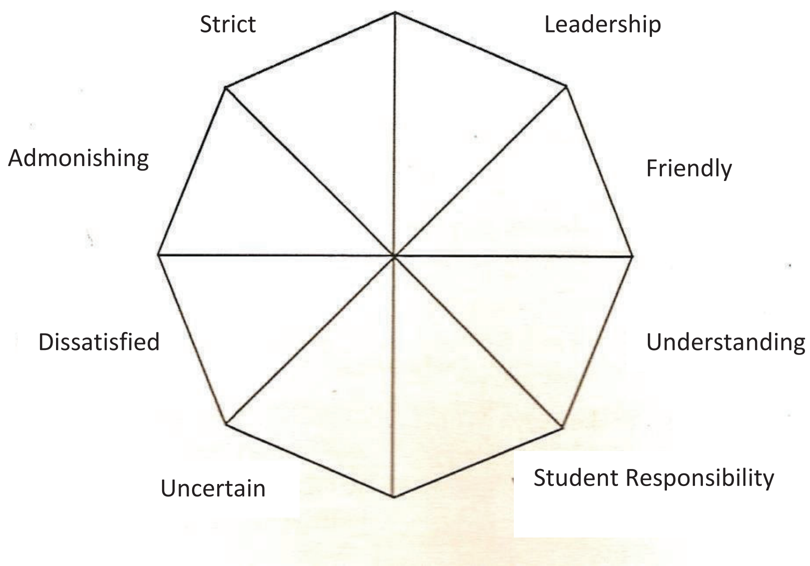
Several studies were conducted addressing **students' violence against schoolteachers**. Steffgen & Ewen (2007) investigated the impact of subjective professional strain and quality of school environment of students' violent behaviour directed at the teacher. The research showed that in the preceding academic year, 23.9% of the teacher participants claimed to have been subject to strong verbal attacks, 19.4% faced defamation, 9.3% were victims of thefts, 7% were sexually harassed, 5.8% suffered telephone terror, and 4% experienced direct physical attacks. Women were more often than men victims of object damage, thefts and physical assaults. Class-oriented strain, time pressure and quality of school environment all proved to be significant predictors of violence. Pervin & Turner (1998) attempted to document the nature, duration and level of teacher-targeted bullying (TTB), finding that 91% teachers experienced bullying at least once in their career. Most often, they faced verbal abuse, students completely ignoring their instructions, or property damage. 15% of teachers in this study reported having suffered physical abuse. Duration of the bullying varied; however, 20% had been victimized for several years. In the Czech Republic, the issue of teacher-targeted violence was addressed by Tomášek (2008) who explored experience of teachers and headmasters at secondary schools with aggression on the part of students, but also other persons with whom they interact in their professional role. The study found that as much as 43.3% of teachers experienced at least one case of violent behaviour directed at themselves during their teaching career. In the school year when the study was conducted, 26.8% respondents reported being the target of some kind of violence. Most reported cases involved insults and verbal abuse of teachers in the class, followed by insults coming from the parents, threats of using one's influential connections, and property damage. One particularly interesting finding was that one-sixth of teachers seemed to know at least one student they were afraid of and avoided getting into conflict with. On top of that, 11% reported having considered abandoning their teaching career due to the attacks.

Teacher Communication Style and Students' Violence

Teacher's communication style is the interactional pattern typical of a teacher in most educational situations. A team of Dutch researchers from the University of Utrecht led by T. Wubbels studied TCS from a systems theory perspective, understanding educational interaction and communication as a coherent system whose functioning is determined by all participants, including the teacher, individual students, and the class as a whole (Wubbels & Levy, 1993). Wubbels and his colleagues built their approach on Leary's model (1957) which is based on the idea that the greatest motivational forces in human behaviour are fear reduction and enhancement of one's self-esteem. Thus, when engaging in communication, all people either consciously or non-consciously choose their behaviours according to their potential of reducing anxiety and maximizing pleasure. An important factor is the personality of the communication partner. Leary sees human behaviour as relatively consistent, i.e. similar across different situations. Interpersonal interaction usually makes more permanent characteristics of the individual come out – their typical patterns of communication. Wubbels and colleagues used Leary's two-dimensional model based on the affiliation (friendliness –

hostility) and control (dominance – submissiveness) axes to design an eight-sector model depicting eight teacher behaviour types (see Fig. 1 and Tab. 1).

Fig. 1: The model for interpersonal teacher behaviour (cited by Mareš & Gavora, 2004)



Tab. 1: Factors in the model for interpersonal teacher behaviour (Wubbels & Levy, 1993)

Type of Behaviour	Description
DC (dominance, cooperation) **Leadership**	Notice what's happening; lead; organize; give orders; set tasks; determine procedure; structure the classroom situation; explain; hold the attention
CD (cooperation, dominance) **Helpful/Friendly**	Assist; show interest; join; behave in a friendly or considerate manner; be able to make a joke; inspire confidence and trust
CS (cooperation, submission) **Understanding**	Listen with interest; empathize; show confidence and understanding; accept apologies; look for ways to settle differences; be patient; be open
SC (submission, cooperation) **Student Responsibility/Freedom**	Give opportunity for independent work; wait for class to let off steam; give freedom and responsibility; approve of something
SO (submission, opposition) **Uncertain**	Keep a low profile; apologize; wait and see how the wind blows; admit one is in the wrong

OS (opposition, submission) **Dissatisfied**	Wait for silence; consider pros and cons; keep quiet; show dissatisfaction; look glum; question; criticize
OD (opposition, dominance) **Admonishing**	Get angry; take pupils to task; express irritation and anger; forbid; correct; punish
DO (dominance, opposition) **Strict**	Keep reigns tight; check; judge; get class silent; maintain silence; be strict; exact norms and set rules

Research on teacher communication styles was mainly focused on the differences of perceived TCS between the students and the teachers themselves, gender differences in TCS, impact of the number of teaching years and the subject taught, as well as connections with various aspects of social climate. Other studies were devoted to the relation between TCS and students' performance and attitudes. For example, Goh & Fraser (2000) found that both better scores in a math test and better attitudes to math could be observed in students whose teachers were good leaders, helpful and understanding. Negative attitudes and worse performance were shown by students with uncertain, dissatisfied and admonishing teachers. So far, we have not registered any research that would directly deal with the **impact of teacher communication style on teacher-targeted student violence**. Thus, when constructing hypotheses for the present study, existing findings concerning teacher communication styles constituted only one part of our reference material. Instead, we attempted to look for potential connections between individual factors of TCS and violence. In the research studies published on bullying, the most cited **victim characteristics** included anxiousness and neuroticism. This means that victims of bullying tend to be emotionally unstable, insecure, nervous, and prone to experiencing feelings of fear or sadness very intensely. All of these attributes most closely resemble the **"uncertain"** component of the TCS which describes the interacting individual as submissive and negative. Such individuals, when faced with an interpersonal conflict, are more likely to use unproductive management strategies, which means they might have problems dealing with aggressive attacks and be unable to cope with them adaptively. High scores in this dimension may hence be associated with greater susceptibility to students' aggressive reactions and bullying. Neuroticism is also likely to negatively influence people's perception and experience of the situation (Řehulková, 2002). This, together with the aforementioned characteristics, seems closely related to the **“dissatisfied”** sector of the model where the teacher is submissive and rejecting as with the previous style, but their negative reactions are somewhat more overt – they tend to express more dissatisfaction, have grim and sullen faces, are grumpy, keep criticizing and constantly demand answers. These kinds of teachers would therefore be also more susceptible to aggressive responses on the part of their students. If students are permanently criticized and the teacher makes a negative impression being both aggressive and submissive, the students might respond with complementary dominant and aggressive behaviour. A more “uncertain” teacher will also allow greater latitude in the class which might have counterproductive consequences of decreased perception of justice among the students. This, in turn, might fuel students’ anger and further aggravate teacher-targeted violence. Emotional instability, aggressiveness and irritability, unpleasantness or failure to maintain polite and friendly communication can all appear as features of the **“admonishing”** dimension. This variable also encompasses attributes like short-tempered, negativistic, hostile and bitter, which can all provoke violence in students.

To look at the issue also from the opposite perspective, are there any types of teachers who are **unlikely to become victims of students’ violence**? According to the research, such teachers should be better organizers, more extroverted, talkative, likeable, understanding, and ready to employ more diplomatic solutions. They should also be more assertive, non-aggressive and emotionally stable. This means that these teachers would take positions closer to the affiliation zone of the model, scoring high in the dimensions of “leadership”, “helping/friendly”, “understanding”, and “student responsibility/freedom”. Since better organizers appear more likely to avoid aggressive reactions, we expect strongest negative correlation of student violence with the **“leadership”** variable. On the other hand, students especially seem to respect teachers who give them more freedom and responsibility at the same time. This is why we also expect higher scores in the **“student responsibility/freedom”** sector to be associated with decreased susceptibility to teacher-targeted student violence or bullying.

Research Goals

The objective of our study was to learn more about which forms of teacher-targeted student violence are most common and if there is any connection between TTSV and teachers' communication styles.

Hypotheses

H1: Greater scores in the *insecure*, *dissatisfied* and *admonishing* components are associated with more frequent teacher-targeted violent behaviour on the part of the students.

H2: Greater scores in the *leadership* and *student responsibility/ freedom* components are associated with less frequent teacher-targeted violent behaviour.

H3: The correlation between cyberbullying and teacher communication styles will be weaker than the correlation between TCS and overall teacher-targeted violence.

H4: Cyberbullying will be positively correlated to the "classic" teacher-targeted bullying by students.

Participants

The study was conducted on a sample of *N* = 138 secondary school teachers, 60% female, 40% male. Regarding age distribution, 2.2% of respondents were aged between 22-25 years, 6% 26-30 years, 12.7% 31-35 years, 7.5% 36-40 years, 6% 41-45 years, 22.4% 46-50 years, 17.9% 51-55 years, and 25.4% were more than 55 years old.

Instruments

1. Questionnaire on Teacher Interaction (QTI; Wubbels & Levy, 1993; Czech version by Lukas, 2010). The questionnaire is based on Leary's interaction behaviour model with the two fundamental dimensions of Control and Affiliation. The dimension of Control represents the level of teacher's control over the class, or, with the other end of the continuum, to what extent the teacher allows students to interfere with the situation in the class. The Affiliation dimension, on the other hand, regards the degree of teacher's friendliness or hostility toward the students. This two-dimensional model was used to create an eight-sector model representing different interpersonal teacher behaviours. The eight sectors measured by the questionnaire include: Leadership, Helping/Friendly, Understanding, Student

Responsibility/Freedom, Uncertain, Dissatisfied, Admonishing, and Strict. The level of each type of behaviour is represented by the distance from the octagon centre, with the central point signifying zero degree of a particular behaviour. Behavioural styles in adjacent sectors are positively correlated, whereas styles in opposite sectors are correlated negatively. In our study we only included teacher self-report version of the questionnaire, i.e. the teachers themselves assessed their own actions and behaviour in class.

Tab. 2: Example items from the QTI for each variable of teacher communication style

Variable	***Sample Item***
Leadership	*I have everything thought-out.*
Helping/Friendly	*When students can't deal with a problem, I help them.*
Understanding	*When students are of different opinion than myself, they can say it.*
Student Responsibility/ Freedom	*Students can participate on the decisions I make.*
Uncertain	*I guess I'm rather hesitant.*
Dissatisfied	*I think students have very poor knowledge.*
Admonishing	*I get easily upset.*
Strict	*In my class there must be absolute silence.*

2. Teacher-Targeted Violence Questionnaire. The measure was constructed for the purpose of the study and contained items asking, apart from basic demographic information, about the degree of experience with teacher-targeted student violence including cyberbullying in the current school year as well as during the teacher's whole teaching career. In addition, the questionnaire asked about teachers' opinions on violence and about the circumstances of their own experience with being bullied by students.

Results

Analysis of data obtained from 138 secondary school teachers supported our hypotheses. In the school year 2009/2010, only 27 respondents (19.6%) reported no experience with violent behaviour. In contrast, 92 teachers (66.7%) encountered violence several times per year or per month, and 19 respondents (13.8%) faced aggression several times a week or even daily.

H1 and H2:

Analysis of Variance showed significant differences between the groups regarding the **leadership** ($F_{(2,135)} = 5.78$, $p < .05$), **insecure** ($F_{(2,135)} = 4.25$, $p < .05$), **dissatisfied** ($F_{(2,135)} = 4.89$, $p < .05$) and **admonishing** ($F_{(2,135)} = 4.54$, $p < .05$) dimensions. More specifically, bullied teachers scored significantly less in the leadership dimension, and more in the dimensions of insecure, dissatisfied and admonishing, than other teachers. No significant differences were observed with the helping ($F_{(2,135)} = 2.17$, *ns*), understanding ($F_{(2,135)} = 2.15$, *ns*), student responsibility ($F_{(2,135)} = 1.58$, *ns*), and strict ($F_{(2,135)} = 1.58$, *ns*) variables. Average scores of the three groups of teachers (defined by degree of experienced violence) in the individual communication style variables are summarized in Tab. 3.

Tab. 3: Average scores in different communication style variables in the three groups of teachers defined by the degree of experienced violence

Teacher Group		Leadership	Helping	Under-standing	Student Responsibility	Uncertain	Dissatisfied	Admonish-ing	Strict
Bullied teachers	*M*	23.11	26.21	24.42	16.11	7.95	10.74	7.11	13.74
	N	19	19	19	19	19	19	19	19
	SD	4.23	2.35	3.08	2.11	5.57	2.23	3.35	5.95
Did not experience violence	*M*	26.37	27.52	25.89	17.52	4.37	8.22	5.11	14.89
	N	27	27	27	27	27	27	27	27
	SD	3.02	2.59	1.72	3.27	4.07	2.99	2.76	3.18
Experienced violence several times per year or per month	*M*	24.36	26.22	24.82	17.42	5.36	9.83	7.30	15.53
	N	92	92	92	92	92	92	92	92
	SD	3.29	3.10	2.81	3.16	3.91	2.94	3.50	3.90

H3:

Experience with cyberbullying (aggressive attacks of students via mobile phones, email, websites, blogs, etc.) in the past year was reported by 17 respondents (12.3%). 87.7% of teachers either did not become a victim of CB or were not aware of the fact. Regarding actual forms of CB, in one case, students attempted to steal data from the teacher's PC; in five cases (29.4%), web pages were created featuring caricatures, jokes, embarrassing pictures or videos of the teacher; and 11 teachers (64.7%) reported students shooting videos of them in class using mobile phones and uploading these video clips to community servers (e.g. YouTube). Four teachers (23.5%) reported being videotaped or photographed by students for fun but have no knowledge about the material being uploaded to the internet. One teacher even received threats of physical violence on Facebook. Apparently, the most prevalent form of teacher-targeted cyberbullying is through shooting videos or pictures and publishing this content on the internet where anyone can view it.

Tab. 4: Types of teacher-targeted cyberbullying in the year of the study ($N = 17$)

Form of Cyberbullying	**N**	**%**
Hacking into the teacher's computer/Stealing data	1	5.8
Infecting teacher's computer with a virus	0	0
Aggressive, insulting emails from students	0	0
Web pages featuring teacher's caricatures, insulting jokes, embarrassing pictures and videos	5	29.4
Shooting videos and/or pictures of the teacher in class and uploading on community servers	11	64.7
Shooting videos and/or pictures by mobile phone	4	23.5
Physical violence threats on Facebook	1	5.8

To compare the group of CB-targeted and non-targeted teachers with regard to the communication styles, we used *t*-test between-subject comparisons (Tab. 5). Although differences were observed between the two groups, most of them were non-significant due to the disproportional distribution. The only significant association was found with the **uncertain** variable, with CB targets scoring higher than non-targeted teachers $t = 3.18$, $df = 136$, $p < .05$).

Tab. 5: Mean values of communication style components and between-subject comparisons of cyberbullying targets (CBT) and non-targets (NT)

		N	*M*	*SD*	*SD*	$_{\Delta}M$
Leadership	CBT	17	23.24	4.87	1.18	-1.53
	NT	121	24.77	3.25	0.30	
Helping	CBT	17	25.53	3.39	0.82	-1.07
	NT	121	26.60	2.86	0.26	
Understanding	CBT	17	24.18	2.60	0.63	-0.91
	NT	121	25.08	2.70	0.25	
Student Responsibility	CBT	17	16.18	3.41	0.83	-1.24
	NT	121	17.41	3.01	0.27	
Uncertain	CBT	17	**8.53**	5.41	1.31	3.43
	NT	121	**5.10**	3.97	0.36	
Dissatisfied	CBT	17	10.76	2.61	0.63	1.29
	NT	121	9.48	2.97	0.27	
Admonishing	CBT	17	6.88	3.02	0.73	0.04
	NT	121	6.84	3.50	0.32	
Strict	CBT	17	15.06	4.35	1.06	-0.12
	NT	121	15.17	4.11	0.37	

H4:

Associations between bullying and cyberbullying were examined by means of correlation coefficients (Tab. 6). Correlations between the occurrence of cyberbullying in the current school year, violence in the current school year and violence throughout the teacher's whole career were all highly significant.

Tab. 6: Correlations between the occurrence of cyberbullying in the current year, violence in the current year and violence throughout the teacher's whole career

	Cyberbullying / current year	**Violence / current year**	**Violence / whole career**
Cyberbullying / current year	-		
Violence / current year	**.41****	-	

Violence / whole career	**.44****	**.86****	-

** p < .01

Discussion

Our findings show that most teachers have encountered violent behaviour at least once in their career. In the school year 2009/2010, 80.6% secondary school teachers reported being targets of student violence; only less than 20% were not targeted. These results, when compared to previous studies (Tomášek, 2008), indicate that the occurrence of teacher-targeted violence in secondary schools rapidly increases.

The examination of connections between teacher-targeted violence and teacher communication style, or its individual dimensions, confirmed our expectations. It turned out that teachers scoring high in the uncertain, dissatisfied and admonishing components are more likely to encounter violence on the part of their students. Moreover, teachers who are less likely to be targeted are those who score somewhat higher in the leadership and student responsibility components. These results are in agreement with previous studies on bullying and mobbing which describe violence victims as anxious, neurotic, emotionally unstable, insecure and nervous individuals (e.g. Einarsen, Raksen, & Matthiesen, 1994; Olweus, 1993; Carney-Merrell, 2001). Previous findings also indicated that subjects taught by teachers scoring high in the uncertain, dissatisfied and admonishing component were generally less popular with the students than those taught by other teachers (Goh & Fraser, 2000). This probably suggests that if students dislike the subject taught by the teacher, they are also more likely to dislike the teacher himself. In such cases, violent attacks will be more expectable, which is also illustrated by the finding that reprimanding teachers are more likely to get into conflict with their students (Fisher & Waldrip, 1999). And why, on the other hand, is the risk of being targeted smaller in teachers showing leadership and/or promoting student responsibility and freedom? According to the research, individuals who do not usually become violence victims show better organization skills, higher extroversion, assertiveness, and emotional stability. Since students mainly tend to respect teachers who grant them more freedom and, at the same time, responsibility (Fisher & Waldrip, 1999), a higher score in the student responsibility component should also decrease the teacher's likelihood of being the target of violent attacks by students.

In the school year 2009/2010, 17 respondents, i.e. 12.3%, became at least once victims of cyberbullying. Most teachers did not report any experience with CB at all. Regarding the actual forms of CB, most cases involved shooting pictures and videos of the teacher by mobile phones and uploading them to the internet where anyone could view them. In the research by Slonje & Smith (2008) the most prevalent form of CB was email, which does not correspond to our findings. In our country, students are more likely to use their mobile phones, which can be brought to the class. Then again, Slonje & Smith (2008) also found that it was the picture/video clip form of CB which usually had the most impact on the victim. This means that our students use the most effective form of cyberviolence against their teachers. Consequently, even though the percentage of teachers who encountered CB in our study was relatively small, the consequences of such experience for their psychological well-being might have been devastating.

When comparing teachers who were targeted by CB with those who were not from the communication style perspective, we found significant differences in the uncertain component, which means that anxiety, neuroticism, emotional instability, insecurity and nervousness do play a role in the victims of cyberbullying. When we look at the relationship between common forms of teacher-targeted violence and cyberbullying, it is obvious that greater occurrence of experiences with violence in the teacher's career increases the susceptibility to cyberbullying as well. This agrees with previous findings that victims of traditional forms of bullying are also more likely to become victims of cyberbullies (Hinduja & Patchin, 2008).

Conclusion

Our research has shown that teacher-targeted violence has become more prevalent lately in the Czech secondary schools. In the school year 2009/2010, 80.4% of teachers encountered such behaviour in students. Concerning associations between teacher communication styles and teacher-targeted bullying, we observed the following patterns: 1. Teachers scoring higher in the *uncertain*, *dissatisfied* and *admonishing* components were more likely to encounter violent behaviour in students. 2. Teachers who were less likely to become victims of student aggression were those who scored higher in the *leadership* and *student responsibility* sector. 12.3% of teachers reported at least one case of cyberbullying in 2009/2010. The cases mostly involved students taking pictures and shooting videos of the teacher in the class, usually followed by uploading the material to an internet website. We also observed a connection between the occurrence of CB and other types of student violence – the more experience teachers had with "common" aggressive attacks, the more they were also likely to report CB. In addition, we found a difference between CB targets and non-target regarding the *uncertain* component of communication style, with CB targets scoring significantly higher.

The study confirmed that teacher-targeted student violence, and recently also teacher-targeted cyberbullying, have become serious issues in the Czech secondary schools as well. Therefore, it is necessary to devote more attention to this problem, look for other potential connections, and design adequate preventive measures. Whenever students witness a situation in which their teacher becomes a victim of student bullies, the problem of student-targeted bullying may also become indirectly aggravated. After all, one can hardly expect from such teachers to be able to stand up for others in the class when they cannot deal with their own problems of the same kind, and students might hence be reluctant to confide their problems in these teachers. This may weaken the effect of any kind of violence prevention in schools. We hope our findings serve at least as a small contribution to the knowledge base in this domain.

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Importance of E-Learning in University Students

by

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ABSTRACT

The aim of the study was to look more deeply into some of the educational and psychological aspects of electronic learning. Intellectual styles of R. J. Sternberg's Mental Self-Government Theory were applied to explain the effects of e-learning at Masaryk University in the Czech Republic, transition economy.

Keywords

Czech Republic, E-learning; mental self-government; intellectual styles; thinking styles, transition economies

INTRODUCTION

One of the major trends in university education today is a growing tendency towards the digitalization of educational tools and attempts to broaden the range of study options through the use of modern digital technologies. Masaryk University in Brno is very supportive of this kind of development. There is an increasing potential of employing most up-to-date methods of information processing and education; yet, this potential is rarely fully exploited. This situation could possibly be changed by adopting an educational psychological perspective, with students being viewed not just as passive recipients of the offered technologies, but as agents who implement their own strategies and approaches in learning and world exploration. These individual strategies can go hand in hand with the ITs used in the educational process, but they can as well be a major obstacle in effective IT-supported learning. Our contribution attempts to provide an overview of how the concept of Intellectual Styles (IS), developed as a part of the Theory of Mental Self-Government (TMSG) by Robert J. Sternberg, can be used to describe different ways students use their abilities in dealing with the e-learning environment provided by Masaryk University.

Electronic Learning

Electronic learning, commonly referred to as e-learning, can be defined in two main domains. Technological definitions convey the term as a method of teaching. Educational definitions, on the other hand, are more learner-focused and include the situation in which students engage in this type of learning. E-learning is also sometimes used as a general term comprising several different categories like online learning, computer-based learning, web-based learning, distributed learning, and electronically enabled distant learning (Mareš, 2004). There are further concepts related to e-learning in different countries, e.g. computer-supported collaborative learning (Wang, Hing, & Kanfer, 2001), etc.

Palán (2002) provides the following account: E-learning is a form of education which uses computers and computer networks. It is most commonly carried out through an installation of a Learning Space server with pre-installed educational programs, and through the establishment of virtual classrooms composed of students and tutors. Feedback is usually provided using different assignments and texts. A major plus is an integrated support in both online (chat, video, etc.) and offline (forums, email, etc.) forms, and development of student networks. The following advantages are usually listed: 1. more easily accessible, cheaper form of education; 2. a shift from lecturing toward project-oriented learning; 3. new, transformed conception of studying (internet featuring as both an educational tool and interactive medium); 4. individualized education (studying at each person's convenience); and 5. easy maintenance and upgrading of content. On the part of the learner, e-learning requires strong motivation, online communication competence, ability to process information independently, a certain level of computer and internet proficiency, and good individual focusing skills. Nocar et al. (2004) broadly defines e-learning as computer-based training (CBT). A narrower conceptualization is that of web-based training (WBT), which apart from the use of IT adds an online connection requirement. The narrowest definition is represented by the learning management system (LMS) which provides a workspace for the presentation of subject material in a specific course, mediating the communication between the students and the tutor of the course.

Masaryk University in Brno can be considered a great promoter of electronic learning. Information system, which has been in operation for more than a decade now, serves as an administration platform for a substantial part of the study agenda. Both students and teachers already got accustomed to using the electronic system for course and exam registration, finding course information, entering course grades, or communication by email. Teachers also provide additional course materials through the IS, and students use it to submit their completed assignments and discuss various course topics in course forums. Still, individual faculties differ in the ways and scope in which electronic learning is realized.

In the e-learning practice what is usually stressed are the advantages of such an approach. However, little attention is given to potential problems, or even risks, arising from such forms of education. The educational-psychological issues are usually only addressed at a very superficial level. Yet, with the penetration of e-learning into the academic setting the demand for deeper critical study of this phenomenon from an educationally psychological perspective grows stronger (Mareš, 2004; Bucherová, 2004; Rambousek, 2004). The most important element in the e-learning process is the student who actually *does* the learning. In accordance with that, most analyses by psychologists and educational specialists focus on the student's personality, and as it turns out, the e-learning setting seems to bear certain characteristics which might not suit everyone's needs equally. The role of autonomous self-regulation is of crucial importance in this type of learning. Optimum balance of structure on the part of the student and on the part of the teacher is needed for effective functioning of such system, and students have to be guided towards developing skills of self-structuring the acquired knowledge and planning their own future education. The prerequisite for successful employment of e-learning in academic education would thus be helping students develop effective learning strategies and tactics that would work in such settings.

E-Learning and Thinking Styles

Personality variables which are frequently pointed out in connection with e-learning in both Czech and international literature are the concepts of learning, thinking or cognitive styles (Wang, Hing, & Kanfer, 2001; Pillay, 1998). The basic issue addressed by all these authors is how individual styles differently influence the quality of learning in electronic settings. Some voices advocate adjusting e-learning environments so as to make it suitable for different styles. However, there are many pitfalls to such attempts. More specifically, electronic education can hardly be tailored to the specifics of each and every style. Still, there is a way of finding a reasonable compromise between the adjustment of educational methods to the student's individual needs and an approach that would encourage students to adopt some of the working strategies characteristic of other styles. It is true that modern LMS systems allow for considerable flexibility. What is important is the general approach to the construction of electronic courses, as well as students' active cooperation with the course managers on the preparation of course contents. While common user feedback is certainly of great importance, a theoretical framework of a well-chosen conceptualization of styles could be useful in developing new and more effective forms of electronic learning.

American psychologist Robert J. Sternberg (Sternberg & Zhang, 2001; Sternberg & Zhang, 2005) conceives thinking or intellectual styles as integrative constructs which comprise the personality, cognitive, as well as conative components of information processing. Intellectual styles do not represent abilities as such; rather, they represent ways in which abilities are used and work as an interface between one's traits and capacities and one's environment (Grigorenko & Sternberg, 1997). In his Mental Self-Government Theory, Sternberg uses the metaphor of government, comparing the human individual who orchestrates his/her own life, plans and actions, to a state which does the same thing. For example, each state functions through the orchestration of its legislative, executive and judicial branches (Sternberg, 1997). Human beings behave similarly in their everyday interactions, mobilizing some of the three components to a greater extent than the others. Hence, there are "executive" individuals who prefer implementing plans (analogy with law execution) which have already been formed by "legislative" individuals (analogy with law enactment). Or from a different perspective, a state can either be more oriented towards its internal affairs (internal style), or it may pursue a very active foreign policy (external style). Altogether, the theory differentiates between 13 intellectual styles divided into five categories, each including several styles – see Tab. 1.

Tab. 1: Intellectual style categories

Function	**Form**	**Level**	**Scope**	**Leaning**
Legislative Executive Judicial	Monarchic Hierarchical Oligarchic Anarchic	Global Local	Internal External	Liberal Conservative

1. Self-government functions: Just as every government needs to pass, implement and review laws, every human individual possesses different intellectual functions and is more likely to use some of them rather than other ones.

Legislative style. These individuals like to come up with their own ways of doing things and prefer making their own decisions on what they will do and how they will do it. (*I like tasks that allow me to do things my own way.*)

Executive style. Executively oriented individuals stick to the rules and prefer working on tasks which have already been set and structured. (*I like situations in which it is clear what role I must play or in what way I should participate.*)

Judicial style. These people are inclined to judging and evaluating rules and procedures and prefer working on problems which require analysis and evaluation of existing ideas. (*I like to evaluate and compare different points of view on issues that interest me.*)

2. Self-government forms: Each state represents a specific form of government. Likewise, every individual has a different view of the world and world issues and uses different forms of structuring the reality. Some people would rather invest all their energy into one single important task while ignoring all other events happening around them. Other people prefer precise planning and dividing their time among many different tasks, etc.

Monarchic style. Persons with predominant monarchic style are unidirectional and focused. When working on a task, they usually leave nothing behind before the task is finished. (*I like to complete what I am doing before starting something else.*)

Hierarchical style. These people are characterized by having their goals arranged in a hierarchy and by prioritizing some of their needs when not all goals can be achieved, or achieved to the desired extent. (*When undertaking some task, I like first to come up with a list of things that the task will require me to do and to assign an order of priority to the items on the list.*)

Oligarchic style. Like hierarchically oriented individuals, people with an oligarchic style tend to work on more than one task within a single temporal framework. In contrast to the previous style, however, they are usually motivated by several, usually competing goals of equal salience. (*I usually know what things need to be done, but I sometimes have trouble deciding in what order to do them.*)

Anarchic style. Anarchically oriented individuals appear to be motivated by needs and goals which might be, both for them and people around them, rather difficult to organize. (*When working on a written project, I usually let my mind wander and my pen follow up on whatever thoughts cross my mind.*)

3. Self-government levels: State administration takes place at many different levels, starting from the national level through regions and districts down to municipalities. Similarly, people differ in their preference for either dealing with global issues or solving specific problems and tasks.

Global style. These people show preference for relatively wide-ranging and abstract issues. They tend to ignore or avoid details, focusing on the wood rather than the trees. Consequently, they often forget how the trees, of which the wood consists, actually look like. (*Usually when I make a decision, I don't pay much attention to details.*)

Local style. Individuals with local style of processing are likely to choose specific problems which require attending to details. They tend to be pragmatic and keep their feet on the ground. However, they are running a risk of getting lost in the woods because of the trees. Still, many fatal system errors, for example in the military or aviation industry, occurred due to the omission of tiny, yet crucial details. That is why there should be at least one localist on every team to make things work properly. (*I like problems that require engagement with details.*)

4. Self-government scope: Just as a state could orient its policy more to the internal affairs of the country or could find it more important to maintain relationships with other countries and engage in collaborative projects and agreements, there are people who prefer working alone, as well as those who use their potential best when working in a team.

Internal style. Individuals with internal style attend to their internal condition – their attention is turned inward. They tend to be introverted, task-oriented, seem to be above everything and even socially indifferent at times. They like working alone, using their intelligence in isolation from others. (*I like to be alone when working on a problem.*)

External style. Those with predominantly external style are likely to be extroverted and people-oriented. They are more socially sensitive and keep track of what is happening with the others. If possible, they prefer working with other people. When working in a group, they are able to behave as valid members who promote creative group activity. (*I like to work with others rather than by myself.*)

5. Self-government leanings: In the same way as a government can adopt policy which is either reserved or progressive and open to changes, different people might either prefer life securities and well-trodden paths or might be open to attitude change and experimentation.

Liberal style. Liberal individuals easily go beyond the existing rules and verified methods. They tend to maximize change and view situations as ambiguous. (*I like to do things in new ways, even if I am not sure they are the best ways.*)

Conservative style. "Conservatives", on the other hand, would rather stick to the existing rules and procedures. (*In my work, I like to keep close to what has been done before.*)

Sternberg assumes that particular methods of education generally work better with some intellectual styles while putting others at disadvantage. Research shows that different forms of instruction could produce much better results if students are allowed to employ their preferred intellectual styles (Sternberg, 1994; 1997). Styles are at least partly determined by socialization; they vary according to the context and can be affected by learning. Students can be thus encouraged and guided to employ different thinking styles so that their gain from the learning process is as high as possible. Sternberg also indicates which forms of education would be most appropriate for different intellectual styles (Sternberg, 1997; Sternberg & Zhang, 2005) – see Tab. 2.

Tab. 2: Compatibility of different methods of education with individual intellectual styles

Method of Instruction	**Most Compatible Styles**
Lecture	Executive; Hierarchical
Thought-Based Questioning	Judicial; Legislative
Cooperative Learning	External
Problem Solving of Given Problems	Executive
Projects	Legislative
Small-Group Recitation	External; Executive
Small-Group Discussion	External; Judicial
Reading	Internal; Hierarchical

Several studies were conducted focusing on intellectual styles in connection with learning. Lee & Tsai (2004) examined the effect of intellectual style on learning transfer in the internet project-based learning environment. They divided students in an elementary school science class into four groups according to the dominant intellectual styles (self-government function only): legislative, executive, judicial, and mixed. At the end of three-month experimental teaching, students' performance was assessed using a written exam which apart from the acquired knowledge testing also included measures of near and far learning transfer, i.e. the ability to apply the obtained knowledge to similar or distant situations. The authors demonstrated differences in the near transfer scores between the four groups; with far transfer, the results were not significant. Best scores in near transfer were achieved by the mixed group as compared to any of the single-dominant-style groups. This finding was in agreement with Sternberg's hypothesis that highest-quality learning occurs in people who prefer more than one intellectual style and are able to flexibly change among different styles as the situation demands (Sternberg, 1997). Using factor analysis, Sternberg & Zhang (2005) repeatedly confirmed two higher-order styles within the intellectual style scale, namely a "creative" style which represents autonomous preference for complex cognitive functions, and a style which shows orientation towards simple, structured environments and uses much less complex cognitive processing. It still remains to be tested how both of these higher-order styles would work within an e-learning environment.

Research goals

Our main objective was to look for potential differences between the individual intellectual styles in the preference for and quality of interaction with the electronic tools and opportunities offered by Masaryk University in Brno. Next, we examined differences in preference for electronic sources of information between a group which normally used e-learning in their academic courses and a group which did not. We expected that e-learning users would score higher in the abovementioned characteristics than other students, regardless of intellectual styles. We also expected that students with intellectual styles which reflect preference for creativity and complex cognitive processing would achieve higher scores than those preferring lower-level processing. Based on the results, we tried to put together profiles of students who seemed most likely to benefit from e-learning in its current form and formulate some general principles for a successful co-ordination between electronic education and students' individual characteristics. We also attempted to outline basic measures for greater mobilization of students to whom e-learning does not appear as a particularly attractive form of obtaining knowledge.

Hypotheses

The study tested the following hypotheses:

- **H1**: Legislative, judicial, global, hierarchical and liberal styles are positively correlated to the preference for electronic information sources.
- **H2**: Conservative and local intellectual styles are negatively correlated to the preference for electronic information sources.
- **H3**: Conservative and local styles are positively correlated to the preference for traditional sources of information.
- **H4**: Legislative, judicial, global, hierarchical and liberal styles are positively correlated to the quality of interaction and interest in electronic learning.
- **H5**: Oligarchic, monarchic, executive, anarchic and local intellectual styles are negatively correlated to the quality of interaction with electronic sources.
- **H6**: Conservative style is negatively correlated to the interest in e-learning.
- **H7**: E-learning system users significantly differ from non-users in their preference for electronic forms of education, quality of interaction, and interest in electronic learning.
- **H8**: Legislative, hierarchical, global, external and liberal styles have positive impact on the quality of interaction and interest in e-learning.
- **H9**: Conservative, executive, local and monarchic styles have negative impact on the quality of interaction and interest in e-learning.

Method

Participants

The study was conducted on a sample of students of Masaryk University, *N* = 115, 89 female, 26 male. 63 students qualified as e-learning users, 52 as non-users. The average age of the sample was 22.8 years. Students of two out of the eight faculties of the university participated in the study, namely the Faculty of Arts and the Faculty of Social Studies, i.e. mostly students of social science and humanities. The request for participation was placed on the notice board within the electronic information system and also posted as a message in the university e-learning system. The messages contained a link to the research website.

Instruments

Sternberg-Wagner Thinking Styles Inventory (Sternberg, 1994)

The measure was translated and validated in the Czech population by Langová (2004) and Turoňová (2004). It consists of 104 items, with respondents indicating their degree of agreement with the individual items on a 7-point Likert-type scale. Each of the 13 thinking styles is represented by 8 items. The inventory was used in many different studies (Zhang, 2002a; 2002b; 2004; Lee & Tsai, 2004; Cano-García & Hughes, 2001), showing good internal consistency in a majority of scales.

Preference for Electronic Information Sources

The questionnaire, constructed for the purpose of this study, consisted of four scales: Preference for electronic information sources; preference for traditional information sources (other sources which do not require the use of a computer); quality of interaction with electronic sources; and interest in electronic forms of education. The internal consistency of the measure was high (α = .91) and the structure of individual items provided sufficient loadings for the postulated scales.

Results

H1, H2 and H3:

Tab. 3 shows correlation coefficients between the two measures used.

Tab. 3: Correlations between students' intellectual styles and variables measured by the Preference for Electronic Information Sources questionnaire

Intellectual Style	**sELE**	**sCLASS**	**sINTERE**	**sINTERAC**
Legislative	.16	-.17	**.20***	**.23***
Executive	.07	.08	-.02	-.07
Judicial	.14	**-.21***	.17	**.20***
Monarchic	-.03	.13	-.13	-.11
Hierarchical	.17	-.07	.12	.07

Oligarchic	-.15	.08	-.04	.00
Anarchic	-.03	-.03	.04	-.00
Global	.03	.05	.07	-.02
Local	.07	.11	-.08	-.04
Internal	**.20***	-.06	-.04	.17
External	-.03	-.10	**.23***	.07
Liberal	.16	-.09	**.28***	**.24***
Conservative	-.08	.15	**-.30***	**-.25***

** $p < .05$*

Abbreviations: sELE – Preference for electronic sources; sCLASS – Preference for traditional sources; sINTERE – Interest in electronic sources; sINTERAC – Quality of interaction

The values in the first two columns indicate merely weak relationships between the scales, which means that **Hypotheses 1-3 were not sufficiently supported**. The only two statistically significant correlations were observed between internal style and preference for electronic sources of information (r = .20), and between judicial style and preference for traditional sources, in case of which the relationship was negative (r = -.21). Since both of these associations were unexpected and emerged in just two out of 13 intellectual styles, we refrain from further interpretation. It might be the case that the scales used for indication of the degree in which students sought specific types of sources were not particularly well chosen. Additionally, it has to be taken into consideration that the sample consisted of students of different subjects, and the conditions and forms of providing information and study materials were likely to vary.

H4:

Hypothesis 4 was supported with regard to the legislative (r = .20/.23) and liberal (r = .28/.24) style. The judicial style was only significantly correlated to the quality of interaction (r = .20). Correlation coefficients with the global and hierarchical styles did not indicate any relationship. We suppose that in the framework of the current e-learning setting only some intellectual and problem-solving styles play a significant role.

People with legislative IS can be distinguished by considerable self-reliance and independence, which might be a great advantage in the e-learning environment, where the teacher's intervention is largely restricted and mediated through the virtual reality, and effective functioning requires high level of learning autonomy and good self-regulatory skills. Liberal style, on the other hand, represents openness to novelty, to the extraordinary. E-learning might be perceived as a novel form of education which might particularly appeal to independent experimenters. Finally, judicial style prefers to compare different ideas and data. This, too, is one of the prominent aspects offered by electronic forms of education, especially the internet. We assume that people with the judicial IS are particularly good at dealing with large amounts of diverse information, which makes them fit for the unstructured realm of internet and electronic sources where good evaluation ability is certainly needed.

H5:

This hypothesis was **not supported**. None of the intellectual styles produced any negative correlations. It is possible that the different ways of thinking and problem solving used by these styles have no substantial impact on electronic learning, and that users of these styles experience neither gains nor losses from such means of education. We might speculate that the e-learning setting, while being more beneficial to certain intellectual styles, does not put other styles at any particular disadvantage.

H6:

This hypothesis **was supported**. Conservative style was indeed negatively correlated to the interest scale ($r = -.30$) as well as the quality of interaction scale ($r = -.25$). Conservative thinkers tend to stick to the traditional, well-proven methods and do not like to experiment. E-learning is a relatively new and rapidly growing field, with possibilities constantly expanding and the way education is delivered in different study areas constantly changing. These changes might not be very convenient for the conservative style which may view e-learning as an untrustworthy experiment with few worthy benefits.

H7:

Differences between e-learning users ($N = 63$) and other students ($N = 52$) were tested using between-subject comparisons (t-test) – see Tab. 4.

Tab. 4: Between-subject comparisons for the individual PEIS variables

	M	*M*	*SD.*	*SD*	*t*	*df*	*p*

	EL Users	Non-Users	EL Users	Non-Users			
sELE	33.90	33.96	4.04	5.26	-0.07	113	0.95
sCLASS	**26.54**	**25.13**	**4.02**	**3.17**	**2.05***	**113**	**0.04**
sINTERE	39.00	37.50	8.76	7.29	0.98	113	0.33
sINTERAC	30.08	28.88	6.20	6.89	0.98	113	0.33

Abbreviations: sELE – Preference for electronic sources; sCLASS – Preference for traditional sources; sINTERE – Interest in electronic sources; sINTERAC – Quality of interaction

As one can see from the table, Hypothesis 7 was **not supported** – no differences were found in the expected variables. Surprisingly, the only significant difference emerged with preference for traditional information sources, where e-learning users scored unexpectedly higher than non-users. One possible explanation is that e-learning users might be stimulated to explore a greater variety of information sources. After all, most electronic courses are conceptualized as supportive, and e-course managers constantly provide students with new, upgraded information or source references and links. Hence, students can choose from a vast body of information sources and use them for individual intellectual development.

H8 and H9:

Using multiple regression analysis, we tested the effect of individual intellectual styles on interest in electronic information sources and quality of interaction.

Regarding the former variable, significant effects were observed with the conservative (β = -.62), executive (β = .43) and external (β = .19) style. Together, the three variables explained 20% of variance in interest in electronic information sources. The effect of the strongest predictor, conservative IS, was negative. Tab. 5 summarizes the results of the regression analysis (only significant predictors are listed).

Tab. 5: Multiple regression of interest in electronic information sources with intellectual styles as predictors (only significant predictors listed)

N = 115	*β*	*SE β*	*B*	*SE B*	*t (111)*
Constant			**34.72**	**4.47**	**7.76**
Conservative	**-.62*** **	**.13**	**-.60**	**.12**	**-4.93**
Executive	**.43*** **	**.13**	**.47**	**.13**	**3.45**
External	**.19***	**.08**	**.19**	**.08**	**2.28**

$* p < .05$; $*** p < .001$; *Adjusted* $R^2 = .200$

As far as quality of interaction is concerned, only conservative (β = -.40) and internal (β = .23) styles emerged as independent significant predictors (Tab. 6). The overall model in this case only explained 10.5% of variance of the dependent variable. Again, the effect of conservative style was negative.

Tab. 6: Multiple regression of quality of interaction with electronic sources with intellectual styles as predictors (only significant or marginally significant predictors listed)

N = 115	*β*	*SE β*	*B*	*SE B*	*t (111)*
Constant			21.54	5.97	3.61
Conservative	**-.40****	**.14**	**-.31**	**.11**	**-2.98**
Executive	.22	.14	.19	.16	1.62
Internal	**.23***	**.10**	**.18**	**.08**	**2.18**
External	.16	.10	.13	.08	1.57

$* p < .05$; $** p < .01$; *Adjusted* $R^2 = .105$

Due to the unfavourable ratio of number of respondents to number of predictors in this study the interpretation of these results might be rather tricky. In both cases, the proportion of explained variance is low (20% and 10.5%). Thus, we consider both Hypothesis 8 and 9 **unsupported**.

To make up for the abovementioned statistical limitations, we decided to employ the higher-order two-factor typology which was implicated in previous studies (Zhang & Sternberg, 2005). Styles included in the first general type are more creative and independent and engage cognitive processing in a more complex manner. The second type, in contrast, prefers structured environments and clear-cut rules and uses less complex information processing. The first type encompasses legislative, judicial, global, hierarchical, and liberal styles; the second type includes executive, local, monarchic, and conservative styles. These two higher-order types were entered into the regression analysis as predictors of, again, interest in electronic information sources and quality of interaction. The results of multiple regression analysis indicate major differences between the styles of the first and second type. Namely, whereas the cognitively more complex styles of the first group show positive effect on both variables, the styles of the second type show negative effect. Tables 7 and 8 summarize the results, with significant predictions highlighted in bold.

Tab. 7: Multiple regression of quality of interest in electronic information sources with higher-order types of intellectual styles as predictors

$N = 115$	β	$SE\ \beta$	B	$SE\ B$	$t\ (111)$
Constant			33.43	7.48	4.47
Type 1	**.24****	**.09**	**.08**	**.03**	**2.72**
Type 2	**-.18***	**.09**	**-.07**	**.04**	**-1.98**

* $p < .05$; ** $p < .01$; *Adjusted* $R^2 = .081$

Tab. 8: Multiple regression of quality of interaction with electronic sources with higher-order types of intellectual styles as predictors

$N = 115$	β	$SE\ \beta$	B	$SE\ B$	$t\ (111)$
Constant			26.54	6.08	4.36
Type 1	**.21***	**.09**	**.05**	**.02**	**2.27**
Type 2	-.16	.09	-.05	.03	-1.73

* $p < .05$; *Adjusted* $R^2 = .055$

In this case, the amount of explained variance was even smaller (8.1% and 5.5%). Still, the role of individual predictors appears more obvious, as all of the effects except for Type 2 in the second regression proved statistically significant. The results show that cognitively more complex styles of the first type have positive impact on one's interest in electronic information sources and quality of interaction, probably thanks to the ability of independent functioning, structuring of knowledge, and openness to new experience. Type 2 styles, in contrast, have negative impact on these variables. Students of this type prefer to stick to the familiar paths and respond to the new alternatives with caution.

Discussion

The present study yielded only partial answers to our questions. All of the hypothesized relationships were either too weak or explained very little variance in students' attitudes towards e-learning. We expected somewhat greater effects of intellectual styles on the postulated variables. Based on our research, it is difficult to make any general statements about which particular intellectual styles are better suited for the e-learning environment. What is important, however, is a more general finding that success is probably more likely with styles which Sternberg describes as more creative and cognitively complex.

We are aware that the field of education and style theories still lacks comprehensive theoretical models. On top of that, it is very difficult to grasp the complexity of the entire situation in which students' learning takes place. Many different variables and factors influence the educational process, and all of these effects are likely to get reflected in any research results. The person – environment interaction in the educational setting is affected by many things on the part of the teacher, student, and the subject material which is to be learned. Individual variables tend to covariate and affect the outcome in interaction, which is why it is not easy to capture the isolated effect of a single variable.

Researchers in other countries often tried to examine the impact of various styles in the e-learning environment by measuring academic achievement, because end-term test performance is often regarded as a good indicator of different style preferences. For example, Ross, Drysdale & Schultz (2001) investigated the effect of cognitive styles on academic achievement in a large sample of students of computer studies. Wang, Hinn & Kanfer (2001) used the Kolb Learning Style Inventory focusing at style change, learning outcomes, and learner satisfaction with computer-supported collaborative learning. Still, while academic achievement is one of the indicators which are more easily interpretable, it does not sufficiently communicate the effects of students' subjective attitudes to e-learning.

Electronic information sources represent a very rich, but also considerably demanding means of education. E-learning requires the employment of advanced cognitive skills by students, especially with respect to computer orientation and good self-regulatory capacity. It may be true that high dependence on teacher's leading role is not expected in college students; still, it is not possible to supply a wide range of education possibilities without providing some degree of structure. Teacher's guidance should work as support encouraging the growth of autonomy and educational self-management in students.

From the style theory perspective, e-learning represents a great potential for adapting study material into several different forms which would not only be more appropriate for different types of students, but also stimulate all students to explore and adjust to different educational activities. Even Sternberg (1997) pointed out that what is truly important is not which (intellectual) styles we commonly use, but how flexibly we use them in adjusting to the demands of the situation. Therefore, along with the development of electronic information sources, it is essential to promote the growth of students and their study skills which will enable them to develop autonomy and ability to govern their own learning.

Conclusion

Our study was an attempt to approach the issue of electronic learning from the perspective of educational psychology. We explored the question of which types of students are most likely to benefit from this rapidly developing form of education, and which types would rather avoid or might have problems adjusting to the electronic environment. For the description of these various types we employed the Self-Government Theory by Robert J. Sternberg who suggests that it is not only a matter of our actual abilities to achieve success in what we do, but it is also a matter of how we use these abilities. These ways in which one can make use of their abilities are referred to as thinking or intellectual styles. Our aim was to examine which styles were most likely associated with active seeking and successful application of electronic education, and to identify any styles which might experience difficulties with the e-learning setting.

Our empirical findings only partially supported the expected associations. We assume that individual thinking styles by themselves are not sufficient to influence the preference for and quality of e-learning interaction. One of the most viable explanations is that thinking styles are only one of many factors affecting the learners and their e-learning experience. Still, the results have shown that positive effects could be expected with the styles which Sternberg describes as creative, autonomous and employing complex cognitive processing. From this we conclude that electronic education in its current form probably places high demands on students' cognitive abilities. To test this hypothesis it might be appropriate to engage one of the cognitively oriented style theories.

However, we realize that the learning process in a particular setting is always affected by many other factors which might determine students' attitude to this type of education. One important variable is one's computer proficiency. Another one is the actual form in which the study material is supplied in the e-learning environment. Also, one has to consider different domains and fields of study, as well as the actual extent in which e-learning is applied, i.e. whether it provides a basis for the entire education or just serves as a supplementary educational tool. The approach of the educational institution involved is also important, including endorsement of e-learning by the teachers, available software, and the availability of computers and internet connection among the students. And finally, what is most relevant are the students themselves, their motivation for studying as well as their thinking styles used in their exploration of the world or unique approaches to problem-solving and learning.

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Information security management in the use of information and communication technology in small enterprises

by

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ABSTRACT

The constantly increasing requirements for the management of organizations determine the need for implementing systems in compliance with various standards based on process approach. The of the source requirements are regulations and competitive business environment. The functioning of documented management systems contributes to the development and monitoring of an increasing amount of information, the size of which is correlated with the number of persons employed.

The use of diverse IT applications, working in the workplace network (Intranet) and global network (Internet), the use of mobile communication becomes necessary, but it also contributes to a significant reduction in the ability to provide information security in the enterprise. Still, insufficient awareness of employees of small, polish, manufacturing companies is identified in this field. Employees often do not care about the security of information, both while working on the computer or by using the flow of information through traditional media.

This paper presents the security requirements of information contained in international standards for information security management systems, information technology - security techniques and their degree of compliance in small businesses and typical problems of information security. The conclusions are drawn from the results of research carried out in 50 small Polish firms located in Lower Silesia which is the one of the most developed regions in Poland. Therefore this conclusions may be interesting for companies in developing countries in the aspects of the implementation of information security systems and improve the competitiveness of enterprises.

KEYWORDS (REQUIRED):

information and communication technology (ICT), information security, small enterprises, IT applications, transition economies, ICT management, Internet

INTRODUCTION

One of the factors determining the competitiveness in today's market is the need to implement the systems for compliance with quality standards based on process approach. The market leaders and the companies trying to maintain or improve their market position, currently only work with entities with established organisational culture, i.e. having certified systems and IT support to manage their organisations.

One of the factors of increased requirements is the ever-increasing access to information made possible by the development of information technology in the field of information and communication. The technologies and solutions used in this field have contributed to the phenomenon of globalisation.

In addition to a number of benefits from the use of information and communication technology, there are also the risks, particularly important for the financial health of the companies, the performance of their processes, resulting, among other things, from the problems with providing information security. These include:

- large organisational inertia in crisis situations, such as the emergence of "new" problems resulting in the slowdown in the performance of the planned process activities,
- high rate of spread of potentially adverse information about the company, affecting the decline in sales in the short term[1]. The extended duration of undesirable situation can lead to a loss of liquidity,
- difficulty in identifying relevant information when having access to huge information resources,
- inefficiency in the processing of the collected data for the organisation's own needs,
- difficulty in making decisions based on the excessive number of variables,

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- high probability of information manipulation in the direct competitive environment,
- rapid pace of change in the economic environment making it difficult to effectively plan activities,
- rapid pace of change in law as a response to changes in the economic environment; a tightening of requirements is observed, in particular in relation to ensuring the quality and safety of products and production conditions,
- high requirements set by the companies to their partners, especially in terms of product quality and safety as well as the standards of cooperation.

To meet the requirements for quality standards and safety of the product offered, and to raise standards of cooperation, the process approach is still popular in many organisations, as well as making decisions based on the feedback on the process results. This approach to economic events helps to identify the flow of goods and to manage the accompanying information, especially in a rapidly changing external and also internal business environment[2].

An interesting fact is that the processes that focus mainly on the processing of documents (information with use of a variety of carriers) include 10 out of 16 (62%) of the production plant processes identified[3].

In many industries, the quality standards have become mandatory. The customers recognise the HACCP system in case of food industry and the CE mark on other products, which informs the customer that the product meets the legal requirements for safety associated with its use. The use of the CE marking is related to internal quality assurance systems operating in the production plants. Moreover, the cooperation with partners is very often determined by the need to implement quality and safety standards in the manufacture of products, such as: ISO 22716 Cosmetics - Quality Management System for the cosmetics

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[2]Skrzypek E., Hofman M. (2010), Zarządzanie procesami w przedsiębiorstwie. Identyfikowanie, pomiar, usprawnianie, [Process management in the enterprise. Identifying, measuring, improving] Wydawnictwo OFICYNA, Warsaw 2010, p. 11-45

[3]Wąsiński J., Jarco P. (2013), Zarządzanie procesami w warunkach kryzysu gospodarczego [w:] Innowacyjność i przedsiębiorczość w warunkach kryzysu [Company processes management in economic crisis conditions - Innovation and entrepreneurship in the context of the crisis]; pod redakcją Sławomira Partyckiego; Wydawnictwo KUL; Lublin 2013, p. 333 – 345

industry, the BRC International Food Standard, the IFS International Food Standard - requirements for the suppliers of food products supplying retail chains, ISO 22 000 - Requirements for food safety[4,5].

The trend accompanying the new versions of the quality and safety standards is usually associated with an increase in the number of documents as a result of meeting the requirements with respect to the production conditions and the method of production supervision.

The development of information and communication technology and the consequent changes in legal requirements and competitive environment have contributed to the creation and improvement of many IT systems in companies (out-of-the-box or customised implementations) aimed at improving the efficiency of their operations related to the product manufacture and marketing. The examples of these systems based on a process approach to management include:

- CRM – Customer Relationship Management,
- ERP – Enterprise Resource Planning,
- SCM – Supply Chain Management,
- CAD – Computer Aided Design,
- CIM – Computer Integrated Manufacturing,
- CAM – Computer Aided Manufacturing,
- MIS – Management Information System,

which are components of the integrated system (e.g. SAP). These systems are developed by many companies based on different solutions[6,7].

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[4]International Food Standard, Ver. 6., June 2012, p. 37-70

[5]PN – EN ISO 22 000:2006, Food Safety Management Systems Requirements for any organization belonging to the food chain, PKN Warsaw May 2006, p. 9-25

[6]Skrzypek E., Hofman M. (2010), Zarządzanie procesami w przedsiębiorstwie. Identyfikowanie, pomiar, usprawnianie, [Process management in the enterprise. Identifying, measuring, improving] Wydawnictwo OFICYNA, Warsaw 2010, p. 103-104

[7]Jabłoński W., Bartkiewicz W., Systemy informatyczne zarządzania. Klasyfikacja i charakterystyka systemów, [Management Information Systems. Classification and

Out-of-the-box or customised IT systems undergo a rapid development in large enterprises. In small companies the situation is less optimistic, even despite the fact that the requirements of the competitive environment are the same for all companies.

In view of the prevailing situation in the economic environment, the issue of information security management is also very important, both in terms of information security management system and the infrastructure requirements which are undoubtedly the basis of this system[8,9].

INFORMATION SECURITY WITH THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES

The security of data published on the INTERNET has become increasingly important. It can be observed that the standards for information security regarding the infrastructure requirements and the operation of the network attract large interest. Their frequent use is a consequence of the duties related to the fulfilment of legal requirements. However, there are general requirements related to protecting of the information itself that must be considered, regardless of the data carrier used, that is why the management in terms of a comprehensive approach to information security should be a priority.

In accordance with the technical standards relating to the information security, the processing, exchange and archiving of corporate (business) information, which is essential for the functioning of a given company, with the use of ICT equipment, should be done in a controlled manner. Access to this information should be limited, due to its high importance for the company (its sensitivity) and the fact that its loss or destruction may result in big losses.

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characteristics of systems] Wydawnictwo Kujawsko-Pomorskiej Szkoły Wyższej, Bydgoszcz 2006, p. 25-111

[8] Lynne Markus M., Siew Kien Sia, Christina Soh (2012), MNEs and Information Management: Structuring and Governing IT Resources in the Global Enterprise, Journal of Global Information Management, 20(1), January-March 2012, p. 1-17

[9] Halaweh M. (2011), ADOPTION OF E-COMMERCE IN JORDAN: UNDERSTANDING THE SECURITY CHALLENGE, The Electronic Journal on Information Systems in Developing Countries (EJISDC), (2011) 47, 3, p. 1-13, http://www.ejisdc.org

To assess the level of sensitivity of the resources, including information resources that are not classified as state secret or company's confidential information, there can be used:

- the requirements of PN-ISO/IEC 17799:2007 Information Technology. Code of practice for information security management[10,11],
- requirements of PN-E-08390-14:1993 Alarm systems - General requirements - Application, referring to the Polish law and the new standard PN-EN 50131 Alarm systems - Intrusion And Hold-up Systems[12,13,14].

The attributes required to ensure the information security in ITC systems include:

- Access / access control - the type of interaction between the subject (user) and the object (information resources of the unit), which results in a change of state (processing), information flow, etc.
- Authentication - the process of determining the credibility of the subject in the security area, it takes place at the stage of system start-up and operation of the system(s).
- Accountability - the attribute obtained by recording the generation, transmission, and modification of the resources or their removal (lacking resources).
- Reliability - system feature that represents the consistent and deliberate action.
- Transmission and data security, including:

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[10]PN-ISO/IEC 17799:2007, Information technology - Security techniques - Practical rules for information security management, PKN, Warsaw 2007

[11]PN-ISO/IEC 17799:2007/Ap1:2010, Information technology - Security techniques - Practical rules for information security management, PKN, Warsaw 2010

[12]PN-E-08390-14:1993 Alarm systems - General requirements - rules of use, PKN, Warsaw 1993

[13]PN-EN 50131-1:2009 Alarm systems – Break-in and burglary alarm systems-- Part 1: System requirements, PKN, Warsaw 2009

[14]PN-EN 50131-1:2009/A1:2010, Alarm systems – Break-in and burglary alarm systems-- Part 1: System requirements, PKN, Warsaw 2010

- o Anti-virus protection - the software and a set of organisational and technical measures to protect the system against the penetration of malicious software to the ICT systems and its impact on these systems.
- o Transmission protection - the software and a group of organisational and technical measures to prevent unauthorised acquisition of IP addresses, the data of authorised users and the topology of a given ICT network to attack the resources (information, computer equipment, ICT network ...) to acquire the data, effectively block the network, etc.
- o Audit - a tool for scheduled monitoring of the security status to detect the risks and warn against potential threats.
- o Contingency plans - procedures to be followed in the event of safety at risk, i.e. in case of a real risk of discontinuity of operations of the entire organisation or its major part (crisis situation).
- o Training - a form of countermeasure to prevent the undesirable situation from happening by raising the level of awareness of users and improving their skills in terms of safe operation of the system, and how to proceed in the case of safety incidents (breach) or emergencies.

In the authors' opinion, the information security should be considered based on the approach to information security in the context of a comprehensive management system. A recognised global standard in this respect is PN-ISO/IEC 27001:2007 Information technology -- Security techniques -- Information security management systems -- Requirements (ISO 27001)[15].

The requirements to be met can be found in points 4 to 8 of the above-mentioned standard. These include the following requirements:

- the requirements concerning the Information Security Management System (ISMS) - presented in general terms, which set out the criteria for the establishment and management of information security system, including: establishing, implementing, operating, reviewing, maintaining and improving the ISMS, and the documentation requirements,

[15] PN-ISO/IEC 27001:2007, Information technology - Security techniques - Information security management systems - Requirements, PKN, Warsaw 2007

- the requirements in scope of the responsibility of the company management, including its commitment, administration and provision of the resources, the need to build staff awareness, among other things, through training and the requirements for their professional competence,
- the requirements in scope of planning, conducting, and documenting the activities related to internal audits,
- the requirements in the area of the review of the information security management system carried out by the company management,
- requirements in the field of enhancing the information security management system (ISMS), including continuous improvement, corrective and preventive actions.

The Annex A (normative annex) to the ISO 27 001 standard contains the required purposes of using security controls and the proposed security controls to achieve the goals of information security management. The detailed types of information security controls (protection) concern eleven areas[16,17] (see the Figure 1 – Security control groups).

As a part of the implementation and use of ISMS there should be formulated a plan for dealing with risk including the specific actions of the management, the responsibilities, and priorities for managing information security risks. The plan should be implemented taking into account the respective roles and responsibilities of the personnel to achieve the identified purposes of using security controls. The security controls implemented must ensure achievement of the purposes of their use. It is important to define how to measure and evaluate the efficiency of security controls and security control groups using appropriate measures (enabling to compare the results). Efficiency measurement is important for assessing the effectiveness of the applied protection (security controls).

A unique advantage of this standard is the ability to build a comprehensive information security management system that connects all forms of document flow, enabling to meet the

[16]Alshboul A. (2010), Information Systems Security, Measures and Countermeasures: Protecting Organizational Assets from Malicious Attacks, IBIMA Publishing, Communications of the IBIMA, http://www.ibimapublishing.com/journals/CIBIMA/cibima.html, Vol. 2010 (2010), Article ID 486878, 9 pages, p. 4-5

[17]Wen Guang Qu, Pinsonneault Alain (2011), Country Environments and the Adoption of IT Outsourcing, Journal of Global Information Management, 19(1), January-March 2011, p. 30-50

requirements contained in other standards for the information flow, data carriers, infrastructure, systems, applications, including information and communication technologies.

In addition, the use of ISO 27001 enables the company to create a system based on a comprehensive risk analysis, taking into account the interactions between threats. These activities are indispensable for the efficient use of security controls.

STUDY PURPOSE, SCOPE AND METHODS

Between 2012 and 2013, the authors conducted a study of Polish enterprises located in the region of Lower Silesia in the field of information security with particular emphasis on the degree of compliance with the requirements of PN-ISO/IEC 27001:2007 – Information technology - Security techniques - Information security management systems - Requirements (ISO 27001) [18,19]. The analyses carried out were a continuation of studies initiated in 2011 titled "The use of information and communication technology in small companies". The research was conducted on a sample of 50 manufacturing companies with annual average employment of 30 to 50 persons and located in Wroclaw or within a 150 km radius from Wroclaw. In order to start the cooperation the company had to express its interest in the research studies, and have the quality management system and/or the management system required within the industry or conduct appropriate implementation activities, since none of the companies in the group declared to have the information security management system or to be in the process of implementing the requirements for such a system[20]. Lower Silesia is one of the most developed regions of Poland, hence his choice for the purpose of research.

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[18]PN-ISO/IEC 27001:2007, Information technology - Security techniques - Information security management systems - Requirements, PKN, Warsaw 2007

[19]PN-ISO/IEC 27001:2007/Ap1:2010, Information technology - Security techniques - Information security management systems - Requirements, PKN, Warsaw 2010

[20]Conclusions resulting from the opinion occurring in the managerial environment allow for treatment of the companies as well-organized and prone to technological innovations. Thus, if the degree of utilization of information and communication technologies in these companies as a result of research would be considered low it can be concluded that the other companies in this field are much weaker.

The aim of the research conducted in the companies at the turn of the years 2012 and 2013 was to identify the degree of compliance with the requirements of ISO 27 001, mainly in the area of security controls specified in Annex A to ISO 27 001.

The authors explored the following research hypothesis – "Up to 50 percent of the companies analysed will meet 50 percent, at the most, of the requirements contained in ISO 27 001". The reason for this is still a low awareness of the management in this regard.

The following research methods were used in the study:

- methods for the collection of materials, including:
  - tools used for auditing of management systems - interviews with the employees and observations of the evidence collected by the employees in the framework of their activities. A List of audit questions including references to all the requirements of ISO 27 001 was prepared for this purpose,
- methods for the processing of research material, including:
  - descriptive and analytical method – methods for evaluation of the research material collected (The evidence from the companies collected during audit was evaluated with points. The degree of implementation of the particular requirements of the standard in the companies was established by measuring the percentage of analysed features in the totality of the features studied, comparing the number of points obtained by a given organisation to the maximum number of points possible to obtain in the audited area. The results obtained regarding the degree of compliance with the requirements are shown in the paper with an accuracy of 10%).

INFORMATION SECURITY DURING THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN THE COMPANIES STUDIED

The research found that only 8 percent of companies met 60 percent of the requirements contained in ISO 27001, and 80 percent of the enterprises implemented less than 50 percent of the requirements contained in ISO 27001. Moreover, the representatives of the organisations did not declare the need to implement the system to a greater extent, and the current level of compliance with the requirements for information security is a result of existing legislation or, even more often, the contracts signed with customers.

During the research, none of the companies analysed did not carry out a risk assessment related to information security and the requirements of ISO 27001 included in points 4 to 8 were not implemented by them, despite the fact that they had all the necessary system tools. The system procedures used by the companies did not include the information security (except for documentation supervision as one of the common elements of the majority of the management systems or quality assurance)!

The functioning of selected elements of the information security management system resulted from meeting the requirements set out in Annex A (normative annex) to ISO 27001 (see the Figure 1 – Security control groups). The companies complied with this group of requirements due to the fact that:

- there were common elements used in quality management systems and ISO 27001,
- the required solutions were used when implementing the software purchased or purchasing the services from service providers.

In 80 percent of the cases, the implementation of these solutions was not a result of a conscious management decision related to the need of ensuring the information security in accordance with world standards.

In the companies studied, the level of implementation of security controls proposed in the standard was the lowest in the following areas (Figure 1):

- information security policy (86 percent of the companies met even less than 10 percent of the requirements, and 14 percent of the companies complied with no more than 20 percent of the requirements),
- organising the activities related to information security (78 percent of the companies met even less than 10 percent of the requirements, and 10 percent of the companies complied with no more than 30 percent of the requirements),
- determining the information security in terms of human resources (82 percent of the companies met even less than 20 percent of the requirements, and 18 percent of the companies complied with no more than 40 percent of the requirements),
- the aspects of business continuity management in the organisation (20 percent of the companies met even less than 10 percent of the requirements, and 24 percent of the companies complied with no more than 40 percent of the requirements).

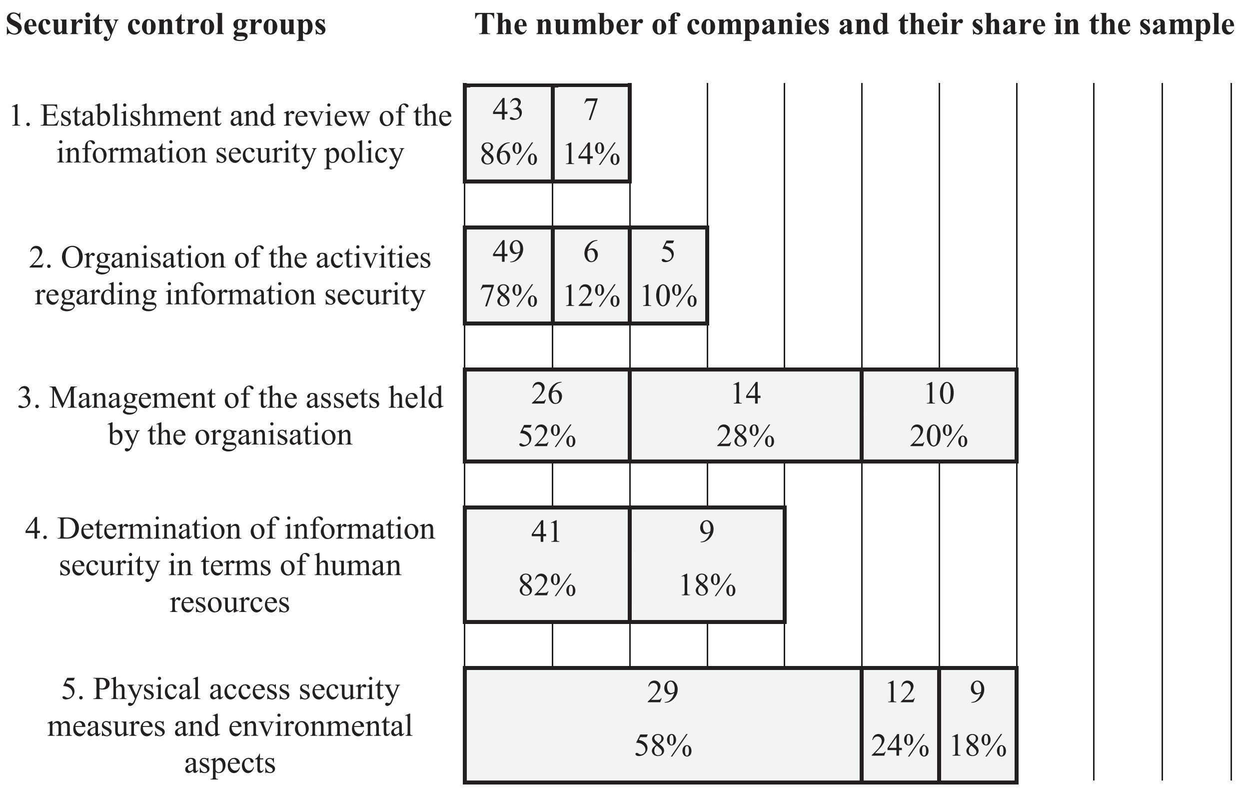
The level of implementation of the requirements in the organisations did not exceed 40 percent in any of the aforementioned groups. That is why the following findings were identified:

- lack of information security policy formulated in a document, and thus it was not correctly reviewed by the management to check its adequacy,
- partially written policy statement identified not in one but in several different business documents,
- lack of documentation or partially formulated responsibilities regarding the information security,
- lack of independent reviews in the area of security,
- lack of identification of risks associated with external parties (e.g. the partners),
- incomplete instructions regarding the information security when dealing with customers and concluding contracts with third parties,
- lack of required clauses regarding the information security in the employment contracts,
- the employee responsibility for the data security breaches and their obligations in this regard not sufficiently defined Most commonly, there were no disciplinary actions in case of security breach,
- very infrequent trainings on information security or covering only a small part of the subject,
- the return of assets (documents and data) was not properly enforced after the end of daily work or in case of termination. The representatives of the organisations had difficulty in establishing the number of documents created by the employees as a consequence of unsupervised work performed at home,
- missing or incomplete instructions for ensuring the functioning of the organisation in the event of crisis - suspending its normal operation (e.g. failure of information systems). The documents concerning the emergency procedure used did not contain detailed guidelines, were difficult to validate (testing and applying), and their effectiveness sometimes was low.

The highest degree of implementation of the security controls required was observed in the groups including (Figure 1):

- management of the assets held by the organisation (52 percent of the companies studied met less than 20 percent of the requirements, and 20 percent of the companies achieved 70% level of compliance),

- physical access security and environmental aspects (58 percent of the analysed companies met 50 percent of the requirements, and 18 percent of the companies complied with 70 percent of the requirements),
- Managing the communication and the use of assets in the organisation (in this group of the requirements, a higher degree of compliance was observed because 42 percent of the entities met 50 percent of the requirements, 16 percent of companies complied with 60 percent of the requirements and 12 percent of the companies met 70 percent of the requirements. However, these results were not satisfactory and justified the need for immediate changes),
- Controlling access to resources (the group of requirements with the highest level of security controls implemented, including 30 percent of the companies using 60 percent of the requirements, 24 percent of the companies with 70 percent level of compliance and 12 percent of the companies with 80 percent level of compliance).



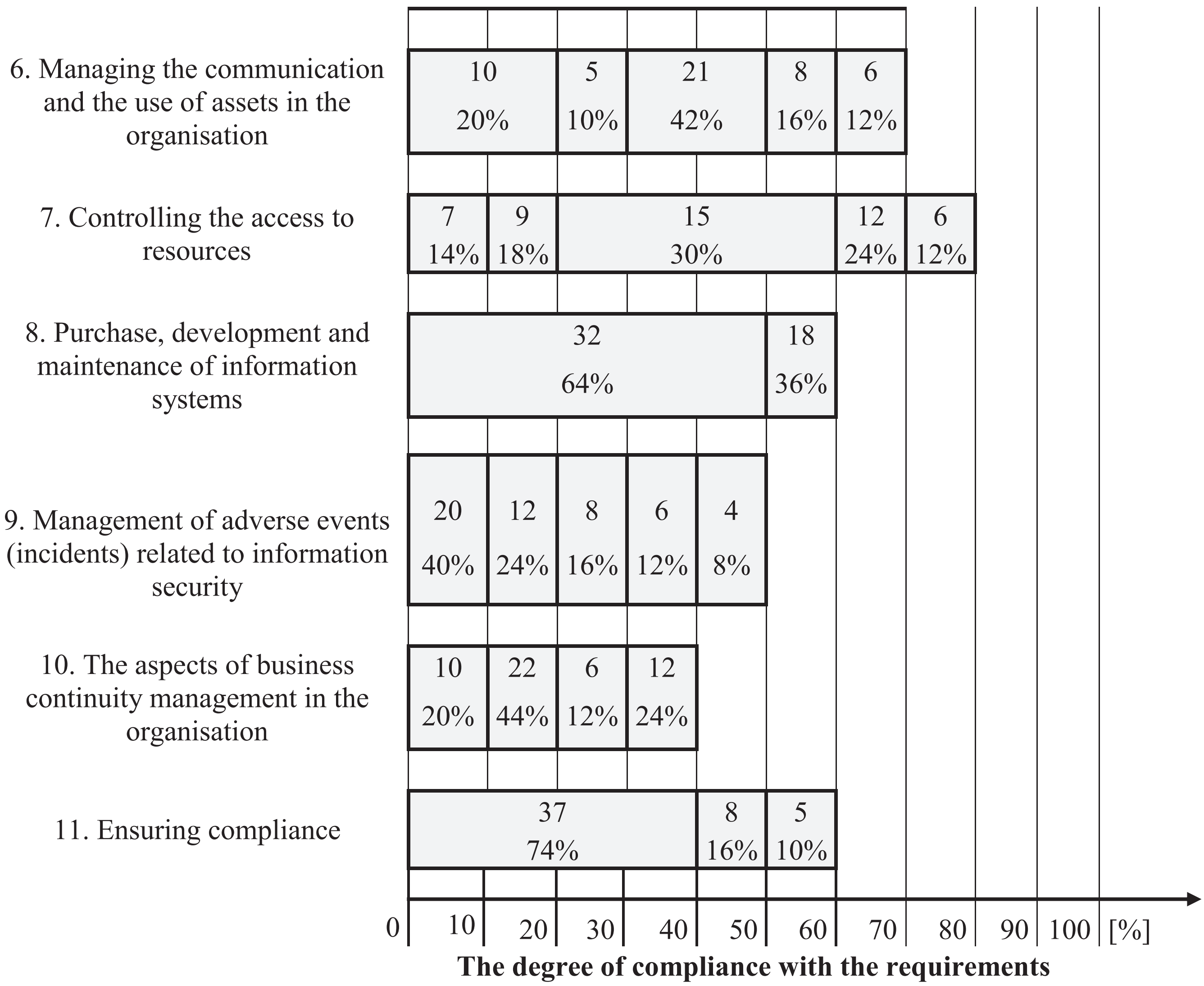


Figure 1. The degree of compliance with the requirements of ISO 27001 contained in Annex A in the companies studied
Source: Own study.

The level of compliance with the standard in the above groups did not exceed 80 percent in any of the analysed organisations. The following was thus observed:

- 98% of the companies delegated the process of managing their own WEBSITES to specialised external companies,
- the company website contents and the content of application to support the processes were physically placed on the servers controlled by external companies, it was also observed that the employees of the service providers, especially in case of high staff turnover, had a little knowledge on how to secure the information located there,
- low awareness of the management as to the content of the contracts signed with service providers. The managers, when asked about the security of information on the

Internet and the network drives supported by external servers, often answered that it was governed by a contract with a specialised company, but usually they were not aware of the importance of contractual clauses,

- the contracts with hosting service providers were missing a lot of basic criteria to ensure the security of data,
- the process outsourcing contracts with external companies using the specialised software connected to the internet did not have any provisions regarding the security of data. As many as 63 percent of the companies outsourced the accounting process, and 50 percent of the companies outsourced their HR services,
- incomplete instructions for the electronic document flow, which in practice was the basis and model for a document on a traditional (paper) carrier,
- individual principles (not approved in the system) for supervising documents (such documentation was useful only for a given job position, and in addition it was difficult to be supervised in terms of the security of data),
- lack of established rules of using electronic media. It was common to use multiple copies of documents - electronic documents placed on computer disks, servers, in independent applications (in email client, databases, information system, etc.), and paper versions (the originals and photocopies). In fact, not a single case of a company having the established rules for handling the data carriers and external drives was observed, and their use by employees was common,
- the use of anti-virus software and security controls against malicious software of average efficiency as rated by the experts,
- lack of established rules for the use of electronic mail to send information relevant to the organisation,
- lack of established priorities as to the importance and urgency of a matter, and thus the security priorities for the information transferred (the same document, i.e. an information on a carrier, could be important and urgent to one department, and not as much important to another one, where the document was currently held),
- difficulty to quickly locate a complete set of supervised documents, particularly if placed on different carriers and having many versions,
- inadequate instructions regarding the changes to the documents and supervision of outdated documents, which could be an ideal information basis on the functioning mechanisms of the organisation,

- quite good access security, such as: controlling access to the network, operating systems, and applications resulting in the use of passwords to access the computer and the need to log in to the production plant system. However, despite the use of access security the majority of the employees did not have the habit to log-off when leaving their desks, the so-called "clear screen policy", so the access of other people to their computers was then unlimited.

A positive aspect of the ongoing activities related to information security carried out in the organisations was the implementation of security controls related to the functioning of INTRANET and INTERNET. However, the managers and employees using the above security controls were aware mainly of the need to protect their data against physical loss from their computers, which could result in the need to repeat the work or the inability to perform current operations. In the background there was the fear of data theft and their use for other purposes such as obtaining competitive advantage or making an adverse information public.

The companies evaluated gave the impression that the actions as to the information security were conducted ad hoc, only in case of emerging problems or to satisfy customer expectations. None of the analysed companies performed a risk analysis related to the information security. The organisations did not identify the threats by means of comprehensive analysis. They did not study the efficiency of the security controls used or their groups in relation to the purpose they wanted to achieve! Thus, when the company assumed that the security control used was effective, in fact, it could only be an illusion, due to the fact the information could be obtained in an easier way. This situation could be explained by posing a rhetorical question: "What is the effectiveness of a 512-bit secure access to the data, if there is a small card with the password next to the computer and the same password is stored on different computers, including unsupervised ones?"! Without a proper risk analysis our actions could be similar to the situation described above.

SUMMARY AND CONCLUSIONS

One of the factors determining the competitiveness in today's polish market is the use of systems for compliance with quality standards. The trend accompanying the new versions of the standards is usually associated with an increase in the number of documents as a result of meeting the requirements with respect to the production conditions and the method of production supervision.

The security of data published on the INTERNET has become increasingly important in Poland. The interest in the standards for information security and the infrastructure requirements for ICT networks is increasing. However, the general requirements related to protecting of the information itself must be considered, regardless of the data carrier used, and that is why the management in terms of a comprehensive approach to information security should be the most important question.

The research hypothesis explored by the authors, i.e. “Up to 50 percent of the companies analysed (small enterprises) will meet 50 percent, at the most, of the requirements contained in ISO 27 001” was proven. The main reason for this is still low awareness of the importance of this fact among the managers, so the priority should be to build awareness as to the information security, both in the context of identifying the needs and respecting them and in terms of implementing a security system. The basis for these actions is to conduct a comprehensive risk analysis in the area of information security in order to identify the effective security controls. The users must change their view, that the use of anti-virus applications and the software to protect data transmissions in ICT networks is sufficient to protect information resources.

In view of the results presented, it is reasonable to try to improve the model of information management in small, polish companies during the follow-up research in a way that ensures user's compliance with all requirements of quality systems, including information security requirements.

Information presented in this study may be of interest to companies in developing countries in implementing aspects of information security systems[21] and improve the competitiveness of enterprises.

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Chapter 2

Problems of ICT Knowledge and Skills Transference from Highly Developed Countries to Emerging Economies (1)

Impact of Business Model Changes on knowledge processes: A Novel Approach using Time-Spatial Vectors

by

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ABSTRACT

Scarce research has been performed on the implementation of a business model and its implications on the business processes. Research on business models mostly focuses on finding adequate definitions and overcoming barriers of change; some research is performed on industry specific business models or value chains. Recent studies has shown, that managers need to become aware of which knowledge intensive business models are to be changed. A novel method must identify the affected parts in business models and derive adequate change measures. This paper introduces such a method that injects time-spatial vectors into knowledge intensive business models. These vectors are a recent innovation of the Knowledge Modeling and Description Language (KMDL) and they are able to track processes, their duration as well as their geographical dispersion. In the given context time-spatial vectors analyzes change needs and change options. Further on, the benefits from analyzing the changes are highlighted.

Keywords:

Business Model Change, Knowledge Intensive Business, Emerging Economies, Transformation, Time-Spatial Vectors.

INTRODUCTION

Knowledge Management is a key discipline for adding value to business processes. For its success, it is vital to set performance targets and measure the achievements. Successful changes can be characterized by an improvement within knowledge intensive business processes, resulting in cycle time reductions or closing perceived geographical distances. In order to address these broad challenges, the concept of business models is used as a basis for organizational change. For identifying and performing business model changes, the knowledge intensive business processes are to be modified. This modification is documented, enabling the measurement of successful changes, hence transparency.

The contribution consists in going beyond classical business model (re-engineering) research, it consists in applying new Knowledge Management concepts for detecting business model change needs including appropriate change options. Time-Spatial Vectors are a recently developed concept that has been applied for creating managerial awareness of critical knowledge and information flows. Since an application of such a concept to BPM does not exists, the authors perform a case study in an explorative manner.

The concept has been applied Hong Kong (China), which according to (Sultanow and Brockmann 2013) can be considered an emerging economy.

NOVELTY OF THE CONTRIBUTION

Previous literature on business models and business model change has only considered those business processes which are not knowledge intensive. The authors perceive a lack of two aspects: First, knowledge intensive business processes - as commonly found in software companies - are missing. Second, the impact on when and where knowledge intensive business processes are executed has not been considered until now. Thereby, we present an approach which allows to determine the impact of business model change on (knowledge intensive) business processes through the course of time, considering a variety of locations. The time spatial vector is being implemented as an extension to KMDL, allowing to measure the impact.

BUSINESS MODEL TRANSFORMATION

Business models and ecosystems of enterprise systems have been subject to scholarly research (Brockmann and Gronau 2009; Sultanow, Brockmann and Gronau 2010). These publications are based on frequently cited business model definitions (Magretta 2002; Osterwalder and Pigneur 2009; Timmers 1998) which provide a theoretical framework to classify business models and their respective elements.

Recently, scholars are increasingly differentiating between strategy, the business model and business processes. The boundaries between strategy and the business model are usually not clearly drawn since in some definitions (Wirtz 2010) strategy is part of the business model. (Yip 2004) states that strategic positioning is equal to defining the business model. Recently, boundaries between the business model and business processes are increasingly drawn. A methodology that differentiates between strategy, the business model and business processes has been proposed by (Di Valentin, Weiblen, Pussep, Schief, Emrich, Werth and Loos 2012).

Business model transformation itself can be rooted within the necessity to respond to an action from one of the five competitive forces as defined by (Porter 2008). Internal issues might also trigger a business model change (loosley based on Bradley, Pratt, Byrd and Simmons 2011).

Business model changes can surge from either a top-down or a bottom-up approach. The top-down approach is applied when upper management determines the course of action. Furthermore, it is defined by which measures are to be taken in order to accomplish a desired state (Koontz and Weihrich 2007). In this approach, a primary strategy is defined and the structure follows the course of action prescribed by the approach (Chandler 1962). Existing resources are allocated in a way best fit to achieve the strategic goal (Bower 1970).

The bottom-up approach refers to the idea that it is possible to determine necessary changes by aggregating methods from the operational level (Kazmi 2008). Figure 1 shows the differences of the bottom-up and top-down approach. In both cases it appears to be fruitful to determine the current state of the business processes, including the knowledge intensive ones.

The top-down approach implies that managerial awareness is present and change requirements are identified by the executives. The resulting business model change will be applied to lower hierarchical levels. By modeling the knowledge intensive business processes before the business model change, deficiencies are available at the management level. Modeling business processes after the business model has changed can be beneficial to determine additional improvement potential. Ideally, business processes are modeled before (to enable data driven decisions) and after the change (determine the impact).

Bottom-up approaches start in the operational level, where ideas for improvement surge due to daily performed tasks. Modeling the business processes before the business model change can be useful to increase operational efficiency. Moreover, ideas from those with direct contact to markets and customers can be considered with greater awareness. Modeling the business processes after the business model change can be perceived as useful to determine further potential for improvements from the operational base. Modeling before and after the business model change is perceived as very useful because it first establishes a data basis for the business, subsequent model change is executed and the effectiveness of the implementation can be determined.

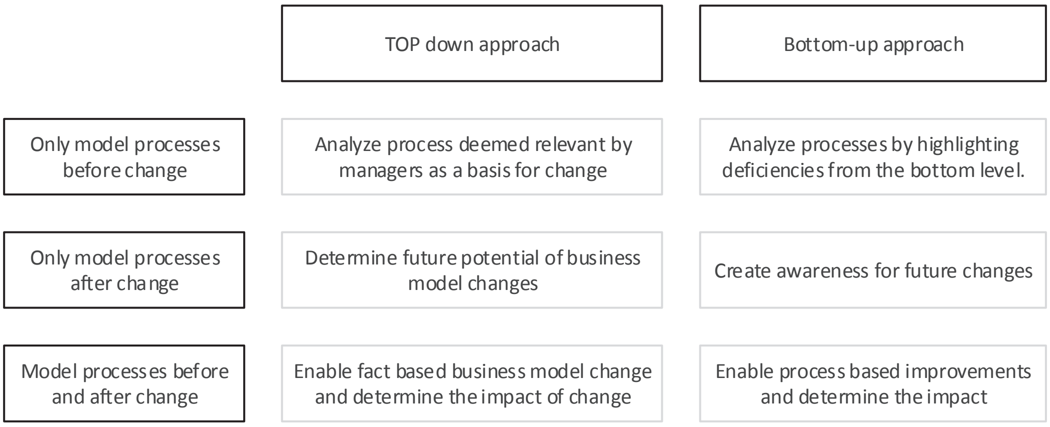

Figure 1: Top-down vs. bottom-up modeling

Changes in the business model result in changes within the business processes. A business process according to (Hammer and Champy 1993) are an amount of activities that use an input to create an output that is value to the customer.

KNOWLEDGE MODELING AND DESCRIPTION LANGUAGE (KMDL)

Managers taking a data driven approach need transparency (DuBrin 2009) when making decisions on how operational disturbance, regulatory requirement changes, law, politics, social structures and culture impact the business. Since managing knowledge is beneficial (Jennex 2005) and software companies have a high amount of knowledge intensive tasks (e.g. Gronau, Müller and Korf 2005; Hickey and Davis 2003; Rus, Lindvall and Sinha 2002), taking a knowledge based approach on the impact of business model changes for software companies appears promising (Gronau, Korf and Müller 2012; Gronau, Müller and Uslar 2012; Pogorzelska 2012).

Dedicated instruments should be installed into the process environment to monitor process steps and detect process influences. KMDL is suitable for modeling and visualization, focusing on knowledge-intensive processes. Further on, KMDL provides a methods of analysis useful for managers (Gronau et al. 2005), (Gronau and Fröming 2006). A comprehensive comparison of 13 modeling methods can be found in (Sultanow, Zhou, Gronau and Cox 2012). It has been shown, that KMDL is the most applicable method for creating transparency in distributed organizations.

The process view reflects the process flow of a business process (Bahrs, Bogen and Schmid 2012). This view comprehends the tasks and operators, highlighting alternatives. If the level is more detailed, sub-processes can be shown. Sub-processes are connected through a process interface to other parts of the process. Hence, the interconnectedness can describe either the entire process or parts of a process. Roles (e.g. purchaser) and information systems (e.g. SAP R/3) are assigned to tasks. The process view therefore visualizes the control flow (Pogorzelska 2012).

The communication view describes the flow of communication within an organization (Pogorzelska 2012).

An event-oriented perspective with the aim to provide transparency should reflect information objects, knowledge objects and conversions including the roles and people involved which are related to events. Hence, process influences, disturbances, changes in state or timeouts ought to be considered. The capturing and analysis of such events is insufficient (especially within the globally distributed environment) if the reference towards time and location is missing. Considering events, regardless of their temporal and spatial relationships, is not just necessary to create transparency in accordance with the process awareness, it further assists in creating management-oriented transparency. The consideration of time and location are a good basis to model Global Knowledge Intensive Business Processes as described by (Marjanovic and Roztocki 2011).

In its current state, KMDL lacks the time and location information. This is added from now on and its mathematical roots and conceptual impacts will be described later in the paper.

The first step of introducing time and location is its inclusion in the meta-model. In the communication and activity view, a time-spatial vector is assigned to people and information objects (artifact that contain knowledge). Knowledge objects are indirectly also connected to the time-spatial vector, because according to the current KMDL's specification knowledge objects are assigned to persons. The same also applies to conversions that are indirectly linked through knowledge objects to people. It therefore makes little sense to set conversions in a direct time relationship or spatial relationship, because information objects and people can be both temporally and spatially distributed.

However, it is possible by means of (in KMDL representable) queries to determine appropriate conversion for each time and location information such as the duration, spatial reach, or temporal-spatial development.

The listeners are not only able to monitor input and output objects, but also to monitor the time-spatial vector. For example, for each conversion, a condition may be formulated so that at least one of the persons participating in the conversion is at at a specific geographic site (e.g. China). The knowledge event model captures and visualizes these incidents to all conversions for such a listener is registered.

In order to determine cycle times and geographic distances, the process view should also contain a reference to time and location. In order to do so, the tasks defined within the process view are also linked with a time-location vector.

In Figure 2, the extension of the current KMDL meta-model is shown. This figure also contains a listener able to monitor a multitude of time-spacial vectors.

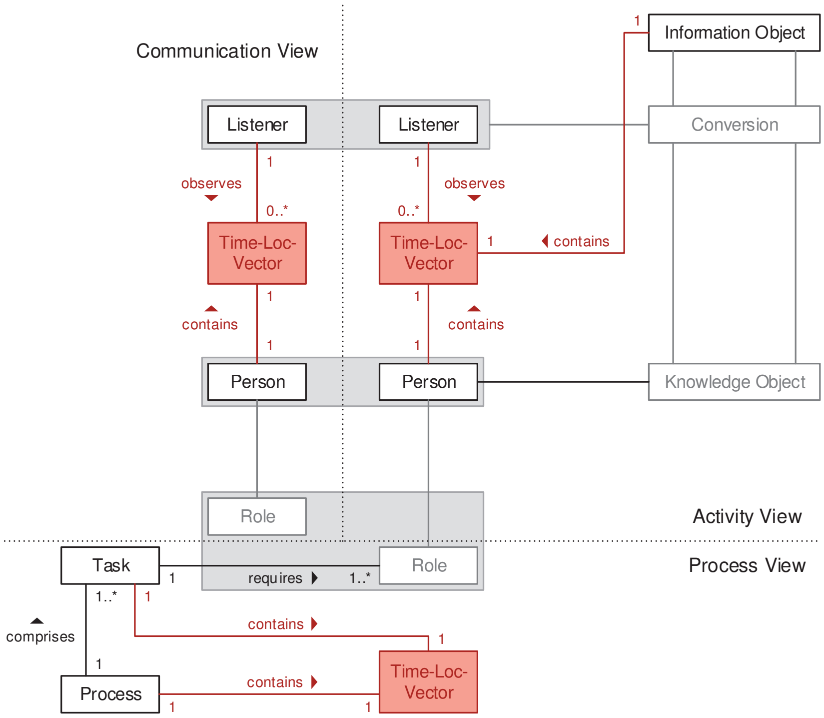

Figure 2: Extension of KMDL meta-model by the time-location vector (Sultanow 2013)

The vector with its operations and the operations of the vector's elements will be described further on. Using the vector it is possible to perform time and location related analyses on knowledge flows, persons, information objects and processes.

Fundamentally a vector is defined as a tuple of elements of a field K, that defines two operations $+$ and $\cdot$ that fulfill distributive laws. For the definition of the time-location vector only the first operation (addition) is needed. We need the addition operation in order to calculate or configure spatial distances and time spans. Here the understanding of the classical vector concept will differ insofar as the elements of the time-location vector belong to an additive group, and not necessarily to a field. An element of the time-location vector is a pair (t, l), whereby t is a point in time and l is an abstract specified location. This abstraction is needed in order to not be limited to specifying geographical locations as for example longitude and latitude. Locations within huge corporate buildings can be specified differently (for example by a floor number) – and those locations can be also a basis for determining distances by adding (with negatives). To give another example, from an IP address a location can be derived as well. Overall, this has the consequence that the abstract specification of location must not always represent always a point, but it may also represent a region (an area). The addition of the elements (t, l) is defined as follows:

$$(t_A, l_A) + (t_X, l_X) = (t_A + t_X, l_A + l_X)$$

Formula 1: The addition of time-location vector elements (Sultanow 2013)

A point in time t indicates the elapsed time since a fixed reference point. The basic unit in the International System of Units is the second. In computer science, as reference point the annual change between 1969 and 1970 has been established. For example, Unix systems and functions in different computer languages measure the time relative to the first Januar 1970 00:00 clock.

The location l can be geographical coordinates (longitude and latitude) of a specified point on the Earth. For l also other definitions are possible. But it is of crucial importance that each addition of two elements $l_1, l_2 \in L$ results in an element of the same set L. This applies equally for the definition of time points.

The neutral element is (t_0, l_0) complying $t + t_0 = t$ and $l + l_0 = l$. In addition the inverse element of (t, l) is $(-t, -l)$. So within a group we can find within for each (t_A, l_A) and (t_B, l_B) a (t_X, l_X), so that $(t_A, l_A) + (t_X, l_X) = (t_B, l_B)$. The difference of two of such elements can be interpreted as a distance that is related to a period of time. Finally the addition of two time-location vectors is defined as follows:

$$\begin{pmatrix} (t_{A1}, l_{A1}) \\ (t_{A2}, l_{A2}) \\ \vdots \\ (t_{An}, l_{An}) \end{pmatrix} + \begin{pmatrix} (t_{X1}, l_{X1}) \\ (t_{X2}, l_{X2}) \\ \vdots \\ (t_{Xn}, l_{Xn}) \end{pmatrix} = \begin{pmatrix} (t_{A1} + t_{X1}, l_{A1} + l_{X1}) \\ (t_{A2} + t_{X2}, l_{A2} + l_{X2}) \\ \vdots \\ (t_{An} + t_{Xn}, l_{An} + l_{Xn}) \end{pmatrix} = \begin{pmatrix} (t_{B1}, l_{B1}) \\ (t_{B2}, l_{B2}) \\ \vdots \\ (t_{Bn}, l_{Bn}) \end{pmatrix}$$

Formula 2: The addition of time-location vectors (Sultanow 2013)

METHODOLOGY

The impact on the bottom line upon a change in business models can be measured once the changes are executed. In order to measure the changes, it is important to capture the business processes before and after the transformation. Following the approach of (Di Valentin et al. 2012), this contribution presents a novel way on how to determine business process changes by considering the time-spatial vector when modeling. The use of the time-spatial vector has been validated in the knowledge intensive software industry.

The validation is based on an embedded case study which allows multiple units of analysis to be taken into account for theory building (Yin 2003). Each unit of analysis has been studied by conducting a semi-structured interview with the general manager of participating company. In accordance with (Arksey and Knight 1999) the semi-structured interview allowed the authors to conduct the interview based on certain structure and ask additional questions where deemed pertinent. After all surveys were conducted, additional interviews with the unit of analysis followed. The authors of this contribution would classify the case study as an intrinsic case study as defined by (Stake 1995) since an intrinsic interest on determining the impact on business model changes was present during the sessions.

The validation of the concept through case studies has been chosen since a small amount of cases were available due to the novelty of this concept.

For this contribution, seven executives of international companies were surveyed as shown in Figure 3. Starting with interviews of executives, current challenges in the business processes were identified. Afterwards, the time-spatial vector was implemented within the IS as a prototype. Users entered business process relevant data. This data was analyzed afterwards and process optimizations proposed.

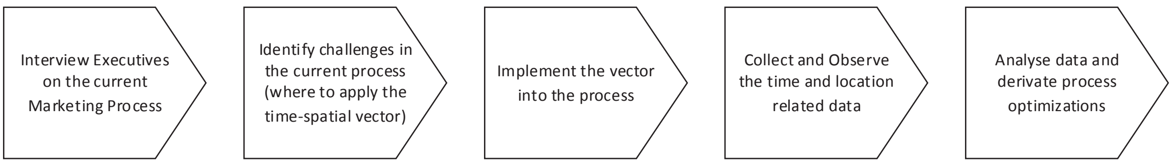

Figure 3: Five steps of used bottom-up approach to model and change the process (based on Sultanow et al. 2010)

INTERMEDIATE ANALYSIS OF SURVEYED DATA & MODEL CONSTRUCTION

The following Figure 4 shows the exemplar transition from the current to the new state. In this particular case, the process to decide on which tender to participate is changed. In order to execute the desired change, the participation process within tenders has been analyzed.

Based on the analysis, the top management decided to eliminate intermediaries. In a next step, the business model was changed and business processes were analyzed again after the change. The new process is much more efficient since various meetings between the sales personnel have been substituted by one meeting where all involved employees actively participate.

The survey confirmed that international software tendering present a challenge to business models (Sultanow, Zhou and Sonnenborn 2013). For this contribution, the authors decided to model the tendering process as described by two executives. The result can be observed in Figure 4.

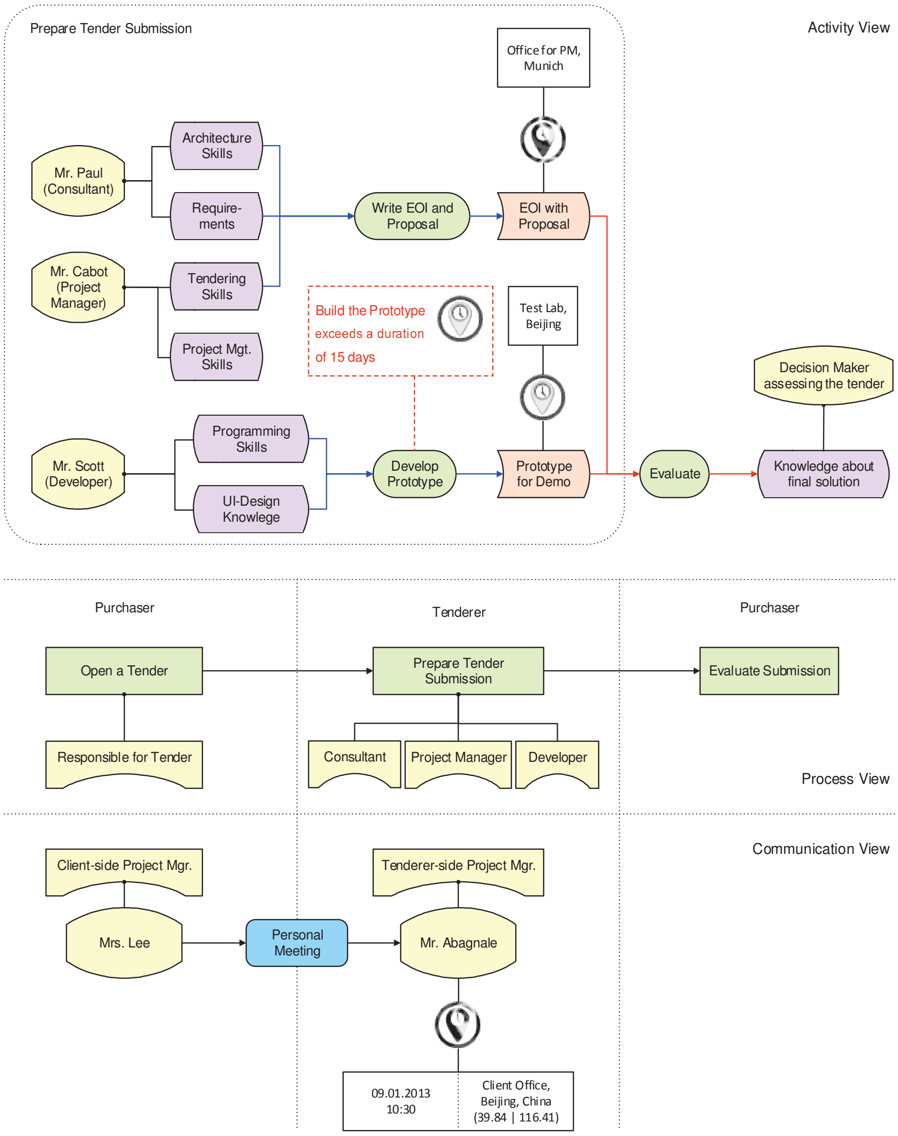

Figure 4: Applying KMDL time-spatial vectors to identify needs to revise the business model

The benefits of considering the time-spatial vector are detailed further on. Tenders induce a high workload for bidding companies since they should prepare extensively, hence invest resources. In case that the tender is not won, the investment is lost. The application of the time-spatial vector here is especially useful since it allows an evaluation of the tendering profitability. Tenders in foreign countries usually imply presenting a prototype. Developing the prototype is (next to paperwork-processing) the most resource consuming. The time-spatial vector has been applied to the development of a prototype (see Figure 4).

The following Figure 5 shows the improved process based on the results from analyzing the tasks of the international tender. The process has been changed in a way that cycle time and resource consumption has been decreased. The effort to create a proposal and the returns are estimated. Proposals where the estimated effort exceeds the expected resturns are not created.

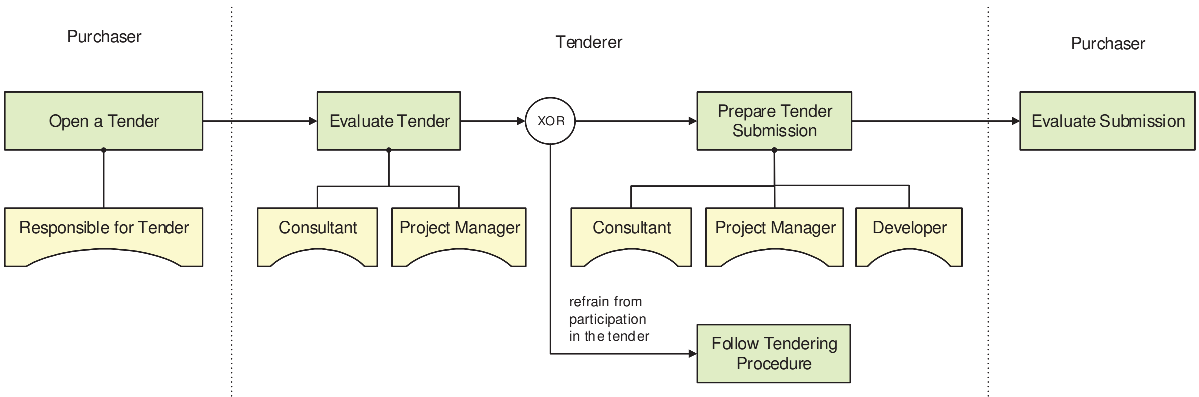

Figure 5: Revised process

Since the time it took to develop a prototype has been determined, a profitability analysis became possible. If the likelihood to win a tender is below a determined value, top management can decide not to participate in the tender.

The following additional benefits surge when the time-spatial vector is considered:

- Observing the time/location of the Expression of Interest (EOI) and Proposal: These documents contain very internal and critical knowledge related to the technology (e.g. proposed software architecture), pricing etc. The time-spatial vector allows to observe who has (potentially) accessed the knowledge and from which location.
- Observing the prototype: By observing at what location and moment in time the prototype is used, it becomes feasible to avoid that one of the competitors has (unrecognized) access to it. Since accessing the prototype means to gain insight into the solution, this knowledge objects are protected as well.

As society advances increasingly towards a knowledge economy (Brockmann and Roztocki 2012), the structural transformation of our economic and societal environment needs to be considered by the methods used to define and classify the environment. A knowledge economy is characterized by the fact that knowledge becomes a central constitutive element of value creation and the growth of economic sectors and therefore an economic commodity (Brinkley 2006).

Besides the particular finding, modeling knowledge intensive business processes using the time and location vector has proven to be useful in the seven case studies conducted since:

- Cycle times for knowledge intensive business processes, which act specifically to measure knowledge intensive tasks.
- The impact of geographic dispersion (e.g. on the distribution) can be measured.

As a real value of Time-location reference the interviewees mentioned the possibility to track changes within the processes through the course of time. This enabled them to historically observe the evolution of their knowledge at specific locations.

The interviews with the executives in combination with the survey results led the authors create the classification scheme shown in Figure 6. The scheme categorizes firms based on the impact of time and location during the business model change.

- When time is not an issue and one location exists, it can be defined as a classical business. The application of the time-spatial vector is not providing significant benefit especially considering the modeling efforts.
- If the focus is on time but not the location, it is a single site focused transaction. The application of the add benefits, since cycle times and durations can be measured. The location-information does not provide additional benefit.
- If time and location matter it is called a real-world aware business. In this case the time-spatial vector provides huge benefits, since the business is geographically distributed and distributed across time zones as well.
- If time is not considered but the location is of strong interest, it is called a geographically dispersed. Here the benefit of the vector is limit to creating awareness in geographical dispersion of the business.

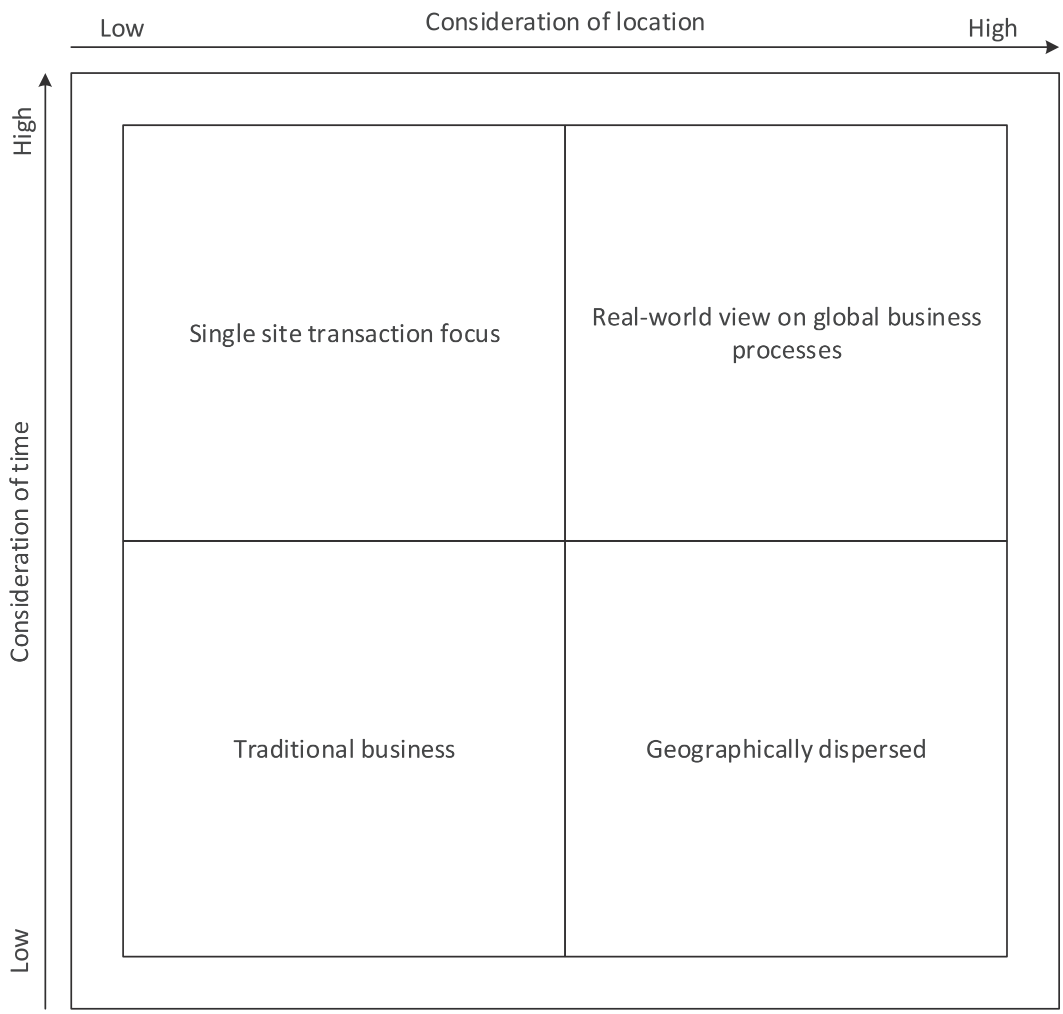

Figure 6: Classification framework for evaluated business models (own elaboration)

CONCLUSION AND FURTHER RESEARCH

In an ever more interconnected world, adequate knowledge needs to be provided to those executing business processes, which remains a challenge for business around the world. This contribution applies the time-spatial vector as an innovative instrument of KMDL to change business processes which are induced by a business model change. In addition, the degree of success within and performance improvement of the change can be measured for the first time based on cycle time reduction and overcoming geographical distances. In comparison to other modeling languages, KMDL becomes more appealing since it is the only method able to consider time and location as a standard. Results of these case studies encourage scholars to continue determining the success of KM initiatives and economic benefits of applying KM instruments.

Within this contribution, drivers of business model change have been presented. Following either a top-down or bottom-up approach, modeling (knowledge intensive) business processes in combination with a business model change can be of benefit.

As a next research step, a more formal procedure to determine the impact of business model changes on knowledge intensive business processes shall be elaborated. Further research shall address additional bodies of performance benefits.

Overall, a significant benefit can result by considering time and location within knowledge intensive business processes (Sultanow 2013).

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Psychological and social competences characteristic of a virtual space leader

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Summary

Having assumed that the Internet is the key medium in the contemporary communication – both in private and professional life, it is worthwhile to consider how the interpersonal relations should be efficiently managed with the use of the tools and techniques applied in the virtual space. This article is an analysis of the specificity of leadership relations in the Internet space. It is an attempt to identify the required individual features, skills and abilities, and the attitudes facilitating the success of virtual space leaders. The result of the analysis is the suggestion of a model describing the most important psychological and social competences characteristic of virtual space leaders that are particularly important at present and in the nearest future. Competences of virtual leaders are so unified, that we can see blurring of boundaries between societies of developed and emerging economies. Power relations existing in Internet are based mostly on credibility, which is built on creativity of proposed solutions. The situation in Internet determines a chance to faster level a competence gap between societies of developed and emerging economies. These problems are repeatedly presented at ICTM conferences.

Key words

Competitiveness of emerging economies, ICT Management and Leadership, virtual space leader, psychological and social competences characteristic of a leader

Introduction

The issue of leadership in the Internet has been recently the subject of numerous publications, in particular the ones which are scientific and intended for the general public and the guides, where the central question was 'how to achieve success in the Internet?' The issue of leadership, with taking into account especially the possibilities which are offered by the Internet at present, is still relevant and will gain in importance as a result of continued technological progress. The authors of the mentioned publications often try to push through the following theses: *"At present, everyone may be a leader, everyone may integrate a group of followers among any of their own ideas and lead such a group. The world is waiting for leaders and therefore it is worthwhile to consider whether one should become one of them".* [1]

[1] See: Seth Godin, *Plemiona 2,0. Zostań internetowym przywódcą*, Helion, Gliwice 2010.

Such an approach in the world of traditional relations is nothing new. The publications offered in the market (which are usually written in American or West-European business cultures) have convinced us for years that everyone may become a leader by announcing the idea of self-leadership.[2]

Those theses, though seemingly banal and stale, still involve lots of questions: May and should everyone actually become a leader in a new 'liquid modernity'?[3] Should the individual social and psychological features which are necessary to achieve efficiency in leadership (in traditional relations) be the same as in the virtual space? And if not, in which dimensions should we discuss their specificity? Finally, how do we understand leadership in the virtual world and what scope of definitions should be given to 'a leader in the Web'? What are the criteria of effectiveness in establishing the relation between a leader and a follower?

Internet is a space which characterize unified patterns (ways) of behavior. Thanks to this situation blurring boundaries between users descended from societies of developed and emerging economies. Virtual space levels civilization and cultural differences. Leaders of virtual relations – people who find the operation of the Internet easy gain followers over existing state and administrative divisions. Additionally the world of Internet and using ICT tools in the Web give a chance to shorten the period of blurring the competence gap between developed and emerging economies[4].

There are issues of blurring differences between economies by using ICT often described in different international journals, for example: Journal of Information Technologies for Development (ITD), Journal of Global Information Technologies Management (JGITM) i Electronic Journal of Information Systems in Developing Countries (EJISDC)[5].

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[2] See: H. Bergman, K. Hurson, D., Russ-Elf, *Lider w każdym z nas. Model powszechnego przywództwa*, Achive Global 1999; J. M. Kouzes, B. Z. Posner, *Przywództwo i jego wyzwania*, Wyd. Uniwersytetu Jagiellońskiego, Kraków 2010; S. R. Covey, *Zasady skutecznego przywództwa*. Pozn*aj mechanizmy efektywnego i twórczego kierowania ludźmi*, Rebis, Poznań 2008.

[3] *Liquid modernity* – a term coined by Zygmunt Bauman, a philospher and sociologist.

[4] See: Ł. Haromszeki, P. Jarco, Building a proactive attitude by using ICT among local leaders in developing countries, Proceedings of the International Conference on ICT Management for Global Competitiveness and Economic Growth in Emerging Economies (ICTM 2012), pp. 194-213.

[5] See: N. Roztocki and H.R. Weistroffer. Information Technology in Transition Economies. Journal of Global Information Technology Management, 11(4), 2008; N. Roztocki and H.R. Weistroffer. Information Technology Investments in Emerging Economies, Journal of Information Technology for Development,14(1): 1-10, 2008.

Leadership in the virtual world and the world of traditional relations

The number of the Internet users throughout the world is growing and – as the research shows – they also have better developed abilities and skills in the scope of using the tools applied within the communication via the Internet. The increasingly broadened access to the information resources contributes to the improvement of knowledge, skills and abilities in the scope of using them. There are as many manifestations of human activity that can be observed in the Internet as diverse the human cognitive curiosity and needs are. What is created in the virtual space reflects – to a greater or smaller degree – the diversity of the real world. Yet, through the specificity of the medium, it gives the relationships a new dimension. The shaping of the relationships in the Internet is particularly influenced by *freedom* – that is the unrestricted possibility of communication within the limits defined by the law (which is sometimes imperfect and lacks applicable sanctions and procedures in the scope of their enforcement). Freedom interpreted in such a way triggers in people the unhindered desire to undertake the activities whose implementation in the world of already existing rules and values is difficult. Such freedom gives the possibility of coming into existence, entering a part of the reality which is freely chosen and deemed attractive by the decision-maker. It is necessary to remember that the freedom in the Web which is based on anonymity may give the grounds for creating virtual beings which do not comply with the reality because some Internet communication participants describe themselves in a way different from the actually held features (qualifications, competences). It may be the basis for ethical assessments but the discussion in that scope will be passed over in this work.

The character of traditional relationships causes that leadership is the consequence of becoming interested in a leader. Through observing the leader's behaviour and evaluating the coherence of popularised ideas and expressed views (together with non-verbal messages), a prospective follower/participant in the leadership relation may decide that it is worth to involve in the implementation of a given task. When making such a decision, the followers take into account numerous factors such as a person of a leader, the nature of a task, the compliance of an initiative with own expectations, and a number of other contexts. In such a perspective, it may be assumed that (similarly as in the theory of the organisational leadership) *"… leadership may be defined as a relationship between a superior and their reports aimed at achieving the set objectives, as well as visions, dreams, plans, and values, based on respect for and trust in the leader's qualifications, and often the fascination with the* *leader, rational or irrational involvement in the implementation of the co-established vision of development".*[6]

Such an approach shows that the leadership relation in the traditional world is based on the observation and analysis of the leader's actions which occur mainly during the direct contacts.

The leadership relations in the virtual world have different nature, which allows for talking about their uniqueness. The (potentially) permanent availability of participants and observers of a given activity in the Internet causes that the phenomenon of 'synergy of relations' is widespread in the virtual world while it is difficult to obtain in the real world. The possibility of 'observing one another', watching own reactions and ways of reality interpretation is an extremely important aspect of virtual space leadership. Contrasting own points of view by a group involved in the leader's idea often leads to the crystallisation of individuals' beliefs and the shaping of the group identity (group uniqueness), and thus strengthens the relationships among the followers and their identity.

Another important issue is to achieve the leader's reliability as a basis for effective activities. Pragmatic and praxeological approach existing in the world of prevailing situational leadership requires that a leader has the necessary (socially expected) features. Definitely different nature of traditional and virtual relations causes that the process of winning the reliability follows different ways. The traditional world sets the models of features, behaviours, attitudes, etc. which are based on the expectations arising from social and cultural contexts. The virtual world – which is much more uniform and is constantly changing as a result of the next technological innovations – draws special attention to flexibility, dynamism, and attractiveness of the message as the basis for the establishment of the leader's reliability in the scope of a given activity in the Web.

Features of an effective leader in the real world

The issue of the features necessary to establish trust, gain reliability and win followers has been the subject matter of the research since the 1930s. The researchers have been looking for the factors that make people different and give them the basis for effective management of others. There has been no explicit answer found but each approach

[6] See: Ł. Haromszeki, *Przywództwo w czasie kryzysu*, [w:] T. Listwan, (red.), *Zarządzanie w sytuacjach kryzysowych podczas Euro 2012*, Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu, Wrocław 2010.

(personality, behavioural, situational) has contributed a bit to the knowledge concerning the issue of power and leadership.

The basic assumptions of the personality approach view the ability to lead as something natural. The division suggested by H. Levinston takes into account thinking, emotions, mutual relations, and visible behavioural features.[7] The lack of possibilities to define permanent features of a leader caused that the researchers' interest in behaviour increased. Behaviourists, contrary to the supporters of qualification approach, believed that the leadership behaviours may be learnt. The difficulties in defining the model of leadership learning were caused by the emergence of the situational approach that associated a given leadership style with specified external conditions, that is place, time and a character of a given relation.[8] The result of such activities and the lack of unambiguous conclusions confirming the formulated theories was the emergence of numerous competitive leadership concepts.

One wing of the group of the issue researchers is occupied by the 'personalists' and the other by the 'situationalists', and majority of the researchers holds the views including the arguments of all three approaches to this issue.[9] If there are really any interpersonal qualities, then they are probably the outcome of numerous elements of each man's internal system, that is the value system, hierarchy of needs, psychological features, knowledge and held views, attitudes, skills and abilities, experience gained throughout the years of socialisation, learning and working.

To give an example, the research conducted among the leaders of local communities reveal that the following may be recognised as the internally coherent system of the leader's features:[10]

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[7] H. Levinson, *Psychologia przywództwa*, Wyd. Helion, Gliwice 2007.
[8] B. R. Kuc, *Od zarządzania do przywództwa. Dylematy władzy organizacyjnej*, Wyd. Menedżerskie PTM, Warszawa 2006, pp. 378-379.
[9] M. Kets de Vries, *Mistyka przywództwa. Wiodące zachowania w przedsiębiorczości*, Wyd. Studio Emka, Warszawa 2008, p. 202.
[10] See: Ł. Haromszeki – *Liderzy lokalni w kontekście barier administracyjnych w zarządzaniu gminą, Dysfunkcje i patologie w sferze zarządzania zasobami ludzkimi*, Tom 4, Red. Z. Janowska, Wydawnictwo Uniwersytetu Łódzkiego, Łódź 2011; Ł. Haromszeki Ł., *Skuteczni liderzy lokalni, Efektywność zarządzania zasobami ludzkimi*, red. B. Urbaniak, Wydawnictwo Uniwersytetu Łódzkiego, Łódź 2011; Ł. Haromszeki, P. Jarco, *Building proactive attitude by using ICT among local leaders in developing countries*, Proceedings of the International Conference on ICT Management for Global Competitiveness and Economic Growth in Emerging Economies, September 2012, Wrocław, pp. 194-213; Ł. Haromszeki, *Aktywność liderów jako szansa rozwoju organizacji trzeciego sektora w powiecie dzierżoniowskim, Determinanty potencjału rozwoju organizacji* (red. A. Stabryła, K. Woźniak), Mfiles.pl Encyklopedia Zarządzania, Kraków 2012, pp. 203-211.

- having 'the right' system of values with great significance attached to moral values, conviction about one's own value, awareness of one's strengths and the possibilities of their application;
- proactivity and positive thinking reinforced with life optimism and creativity, and sense of predictability of the world and conviction about high probability of succeeding;
- ability to cooperate with other people and establish a platform for cooperation within the community (group) of followers, relations based on mutual respect and trust, promotion of cooperation;
- honesty and coherence of words and actions;
- creative thinking, ability to create the vision of development, success, and ability to involve people in it;
- exerting social influence, achieving the objective through involvement and creation of model behaviours which are socially accepted and copied;
- need of continued self-improvement and supporting the development of members of a given community (group).

The aforementioned set of qualities may be expanded with the traits that make the effective leaders different from other people (including also those who manage other people) suggested by M. Kets de Vries, including but not limited to the following: being enterprising (identified with assertiveness, being oriented to success and doing things), sociability (extroversion and pleasure from interpersonal contacts), sensitivity (being open to new ideas and experience), tendency to compromise (tendency to cooperate, flexibility, friendliness, trust in other people), reliability (conscientiousness, fulfilment of promises), analytical intelligence (being above average, strategic thinking), emotional intelligence (equilibrium, empathy, understanding and management of emotions).[11]

In addition, according to M. Armstrong, effective leadership depends to some degree on holding appropriate qualities in appropriate time. The research carried out by him among the British Managing Directors resulted in the preparation of the list of factors influencing the success in human resources management.[12] The aforementioned set included the following items: ability to work with people, ability to assume the responsibility for the main tasks, need to achieve success, experience as a leader in early stages of career, wide range of experiences, ability to make arrangements and negotiate, willingness to take the risk, ability to have better

[11] Ibidem, pp. 210-211.
[12] M. Armstrong, *Jak być lepszym menedżerem*? Dom wydawniczy ABC, Warszawa 1999, pp. 226-227.

ideas than others, assistance from direct superiors in the scope of developing one's talents, ability to adjust the management style to the current situation.

The situational approach should be considered as particularly important contribution to the issue as it draws attention to a number of different factors and takes into account variability or even turbulence of the world, and suggests solutions that should be adopted by a flexible individual on the basis of thorough assessment of reality. A leader is not only a person that fulfils the social expectations but also[13] – according to E. Schein[14] – a person that manipulates the culture. Such an understanding of leadership causes that the confirmation of leadership relation occurs on an on-going basis and is done by its all participants. Within such an interpretation, a leader may create group activity through formulating socially expected ideas. However, the members of a given community (group) will not follow the leader only on the basis of long-term and unrealistic visions. According to S. Cyfert and K. Krzakiewicz, "*the effective leadership is expressed in skilful drifting between short-term duties and long-term objectives, between the mastering of the fulfilment of one function and the inter-functional coordination, between low value and high quality*."[15]

When analysing the literature on leadership, it is easy to notice that apart from the authors who *apriori* assume the balance between the notions of 'leadership' and 'reliability', there are also those who research the issue to identify the features and attitudes that enable the achievement of leadership reliability in the world of traditional relationships.

Reliability is often identified with giving an example through coherence of words and actions. The issue of leadership through 'giving an example' is discussed by M. Williams who lists such factors that condition it as integrity, competence, courage, organisational powers, approachable manner and open-mindedness, following the development of a situation, inventiveness, and ability to adapt.[16]

The issue of reliability was also discussed by other researchers dealing with leadership. J. M. Kouzes and B. Z. Posner identified 13 types of behaviour and activities that are the components of the leaders' personal powers and reliability. They include: questioning the process, that is asking questions and not only accepting the *status quo*; searching for opportunities; experimenting and testing new ideas and possibilities; inspiring shared visions; obtaining other people's support through establishing contacts and dialogue; enabling others

[13] See: B. Kożusznik, *Wpływ społeczny w organizacji*, Polskie Wydawnictwo Ekonomiczne, Warszawa 2005.
[14] E. H Schein., *Organizational Culture and Leadership*. A Dynamic View, Jossey Bass Publishers, San Francisco-London 1986, p. 317.
[15] K. Krzakiewicz, S. Cyfert, *Dualistyczny przywódca i paradoksy w zarządzaniu*, [w:] K. Jaremczuk (red.), *Uwarunkowania przedsiębiorczości – różnorodność i zmienność*, Tarnobrzeg 2010, p. 52.
[16] M. Williams, *Mistrzowskie przywództwo*, Wyd. Wolters Kluwer, Kraków 2009, pp. 63-65.

to act – facilitating effective performance of work; strengthening and building other people on the basis of their strengths; cherishing the cooperation through alliances and coalitions; shaping the way and finding new paths; giving an example, which may require sacrifice; celebrating achievements; recognising other people's contribution.[17]

According to D. A. Nadler and M. L. Tushman, the reliability of people attempting to influence other people and their perception as affective leaders arises from demonstration of the following behaviours: creating good and convincing visions and their effective implementation; setting demanding standards both for oneself and others; shaping and demonstrating coherent behaviours; brimming with energy and sparing energy for others; showing excitement; expressing self-confidence; searching for success, achieving it and taking advantage of it; enabling others to act effectively; showing personal support and involvement in other people's matters; feeling empathy towards others; expressing belief in other people.[18]

Building the reliability is often a process in which a leader becomes an authority for the followers both within the charismatic and coordinating leadership. The decreasing significance of authorities in the traditional meaning of the word (identified with decent actions, professionalism, giving an example, etc.) gives the possibility of shaping the authorities expected by the participants of the virtual world (the Internet). The virtual space – through its apparent freedom – activates the Internet users to freely express their views. The unified patterns of behaviours functioning within broad frameworks – from hedonistic values to democratic ideas of shaping a new world – cause that the persons that efficiently operate in the reality defined in such a way will acquire the title of 'the leaders in the Web'.

Leader in the virtual world

A leader in the Internet space in this study is defined as a person whose activities result in the involvement and unification of other people among any one idea through changing or reinforcing their specific attitudes. An important aspect of the leadership interpreted in such a manner is the peculiar feeling of unique identity held by the members of the community created as a result of the leader's activities. The world of the Internet that is dynamically changing gives the grounds for thinking that the feeling of unique identity and

[17] J. M. Kouzes, B. Z. Posner, [w:] M. Useem, *Do Leaders Make a difference? Mastering Management*, Financial Times Guide, London 1996.
[18] D. A. Nadler, M. L. Tushman, [w:] M. Useem, op.cit.

the fascination with a leader refer to one specific activity or idea. A leader that exerts influence has to be attractive for the followers throughout the fulfilment of a task. In addition, the leader's image should be coherent not only within such an activity but also in the entirety of information that can be found about this person in the Internet.

It seems that as a result of the application of ICTs and the participants' anonymity, the leadership relations in the virtual world should be based to a greater degree on the influence arising from rational persuasion. Yet, the activities created in recent years with the use of the Internet communication have not entirely confirmed such a thesis (an example of Acta, defence of the park in Istanbul, marches and demonstrations in European countries). The observation of activities created in the Internet space reveal that majority of them are based on expressing the emotions in a more unlimited manner. Such activities are possible because the freedom of expressing opinions and uncompromising attitude are more significant in the virtual world and it is difficult to find such degree of them in the world of traditional relations arising from the values prevailing in given cultural circles – often limiting the expression of emotions in a natural, totally free and culturally unrestricted manner (considered as undesired or even deviant activities).

Regardless of the rational or more emotional influence exerted by the leaders in the Web, it is possible to observe different models of leader-followers relations which depend on the character of implemented activity. It is possible to define three main types of relations created with the use of the Internet:

1. The relations existing in the Internet without the necessity of leaving the virtual space – what happens in the virtual world, stays there.
2. The relations initiated in the virtual world (which is just a place of communication giving the freedom of expressing people's opinions) and transferred to the world of traditional relations – the ideas shaping new technologies, social movements defending human rights, eco-initiatives, etc.
3. The relations created in the traditional world being the place where the most important decisions are made, the relations are created, the on-going communication is carried out – all such activities are supplemented by the use of the Internet as a tool for providing additional information (it is impossible to avoid it, especially in business-centred world).

Another important issue related to the leadership relation in the virtual world includes the leader's self-presentation possibilities. Self-presentation in the world of traditional relations may have different forms – based on both verbal and non-verbal behaviours. Verbal behaviours are usually based on disclosing and describing one's own internal predispositions as well as attitudes and interests. The types of behaviours defined as self-presentation may also include the creation of one's own image through shaping and revealing one's physical and social environment (living in a good district, purchasing specified products, keeping close relations with persons held in high social esteem). Whereas the virtual world offers the mix of actual and created – for the needs of the task – information about the leader which is sometimes difficult to verify.

The self-presentation behaviours are an important element of a game played by participants in different activities created in the Internet. Pursuant to A. Szmajke[19], self-presentation is a purposeful behaviour but it does not mean that it is always done in a conscious and planned manner. The literature on the subject divides the types of self-presentation into tactical and strategic ones. Tactical self-presentation usually refers to everyday situations – they are habitual and automated (routine and repeatable situations). They can be performed without a conscious intention and they express one's authentic "self"[20] to a considerable degree. The strategic self-presentation differs from the tactical one because it is planned and carefully thought over.[21] The strategic nature of self-presentation lies the most often in a selective disclosure of specific elements of one's "self" to others in a manner adapted to current conditions such as the self-presenting person's aspirations concerning the social profits and costs, perceived expectations of the public, the nature of interaction, the system of values or competences (own or of the interaction partners).[22] The essence of such a type of self-presentation is the most representative of virtual relations where the subject (leader) demonstrating their features may do it with due consideration and in a selective way and thus strive for creating the intended image. In that scope, there is a lot of freedom in adjusting the image to preferred expectations in the Internet space. The attempts to create an image that fulfils only the expectations of the audience (that is different from the reality) present a number of threats which – in consequence – hinder the establishment of the leadership relation. First of all, other participants in the 'Internet game' may create similar

[19] M.R. Kowalski, Impression management: *A literature review a two- component model*, Psychological Bulletyn" 1990, nr 107, pp. 37-47.

[20] See: B. Wojciszke, *Autopromocja i autodeprecjacja*, Wyższa Szkoła Psychologii Społecznej, Badania w ramach grantu KBN 0386/H01/2000/18, Warszawa 2000.

[21] P. Jarco, *Psychospołeczne uwarunkowania skuteczności na rynku pracy a edukacja jutra*. W: Edukacja Jutra, W kontekście wyzwań współczesności, Oficyna wydawnicza Humanitas, Sosnowiec 2011, pp. 97-111.

[22] See: A. Szmajke, *Autoprezentacja, Formy, style i skuteczność interpersonalna*, [w:] *Psychologia społeczna w zastosowaniach. Od teorii do praktyki. Red. Kinga Lachowicz- Tabaczek*, wyd. Alta 2, Wrocław, 2001.

wholly made up images different from the reality on the basis of their own vision of existing social expectations. Apart from that, the creation of a specific image only for the purposes of a task which is completely different from the held competences may be quickly discovered because it is easy to determine the information concerning a given person after the search of the Internet.

The information about the persons operating in the Internet may be found in particular in the following places:

- their profiles in the social network services (description, video and audio recordings, photos in different life situations, educational profiles, lists of friends and circles of interest. The time of conversations with individual persons or the form of each activity are also available);
- vertical portals and focus groups (interests, time devoted to activity, assessment by other Internet users, position in a group, nature of conflicts and alliances, etc.)
- blogs (narration about one's own life, views, etc.)

The conducted research reveals that the persons that acquire considerable support in the Web in the form of a number of positive comments, number of communication participants, and duration of relations are much more trustworthy than the Internet users who are marginalised in the Web.[23]

Psychological and social competences characteristic of a virtual space leader

The leaders introduce the changes to their follower's model worlds (their perception of the reality), and their internal representation of the world. When doing that, they use special models which enable them to expand and enrich the representations of the world in their followers.[24] According to B. Feder, until recently, knowledge, skills and abilities were enough to gain advantage in the competition. At present, there are also other factors of fundamental importance such as the power of imagination, mental abilities and initiative.[25] This set of traits should be also expanded with the ability to earn trust, ability to predict and to use the

[23] O. Sawajner, *Osobowość a Internet*, http://www.psychologia.net.pl/artykul.php?level=384: 01.06.2013.
[24] B. Feder, *Nowe źródła przywództwa,* Akademia przywództwa, innowacji i przedsiębiorczości. Zob. http://www.slideshare.net/akademialiderow/kiedy-lider-staje-si-przywdca. 20.06.2013.
[25] Ibidem.

language that the followers may identify with. The language of communication is key for the popularised idea and expressed emotions to be identified with by the people following a given leader. The ability to deliver emotional messages is one of the traits that make the leaders in the Web different from other users. It is necessary to remember that the expression characteristic of the world of traditional relations is significantly based on non-verbal communication. Encouraging to activity occurs on the basis of noticeable facial expressions and gesticulation, as well as the audible elements of the vocal channel. The influence of verbal messages in the Internet is supported by the possibilities offered by different tools such as voice messengers, video connections by means of cameras, microphones cooperating with constantly modified computer applications.

The analysis of the Internet world shows that completely different factors may prevail in building the leadership relation. In order to make an attempt to identify typical features of the leaders in the world of traditional and virtual communication, the research was conducted within the group of 114 managers and specialist in IT sector from Lower Silesia[26]. The selection of the sample group was not incidental and the main criterion for including in the group was the knowledge of the issues related to communication in the Web and the understanding of the specificity of social network services.[27] The respondents' task was to specify the key features that predestine people to become a leader in the virtual space and the world of traditional relations.[28] When analysing the results, one may be under the impression that the respondents' conception of features characterising the leaders in both spaces are significantly different. In the sample constructed in such a way, the results of the research show that in the set of seven the most often listed features characteristic of virtual leaders and the leaders in the world of traditional communication, there is only one feature – charisma – that appears *expressis verbis* as the category common to both categories of leaders.[29]

The most often indicated feature characterising a leader in the world of virtual relations was *creativity* (*inventiveness*) (78.1%), which was interpreted mainly as the ability to introduce all types of innovations (novelties). According to the respondents, it was the quality

[26] 9 persons permanently work in the EU members states, of which 5 in Germany. The sample group included 92 men and 22 women, the average age of the respondents – 34.3.
[27] Open questions. The respondents could describe any number of features characterising the contemporary leader. It has been decided that for methodological reasons, the respondents will not ne suggested any dimensions of features being the subject of the research or their specific examples. In consequence, it raised lots of doubts during the categorisation of different and often incoherent answers.
[28] Before completing the questionnaire, the respondents were presented the definition frameworks of a virtual leader and a leader in traditional relations.
[29] Further items in the list included such features common to both types of leaders as ability to earn trust, motivate people, the need for development and others.

which determined the most the success in leading others. Regardless of the type of a given activity of a leader in the Web, such a leader – according to the respondents' opinion – has to be able to introduce innovations and show more than average inventiveness which will attract others. Another feature that was specified many times included the *persuasive skills* (67.5) of which the *abilities to manipulate* the addressees, in particular – their emotions. A separate category defined by the surveyed persons included the *ability to make the addressees interested* (65.8%), that is to interest the followers identifying with the leader in one way or another. The analysis of the empirical materials reveals that – in some dimension – the *ability to make people interested* (*including shocked*) was identified with *creativity* by the surveyed persons. This category was singled out as a separate feature at the stage of data analysis.

Another important feature characterising a virtual space leader is *constant readiness to communicate, interactivity and availability* of a leader. Due to the specificity of virtual relations, it is a significant feature for 57.9% of the surveyed persons. The features mentioned later included *interdisciplinary knowledge* (45.6%), *ability to anticipate* (38.6%), and *charisma* (16.7%).

Table 1. Characteristic features of a leader in the world of traditional and virtual relations (quantitative and qualitative surveys, June 2013; N-114).

Features characteristic of a leader in the real world													
IMPORTANCE													
1		**2**		**3**		**4**		**5**		**6**		**7**	
Charisma, will power (temperament)		Desire to dominate, expansiveness		Prudence/psychological stability[30] equilibrium and resistance to stress		Self-confidence, high self-esteem		Firm decision-making		Good speaker		Objectivity (assessing people and events in a fair manner)	
L	**%**	**L**	**%**	**L**	**%**	**L**	**%**	**L**	**%**	**L**	**%**	**L**	**%**
78	**68.4**	65	**57**	51	**44.7**	47	**41.2**	46	**40.4**	39	**34.2**	18	**15.8**

Features characteristic of a leader in the Web/Internet													
IMPORTANCE													
1		**2**		**3**		**4**		**5**		**6**		**7**	
Inventiveness/Creativity Innovativeness		Persuasive skills, ability to influence others (including manipulation)[31]		Ability to make people interested (and also shocked)		Constant activity (interactivity) readiness to communicate		Interdisciplinary knowledge		Ability to anticipate ability to predict		Charisma, will power (temperament)	
L	**%**	**L**	**%**	**L**	**%**	**L**	**%**	**L**	**%**	**L**	**%**	**L**	**%**
89	**78.1**	77	**67.5**	75	**65.8**	66	**57.9**	52	**45.6**	44	**38.6**	19	**16.7**

Source: Own research – Ł. Haromszeki, P. Jarco.

[30] The respondents often considered this feature as a requirement of having trust in a leader.
[31] Often identified with domination and ability to "capture" the minds of the audience (followers).

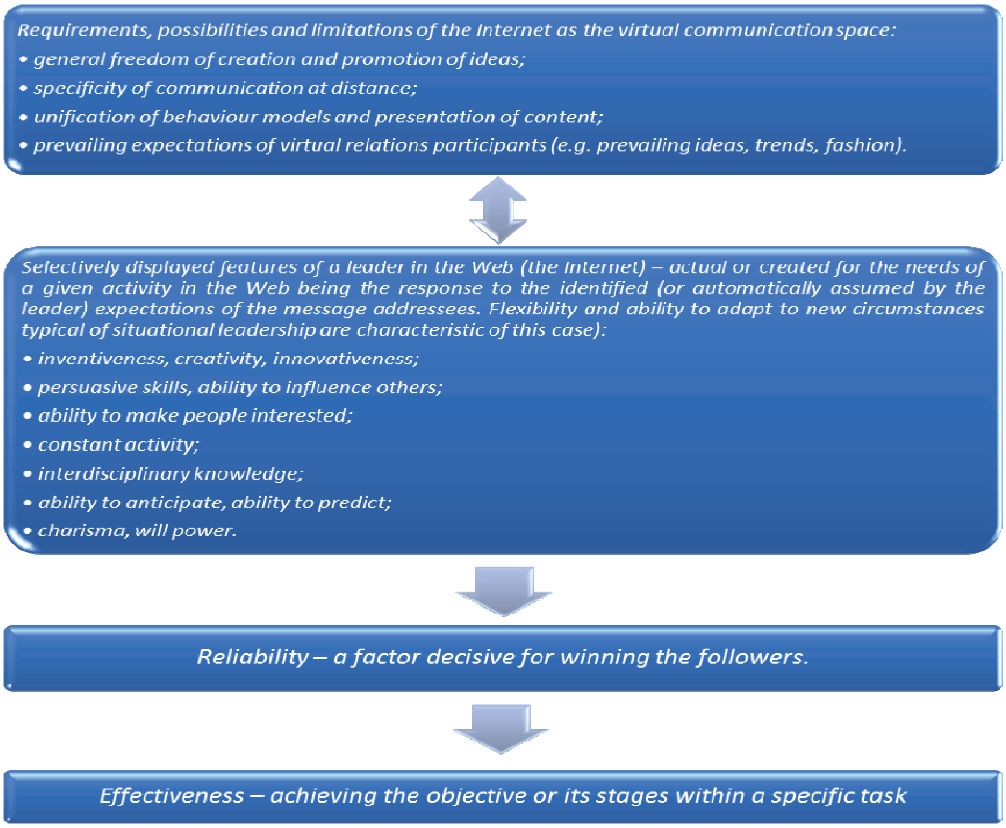
The main objective of the described research was to find the differences in the social conception of two types of leaders. The most significant difference that can be observed is the feature listed as first, that is ‘charisma’, which – in the respondents’ opinion (68.4%) – is a key quality in the description of a leader in traditional relations. In the case of a virtual relation leader, this feature is ranked seventh. It is worth to add that the analysis of the answers included in the questionnaires shows that the respondents identified charisma of a leader in the world of traditional relations with strong personality and sanguine temperament. In the respondents’ opinion, a traditional relation leader is the best characterised with the psychological *desire to dominate* (expansiveness in relations with people and more than average need of event controllability). It is a feature necessary for being a leader for 57% of the respondents. Almost half the respondents (44.7%) indicate the *psychological stability, equilibrium and resistance to stress* of a non-virtual world leader. The features mentioned later included *firmness* (40.4%), *ability to speak* (34.2%), and *objectivity* in interpersonal relations (15.8%).

The order of features characteristic of the leaders in the world of traditional relations confirms the earlier results concerning the leadership relations, management styles (preferred by the superiors and expected by the managed) characteristic of Easter and Southern Europe – strong authority, autocractic approach, full responsibility for decisions.[32] The leaders in the Internet are expected to display the behaviours identified with dynamics and inventiveness, and the exceptional persuasive skills necessary to create relevant fascination, excitement with a task. The element of fascination is often a factor necessary to achieve success in leading the virtual world participants.

Though the aforementioned data from the research refers only to the social idea of qualities typical of the leaders in “both worlds”, it can be a valuable hint for deeper reflection on the effective leadership. The result of the conducted reseach and the study of literature is the model of achieving the leadership success in the virtual world shown hereinbelow.

Diagram 1. Determinants of the virtual space leader’s effectiveness.

[32] See: P. L. Koopman, J. Maczynski,., D. N. Den Hartog, S. A. Witkowski., and 48 European co-authors, 2001, Perception of Societal Culture and Preferred Leadership Styles in North/West and South/East European Countries, Polish Journal of Applied Psychology, vol. 1, 1:7-22; J. Maczyński, D. Wyspiański, 2011, Differences on Organizational Practices and Preferred Leader Attributes Between Polish Managers Studies in 2010/2011 and 1996/1997, (ed.) L. Sułkowski, Journal of Intercultural Management, vol. 3, 2: 7-18.



Source: Own work – Ł. Haromszeki, P. Jarco.

Summary

It is true that both the virtual space leaders and the traditional communication relation leaders are so-called 'ideal types' that do not occur in the reality. Many contemporary leaders successfully use the modern communication technologies and simultaneously lead in the non-virtual reality. The identified features describing a virtual space leader reflect the social and cultural conditions determining the direct leadership relations in Poland. They also refer to some virtual space universals being the result of mass culture influence.

As can be suspected, the specificity of the space in which the leader-followers relation is created defines the model of social and psychological features of an effective leader which is the most functional for this reality. In accordance with the situational approach that has been already presented in this work – a leader may be created by the circumstances but not all people become leaders because the external conditions are just a catalyst for individual qualities, competences, ability to earn trust, etc. held by such persons.

When forecasting the features characteristic of a virtual space leader in the future, it may be suspected that the factors decisive for the effectiveness of winning the followers in the Internet space will still include first of all the abilities to create socially accepted – though partially controversial – visions (outstanding ones), and considerable determination in the scope of their popularisation with the use of available means influencing increasingly more homogeneous Internet community (in terms of values, views, expectations).

In conclusion, we can assume, that our study (Internet reality analysis and pilot questionnaire studies) shows the chance which create ICT in the process of developing the societies of emerging economies. Our pilot study among ICT experts shows, that the necessary competences to effectual leading people (influence) on the Internet are different than it is in the world of traditional relationships. Requirements creating an Internet society and ICT causes Internet blurring divisions between developed and emerging economies. The world of virtual relations characterized behaviour efforts to achieve credibility of the leader based more on their creativity than it is in the world of traditional relations. Such a characteristic approach is appropriate actually for Internet relationships (often breaking all political, cultural and social borders) will probably be in the future moving traditional relations (if they are still separated), thanks to this intensification of blurring civilization differences process and unifying of patterns of behaviour in developed and emerging economies may occur. In this meaning, leaders of virtual space using appropriate ICT tools contribute to a level existing competence gap between developed and emerging economies.

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Research paper

Overview of Complexity Measures of Organizational Hierarchy

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ABSTRACT

The purpose of this paper is to draw attention to the need for finding a quantitative approach to the complexity of organizational structure, in particular in transition and emerging economies, which would enable measurement, and consequently, analysis and comparison of organizational structures in accordance with the simplicity criterion. The paper reviews the existing measures of hierarchical complexity and presents their main drawbacks. Subsequently, it explores the innovative measure based on the fractal tree idea developed by Hopej and Martan, which is one of the few measures that provide a comprehensive assessment of organizational hierarchy. Finally, it proposes to eliminate one of the measure's drawbacks indicated by the authors, namely an equal intensity of superiority-subordination relation between various hierarchical levels, by using the scope of control measure as a weight. Consequently, the pioneering measure proposed by Hopej and Martan becomes closer to the business reality. Finally, it is proposed to use the measure in question in the long tradition of research on the relationship between the Information Technology and organizational phenomena.

Keywords:

Complexity of organizational structure, organizational hierarchy, measures of organizational hierarchy, fractal tree, emerging economies, transition economies, Information Technology.

INTRODUCTION

Modern organizations operate in an increasingly volatile and complex business ecosystem. Consequently, the list of challenges they face is very long. Globalization, technological revolution, competition, condition of the sector in which a company operates, the volatility of the macroeconomic situation, rapidly changing legal environment are all factors that put pressure on organizations to adapt continuously, and thereby contribute to the increase in organizational complexity (Ashkenas 2007). Moreover, organizations that operate in many emerging economies, which are defined as countries that are migrating from developing to developed status (Roztocki and Weistroffer 2008b: 1), have to deal with the obstacles created by the market that is imperfect and incomplete (Allen 2006: 164). This is equally the case in transition economies, which are in a long-term transition process from a central planning system to a free market system (Roztocki and Weistroffer 2008a: 2).

In response to the increasing complexity of the environment, organizational structures are becoming more complex and at the same time less transparent. Also, the number of processes that are run in organizations grows. Moreover, the scale of operations and the number of products offered increase in an uncontrolled way. This in turn leads to difficulties in managing organizations and contribute to the decline in their efficiency and flexibility (Ashkenas 2007). Therefore, in recent years, more and more authors draw attention to the need for moving away from deepening of the broadly defined organizational complexity and emphasize the need for focusing managers' actions on the quest for simplicity (Ashkenas 2007, 2010, Crozier 1993, Maeda 2004, Welch 2005).

The complexity of organizational structure is one of manifestations of the increasing organizational complexity. Moreover, structural changes are considered to be one of the major causes of excessive organizational complexity (Ashkenas 2010: 40). In addition, Crozier's position that "the only effective response to the complexity is a simple organizational structure" (Crozier 1993: 53) becomes widely acknowledged. This is, however, not about the oversimplification of the structure, which in case of large enterprises is complex and multi-level by nature (Ashkenas, 2007: 101). It is more about the search, on the one hand side, for the golden mean from a set of possible structural solutions and, on the other hand side, situational approach that would improve organization's efficiency and thus its competitiveness. Moreover, it is important to emphasize that the simplification process of organizational structure should not be treated as the one-time undertaking, but rather as a periodic, iterative process (Ashkenas, 2007: 105). Therefore, it is extremely important to find tools that would enable comprehensive measurement and comparative analysis of organizational structures and, consequently, search for optimal solutions in terms of structural simplicity criterion. The purpose of this paper is to review existing measures of selected dimensions of organizational structure in terms of their suitability for this kind of analysis.

MEASUREMENT OF COMPLEXITY OF ORGANIZATIONAL STRUCTURE - ASSUMPTIONS

More and more authors and representatives of business call for simplification of organizational structures. Welch (2005: 122) argues that in order to manage people effectively, companies should create a possibly flat organizational structure with very clear relations and responsibilities. In his view, the vertical structure distorts communication process, generates additional costs and slows down the action. Moreover, each additional hierarchical level delays new initiatives and projects. Therefore, managers should flatten the structure of their business by 50% compared to what they consider optimal. According to Welch (2005: 141-143), the minimum span of control should include ten direct subordinates for novice managers and 30-50% more for those with more experience.

At this point it is worth noting that in the literature there is a unanimous view that the span of control should be limited. There is, however, no consensus about the optimal size of a team led by one manager (Bielski 2002: 119, Steinmann and Schreyogg 2001: 293). Attempts to operationalize the span of control (Graicunas theory, concept of Stieglitz (Przybyła 1993: 77-79)) have been partially successful, resulting in the absence of a universal number, which would determine the optimal span of control. It emphasizes even more the need for finding a measure that would allow assessment of the complexity of specific organizational structures and subsequently their simplification.

Crozier (1993: 46) goes a step further, postulating the principle of simplicity. The imperative is to move to a flat structure and to reduce to minimum functional divisions. In his view, in recent years we have witnessed a rapid shift in thinking manifested by questioning of Ashby's Law of Requisite Variety. According to the Ashby's Law, the degree of company's relevant environmental complexity should be matched by a corresponding degree of internal complexity in order to survive in a competitive market. Nowadays, however, effectiveness in responding to the complexity of the world around depends on skills to simplify structures and procedures (Crozier 1993: 47). As an example Crozier presents GSI company, which implemented the principle of simplicity by liquidating the personnel department. Department's tasks were handed over to managers.

Ashkenas (2007: 102) presents a similar position and recommends managers to periodically simplify structures of companies they run. As part of this process he proposes, as the authors cited above, the reduction of hierarchical levels and the increase in the span of control. Additionally, he recommends the consolidation of similar functions, i.e. those that perform the same or similar tasks in different areas of an organization. This applies both to the core business functions, as well as the context functions.

Therefore, it can be concluded that the complexity measure of organizational structure should refer to the above-mentioned structural characteristics, namely the number of hierarchical levels, or otherwise, the height of hierarchy and the span of control, or in other words the width of hierarchy. It should also take into account functional divisions. Moreover, it seems to be consistent with the view of Hall (1967: 906, 1996: 53-55) and Supernat who even recognize the complexity as a structural feature of organization, along with two other commonly accepted structural dimensions, namely formalization and centralization. According to the authors, the complexity is a multi-dimensional feature, which includes horizontal, vertical and geographic diversification. Horizontal differentiation is related to the division of labor within an organization and refers to the degree of specialization, which is further feature of organizational structure. The second dimension, vertical differentiation (interchangeably referred to as hierarchical), is associated with number of management levels in an organization, the so-called "depth" of hierarchy. The final dimension of complexity of organizational structure is the geographic differentiation, which takes the form of either horizontal or vertical differentiation. Determining factors are respectively the division of labor and division of tasks.

A similar position is maintained by Jablin (Fioretti and Viser 2004: 12). According to the author, complexity can be considered an objective feature of organizational structure. He distinguishes between vertical and horizontal complexity. Vertical complexity determines the number of hierarchical levels in an organization in relation to its size. The horizontal complexity measures the degree of functional divisions within an organization.

The reduction of hierarchical levels and the associated process of extending the span of control become successfully applied in a business practice. For example, when Jeff Kindler became in 2006 the Chief Executive Officer of Pfizer, he found a situation where fourteen levels of management separated him from the frontline. In his view, the hierarchical levels not only slowed down and blocked the flow of critical information, but also generated additional costs. To facilitate communication and improve efficiency, Kindler asked each senior manager to reduce hierarchical levels, so that no more than ten, and preferably no more than eight management levels separated him from the front staff (Ashkenas 2010: 47). A similar process was carried out by Ford Calhoun, when he was appointed Director of IT function in GlaxoSmithKline Pharmaceuticals in 2001. He not only ordered his managers to extend the span of control to twelve employees, but also to reduce hierarchical levels to maximum of four (Ashkenas 2010: 50). In both cases, the structure simplification process has contributed significantly to the increased efficiency and lower costs.

As the abovementioned examples show, expansion of span of control and reduction of hierarchical levels appear to be relatively easy to implement. As far as the third aspect of complexity, namely functional division, is concerned, its reduction or consolidation of similar functions requires each time the situational analysis in order to select the optimal simplification strategy (Figure 1). The analysis should take into account the importance to the organization of activities, functions or tasks, their frequency and their cost resulting from the expertise required to complete a task. In addition, there are virtually no rules for accepting a certain degree of functional specialization. The most optimal solution for an organization is conditioned by multiple factors. In general, having fewer units, functions or departments simplifies both an organization and its structure and creates an opportunity for staff to focus on critical core activities (Ashkenas 2010: 45). In case of activities that require high levels of specialized expertise or constituting the so-called core functions that are performed frequently (such as marketing for companies involved in production of consumer goods), the simplification strategy would be to create a center of excellence. When it comes to high-level context activities that do not require specialized knowledge, such as accounting and sales support, the optimal strategy would be to create a service center. For these activities, consolidating tasks in service centers guarantees the highest efficiency and simplicity. In case of activities that do not constitute core business functions, and therefore their frequency is low, it is recommended to apply the outsourcing or aggregation strategy (Ashkenas 2010: 41-45).

Expertise needed	Volume: High	Volume: Low
High	Center of excellence	Outsourced consulting
Low	Service center	Aggregation

Fig. 1 Simplification through consolidation. Source: Ashkenas, 2010: 41.

Therefore, it can be assumed that the concept of operationalization of organizational structure complexity should be based solely on the span of control, and correlated number of hierarchical levels. The measure is thus narrowed down to one dimension of organizational structure, namely the hierarchy, which by many authors is regarded as the most important dimension of organizational structure. This assumption is also supported by the fact that in the literature functional specialization is mostly considered to be a qualitative characteristic.

REVIEW OF EXISTING MEASURES OF ORGANIZATIONAL HIERARCHY

In the following part we will present measures of dimensions of organizational hierarchy, interesting from the point of view of this study, namely the number of hierarchical levels and the span of control. The presented set of measures is fragmentary and has been created for this particular study.

The first aspect of organizational structure simplification process, according to the above-cited authors (Ashkenas 2007, 2010, Crozier 1993, Welch 2005), is the reduction of hierarchical levels. In the literature, there are several measures used to quantify this aspect of organizational structure. Firstly, in the comparative analysis of different organizational structures the number of hierarchical levels present in respective structures is used. This simple measure has one major drawback, namely it ignores the fact that the number of hierarchical levels in the majority of cases is different in different parts of an organization. Therefore, different authors use different variations of the measure. For example, Hall (1967: 906) suggests measuring the organizational unit which is the most extensive hierarchically or calculation of average number of levels in an organization expressed as the ratio of the sum of all levels in all units divided by the number of units.

Yet another disadvantage is associated with the measure, namely such that in case of many organizations, members of the board lead also basic organizational units. Therefore, the problem is whether in such case we have one or two levels of hierarchy. According to Hopej and Martan (2009: 15), the answer to the question depends on the understanding of term “organization’s component”. If the term is understood as members of organization, then it should be assumed that there is one level of hierarchy. However, if under the term organization’s component we understand managerial posts, then the existence of two hierarchical levels should be assumed.

Another measure referring to the height of hierarchy but also to the size of structure is the hierarchy index proposed by Sobczyk (Nalepka and Kozina, 2007: 139). The index is expressed in the following formula:

$$W_k = \frac{S_h}{K}, \qquad (1)$$

where S_h is the number of levels of organizational structure, and K is the number of structural components.

One of the measures is the management level index proposed by Bieniok and Rokita (1984: 170-171), calculated using the following formula:

$$Ws = 1 - \frac{S_n - S_f}{S_n}, \qquad (2)$$

where S_n is the number of management levels in the given department. However, only those departments that have more than mean number of levels (S_f), are taken into account. S_f is calculated as the arithmetic mean of hierarchical levels in all departments. Both the measure proposed by Sobczyk as well as that proposed by Bieniok and Rokita have been constructed in such way that they take values from the interval [0, 1].

Obuchowska (Nalepka and Kozina, 2007: 140) has proposed the degree of flattening of hierarchical structure, calculated using the following formula:

$$k' = \frac{k}{S_h}, \qquad (3)$$

where k is the total number of posts, and S_h is the number of levels of organizational structure. The author pointed out that the measure is not an optimal measure of structure flattening. According to the formula, if we have two structures with the same k', but with different numbers of levels, the structure which has more hierarchical levels will be considered slimmer. Therefore, Obuchowska proposed the measure of degree of flattening (M) and the measure of degree of slim (P), calculated on the basis of respective formulas:

$$M = \frac{k'}{S_h} \text{ and } P = \frac{1}{M}. \qquad (4)$$

Mreła (1983: 106) has proposed another measure related to the number of hierarchical levels, i.e. accumulation of cells. In general, the greater the number of cells that fall on one level of organizational hierarchy, the greater the value of the measure.

The second aspect of organizational structure simplification process, directly associated with the height of hierarchy, is increasing the span of control, so the width of hierarchy. It is commonly assumed that the span of control means the number of employees directly reporting to one manager. There are three types of span of control (Nalepka and Kozina, 2007: 137-138):

- The formal span of control (r_f) – the number of employees formally, or as it appears in organizational documents, directly reporting to the manager;

- The real span of control (r) - the number of employees actually directly reporting to the manager;

- The potential span of control (R) - the number of employees that the manager could effectively manage under the given circumstances. It is the optimal span of control.

The span of control index is often used in the initial diagnostic analysis of organizational structure. It is calculated using the following formula:

$$\mathrm{Wr} = 1 - \frac{\sum (R-r)}{\sum R}, \qquad (5)$$

where $\sum (R-r)$ is the sum of the absolute deviation between the potential (R) and the real (r) span of control across business units or at different hierarchical levels (Bieniok and Rokita 1984: 170). The index has a value in the interval [0, 1]. Despite the relatively simple design, the calculation, and in particular the data collection process is labor intensive and requires exceptional organizational skills (Bieniok and Rokita 1984: 172). It is a significant disadvantage, taking into account the fact that the organizational structure simplification process should be carried out periodically.

The span of control at the highest hierarchical level and the span of control of the CEO are other well-known measures. The measures indicate respectively the number of organizational units directly subordinate to the management and the number of subordinates who report directly to the CEO, regardless of their place in an organizational structure (Pennings 1973: 688, Pugh et al. 1968: 104). The measures are used by some authors to quantify, respectively, the degree of specialization and the degree of centralization.

A commonly used measure is the average span of control calculated as the arithmetic mean of span of control at all managerial posts (Przybyła 1993: 85, Nalepka and Kozina 2007: 138). This measure raises important concerns. Namely, when the average span of control is calculated as the average for all posts, then higher average span of control corresponds to the slimmer structure, which is illogical.

Therefore, a better solution is to calculate the arithmetic mean of average span of control at different hierarchical levels. It is calculated using the following formula:

$$r_p = \frac{r_1 + r_2 + r_3 + ... + r_n}{n-1}, \qquad (6)$$

where r_i is the average span of control at the i-th level, and n is the number of levels. This method of calculating the average span of control guarantees that the lower average span of control corresponds to a slim organizational structure as compared to a flat structure. In addition, this measure differentiates impact of changes of the span of control at the given post. It is dependent on the level at which the post is located. The impact of increase in span of control of the post, which is high in the hierarchy, on its average value is stronger than when the span of control of low-level post increases (Przybyła 1993: 86).

The above measures concern only one of two aspects of the structure simplification process, i.e. they can be used only to reduce the span of control or to reduce the number of hierarchical levels. They should not be considered measures of complexity of organizational structure, but the measures of structure's width and height. In addition, it should be taken into account that two aspects of structure's simplicity, interesting from this paper's point of view, the span of control and the number of hierarchical levels, are correlated. Therefore, only their comprehensive measurement can be used in search for the optimal structural solution.

Let's move now to more complex measures, which take into account both crucial aspects of organizational structure complexity. Mreła (1983: 106) has proposed two measures which correspond both to the number of hierarchical levels and the span of control. The first one is the relation of the height of organizational hierarchy (number of hierarchical levels) to the span of control at the lowest hierarchical level. The second measure is the relation of the height of organizational hierarchy (number of hierarchical levels) to the span of control at the highest hierarchical level. Although both these measures take into account two aspects of interest to the paper, their usefulness is limited in terms of the organizational structure simplification process, because they ignore the span of control at intermediate levels.

A more comprehensive measure of hierarchy is the slim organizational structure index proposed by Przybyla (1993: 86). The index measures the relation of number of managerial levels to the average span of control. It is calculated using the following formula:

$$\mathrm{Ws} = \frac{S}{R}, \qquad (7)$$

where S is the number of levels in a structure, and R is the average span of control. The average span of control is calculated as the arithmetic mean of average span of control at different levels. S is calculated as the number of hierarchical levels in the highest organizational department. This is the major drawback of the measure, because it reduces the analysis of structure complexity only to a certain segment of an organization.

Another comprehensive attempt to measure the organizational hierarchy is a measure proposed by Hopej and Martan (2009: 17) based on the fractal tree idea. The measure takes into account not only span of control and the number of hierarchical levels, but also the superiority – subordination relation intensity, which results from the division of labor (Hopej, Kaminski 2010: 12). A shape of traditional organizational structure resembles fractal tree, whose vertices can be regarded as managerial posts at various hierarchical levels. The length of each branch corresponds to the superiority – subordination relation intensity. On this basis, they have constructed a measure described by the formula:

$$D_s = \sum_{i=1}^{m} \frac{\sum_{j=1}^{n} D_{i,j}}{n}, \qquad (8)$$

where:

i – the number of a particular management level,

m – number of management levels,

j – the number of a particular fractal tree at different management levels,

n – number of fractal sub-trees at different management levels,

$D_{i,j}$ – the fractal dimension of the j-th tree at the i-th level.

Taking into account that

$$D_{i,j} = \frac{\ln x_{i,j}}{\ln s}, \qquad (9)$$

where:

$x_{i,j}$ – the span of control of j-th manager at the i-th level, s – the intensity of superiority – subordination relation,

the following formula describing the fractal dimension of organizational structure is obtained:

$$D_s = \sum_{i=1}^{m} \frac{\sum_{j=1}^{n} \frac{\ln x_{i,j}}{\ln s}}{n}. \qquad (10)$$

In addition, for the measure to note an increase in the complexity of hierarchy, when it is extended by an additional level or an additional cell, the authors propose the following approach. When $x_{i,j} = 1$ then $D_{i,j} = \frac{\ln 2}{2 \ln s}$.

The measure proposed by Hopej and Martan (2009) seems to be the most appropriate tool for analysis aiming at simplification of organizational structure. The measure has a comprehensive nature, since it encompasses a wide range of structural aspects. Moreover, it is the only measure that comprehensively takes into account two key aspects of organizational structure, namely the number of hierarchical levels and the span of control.

AMENDED MEASURE BY HOPEJ AND MARTAN

According to the authors (Hopej and Martan 2009: 17), the main drawback of the presented measure is the fact that it assumes an equal intensity of superiority-subordination relation between various hierarchical levels, which usually is not consistent with the business reality. We therefore propose to eliminate this drawback by using weights dependent on the commonly used measure, namely the scope of control (Dzida 1969:17, Żukowski et al. 1999). The measure in question describes the number of manager's direct and indirect subordinates. Accordingly, for the CEO the weight is 1, as he oversees the whole organization. For managers at lower hierarchical levels, the weight is the proportion of all employees in an organization to the total number of employees reporting directly or indirectly to the given manager, including the manager himself. Thus, for example, for the manager number 4 (Fig. 1), who works in an organization A consisting of 56 employees, and who has 4 direct and 22 indirect subordinates, the weight is 56/27. Thanks to the introduced weight, the dimension of the fractal sub-tree corresponding to the given manager is higher for the manager who has more direct and indirect subordinates. The amended measure is calculated using the following formula:

$$D_s = \sum_{i=1}^{m} \frac{\sum_{j=1}^{n} \frac{\ln x_{i,j}}{\ln(ws)}}{n}, \qquad (11)$$

where w is a weight dependent on the scope of control measure.

In order to test the amended measure, a comparative analysis of two organizations from Poland, which is regarded as transition economy (Kowal and Roztocki 2012), was conducted. Organization A consists of 56 employees and organization B consists of 68 employees. Figures 2 and 3 present their respective organizational charts. Table 1 presents calculation of fractal dimension of the organization A and table 2 presents the same calculation for the organization B. According to respective calculations, the hierarchy of organization B is more complex than the hierarchy of organization A, although the number of hierarchical levels is the same in both cases. This results from the fact that the organizations have different spans of control, especially at the second hierarchical level from the top. As analogous results were obtained by Hopej and Martan (2011), it can be assumed that the amended measure correctly describes the fractal dimension of organizational structures and therefore can be used in their simplification process.

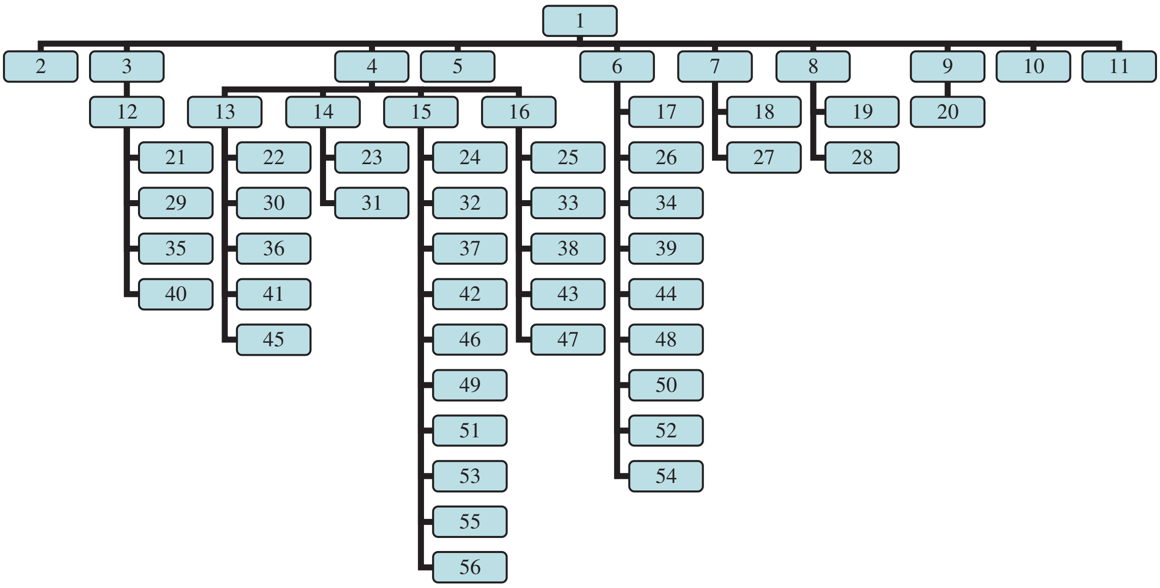

Fig. 2 Organizational structure A. Source: Bryja, Hopej, Martan (2011).

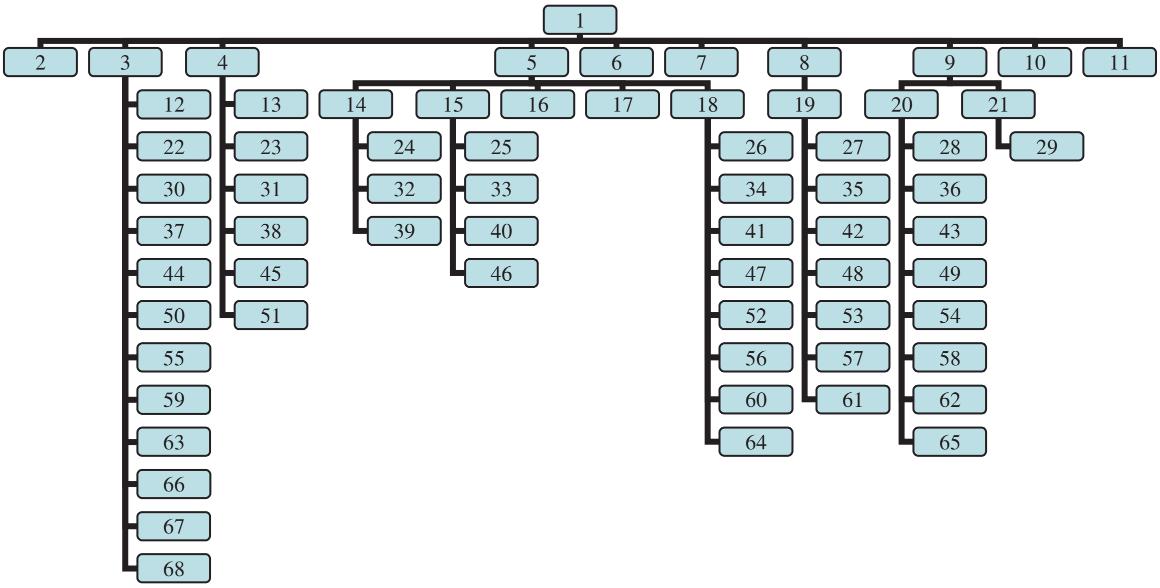

Fig. 3 Organizational structure B. Source: Bryja, Hopej, Martan (2011).

Number of the given hierarchical level (j)	Number of the given organizational unit (i)	Span of control ($x_{i,j}$)	Weight (w)	Fractal dimension of the organizatonal unit ($D_{i,j}$)	Fractal dimension of the hierarchical level
1	1	10	56/56	3.321928095	3.321928095
2	3	1	56/6	0.118416279	0.411899477
	4	4	56/27	0.974436905	
	6	9	56/10	0.909479716	
	7	2	56/3	0.191483121	
	8	2	56/3	0.191483121	
	9	1	56/2	0.086097717	
3	12	4	56/5	0.445888447	0.545884667
	13	5	56/6	0.549908171	
	14	2	56/3	0.191483121	
	15	10	56/11	0.992235423	
	16	5	56/6	0.549908171	
					4.279712238

Tab. 1 Measurement of complexity of the structure A.

Number of the given hierarchical level (j)	Number of the given organizational unit (i)	Span of control ($x_{i,j}$)	Weight (w)	Fractal dimension of the organizatonal unit ($D_{i,j}$)	Fractal dimension of the hierarchical level
1	1	10	68/68	3.321928095	3.321928095
	4	12	68/13	1.058440516	
	5	6	68/7	0.603947973	
	6	5	68/21	0.86152238	
	7	1	68/9	0.127631186	
2	8	2	68/12	0.285510322	0.587410475
	14	3	68/4	0.311542816	
	15	4	68/5	0.419680079	
	18	8	68/9	0.765787115	
	19	7	68/8	0.686820904	
	20	8	68/9	0.765787115	
3	21	1	68/2	0.118497236	0.511352544
					4.420691114

Tab. 2 Measurement of complexity of the structure B.

The fractal tree concept has never before been used to study organizations. Therefore, the presented results are pioneering and require further examination. Moreover, as the Information Technology is commonly regarded as a determinant of organizational structure (Pfeffer and Leblebici 1977, Harrington 1991), the proposed measure could be used to more precisely quantify the relation between the IT and the organizational arrangements.

CONCLUSIONS

Modern organizations more often face the problem of increasing complexity, resulting in management difficulties and decline in flexibility and profitability. Therefore, according to many authors, the withdrawal from further enhancement of complexity and the desire for simplicity should nowadays be the key business imperatives. The increasing organizational structure complexity is one of aspects of growing organizational complexity. Therefore, it seems necessary to find tools that would enable comprehensive measurement and comparative analysis of organizational structures, resulting in the development of optimal solutions in terms of structural simplicity criterion. This is especially necessary in case of organizations that operate in emerging and transition economies, as they face additional obstacles in comparison to organizations that operate in developed countries. In this paper, we reviewed the existing measures of organizational hierarchy, as the most important dimension of organizational structure. We also presented difficulties in their usage and ultimately suggested the usage of innovative measure based on the fractal tree idea. The measure in question, developed by Hopej and Martan, provides a comprehensive assessment of organizational hierarchy. It takes into account the number of hierarchical levels and the span of control, so two key aspects of structural complexity. In addition, we proposed to modify the measure by varying superiority – subordination relation intensity between various levels, making it closer to the business reality. Finally, we proposed to use the measure in question in the long tradition research on the relationship between the Information Technology and the organizational structure.

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Chosen problems of contemporary management in transition economies: a case study

by

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ABSTRACT

This paper presents the thesis that the modern economy raises, suggests new challenges for companies as entities in business and managers, as organizers and managers of functioning and operation of these companies. What is needed is a change in the orientation of the theory and practice of management thinking, to whom and why organized, collective action and encouragement of entrepreneurship must serve, and what should be the mission of a modern and effective management science, relied on finding effective ways, which improve companies ability to better cope in a complex market environment in transition economies. A case study carried on a group of 30 participants at the post-graduate courses at the Faculty of Management at the University of Lodz, Poland is presented.

Keywords: contemporary management, information systems, manager, Poland, transition economy

INTRODUCTION

The aim of this paper is a presentation, based on analysis of the literature and a case study carried on a group of 30 participants at the post-graduate courses at the Faculty of Management at the University of Lodz, Poland. The task of a group of respondents was to point out (in their opinion), the most important contemporary challenges (paradigms) faced by today's enterprises and their managers.

It should be emphasized that the article is rather typical case study[1] and in the area of literature review and its analysis it is focused on guidelines and contemporary trends - mostly

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[1] Eisenhardt, Kathleen M., Building Theories from Case Study Research, *Academy of Management*, Vol. 14, No. 4, 1989, Pages 532-550

Polish - for the behavior of present managers in the modern economy. Included results of studies and analyzes should be subjected to further study and research. Literature used in the article determines about contemporary trends, comprised in the article subject.

Organizations are nowadays operating in an unfavorable environment, understood as the totality of phenomena, processes and institutions that shape their interchangeable relationship, sales opportunities, scope and growth prospects. This setting is becoming less and less stable, more challenging and uncertain, which reduces the ability to earn the company a sustainable existence and long-term development through proper defining market needs and satisfying them more effectively than does the competition[2]. With regard to the functioning of modern companies, 75% of the respondents (graduated of Management at the University of Lodz) had identified the following areas and factors (of the proposed by researchers-authors of the paper):

- increasing complexity of the environment and the market, and the risk is everywhere, in every field of activity, due to the ongoing process of internationalization and globalization;
- the difficulty of accurate future programming increases, any long-term strategies in the industry are becoming dangerous, because they "force to guess" what the customer wants in the future;
- a growing number of factors (variables) that determine the success of the company and the importance of flexible acting integrated with the needs of customers;
- even best designed plans are rapidly becoming outdated, the number of possible solutions is increasing increase and the costs of inaccurate assessment of prospective benefits are higher, as well as the risk of business;
- an increasing number of both domestic and international events affecting the behaviour and business development programming, various new forms of cooperation are being created;

[2] See: M.D. Hutt, TH. W. Speh, *Zarządzanie marketingowe*, PWN, Warszawa 1997, p. 29.

- shorter period for which you can plan with the desired degree of certainty, and the key to success is to receive fresh signals from the market and implement them as soon as possible;
- increasing demands on the quality and timeliness of delivery and service;
- significantly less time to transfer, prepare and store information, its value and usefulness to businesses is decreasing. At the same time, the cost of acquiring information is increasing;
- there is a significant acceleration of processes, the speed of actions and arrangements is increasing, "economy of pace" is becoming more important: every next moment becomes more valuable than that which precedes it;
- growing public interest in the humanities and economic problems, which results in an increased emphasis on the ethical aspects of business operations, social responsibility is a priority;
- democratization process is progressing and uncertainty and changeability of the social system are growing, which creates an imbalance (increase in labour mobility, need for competition, job insecurity, etc.) and the associated difficulties in adapting to the new conditions of work and life.

1. New challenges for companies in today's economy

Changeability of environment forces companies to change themselves, continuously improve own processes, structure and culture, build their own distinctive abilities, explore new success factors in order to achieve prosperity in the market and in the sector of their activity, and at the same time to obtain necessary reputation.

Each company is, therefore, facing the problem of concept (strategy) selection of its actions and factors guaranteeing success[3]. In this regard the theory and practice of management provide a lot of valuable tips and examples that will definitely help to achieve success. Alvin and Heidi Toffler, for example, believe that the greatest factor in the success of modern business is knowledge. "The knowledge - they write – is, for

[3] See: B. Wawrzyniak, *Zrozumieć współczesne przedsiębiorstwo*, Wyższa Szkoła Przedsiębiorczości i Zarządzania, Warszawa 1996, p. 7-10.

today's business, the environment even more important than the banking, political or energy system. (…) Knowledge becomes a universal substitute for all of the resources: the key task of a developed economy”[4]. Due to knowledge a company becomes a smart organization, able to learn and adjust to the structure of the environment, the expected results, or lack thereof, to generate appropriate innovations and verify them on the market, as well as to build its own future[5]. John Kay argues that success is the result of using the abilities which permanently distinguish the company. Obvious sources of these capabilities are: innovation, architecture (the system of relations within a company or between the company and its suppliers and customers, or both), reputation and its strategic resources. Many marketing experts believe that well-run marketing is the most important source of business success, which aims to satisfy the existing customers with supremacy of value[6]. Some even claim that marketing is the most important for a company because it is market that ensures its existence. All its actions, therefore, should be aimed at building and sustaining profitable relationships, everything should be subordinated to the logic of marketing, i.e. meeting the needs of customers with supremacy of value[7].

American study conducted in 43 "best" companies, representing various sectors of the economy in the world, showed that the most important factors of company's success were[8]:

- tendency (obsession) to act, which is a constant enforcing rapid analysis of emerging problems, formulating answers and immediate implementing the proposed solutions to best serve the market;
- close and direct contact with customers, which is based on the knowledge of their needs, preferences and tastes, and fast and reliable meeting them, i.e. faster than the competition;

[4] A. & H. Toffler, *Budowa nowej organizacji. Polityka trzeciej fali,* Wydawnictwo „Zysk i Ska”, Poznań 1996, p. 34 and 38.

[5] See: W.M. Grudzewski, I.K. Hejduk, *Koncepcja kreowania organizacji inteligentnej w przedsiębiorstwach,* „Organizacja i Kierowanie” 1997, no 4, p. 3-22.

[6] J. Kay, *Podstawy sukcesy firmy*, PWE, Warszawa 1996, p. 32.

[7] See. M.D. Hutt, TH.W. Speh, *Zarządzanie marketingiem,* cit, ed., p. 37.

[8] See: M.D. Hutt, TH.W. Speh, *Zarządzanie marketingiem,* cit, ed., p. 37.

- autonomy and entrepreneurship which involves creating an environment of self-reliance of individuals and teams capable of initiatives to create new concepts and new ideas;
- productivity and efficiency by the people, which means creating in all employees the belief that good work is essential, and that they will have the benefits of the company's success and growth of its reputation;
- focus on values, which is a particular emphasis on the value realized by the company (e.g. operating style, quality, reliability of service, etc.) and the resulting operating philosophy;
- clinging to its specialty, which means focusing on basic profile of the company, and thus, the use of specific skills and experience of the company;
- simple organizational structure and a small staff, which means keeping not many levels of management and few employees at higher levels of management;
- coexistence of discipline and freedom, which means that the only areas of action are highly centralized, while others are centralized.

According to the assumption of the paper's authors, the respondents were given a list of success factors mentioned above with a request to updated them and present the modern sense. There are the results of the upgrade:

- in the first place respondents underlined that the most important factor in the success of today's business executives and managers is to have a clear vision and perspectives of a few years in advance. In their opinion this consists the foundation of the functioning and development of enterprises;

- Another factor is the constant search for innovative solutions, market opportunities, creating new products and reaching to the customers to achieve a competitive position in the market;

- the continuous improvement of the work organization, the organization of production, operational, tactical and strategic management, adaptation of business strategy to the market needs in its environment;

- respondents also recognized the importance of today's corporate social responsibility, where the company is understood as a part of the economy and society, and should realize its goals for them both.

However, it can, and must be argued that the more modern companies are becoming knowledge-based organizations, the increasing role in shaping their success play social factors. The most important of these are: social responsibility, focus on people, internal negotiations and ethics of action[9].

Social responsibility means that companies see themselves as an integral part of society and therefore act in a socially responsible manner, fulfilling their civic duty, a kind of commitment to the community. Therefore, they do not believe that profit is the only goal of business; it is equally important to ensure the company the long term existence and positive image in the environment (environmental protection, public relations). That is why they are trying not only to meet legal obligations, but also to invest in human capital, the environment and relations with stakeholders, and thus voluntarily invest in the improvement of society and the environment[10].

Focus on the people is the belief that workers should take advantage of the progress. Enterprises implement that by raising wages and quality of life of their employees, tolerating differences in personality and improving human resource management practices, inter alia by increasing the scope of authority and responsibility, and systematic further training.

Internal negotiations, in turn, mean that in companies decisions are taken through negotiating on ideas and reaching an agreement or compromise by various parties. It is assumed that workers both at the top and at the bottom of the organizational hierarchy should be involved in decision-making and the search for the optimal solution because it helps them to commit to the company.

Changing company has now become an organization conscious of its social duties and at the same time acting ethically[11]. Ethical business is an organization that in its mission already includes a certain level of management culture that will be guided by the principle -

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[9] H. Bloom, R. Calori, Ph. De Woot, *Zarządzanie europejskie*, Poltext, Warszawa 1995, p. 25.

[10] See F. Flack, *Kultura przedsiębiorstwa i odpowiedzialność społeczna*, “Społeczeństwo” 2003, no 3-4, p. 417-427; O. Bazzichi, *Społeczna odpowiedzialność przedsiębiorstwa,* „Społeczeństwo” 2003, no 3-4, p. 493-501.

[11] See: L. Zbiegień – Maciąg, *Etyka zarządzania*, CIM, Warszawa 1996, p. 32.

profit, but not at any price. A company develops its own codes, norms and values, which in turn, over time, are rooted in the minds of the employees[12]. The company in the modern economy has to, according to its ability, respond positively to important social needs of our time, such as: continuous improvement of the quality of work and life at work, long-term employment, (providing long-term relationship of the employee with the company), decentralization of power (widening participation in management processes) , enriching motivation (increase of autotelic value of work) and the formation of a healthy living environment and ensuring its protection.

Success of the organization can not ,naturally, be provided without taking care of people, without proper human resources policy, improvement of working conditions, motivation and communication, as well as building a positive image of itself in the environment. Michael Crozier, for example, believes that "prosperity and success of the organization, so required in the new economic logic, will depend primarily on the development of human ability to learn and improve," and therefore "we should explore every opportunity offered by the world in which human resources are the most important (...). Investing in the development of people, their awareness, education and experience should take more and more important place as compared to investing in the material realm, which may be of secondary importance for structuring processes"[13].

Our Polish businesses, to improve their operational efficiency and competitiveness, must become industrious organizations, they need to look for new ideas and new solutions to use, flexibly and quickly adapt to changes in the environment and in these changes seek the opportunity to develop new measures to facilitate success. An important condition for the creation of such organizations is to integrate employees with the company. Creative motivation of entrepreneurs is not enough, but it is also necessary to mobilize employees, allowing to focus joint effort and resources on what is more effective or significant the company, or increases its value in the market. Fast, flexible responses to market challenges require partnership, negotiation, cooperation, ability to deal with people and technology (information systems) as well as issuing commands in such way that they are fast and well done, with the involvement of the employee's own initiative. Bogdan Wawrzyniak,

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[12] Ibidem, p. 34

[13] M. Crozier, *Przedsiębiorstwo na podsłuchu*, PWE, Warszawa 2003, p. 30-58.

examining determinants of entrepreneurship, states that whether the company is entrepreneurial depends on both, the factors inherent in itself, as well as those outside. The most important internal factors include a personnel policy, and the external - the structure and functioning of the system of economic governance[14]. The importance of policy for the management of human resources in generating and solving internal business seems to be clear and indispensable for the functioning of businesses and the creation of their success.

Our businesses need a serious re-evaluation, taking a kind of revolution in the management, so that they are not only close to the customer, but also close to the worker and the public. Companies must, therefore, be more sensitive to the internal staff affairs and public affairs. They have to skilfully adjust interests of customers, employees and the public to their own objectives. Managers must ensure not only high quality products and attractive price, retain customers and their loyalty to ensure their companies profit and growth, but also make them attractive workplaces and environment-friendly organizations. Above all, they need to invest in human capital and information technology, increase the intellectual potential of their businesses because it is essentially conditioned by their entrepreneurial skills; creating an organization of the social needs of tomorrow, which clearly shows the efficiency of the economic integration of the humanistic management rules.

2. New requirements for managers in contemporary economy

Modern managers of Polish companies, in the opinion of the researchers of this phenomenon (K. Doktór, B. Wawrzyniak, J. Gładys-Jakóbik, J. Lipecki, S. Lachiewicz), should focus in their managerial work on personnel policy and profitable investment in human capital, which is a major factor in the development and enrichment of the organization. To effectively compete in the market, companies must attract, retain, motivate, and above all effectively use the abilities of the most talented employees that they will be able to obtain. They must also carry out continuous training of crews, teach them new skills and new behaviours in order to be able to understand the changes, accept them and take (if necessary) effective action. Furthermore, such training, allowing employees to learn new practical skills, has the advantage that it reduces among workers the feeling of deprivation for security and helps to secure their future, which undoubtedly enhances the motivation, even with the awareness that they may lose their job in the company because of reorganization. In

[14] B. Wawrzyniak, *Innowacje i przedsiębiorczość w przebudowie polskich przedsiębiorstw*, KNOIZ PAN, Warszawa 2007.

view of the growing popularity of "losing weight" and reorganization, a system of social protection must be actively involved in the process of training and re-qualification. They have to provide employees with the opportunity to improve their skills, to enable them a chance to take on new work, or start their own business, which will weaken the resistance to change due to the fear of losing their jobs and will help organizations to support current strategic policy measures to enable their potential and adapt to the changing structure of the environment and the challenges of the future[15].

However, it seems that the most important challenge for contemporary Polish managers is to become aware and understand that "(...) a new economic and social order in our country requires transformations in the sphere of consciousness and actions of the Polish management, which is not possible without the legal and regulatory framework and appropriate Polish institutions. Individual use of property or its use in the interest of shareholders leads to pathology in the management of national assets and unnecessary division (stratification) of society, atrophy of the social order, excluding a large majority of the public from employment system in which everyone is left alone and should become independent by establishing their own business. If one wants to work, they need to accept the lowest wages, the worst working conditions and the lack of any security conditions. Job and existance insecurity affected almost everyone, except ,of course, for the government, which has secure workplaces for the privileged as well as some well paid posts"[16].

In a well-designed society, the sense of justice is the good of each person, everyone has the opportunity to actively participate in public, according to the position they occupy in the society and the applicable system of values. In such a community, the use of the property is consistent with the common welfare and people properly fulfil their duties and obligations, and not only enjoy the privileges given them by the power or possession of property.

The task of creating such a society, despite the high autonomy of various entities, belongs to the state. "The principal task of the state - says the encyclical" Centesimus annus "- is to ensure the safety so that the man who works and produces could enjoy the fruits of this work, and thus, there was an incentive to do it efficiently and fairly. (...) The duty of the state is to promote business activity by creating conditions which ensure the opportunity to work, to

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[15] J. Penc, *Reengeneering działania firmy*, „Manager”, 2005, no 10.

[16] J. Penc, *Nowe zarządzanie w nowej gospodarce,* Warszawa 2010, p. 16.

provide incentives where this activity is insufficient, or providing assistance in times of crisis. The state has the right to invest when specific situations caused by the existence of a monopoly cause recession or the obstacles for development"[17].

Our managers (and politicians) are facing an important task to change the influence of companies on society in which they exist, a proper understanding of the role of the market in today's economy and the dangers arising from submission to its dictates.

Our managers must, therefore, acquire and strengthen the skills of alignment in the production and profitability with social and environmental renewal, and thus make the turn to ethics - including ethics of entrepreneurship, which enables better use of the knowledge and skills of people in the service of business, society and the environment[18].

Economics and ethics are not mutually exclusive. In today's knowledge-based economy, symbiosis of high economic efficiency with the humanistic and ethical rules is possible, to move away from a narrow economism, which puts economy in the centre of public life and submits to its logic.

It is vital that managers realize the need for this symbiosis and its promotion if we want to introduce genuine democracy in the work environment with the real humanistic values, to provide the economy with ability of sustainable development and society with a dignified life.

Institutions educating managers should create and develop a new manager model, more focused on the people and the capital of knowledge and taking into account the change of Polish management in transition[19] as well as wider international aspects. It is time to finish the "engineer" manager model - developing tasks efficiently, producing and distributing products and services optimally to enhance the value for shareholders. Such image of a manager is already outdated. Technical efficiency, rationalization of activities in terms of engineering, manufacturing and application of marketing is not enough to meet the EU's competition and the challenges of the future. We need managers who know well the organization of work, managing people and international managing, progressing in a

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[17] J. Penc, *Nowe zarządzanie w nowej gospodarce,* Warszawa 2010, p. 16.

[18] Ibidem, p. 18

[19] Kozminski, Andrzej K., Anatomy of systemic change polish management in transition. *Communist and Post-Communist Studies,* Volume 41, Issue 3, 2008, Pages 263–280

consistent manner with the socially accepted system of values that determines what is most important in life[20].

Contemporary manager must be especially endowed with specialist skills and expertise in the field of managing people in the organization and making reasonable decisions. "What the company needs, emphasizes Peter Drucker - is the governing principle that allows full development of the individual human forces and responsibility, and at the same time will give common direction to the sense of perspective and efforts, that will provide collectivity of work, harmonizing individual targets with common good.[21]"

Managers should be aware that in today's economy the most important resource for companies are no longer raw materials, capital and material assets, but the staff, their knowledge, skills and motives in their quest for a better job, change and progress. They will constitute the success of the company, regardless of available resources by transforming acquired knowledge into permanent values for the organization and the market.

They should also be aware that crucial to the success of the organization are their leadership initiatives arising from the knowledge, creativity and commitment, and not from their position. The power which they exercise over others can not be regarded as a value in itself and the instrument of creating the self-image or social status, but as one of the functions needed for decision-making, planning and implementation of tasks and creating the future of the organization through strategic thinking and conscious responding to the challenges of the environment and the processes of internationalization and globalization.

We require that contemporary managers create visionary ideas and concepts of operation in conjunction with the current competencies of the organization (distinctive competencies), taking into account long-term forecasts of the development and the opportunities created by acquisition, assimilation and enrichment of knowledge.

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[20] K. Blanchard, M. O`Connor, *Zarządzanie przez wartości,* Warszawa 2008, p. 119.

[21] P.F. Drucker, *Praktyka zarządzania*, Akademia Ekonomiczna, Kraków 2004, p. 154.

Summary

It seems that the modern economy and contemporary Polish companies need to improve the concepts and management methods, as well as the functioning of enterprises in international and global markets.

The study identifies selected, the most important (in authors' opinion) the challenges faced by today's enterprises and their managers. The case study research clearly shows that in their actions, of course, they should be guided by economic factors, but also (what seems seems to be the most important) they should take into account the social, ethical and environmental aspects.

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Chapter 3

Research in progress: Organizational, Psycho-social, Political and Legal Frameworks and ICT Management in Emerging Economies (1)

Better public buyers with electronic procurement

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ABSTRACT

Public procurement is a big part of any country's economy, independently of its geographical location, political inclination or level of development. In general public procurement is under strict jurisdiction. The main reasons are to protect tendering companies from unfair treatment and to avoid corruption, bribery and in general the misuse of power by public procurers.

To measure corruption is a difficult task due to the illicit nature of the transactions as well as vague and imprecise definitions of corruption. The Corruption Perception Index reveals considerable differences between countries. In general, corruption is more frequent and a bigger problem in developing than developed countries and in post communist compared with long established democracies.

One of the most visible trends in public procurement is electronic public procurement - eProcurement. The main benefits from the use of electronic procurement are greater transparency and accountability in public procurements, increased competition and more opportunities for SMEs to participate in tendering for public contracts. Better visibility, control and insight mean that eProcurement can be an effective tool to fight corruption and avoid discrimination in awarding public contracts in developed and particularly in developing countries.

eProcurement can be seen as an important step towards fair trade and as a tool in the fight against misuse of power by politicians and public sector officials. Therefore, to invest, develop and implement eProcurement solutions are important contributions to the improvement of ordinary people's living standard s in developing countries.

This work in progress investigates the conditions for using a technique such as electronics not only for efficiency purposes but also in strategic and innovative ways in the area of public procurement in general and in developing countries in particular.

Keywords:

Electronic procurement, public procurement, corruption, developing countries

Suitability analysis of new method for measuring the information technology acceptance

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ABSTRACT

In the introduction of the paper there is a description of the use of the TAM model to measure the degree of acceptance of information technology. Based on the TAM model, the author's method for measuring the degree of acceptance of information technology is proposed. This method is based on an analysis of hard data describing the organization. The paper describes how the method was developed and presents detailed form of all measures, which the method contains. The second part presents the results of empirical research conducted in five organizations. The study analyzes the degree of acceptance of information technology using the TAM model and using the proposed method. The study is aimed to verify the operation of the new method, to examine whether it properly indicates the degree of acceptance of information technology (in reference to the TAM model, which has been repeatedly verified). It also examined whether the method correctly describes the changes that occur over time in the degree of acceptance of information technology. This was possible because of two series of tests. The first series of tests conducted in 2010, a second series in 2011 (when some changes have occurred in information technologies). Description of empirical work have enabled the verification of proposed method and allowed to deduce that it is applicable in assessing the degree of acceptance of information technology. The conclusions of the work describes the possible directions of development that would allow to make changes in the proposed method, which would increase its effectiveness.

Keywords:

information technology, acceptance of technology, TAM model.

Application of B2B Model for Creating A Marketing Product

by

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ABSTRACT

Development of ICT is related with the development of process approach to management. From this point of view, marketing can be regarded as the business process that is aimed to search, identify and to create needs for company products or services and to identify and carry out activities to meet the expectations of customers as good as it is possible. In this way marketing is an external process that is the part of business-to-business model (B2B) and can be supported by ICT. Moreover, it turns out that the implementation of B2B model with use of ICT in the business activity gives economic, social and psychological effects that confirmed the research presented in the paper.

The aim of paper is identifying the economic benefits, as well as, social and psychological effects resulting from the application of IT system based on B2B model with the application of ICT in the process of marketing product design

Keywords:

B2B, economic, social and psychological effects of ICT, business process management.

INTRODUCTION

The present economic requirements and high competitiveness on the market put pressure on enterprises to move their business activity into the virtual world and run it in a form of e-business supporting by systems and tools created on the basis of information and communication technologies (ICT). As a result of their implementation, it turns out that they have influence on economic, social and psychological aspects that should be perceived at two levels – "inside and outside" of an organization. It also concerns such enterprises as marketing agencies which have to adjust to the needs of their business partners faster than ever before. It requires from them making significant changes into business relations, as well as, applying tools supporting this cooperation. It is also important that nowadays a customer, who orders a certain type or set of marketing products in a marketing agency, is interested to participate in the process of its creation. On one hand it gives an opportunity and on the other it even forces marketing agencies to search for new tools supporting the process of designing marketing product which is created with use of a wide range of dedicated IT systems. An experience of the authors show that without these tools marketing agencies struggle with problems in a standardization of data exchanged with business partners, problems with a size of this data, as well as, necessity of numerous arrangements, assessments, confirmations and evaluations. A great deal of these problems may be solved through IT solutions built on the basis of business-to-business model (B2B) applying ICT technology.

A literature review shows that a great deal of research in the area of ICT applied in B2B model in Poland, as well as, a worldwide is related to e-business and concerns such issues as strategies and models of e-business (Hartman, Sifonis, Kador, 2000; Afuah, Tucci, 2003; Combe, 2006; Pastuszak, 2003; Chmielarz 2007; Olczak& M. Urbaniak, 2005), Net Readiness (NR) – readiness to run business on the Internet (Pastuszak, 2003; Molla and Licker, 2005), standards of B2B platforms (Albrecht, Dean, Hansen, 2007; Zhang, Yin, 2009), management of a virtual organization (Warner, Witzel, 2005; Grudzewski, Hejduk, 2002; Brzozowski, 2010).

It turns out that there is lack of research which would be devoted to the issues in comprehensive analysis of economic, social and psychological effects following the implementation of B2B systems built in ICT that support carrying out external processes, including the process of marketing product design.

Taking into account the above factors, the following research assumptions have been made:

1. The quality of B2B system created on the basis of ICT determines the quality of marketing product design process that compared to the process of material product design is an external process with a high level of business partner involvement.
2. An influence of B2B system on the economic, social and psychological effects reveals

a dualism based on the fact that they should be evaluated on two levels: "internal – inside the enterprise" and "external – outside the enterprise in the context of business partner relations".

Thus, the aim of paper is identifying the economic benefits, as well as, social and psychological effects resulting from the application of IT system based on B2B model with the application of ICT in the process of marketing product design.

The research issue determined the structure of this paper that consists of the theoretical part as a result of literature review and the empirical part based on a case study. As a result of literature review, the problems related to some effects of applying ICT in enterprises, a definition of marketing product and a process management in B2B model have been discussed. The empirical study had the aim to verify the research assumptions which had been made on the basis of literature review. Therefore, the conclusions were made and directions of the future research were explained.

Summing up, the research issues concern about current matters related to the business process management in B2B relations in a marketing branch, therefore they may be useful for representatives of the scientific community and managers who need to improve the management of external processes carried out in the cooperation with their business partners.

EFFECTS OF ICT IMPLEMENTATION IN AN ENTERPRISE IN A FRAME OF LITERATURE REVIEW

The dynamic development of ICT that has been made in the past few decades, is one of the major challenges for today's businesses activity (Barbara-Sanchez, Martinez-Ruiz and Jimenez-Zarco, 2007). It can be observed how ICT tended to develop with the changing market strategies, the development of computer's science and the network abilities (Basl and Sąsiadek, 2012). In 50's and 60's of the 20'th century the main benefit from the use of ICT was a time reduction of engineering calculations, in 70's and 80's it can be noticed the growth of efficiency of a product design and manufacturing and since the 90's ICT has been improving the efficiency, flexibility and integration of internal processes and data, often supported by ERP systems. In the last decade, ICT and the development of Internet made it possible to improve a customer relationship management (CRM), decision-making processes (Business Intelligence), the integration of external processes and promoting new business models like e-business models, business-to-business (B2B), business-to-customer (B2C) and business-to-administration (B2A) (Basl and Sąsiadek, 2012).

15 years ago Argyres (1999), Tzokas and Saren(1997) noticed that ICT could play a key role in the absorption and creation of market information by providing a huge number of relevant information and the possibility of their quick processing (Argyres, 1999; Tzokas and Saren, 1997). It is emphasized that ICT improves the flow of information in enterprises and the knowledge management (Sorensen and Lundh-Snis, 2001).

On the base of literature review, it can be also concluded that ICT allows to increase the efficiency and effectiveness of certain business activities (e.g, sales, the process of marketing decisions) (Brady, Saren and Tzokas, 2002) and to integrate the work of various functional areas within an enterprise (McDonough, Kahn and Barczak, 2001; Leenders and Wierenga, 2002). They support the implementation of new organizational models (Kahn, 1996; Kahn 2001), facilitate the management of external agenda through the easier coordination between them (McDonough, Kahn and Barczak, 2001; Smith and Blanck, 2002). They also make it easier to adapt to changes in the market environment, to enter new markets, to create new markets and business models (Corbitt, 2002; Javalgi and Ramsey 2001). A few authors (Argyres, 1999; Gurviez, 1997; O'Malley and Tynan, 1997) also put attention to social aspects of the use of ICT in strengthening cooperative relationships in B2B model. They notice that the tight collaboration supported by ICT can create trust and commitment for cooperating parties which is one of the crucial aspects for building a long-term relationship (O'Malley and Tynan, 1997).

Currently, it is emphasized that modern information systems enable to improve market indicators like cost reduction, increase of flexibility, quick response to the environment changes, especially in case of customers' needs and business partners requirements (Basl, 2011). Thus, it stays in the literature that the potential benefits of ICT applications are a great reliability in relationships both B2B and B2C, as well as, a short time of process making. The applications based on ICT are regarded as tools to improve the external communication and to improve the service quality of existing and new clients (Barbara-Sanchez, Martinez-Ruiz and Jimenez-Zarco, 2007). However, the literature study shows that ICT is not only regarded as the information technology to support the process of communication. From the economical and managerial point of view, ICT can be regarded as the social construction, the information provider, hardware and software infrastructure, a business process and system. From marketing point of view, ICT has also been regarded as: a variety of separate applications, a marketing channel, a communication or promotional medium, a marketing technique and a tool for relationship marketing (Brady, Saren and Tzokas, 2002; Barbara-Sanchez, Martinez-Ruiz, Jimenez-Zarco, 2007). In relation to the marketing activity, it should be noticed that some authors share the opinion that ICT has created extraordinary opportunities to reach a specific audience by enabling a customization of communication and elements of the marketing mix to a selected segment of customers (Piene, Pippers and Rogers, 1995; Prasad, Ramamurthy and Naidu, 2001). In addition, ICT has improved relations between companies and business partners (suppliers and customers), therefore the role of customers in developing new products and determining the added value has increased. As rightly observed by some researchers (Vilaseca-Requena, Torrent-Sellens and Jimenez-Zarco, 2007), the use of ICT in marketing contributes to reducing barriers of the collaboration.

Although, there are many potential benefits of ICT adaption, it must be pointed out, as W.W. You Choung, Ch-W Chang. and M.S.H. Heng (2004) noticed that "the evaluation of direct impacts of IT adoption based on business performance is difficult." As they explained "the performance of business activities has been a sophisticated result originating from varied influences brought about by internal efforts and changing business surroundings" (Yu Chung, Chang and Heng, 2004).

MARKETING PRODUCT IN THE CONTEXT OF MARKETING AGENCY ACTIVITY

Understanding the nature of modern marketing product requires understanding the nature of modern marketing. Marketing may be defined in many ways. Ph. Kothler (1996) defined marketing as individual and collective activities facilitating and accelerating the satisfying exchange in a dynamic environment through production, valuation, promotion and distribution of goods, services and ideas. A few years later, Ph. Kothler (2004) emphasized that marketing could not be understood any more in the old meaning as carrying our sales, but in a new one, in which the nature of marketing means the meeting of customers' needs. In the new approach, marketing is defined as the process in which individuals and groups get what they need and desire as a result of creating and exchanging with others products and values (Kothler, Armstrong, Saunders, Wong, 2002). Thereby, a definition by Dietl (1985) achieved the significant meaning, as he defined marketing as an activity aiming to recognize and to adjust to the market needs, as well as, the impact on demand and supply including requirements and preferences of end buyers (Kothler, Armstrong, Saunders, Wong, 2002). From this point of view, a product is everything what may appear on the market in order to meet somebody's needs or desires (Bojnowska, 2004). It is perceived as items and processes that have the value for a consumer. In this sense, the product means material goods and services (Bojnowska, 2004). The nature of product in the marketing approach does not limit its meaning only to a physical object. In marketing, the product is perceived in a broad context in which it includes such elements as goods, services, individuals, places, organizations, activities, ideas or combinations of those elements. A wide view on the nature of marketing product provides an opportunity to distinguish its several levels. The first level includes basic benefits offered by a product and it is called the core of product. The second one is called a 'real' product and it consists of features deciding how the product is perceived by consumers. The third level is defined as the 'full' product including the additional benefits received by a consumer after a purchase (Altkorn, 2004). Analyzing the nature of marketing product from the a consumer point of view, there can be defined five levels of the product. The first level involves the core usage of product that meets the need. The second level is 'the basic' product including a part of a product which satisfies a need. The third level is created by 'the expected' product, meaning the customer's expectations related with the product. The next level is 'the full' product, including everything what meets customer's expectations. The last level of product is 'the potential' including its lookout, how it may look like in the future after its modernization which may lead to improving its attractiveness (Kothler, Armstrong, Saunders, Wong, 2002). Designing a such wide understood of marketing product is becoming a great challenge because it is something more than just the image of product (Kothler, 2004).

A multi-level structure of product means that it plays a key role among other elements of marketing. Processes of a product and its functions designing should be coordinated in order to achieve a combination of market-related, as well as, technical and technological aspects of the product. This is a task for marketing specialists. A very important role in this process belongs to marketing agencies, advertising agencies, media, consulting companies and other organizations that support to launch products into the right market and to promote them.

Designing the marketing product by the marketing agency often starts already at the stage of creating its marketing strategy and then the agency creates the idea of product's values that become then the base of its brand. The marketing product of marketing agencies may be marketing and consumer research including qualitative research, focus group interviews, quantitative research in terms of customer preferences and satisfaction with final effect in a form of reports and business branch analysis. The marketing agencies create advertising campaigns scenarios, prepare *branding* i.e. building a brand awareness and communication strategies. Moreover, the marketing product in the marketing agency activity may be a particular corporate identity (a logo, corporate identity guidelines), an advertising campaign, a promotional campaign (including: direct mail, contests, lotteries, loyalty programs), a design and production of advertising materials (including: flyers, catalogues, brochures, websites).

With years there has been a change of advertisement's meaning. Previously, advertisements appeared the most often in press, they were printed out in paper version as leaflets, then they appeared in media. In recent years, the Internet advertisements have become very popular. Nowadays, marketing products offered by the marketing agencies are created with a customer involvement. Furthermore, the marketing products contain signs and graphic arrangements, combination marks, compositions and musical arrangements, photographs, industrial designs, audiovisual pieces and other materials. They are created in order to achieve aims of customer's marketing activities. Currently, the advertising industry, like others, operates mainly on the basis of electronic documents which become materialized only after finishing the whole process of creation of a given form of marketing impact, numerous arrangements and the customer's approval. An increase of complexity and diversity of marketing products in the marketing agencies activity is a result of a great power of informatization which is accompanied by ICT development and coincides with a development of process approach in management. In this approach, marketing is regarded as a business process focused on studying, identifying and creating needs for enterprise products, as well as, defining and carrying out actions leading to meeting the product's users expectations in the best way (PARP, 2010). From this point of view, marketing is noticed as the external process based on B2B model and it is supported by ICT.

PROCESS MANAGEMENT IN B2B MODEL BUILT IN ICT TECHNOLOGY IN THE LIGHT OF LITERATURE REVIEW

Many definitions of business process may be found in reference books. According to Gehring and Gadatsch (1999) a business process is an aim-oriented sequence of tasks which may be carried out with use of adequate ICTs. It defines what should be done in order to carry out a company strategy (Gehring and Gadatsch, 1999). The business process is also defined as a transaction or a sequence of transactions between business units where the object of transaction is an exchange of results or information (Ferstl, Sinz, 1993). The another definition is that the business process is every process that its outcomes are generated for an external client (Krawczyk, 2011). In this approach, "the main point of business process is a result that may be an offer, i.e. a result having a value which is accepted by a customer and which he is ready to pay for" (Schönsleben, 1998). It is worth to noticed that in the definitions above a customer takes over products or services on a transaction rights. The way of product use has the further meaning.

The enterprise carries out two types of business processes. The first category is internal processes which as a whole are conducted within the structure of a company. The second category is processes carried out with participation of an external partner (including marketing) (PARP, 2010). From B2B systems point of view, despite the fact that processes carried out in this model are "outside" e.g. orders, deliveries, sales, marketing, financial deals, they remain a part of enterprise activity. The business partner involvement is under the enterprise's control that is the owner and the administrator of B2B system whereas its business partners become participants of processes – system users who have got rights to perform particular activities in the system.

According to A.Simon and S.Shaffer (2002), there can be distinguished two main types of B2B systems:

- directed to a supply chain – this approach enables the enterprise to create interfaces offering a mutual communication,
- directed to the market – transactions, which take place within processes, are carried out in a dynamic environment, e.g. the enterprise creates marketing strategy together with its business partners.

In practice, both approaches to B2B systems often complement themselves, creating mixed solutions because the processes are inter-related, depend on many parameters and create a certain configuration.

It is difficult to draw up a clear and universal description of business process management in B2B model operating with use of ICT due to the following reasons:

- every organization needs to decide on its own which processes will be brought outside and carried out online with business partners,
- business processes are characterized by a great complexity,
- there is a wide range of various technologies in IT market, used to build systems and B2B platforms,
- the level and quality of cooperation between different business partners is different.

Present economic realities show that business organizations are interdependent. They relate to others and cannot operate separately. They cooperate in a virtual net. It is started by re-engineering which currently has changed into X-engineering showing that present enterprises have to move their processes outside. This requires the processes integration between the enterprise and its business partners. In terms of e-business activities, the right moment to define a degree, range and method of integrating external processes is a stage of planning which should also include internal business processes related to customers, suppliers, partners, it should define internet technologies, standards of network cooperation and IT systems (Johnson, 2001). The planning stage is extremely significant for the future functionalities of B2B system, costs of its creation and finally its efficiency. Moreover, it has the great meaning for their realization and management in the future. In order to achieve a satisfying level of profitability of B2B system, the following key factors connected with business processes, cooperation with business partners, customers and technology should be taken into account (Sroka, Palonki, 2010): systems' integration, customers and suppliers preferences in terms of information technology, processes related to customers and suppliers, the level of e-business awareness among customers and suppliers.

In terms of the process approach carried out with use of ICT, it can be found in the literature that the enterprise is regarded as the virtual organization applying ICT in a creative way. This approach is becoming less and less accepted because ICT should be treated as the tool used to develop B2B applications and not as the sense of the organization activity (Brzozowski, 2010).

Other important aspect of external process management is the ability of enterprises, due to advanced ICT technologies, to process very quickly and automatically a huge number of information stored in B2B system databases (2001). Moreover, a key role plays the possibility to introduce changes directly in management systems, e.g. ERP, so employees and management operate on the real data. Processes are dynamic, not static. It is one of crucial differences between e-business and traditional way of running business activity.

The next part of paper is a case study presenting a concept of B2B system to support a process of designing a marketing product.

A CONCEPT OF ORGANIZING THE PROCESS OF DESIGNING A MARKETING PRODUCT IN COMMUNICATION UNLIMITED LTD.

Enterprise presentation

Communication Unlimited Ltd. (CU) has been operating on the Polish market since 1991. The company is an advertising agency offering a wide range of marketing services, as well as, designing a great number of marketing products. It specializes in carrying out advertising campaigns in media, producing marketing films, renders printing services in marketing area, it deals with organizing events, consumer promotions, digital marketing, takes part in a creating of social media. The agency deals with selling not only materialized marketing product but also intangible values such as know-how of a whole advertising or promotional campaign. The company is a partner of one of the biggest world marketing agencies – GMR Marketing. The customers of CU may be divided into the following groups: B2B, B2C, Trade, retail sectors, FMCG. The key business partners of the Agency are Super-Pharm Poland, Ferrero, Galeria Kazimierz, Galeria Jurajska, IAA „Pij Mleko" ("Drink Milk"), Coca-Cola, Blue City.

Methodology

To verify the research assumptions presented in the introduction of the paper, the case study (Matejun, 2011) was applied as the research method, supported by following tools and source of data and information:

- assumptions of B2B system (pre-implementation analysis)
- the complete documentation made "during and after" the implementation with its functional, technical and technological description
- interviews with managers based on an interview questionnaire that provided additional information about internal and external benefits, as well as, organizational improvements during the process of creating a marketing product, due to implementation of B2B system.

The research was conducted in a form of advanced analysis of the data contained in documentation of B2B system of CU, as well as, information gathered from managers during the interviews. The interviews questionnaires were created in a form of several open questions related to: the influence of B2B system and functional and technological solutions used in it on economic, social and psychological effects, organizational improvements by implementation of B2B system in CU.

The choice of a new concept of organizing the process of marketing product design by the enterprise

CU and its business partners have reached a high level of cooperation which requires changes in the way and form of carrying out business processes. Sending big size files via traditional electronic mail generates now a lot of technical problems (long time of sending, email box size limits). As a consequence, the documents are saved on CD/DVD records or mass storage devices USB. Carrying out the marketing products requires numerous arrangements, verifications, assessments, approvals by the customer (business partner). Taking these into account, the Agency with its business partners took the decision to change the way of organizing the marketing products design process with usage of B2B model. It was also caused by contemporary economic requirements and a high competition in the market which determined the Agency and its partners to introduce substantial changes in business relations.

After the analysis of different potential solutions simplifying the process of marketing product design, the enterprise decided to build and to implement B2B platform based on Electronic Data Interchange (EDI), in which it takes the role of system administrator, while the partners will become 'its users'. The Agency deals with logistics of processes, which appear between it and its partners.

At present, the company uses standard ways of communicating with its business partners, such as: direct contact, e-mail, fax, or telephone. Business processes are carried out without integration of IT systems between the partners. As a result, it is necessary to reproduce the same data in different applications (i.e. working in semi-automatic way). It results the time-consumption and generating errors in activities during the process of designing marketing product, as well as, it has the impact on the quality of cooperation with the business partners (customers). Moreover, the present software is unable to generate and collect reports required by the partners serviced by the Agency on the satisfactory level.

The next need is a necessity of keeping a certain standard of commercial documents used in the process of business cooperation – a uniform codification of business partners cards, services or marketing products. It is from the fact that every partner works on comparable IT systems and documents, but it has its own internal standards that makes the team communication more difficult.

In conclusion, the B2B platform has to be completely integrated with all IT tools used by a company, especially with ERP system. The pre-implementation analysis showed that implementing a new system gives also benefits for the business partners. The automated flow of information will implicate the shorter time of getting the feedback after sending an offer, a short time of documents flow and a cost reduction, an immediate reaction to nonconformities in the process of designing marketing product, the more efficient flow of invoices, agreements, other documents and commercial information. Thus, this will enable separate business enterprises to cooperate on a new level, i.e. semi-automatic form of cooperation will be eliminated to the benefit of fully automatic one.

Structure of designed B2B system in Communication Unlimited

A. Technological layer of B2B system

Taking into account the fact, that data exchanged in an electronic way between CU and its business partners is counterpart of traditional documents (e.g. orders, project offers, budgets, invoices), as well as, non-standard documents (e.g. marketing projects containing multimedia, graphic or audio files, industrial designs), then the key aspect of EDI is the standardization of exchanged information and the safety of communication. It has been designed in the system that the information flow will be ensured by appropriate messages in

XML, TXT, XLS format, as an accepted way of data characteristics in Web Services. The use of XML language and other ones gives the inter-operational quality which should be regarded as the cooperation, the ability of communication and the safety data exchange between different systems (CU and business partners), as well as, it gives them the opportunity to use the same data located in a central database of B2B system. Owing to the fact that the basic layer for B2B system is created by ERP system, it has been based on the same type of database as an integrated management system, i.e. MS SQL. The structure of B2B system has been created in ASP.NET (that is used to make XML Web Services application) and Ajax (technology supporting ASP.NET which is the art of exchanging data with a server, and updating parts of a web page - without reloading the whole page/document).

B. Functional layer of B2B system

A full automation of processes in B2B model requires from a company to have the ERP system which facilitates the automation and integration of internal processes and it will cooperate with B2B system in the automatic way. From B2B system requirements points of view, it was decided in CU that the most important modules of ERP system are 'Administrator', 'Sales' and 'Orders'.

'Administrator' module is obligatory in every IT system. It makes it possible to manage the system, its parameterization, defining users rights and controlling a data coherence. 'Sales' module supports the process related to selling marketing products, i.e. results of marketing projects and services. It makes it possible to automatically send information related to sales process in B2B system, as well as, quickly making of sales documents. It gives a possibility to manage complaints, including registration of after-sales documents and the customer relationship history. 'Orders' module includes registering an enquiry for quotation from a business partner which then it can be transformed into an order. This document is the source document to create an advanced or a final payment invoice. The module additionally makes it possible to optimize orders of purchase of marketing activities and services according to different criteria, e.g the lowest price, the shortest delivery date.

Two sub-systems were designed in the functional layer of B2B system which directly supports the designing of a marketing product: *Workflow* and *Project Management*.

The task of *Workflow* is the support of documents, information and tasks flow. Owing to the fact, that every design of marketing product requires making of an offer containing a lot of written and graphic content, this stage often involves numerous changes of a concept, a cost estimate or a project schedule. The implementation of advanced workflow system built in B2B system facilitates full automation of processes and activities related to importing and exporting files with offers, cost estimate sheets, schedules, projects of agreements and their final versions, as well as, other documents, information, tasks associated with the marketing products projects. Furthermore, the workflow system equipped with functions of assigning resources, time limits and tasks related to carried out projects, makes it easier to manage projects directed to drawing up marketing products.

The aim of *Project Management* is a comprehensive support of marketing product design process and the management of marketing project with an option of interactive user. It is a multifunctional solution, equipped with e-information dedicated to users (business partners of CU). The application contains technical solutions which make it possible, while designing a marketing product for a customer, to load database files with ideas of the following marketing products prepared by the Agency: music and performance, texts, models, graphic designs, combination marks of verbal and graphic signs, compositions and music arrangements, music and spoken word arrangements, photographs, industrial designs, audiovisual pieces and other tailor-made products. The application saves data automatically. Therefore, the creation of a marketing product is made in real-time. The Agency and its business partner work online on files which were previously sent via traditional electronic mail (what extended the time of work) or exchanged on removable storage devices (what resulted of many remarks from the customer after receiving the ready product design).

ECONOMIC, SOCIAL AND PSYCHOLOGICAL EFFECTS RESULTING FROM IMPLEMENTATION OF B2B SYSTEM BUILT ON THE BASIS OF ICT TECHNOLOGY IN COMMUNICATION UNLIMITED LTD.

The economic, social and psychological effects analysis was carried out on the basis of information provided by the managers of CU who made the analysis after several months of B2B system implementation.

A. Economic effects

The decrease of average operating costs per month

The research has shown that the implementation of B2B system caused the decrease of unit cost of orders for marketing products, for instance in case of an advertising newsletter the number of remarks and corrections reported on its final approval went down from around 80 to 20 which means a real time saving of about 8 working hours and cost of materials of about 20%. A work-time saving was estimated on the basis of amount of saved working hours devoted to corrections and an average cost of work time.

The cost of materials per 1 order before the implementation of B2B system was 1885 PLN. After its implementation the cost of 1 order dropped to 1639,44 PLN.

Shortening the average time of workflow between cooperating enterprises from the base value of 7 days to the target value of 2 days

The time of documents flow such as budgets, cost estimations of marketing projects and invoices quantifies the effectiveness of cooperation mainly in the area of sales and orders of marketing designs processes. As a result of B2B system implementation, the time was shortened by 5 days on average.

Shortening the average time of carrying out orders/deliveries from the base value of 10 days to the target value of 7 days

The time of carrying out orders/deliveries determines the effectiveness of cooperation in terms of the marketing product design process. Shortening the time of documents flow had influence on shortening the time of carrying out orders/deliveries of 3 days which generated economic benefits for Agency and its business partners.

The decrease of nonconformities from the base value of 80 to the target value of 20

CU treats the customer remarks related to the marketing project as the complaint or nonconformity. The implementation of B2B system caused a dramatic fall in number of remarks on the level of 60. From CU point of view, this rate measures the benefits consisting in improvement of the process of carrying out an order.

B. Social and psychological benefits

The research has shown that during a long time CU is going to connect next customers to the platform that they become not only users of B2B system, but also business partners. Therefore, the cooperation is more dynamic than so far. The next social benefit is working out a good practice and standards of cooperation, carrying out business processes in a transparent and effective way, as well as, the increase of cooperation flexibility. Know-how related to ICT in everyday cooperation between enterprises provide results in terms of enhancements in organizing this cooperation.

The next important social effect of implementing ICT in CU and cooperating enterprises is the fact that the employees of enterprises operate on the same data, and due to using one database, the communication off line is replaced by the communication online. As a result, it provide a substantial fall in number of misunderstandings and information problems.

Social benefits have the influence on psychological ones which are: improving of a work comfort, better understanding of mutual needs and expectations of employees of cooperating enterprises, tightening relations in a group created by employees of different companies, overcoming communication obstacles, stimulating the learning process that is important in increasing the innovativeness of enterprises cooperating in B2B model.

It is worth to emphasize that the effectiveness and the success in business cooperation depends not only on good performance of particular actions but also on the effective integration of cooperation elements into a whole.

CONCLUSIONS

Introducing the modern management system based on the process approach using the advanced ICT with EDI, significantly brings the process of marketing product design up to date. The implementation of B2B system, equipped with dedicated applications, makes it possible to design marketing products and to manage marketing projects in the automatic way through Internet browser and not only in the semi-automatic way. It facilitates the optimization and the improvement of processes carried out between CU and its cooperating business partners which are related to: requests for quotations, orders, project sales, complaints, cost estimation, settlements, documents and information flow or tasks.

The process of designing and managing marketing projects which lead to a final marketing project, is featured with iterative activities at the stage of creating a marketing concept that requires many arrangements and verification before it is ultimately accepted by a customer. Automating this process has impact on shortening the time required to carry out a project, facilitates the cooperation and communication, and substantially limits the number of nonconformities appeared after submitting a final project of marketing product to the ordering party.

The solutions used in the presented B2B system make it possible to exchange data with business partners almost in an unlimited way and they assure openness of the system to the cooperation with the environment. The modular structure of system enables to enhance it with new functionalities in the future. The project of B2B system presented in this article is the tool enabling the enterprise to automatize routine and repetitive activities that helps to put more attention to the important issues in designing of marketing products. The system improves the management of the marketing projects in a significant way which includes functions such as planning, cost estimation, scheduling, carrying out and settling a project. Application of ICT technologies contributes to generating economic, social and psychological advantages which are present in the CU and its business partners.

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Ethos behaviors (organizational citizenship behaviors) in everyday life.

The Polish students' perspective.

by

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ABSTRACT

The subject of the study is devoted to the issue of ethos behaviors and the Polish students' perception of the above mentioned behaviors. The presented theoretical context of ethos behaviors is connected mainly with the area of psychology of work and organization. In the empirical part of the article there are presented the results of own research focusing on the analysis of common ways of perceiving ethos behaviors in everyday life by the studying young adults. The research has an exploratory character. The applied method was supposed to encourage an open discourse and use of examples from everyday life. The obtained results shed light on cultural, probably socially sanctioned, way of perceiving ethos behaviors; reveal specificity of social awareness in terms of ethos behaviors practice; indicate a social need for popularizing and educating in the area of ethos – within the both axiological and practical meaning. The research allows to formulate conclusions for future education and career planning. In the era of information technology, emerging technologies, and the disappearance of communication barriers - ethos behaviors often emerge from adversity stronger, give more confident in themselves and their purpose and more committed to their work. University graduates will establish the labor-market. Therefore, their impact on the economic growth will be obviously immense. It is necessary to explore the aspect of behavior which is based on ethos and even the local propriety. The economic growth is not just about the technology development, it is also crucial to reflect on people's attitudes and behaviors. After all, they generate new technologies and they are the ones who use them. In our opinion, ethos behaviors are potentially a driving force for the economic transformation.

Keywords: categorization of ethos behaviors ethos behaviors; emerging economies, Global Competitiveness, information technology, Polish students, technology development

Farmer's Social Portal and its impact on deficits of management of medium-size farms

by

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The authors of this article, having analysed the empirical findings from rural sociology and agriculture have concluded that the Polish farmers after 1989 entered a new era of agricultural development from the worst position as compared to other social and professional groups. The purpose of this article (and previous analyses) is to determine, on the basis of the available literature and empirical studies, how individual farmers who run a farm of no less than 15 hectares, i.e. those who have the strongest ties with the agricultural produce output market and the industrial markets of production means, make use of the opportunity to acquire information and communicate with other producers via the Internet. The authors based study on a thesis which holds that the modern ways of communicating allow not only to acquire new information and confront experience and practical knowledge of production and market operating rules with other producers, but also, if not most of all, they are an instrument for fighting the isolation that farmers may feel as producers.

There are quantitative (statistical) analyses in this article. This applies to the analyses the authors performed on the primary data (online portal traffic analysis and the socio-demographic characteristics of farmers 15+) and secondary data (contemporary Polish society survey and study results of farmers and agriculture quoted in literature).

Summing up, we may conclude that the main tools available at the agrofoto.pl portal play a strictly serviceable and consulting function, but are also oriented towards integration (classic function of all social portals). The address the need of liquidating dysfunctions and barriers blocking access to knowledge and relations. The Internet, due to the specific “verifiable anonymity”, ease of making new contacts, lack of spatial barriers, and speed of finding information offers support in terms of expertise and business decisions. The dynamics of online traffic indicates that the developmental potential displayed by the platform is significant, and, at the same time, suggests that the usage of the system’s particular functionalities by its target users is specific.

KEYWORDS: emerging economy, transition economy, Internet, social portal, agriculture

Chapter 4

Research in progress: Organizational, Psycho-social, Political and Legal Frameworks and ICT Management in Emerging Economies (2)

Apomediated marketplace: leveraging the power of direct social interactions for knowledge sharing among local Civil Service Organisations in developing countries

by
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INTRODUCTION

Different approaches, including mentorship and formal training, have been used to try to strengthen the capacity of Civil Society Organisations but with little apparent impact. The apomediated marketplace is a combination of face-to-face events and a digital interface through which CSOs, as buyers, and capacity-building consultants, as vendors, meet directly to develop partnerships, share knowledge and transact business. Apomediation enables the marketplace organisers to “stand by” the participants and offer support only at the point of need. As opposed to intermediation, which involves “standing between” the parties or disintermediation implying “standing aloof”, apomediation increases the level of social interactions which in turn enhances the quality of knowledge sharing amongst the participants without being overbearing on them. This paper analyses and compares the concept of the apomediated knowledge marketplace with its alternatives.

METHODOLOGY

The authors used an exploratory research approach to investigate the feasibility of an apomediated marketplace as a knowledge management model for civil society organisations in developing countries. Data for this paper was collected through content analysis of publicly available marketplace concepts deployed by different organisations in Kenya, Mozambique, Zambia, Namibia, Bolivia, Ecuador, Vietnam, Belarus and Ukraine.

RESULTS

The findings indicate that the apomediated marketplace approach is unique in that it is transparent; facilitates open engagement among CSOs as well as between the CSOs and the service providers; encourages improvement of the quality of services through competition, expert validation and user feedback; and develops a critical mass of local capacity-building service providers who provide affordable, relevant and sustainable services to the CSOs for long-term capacity-building and knowledge transfer.

KEYWORDS

Apomediation, intermediation, disintermediation, marketplace, developing countries

How to watch? Television cultivation endangers social trust

by

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ABSTRACT

Watching television is the most widespread pastime, cheap, available in almost any place, and socially acceptable in Poland, a transition economy. Despite expansion of Internet and the new possibilities it offers, television is by far less attention absorbing and easier in handling. Television watching is regarded more passive than information retrieving or communicating on-line. One of the question posed since the introduction of mass television in the West in middle of the 20th century has been: what is the influence of the television on the viewer? Its basic premise is that television is a centralized system of story-telling that cultivates from early childhood predispositions and preferences which used to be acquired from other sources. By repetitively disseminating uniformly created messages and images it is able to create cultural mainstream, which defines the representation of the reality ready to be assimilated to the viewers' worldview. Thus watching television can affect our perception of social reality and attitudes towards social issues. Overestimating the prevalence of violence and perceiving other people as mean and untrustworthy is probably the most empirically recognized biases in heavy television viewers. We assume that passive rather than active viewing contributes to cultivation effects. Both belief in mean world and fostering egoistic personal values could directly undermine the social trust and preference for cooperative rather than competitive interpersonal relations. Thus understanding the psychological mechanism leading to the cultivation: both in quantitative (set-size, frequency) and qualitative judgments enables to predict the television effect on social trust. In the paper the review of concepts and research on cultivation effects is produced, including the author's own research on cultivation of social beliefs and links between television viewing and authoritarian aggression. Necessary caveats are made due to rapidly changing patterns of media usage. The very week and fragile nature of the phenomenon is underlined as according to the 2010 meta analysis rendered average cultivation effect size corresponding to a correlation of 0.05 for adequately powered studies. However, the mass scale of the phenomenon and its social consequences indicate that even so small an effect should not be disregarded. The conclusions on the electronic media role in social trust building are drawn and some hypothesis for future falsification are posed.

Keywords: cultivation, distorted social beliefs, information, Internet, on-line communication, passive viewing, social trust, transition economy.

Information Technology as a tool to promote healthy attitudes and habits of youth.

by

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ABSTRACT

Preoccupation of young people with modern information technology, and increase of health problems diagnosed in this group, are the two conditions for the use of the information technology to support the physical health of young people. "Pro-health" programs proposed in the world and in Poland, computer games and applications for mobile devices – they are all worth to be assessed and their use evaluated in context of the psychology of health and functioning in it models of development and strengthening of healthy habits. Young people, theoretically endowed with the best, for the life-span, physical condition, are now seriously threatened with health disorders that increase steadily. These include: poor diet, overweight, obesity and related with it diseases, but also behaviors which are risky for health and life - such as excessive use of drugs and irresponsible sexual behavior. Information technology is often described as factor enhancing the risk - for example by immobilizing the user by the computer, introducing negative behavioral patterns, sources of drugs and pornography on the Internet. There are, however, attempts to use technology to fight these problems through education, and to promote healthy behaviors and attitudes, such as a healthy and conscious diet, monitoring of one's fertility and regular exercises. Some of these suggestions are created with help of interdisciplinary, scientific collaboration teams and are subject to evaluation, the other being a commercial product, are created in isolation from scientific knowledge, and may have an uncontrolled impact on the user. The contemporary health psychology emphasizes the importance of a holistic and systemic perspective in health research. The tools supporting healthy behaviors and attitudes through information technology should not reinforce unconstructive attitudes or beliefs, another task is to assess their effectiveness. The text provides an overview of selected media forms, which use information technology and were created with the intention of promoting healthy habits of young people in Poland, a transition economy.

Keywords:

computer games, health psychology, information technology, Internet, health attitudes, transition economy, youth

Chapter 5

Methodology, Psycho-Social Aspects and Educational Systems and ICT Management in Emerging and Transition Economies (2)

Problems versus Benefits in Enterprise System Adoption: the Case of a Transition Economy

by

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ABSTRACT

The main objective of this study is to explore the relationships between problems and benefits that might appear during enterprise system (ES) implementation. The study is based on interviews with 82 practitioners who expressed their opinions about ES project adoptions in Poland, an example of a transition economy. The main findings indicate that informational and IT infrastructure benefits can be achieved despite the initial problems with system and IT infrastructure. However, the results suggest that it is difficult to realize benefits connected with employees when people-related problems have been reported.

Keywords:

Enterprise system implementation, benefits, problems, transition economy, Poland.

Article Type: Research paper

INTRODUCTION

Enterprise systems (ES), having their roots in MRP, MRP II, and ERP systems, are now very complex systems that support the management and integration of the whole company and offer inter-organizational integration with company's clients and suppliers (Volkoff, Strong and Elmes, 2005). ES implementation can bring many various benefits that can have tangible or intangible character (Hawking, Stein and Foster, 2004; Murphy and Simon, 2002; Poston and Grabski, 2000; Deloitte Consulting, 1998). Tangible benefits may include inventory and personnel reduction, cost reduction, and productivity improvement. Intangible benefits, in turn, may comprise greater information visibility and new/improved processes and customer responsiveness.

Nonetheless, before a company is able to get the benefits from ES, it has to go through a process of ES implementation. This process is usually long, costly and abounds with various problems and impediments (Kim, Lee and Gosain, 2005). This is mostly due to the fact that ES adoptions span the whole organization and involve multiple stakeholders both from within the company and external organizations (Brown and Vessey, 2003; Jones, 2008). In consequence, an interesting question arises how the companies overcome numerous impediments during the ES adoption in benefit realization.

The above defined research issue becomes more complicated when we take into consideration the level of national economy development. In particular, it is interesting to investigate how impediments to ES benefit realization are being overcome among transition economies, which are countries that are in transition from a communist style central planning system to a free market system and usually have governments that are dedicated to economic liberalization (Roztocki and Weistroffer, 2008a, 2008b). This is also connected with the fact that ES adoptions in transition economies reveal different considerations than ES projects conducted in developed counties (e.g., Bernroider, Sudzina and Pucihar, 2011; Soja, 2008; 2011; Themistocleous, Soja and Cunha, 2011). Therefore, the particular research question involved can be formulated as follows:

- How do the companies in a transition economy overcome problems in benefit realization during an enterprise system implementation?

In order to answer the research question, this study builds upon and extends the authors' previous studies on source problems in ES adoption (Soja and Paliwoda-Pękosz, 2009, 2013b) and benefits from ES adoption in transition economies (Soja and Paliwoda-Pękosz, 2013b). This paper starts with the discussion of research background connected with ES problems and benefits from the perspective of transition economies. Then, after the presentation of research methodology, this study proceeds with the data analysis and discussion of findings. The paper closes with lessons learned and concluding remarks.

RESEARCH BACKGROUND

Prior literature illustrates that ES adoptions in transition economies differ from ES projects conducted in developed countries. Various factors that might be connected with these differences include fast changing laws and regulations, strong governmental control, low and rising salaries, high demand for highly qualified workers, and continuous and fast economic growth (Roztocki and Weistroffer, 2011b). Prior research suggests that ES adopters in transition economies place greater emphasis on phased ES deployments and expect higher levels of external support (Bernroider, Sudzina and Pucihar, 2011). In transition economies ES adoption projects may go through a different system lifecycle and might require different roles of the project participants, as compared to developed countries (Themistocleous, Soja and Cunha, 2011).

ES adoptions in transition economies, as compared to developed countries, seem to be affected to a greater extent by financial and people-related problems (Soja, 2008; 2011). The most significant difficulties experienced by the organizations in transition economies suggested by prior research include (Soja, 2008):

- problems connected with the knowledge, education, and attitudes of various stakeholders,
- high costs of ES implementation,
- organizational problems connected with ES adoption planning, such as goal setting and the assessment of a company's condition.

The investigation of prior research on ES benefits conducted among developed countries (Davenport, Harris and Cantrell, 2002; Gattiker and Goodhue, 2005; Hawking *et al.*, 2004; Shang and Seddon, 2002) and transition economies (Soja and Paliwoda-Pękosz, 2013b; Ketikidis, Koh, Dimitriadis, Gunasekaran and Kehajova, 2008; Soja, 2005) revealed a number of benefits common for both transition and developed economies such as improvement in management, better inventory management, and improvement in customer service. Common benefits also include finance-related issues connected with lower costs, greater financial control, better financial condition of the company, and employment reduction.

Nevertheless, prior research suggests that there are some important differences among perceived benefits across the countries groups. In particular, practitioners from transition economies perceive to a greater extent informational benefits, automatization and infrastructure building, and people related issues. On the other hand, ES practitioners from developed economies perceive to a much greater extent benefits connected with the strategic role of information and communication technology (ICT).

The above illustrated differences in ES adoption considerations depending on the level of national economy development portray the need for conducting research among transition economies. This need is also deepened by the fact that, in transition economies, research works on IT investments in general and ES adoption in particular are scarce (Roztocki and Weistroffer, 2011a). Therefore, this study tries to address the shortcomings of prior research and its purpose is to investigate problems in ES benefit realization in a transition economy setting.

METHODOLOGY

This paper is an extension of the authors' previous research investigating the problems and benefits of enterprise system implementation (Soja and Paliwoda-Pękosz, 2009, 2013a, 2013b). This research is based on a field study conducted among 82 Polish practitioners who expressed their opinions about various considerations of 65 ES adoption projects. Data was gathered with the use of a semi-structured questionnaire that was presented to various stakeholders of implementation projects including users, members of the project team, members of the steering committee, and project managers. As the basis for the data analysis, only those companies were taken into account whose respondents reported both problems and benefits. The analysis of relationships between benefits and problems was based on the classification of benefits described in (Soja and Paliwoda-Pękosz, 2013b) and classification of problems and source problems elaborated in (Soja and Paliwoda-Pękosz, 2009). These classifications were developed using a qualitative approach based on grounded theory and employed open coding and casual mapping.

From the total number of reported benefits, only those representing a unique class of benefits for a certain company were taken into account. Extracted benefits belong to one from the eight possible benefit classes: Management, Database, System, Customer service, Finance, Market position, Employees, and IT infrastructure. Similarly, from the total number of problems, only those corresponding to a unique class of problems were retrieved. Following the taxonomy of problems proposed in (Soja and Paliwoda-Pękosz, 2009), problems were assigned to one of the following problem classes: Employees, Enterprise, IT Infrastructure, System, System Misfit, System Replacement, Training, Implementation Process, and System Vendor.

In the first stage of the data analysis, triples (benefit class, company, problem class) were generated, where a benefit class represents a unique benefit class for a certain company and a problem class represents a unique problem class for a certain company. It should be noted that not for every company benefits and problems were reported. The conceptual model of data analysis is depicted in Figure 1.

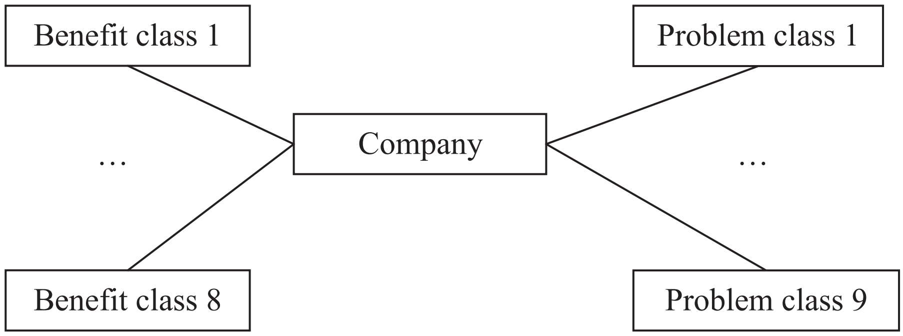

Figure 1 The conceptual model of data analysis.

In the second stage of the data analysis, instead of problem classes, source problems, i.e. those difficulties whose occurrences cause other problems, were taken into account. According to the classification proposed by Soja and Paliwoda-Pękosz (2009) source difficulties include: Knowledge, Changes in enterprise, Finance, Enterprise structure, IT infrastructure, Data import, Legacy systems, and Training schedule. After assigning a unique benefit class for a certain company to a reported unique source problems, triples (benefit class, company, source problem) were generated.

In the third stage of the data analysis, special attention was paid to problems and benefits more evident in transition economies than in developed economies. Prior findings suggest that in transition economies practitioners emphasize informational benefits and benefits resulting from imposed control over the company and employees (Soja and Paliwoda-Pękosz, 2013b). These benefits correspond to benefit classes Management and Database. According to Soja and Paliwoda-Pękosz (2013a), in transition economies more evident are problems connected with system-related issues (IT infrastructure and lack of fit between the company processes and the adopted enterprise system, unsatisfactory enterprise system performance, system integration) and people-related considerations (a company culture resistant to change, fragile human capital, trainings). Further, ES practitioners from transition economies uniquely perceived problems connected with financial and organizational conditions of an ES adopting company and implementation project definition and organization.

DATA ANALYSIS AND DISCUSSION

Benefit class versus problem class

In Table 1 the relationships between classes of benefits and problems were depicted. Benefit classes and problem classes are ordered according to the number of occurrences.

Table 1 Benefit class versus problem class.

Problem class / Benefit class	Employees	Enterprise	IT infrastructure	System	System misfit	System replacement	Training	Implementation process	System vendor
Management	●	●	●	●	◑	●	◑	◑	◑
Database	●	●	●	●	●	●	◑	◑	◑
System	◑	◑	◑	◑	◑	◑	◑	◑	◑
Customer service	◑	◑	●	◑	◑	○	○	○	○
Finance	◑	◑	◑		○	○	○		○
Market position	○	○	○	○	○		○	○	
Employees	○	○	○	○		○		○	
IT infrastructure	○	○	◑	○		○	○	○	○

Note: Bullets represent the level of benefit and problem occurrences reported by the respondents:
● – high (number of occurrences>8), ◑ - medium (2<number of occurrences<=8) ○−low (number of occurrences<=2).
Benefits and problems more important in a transition economy are shaded.

The results presented in Table 1 illustrate that benefits connected with management were perceived to the largest extent by the investigated companies. Nonetheless, companies reporting managerial benefits had to overcome the whole range of problems including impediments related with employees and enterprise.

The findings indicate that informational benefits, being the second most important group of benefits and captured by the category Database, could be achieved despite the initial problems with adjusting system to the enterprise needs. In the same vein, improvement in IT infrastructure could be achieved even though the problems with IT infrastructure were reported. Further, the advantage of using the new system could be perceived despite the fact that a company had to face numerous system-related problems during the adoption project.

It is worth noting that the human resources-related factors seem to be difficult to overcome. The findings illustrate that in the cases were problems with employees were reported (employees, training) the respondents rarely perceived benefits connected with human resources.

Benefit class versus source problem

The analysis of Table 2 that summarize the relationships between benefit classes and source problems of ES implementation shows similar dependencies to the ones observed in the previous stage of data analysis.

Table 2 Benefit class versus source problem.

Source problem / Benefit class	Knowledge	Changes in enterprise	Finance	Enterprise structure	IT infrastructure	Data import	Legacy systems	Training schedule
Management	◑	◑	◑	○	●	●	○	○
Database	◑	◑	◑	◑	●	●	◑	○
System	○	○	○	◑	◑	◑		○
Customer service	◑	◑		○	●	○	○	
Finance	○	○	○		○		○	○
Market position		○	○	○	○			○
Employees		○	○		○	○	○	
IT infrastructure			○	○	◑			

Note: Bullets represent the level of benefit and problem occurrences reported by the respondents:
● – high (number of occurrences>8), ◑ - medium (2<number of occurrences<=8) ○–low (number of occurrences<=2).
Benefits and problems more important in a transition economy are shaded.
Source problem ordered in accordance with the importance.

In general, the analysis of Table 2 suggests that problems connected with system, database, and IT infrastructure seemed to be successfully overcome by the investigated companies. However, on the other hand, human resources-related problems seemed to be difficult to handle, which is suggested by the fact that respondents who reported problems connected with knowledge and training did not report benefits connected with employees.

Benefits and problems specific for transition economies

Problems and benefits more significant for transition economies were shaded in Tables 1 and 2. In transition economies root problems concentrate around IT-related issues (IT infrastructure, Data import) and are successfully overcome by companies revealing managerial and informational benefits. It is worth noting that IT-related problems are not only related to IT-related benefits but also to managerial benefits. Furthermore, in order to achieve informational benefits, which seem to be easy and natural to achieve as a result of ES adoption, companies in transition economies have to struggle with problems (and especially root problems) of all kinds, not just those related to systems and data. Finally, the data suggest that companies in transition economies have to significantly improve IT infrastructure in order to achieve benefits connected with customer service. The results also suggest that knowledge of employees is a certain obstacle in this case; however, the problems with IT infrastructure seem to be crucial.

The findings indicate that companies is transition economies lack the common platform and infrastructure which are necessary in order to enable new capabilities which, in turn, may generate new performance outcomes (Ross and Vitale, 2000). Taking into account this two-phase process, it appears that companies in transition economies focus on laying the foundations for further improvement and have not yet achieved the level of using ES to transform the organization, which is available for companies from developed economies.

LESSONS LEARNED

On the basis of the current study, the following implications for practitioners dealing with ES adoptions in transition economies can be drawn:

- project managers should not be discouraged by problems that occur during enterprise system implementation; they should keep in mind that dealing properly with impediments can turn them into major benefits,
- companies need to be prepared for diverse, and frequently surprising, problems during ES benefit realization; this illustrates that benefit realization requires careful management during the whole ES adoption lifecycle,
- human factor is vital in ES adoption and problems with employees are difficult to overcome – special attention should be paid to employees training and the acquisition of sufficient knowledge.

CONTRIBUTION

The main contribution of this study is that it allows the researchers and practitioners to gain an in-depth insight into the process of ES benefit realization. In doing so, this study illustrates that ES benefit realization is a difficult and multi-faceted process, during which ES adopters experience various impediments and barriers. The findings suggest that in order to achieve success in ES adoption, the benefits have to be carefully planned and managed during the adoption process.

The results show that ES adopters are able to achieve benefits from the implementation project despite numerous difficulties they experience during the adoption process. The findings illustrate that the most expected benefits from ES adoption in transition economies boil down to managerial and informational benefits. However, on the other hand, the range of experienced difficulties is much broader and includes impediments connected with people, implemented system, company's organization, and IT infrastructure.

LIMITATION AND FUTURE WORK

The main limitation of this study is connected with the fact that it is based on the research conduced in one country – Poland. In consequence, we should apply its findings and recommendations to first and foremost Polish ES practitioners. We might also generalize the findings to other countries; however, we should do this with caution. Countries that might benefit from this study include first and foremost transition economies from the Central and Eastern Europe (CEE) region, such as Czech Republic, Slovakia, Hungary and Baltic states.

Another limitation is connected with a static view of the ES implementation project adopted by this study. With this respect, the ES adoption project is treated as a "black box" with difficulties as incoming parameters and benefits playing the role of outgoing elements. Such a methodology should be supplemented by a more dynamic approach which incorporates an ES adoption lifecycle and analyses various stages of the implementation project. This, combined with field studies in several countries, might be promising avenues for future research.

CONCLUSION

On the basis of an empirical research conducted among Polish ES practitioners, the possibilities of overcoming problems during enterprise system implementation were investigated. The findings suggest that both informational benefits and IT infrastructure benefits can be achieved although companies had to deal with numerous problems with system and IT infrastructure respectively. Nonetheless, this conclusion is not valid in the case of benefits connected with employees as the findings suggest that it is difficult to overcome problems with employees and turn them into realized benefits.

The interesting conclusions can be drawn when we take into account benefits and problems more significant for transition economies. First, source problems that focus on IT-related problems can be overcome and may result in managerial and informational benefits. Second, in order to achieve informational benefits that seem to be apparent in developed economies, companies in transition economies need to overcome the whole variety of problems, not only connected straightforwardly with informational issues. Finally, companies in transition economies in the first place need to enhance their IT infrastructure in order to improve their performance outcomes.

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The Current Research Landscape of Crowdsourcing: Implications for Emerging Economies

by

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ABSTRACT

From its beginning in mid-2000s, the crowdsourcing and collective intelligence initiatives have evolved into an emerging research field. The main objective of this paper is to contribute to a better understanding of the "research landscape" of the emerging field of crowdsourcing/collective intelligence, taking the information systems (IS) perspective. Though an in-depth literature review of the eighty-three journal papers published since 2008 across many different disciplines, we seek to understand their research foci, the underling theories, research methods as well as the main research and practical contributions, as reported in these papers. Informed by our analysis and synthesis, we also identify some important research gaps and suggest possible future research related to crowdsourcing in emerging and transition economies.

Keywords:

Crowdsourcing, crowdsourcing applications, crowdsourcing platform, collective intelligence, emerging economies, innovation, literature review, problem solving, research focus, reference theories, research methods, systematic literature review, transition economies.

INTRODUCTION

New information and communication technologies (ICTs) and their world-wide proliferation across all industry sectors and society continue to create new opportunities for digital collaboration on a global scale, which was never before possible.

Consequently, the research area of cross-border digital collaboration is receiving an unprecedented attention (Romano Jr., Pick and Roztocki 2010). For example, a systematic literature review conducted by Madlberger and Roztocki (2009) identified a significant number of papers (eighty) published on this topic in recent years. Their research also confirmed a very limited research on cross-border collaboration. This is highly surprising given the global economy in which companies need to operate.

The same literature review and other related studies have confirmed that ICT-enabled collaboration has been studied for many years, by many different research communities and different context, such as digital collaboration, supply chains, e-commerce as well as collaborative business processes. While all these studies bring valuable insights, they remain focused on a single (disciplinary) perspective. Yet, complex research phenomenon of ICT-enabled global collaboration requires a truly multidisciplinary perspective and synergy rather than simple combination of isolated disciplinary insights.

Furthermore, Marjanovic and Roztocki (2013) show that the existing research focuses on collaboration across formal, normatively regulated organizations (e.g., a business-to-business (B2B) scenario) without considering involvement of individuals not formally employed by companies. Even more important for this research is their finding that the existing collaboration arrangements are implemented via systems and highly structured business processes designed to support flows/movements of goods or financial transactions rather than co-creation of knowledge.

However, in very recent times new forms of ICT-enabled digital collaboration have started to emerge that enable organizations and individuals (independent knowledge agents) to collaborate in new ways in order to co-create knowledge-artifacts, even of commercial value. Examples include a very large group of independent experts combining their knowledge and expertise to co-create a textbook (knowledge artefact) of commercial value (Walter and Back 2010). This mode of work is expected to become even more popular in the future due to many factors, including globalization, new technologies and economic situation in emerging and transition economies, as previously argued by Friedman (2005) and Tapscott and Williams (2010).

Our research presented in this paper focuses on this emerging category of ICT-enabled digital collaboration in the global context achieved through the so-called crowdsourcing. There are many definitions of crowdsourcing (Pedersen, Kocsis, Tripathi, Tarrell, Weerakoon, Tahmasbi, Xiong, Oh, Deng and deVreede 2013), but most of the authors appear to agree that crowdsourcing is a model to solve specific problems by a dynamically formed large group of people. In essence, in this model specific problems are delegated, or outsourced, to a large group of participants, or crowd, while various ICTs serve as an enabler and a facilitator of this collaboration model.

We argue that this form of ICT-enabled digital collaboration opens brand new opportunities for developing, emerging and transition economies including organizations and more importantly, individuals. Many of these economies are still in the long process of closing the economic gap to the developed, mature economies (Kowal and Roztocki 2013). Frequently for highly qualified experts in these countries participating in global crowdsourcing initiatives presents a unique opportunity for exchanging their skills for financial means.

The main objective of our work is to bring this increasingly important form of collaborative work to the attention of the already established research community interested in ICT-enabled digital collaboration in the global context. As a starting point, in this paper we offer an in-depth literature review of the crowdsourcing research landscape. Compared to other crowdsourcing literature reviews, such as the recently published papers (Estelles-Arolas and Gonzalez-Ladron-de-Guevara 2012; Hetmank 2013; Parent and Eskenazi 2011; Pedersen et al. 2013; Smith, Gharaei and Alshaikh 2013; Zhao and Zhu In Print) our research offers a very different perspective by focusing on the emerging and transition economies. In context of this paper, we define emerging economies as countries with vigorous economic growth (Roztocki and Weistroffer 2011b) while transition economies are economies that are in long-term transition process from a centrally planned economic system to a market driven system (Roztocki and Weistroffer 2008, 2011a).

Our main research contribution is an in-depth analysis of the research foci, reference theories and research methods used across a very wide range of disciplines leading to a discovery of an important research gap related to crowdsourcing research and practice in the context of transition and emerging economies. Our main objective is to suggest possible future research that is relevant for this growing sector of the global economy.

The reminder of the paper is structured as follows. In the next two sections, we introduce the foundation concepts and further motivate our research. We then present the analytical framework for our literature review. After describing the sample of the eighty-three papers used in our literature review, we discuss the results of our analysis. We conclude with summarizing our contributions and point out to several proposing future research avenues.

FOUNDATION CONCEPTS

From its humble beginning of isolated purpose-built applications, the crowdsourcing and collective intelligence initiatives have evolved into a growth industry currently employing over 2 million knowledge workers, contributing over a half a billion dollars to the digital economy (Vukovic and Bartolini 2010).

Frequently, the term “crowdsourcing,” a combination of two words “crowd” and “sourcing,” is attributed to Howe (2006). In this form it was first mentioned in Howe’s article in 2006 and defined as “the act of a company of institution taking a function once performed by employees and outsourcing it to an undefined and generally large network of people in the form of open call” (Howe 2006). Later on this definition was extended by Howe himself to involve some form of payment in order to distinguish it from community based examples of collective intelligence such as, Wikipedia and Linux, with large groups of people working together “without relying on either market signals of managerial commands” (Whitla 2009).

As the practical applications in this area continue to evolve, it is possible to observe new, broader interpretations of this term. For example, in their study of crowdsourcing innovation, Ren (2011) talk about “innovation requesters” that could be individuals or organizations and whose work is now made possible by a global 3rd multi-sided service platform or a crowsourcing system such as the well-know Mechanical Turk. Accordingly, Doan et al. (2011) “crowdsourcing system enlists a crowd of humans to help solve a problem defined by systems owners”.

Furthermore, crowdsourcing is also seen as an area of application of the so-called collective intelligence broadly defined as a group of individuals doing things collectively that seem intelligent (Malone, Laubacher and Dellarocas 2010). Thus, the MIT Center for Collective intelligence focuses on the key research question: “How can people and computers be connected so that – collectively – they act more intelligently than any individuals, groups or computers have ever done before” (MIT center). One of the key outcomes of their work is a framework for identifying building blocks (“genes”) of collective intelligence systems; the conditions under each gene is useful and possible patterns of their combinations could be used to harness the crowds effectively. These patterns are then used to express and analyze different examples of collective intelligence.

BACKGROUND AND MOTIVATION

The initial confirmation of our research direction came from an in-depth analysis of the six systematic literature review papers on crowdsourcing, recently published by different research communities, as depicted in Table 1.

Authors	Publication Type	Number of Reviewed Studies	Major Focus	Major Results
Estelles-Arolas and Gonzalez-Ladron-de-Guevara (2012)	Journal	209 documents in total: 111 conference papers 68 journal papers 14 others	Indentify a common definition of crowdsourcing	Definition of crowdsourcing
Hetmank (2013)	Conference	72 papers	Indentify definitions of crowdsourcing	Seventeen definitions of crowdsourcing were indentified and classified
Parent and Eskenazi (2011)	Conference	29 papers in total	Examine the literature on the use of crowdsourcing for speech-related tasks	Challenges in using of crowdsourcing for speech-related tasks
Pedersen et al. (2013)	Conference	75 documents in total	Establish conceptual foundation of crowdsourcing	Conceptual model of crowdsourcing Proposition of a definition of crowdsourcing
Smith et al. (2013)	Journal	12 journal articles	Examine motivational drivers for crowdsourcing	Five recommendations for entrepreneurs using crowdsourcing
Zhao and Zhu (In Print)	Journal	55 papers in total: 22 journal papers 33 conference papers	Conduct a critical examination of crowdsourcing research	Future research direction in the field of crowdsourcing

Table 1. Previous Literature Reviews on Crowdsourcing

A close examination of the systematic reviews presented in Table 1, shows that the relevance of crowdsourcing for emerging and transition economies is yet to be acknowledged, let alone undertaken by a broad multidisciplinary research community. Encouraged by this initial confirmation of the research gap we are interested in closing, we then proceeded with an independent literature review designed to further confirm it and explore its main aspects.

RESEARCH AIMS AND OBJECTIVES

Our exploratory research, conducted through an in-depth literature review across different disciplines, seeks to contribute to the existing knowledge by finding the answers to the following three research questions:

1. What are the main foci of the current crowdsourcing research?
2. What are the dominant underlying reference theories?
3. What are the most prominent research methods?

By exploring the existing research literature, we aim to develop a better understanding of the research gaps not currently explored by the crowdsourcing community and identify some opportunities for future research, especially in relation to the emerging and transition economies.

RESEARCH METHOD

Analytical Framework

The framework, used in our analysis, was originally constructed by Wiener et al. for analysis of offshoring literature (Wiener, Vogel and Amberg 2010). Even trough it was originally aimed at different domain (offshoring), the main components of this analytical framework are generic enough to be adopted for literature review in other areas and the main concepts such as “Research Focus”, “Reference Theories” and “Research Methods” still apply.

In order to determine the “Research Focus” relevant for the field of crowdsourcing/collective intelligence, we adopted the main dimensions of the “collective genome” by Malone (2010): “What” “Why”, “How”, and “Who.” Recognizing that goals could be different from the outcomes, we added one more dimension, “Outcome”, as originally proposed by Wiener et al. (2010). Since there were some discrepancies in the definitions of particular dimensions between Malone (2010) and Wiener et al. (2010), we adjusted the dimensions for the purpose of our analysis as depicted in Table 2.

Dimension	Explanations
What	Goal
Why	Incentives
How	Structure/Process
Who	Staffing
Outcome	Results

Table 2. Research Focus Dimensions

The other two components ("Reference Theories" and "Research Methods") are also adopted from Wiener et. al. (2010). Regarding the "Reference Theories" component, we examined all the papers in our sample for the main theory, framework, or model that guided the particular research. For "Research Methods" component, we used the Classification of MIS Strategies framework proposed by Alavi and Carlson (1992). This framework provides a clear guidance for classification of work into non-empirical and empirical along five subcategories: conceptual orientation, illustrative, applied concept, objects, and events/process. For good definitions about research aims, reference, theories refer to Dibbern et al., pages 13-14 (2004). Figure 1 outlines our literature analysis framework and procedure while the next section describes our literature search.

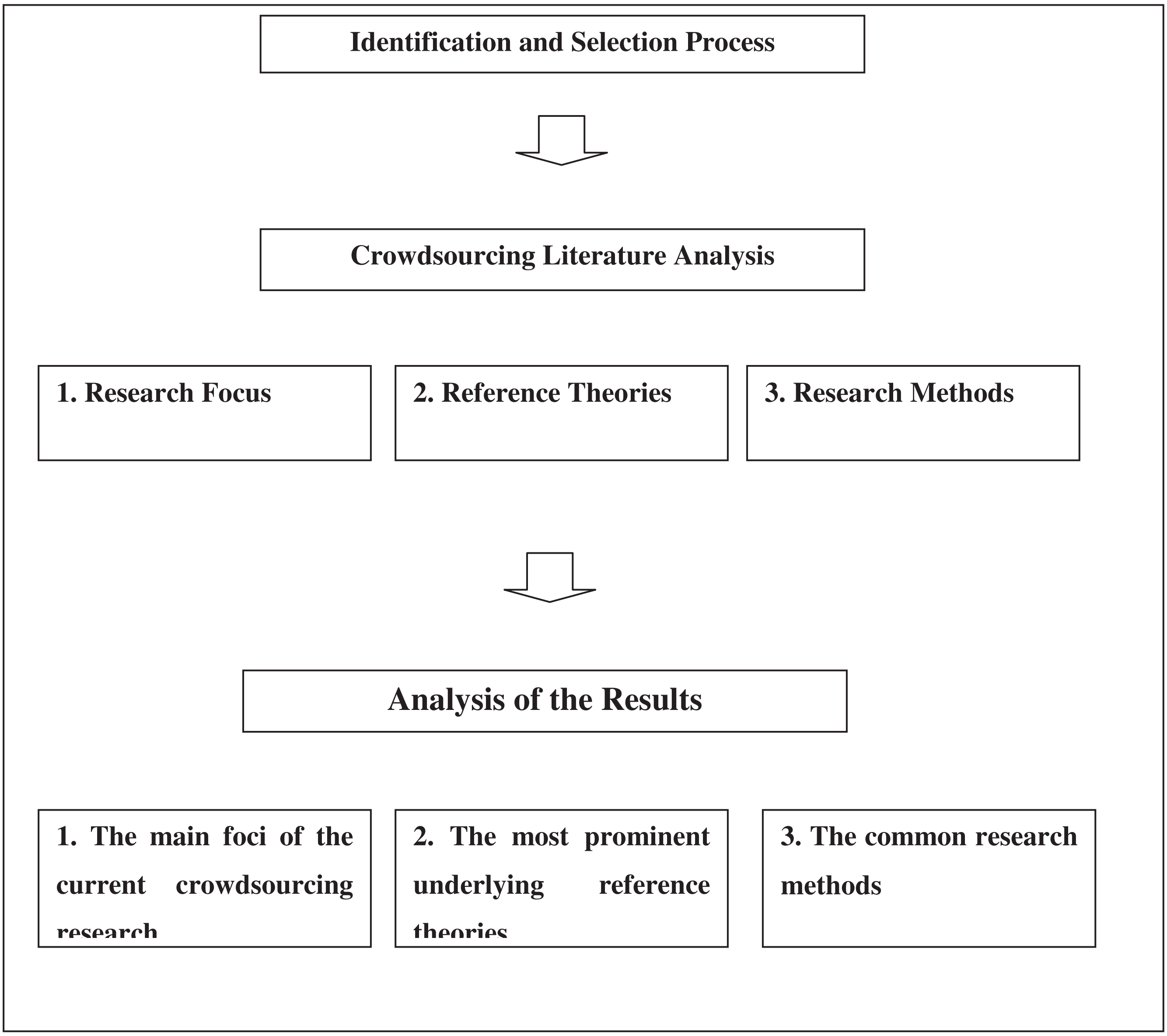

Figure 1. The Literature Analysis Framework (adapted from Wiener et al. (2010))

Identification and Selection Process

Our identification and selection procedure followed typical literature review approach (see for example (Wiener et al. 2010)) and consisted of three major steps: establishing inclusions and exclusions criteria, search process, and inclusion into the final sample.

For purpose of this research project, we decided to use the following two inclusion criteria: the paper should focus on crowdsourcing as well as be published in a journal. We decided to investigate only papers published in the journals, so our sample would be more consistent and include more mature work. Consequently, we decided not to include in our sample working papers, student thesis and conference publications.

The actual search process was conducted in Winter of 2012/2013. During the search process, we utilized different library databases and conducted key word search. Using queries, we searched for articles that had included crowdsourcing in the title, abstract or/and keywords.

After we identified potential papers, we examined their validity to our research using the previously established inclusion/exclusion criteria. After a paper was included in the final sample, we examined its reference section for other potentially relevant articles. We also examined articles that cited the articles already included in our sample. Thus, in essence, we followed the backward and forward search process as described by Webster and Watson (2002). All papers in the final sample were independently reviewed by both authors.

Sample description

Using our search methodology, we were able to identify eighty-three papers. (The list of papers with full references could be obtained from the authors upon request.) Distribution by the year of publication is depicted in Table 3 while the distribution by journal is depicted in Table 4.

Year	**Number**
2008	5
2009	11
2010	21
2011	24
2012	12
In press	10
Total	**83**

Table 3. Paper Distribution by Year

	Journal	Count
1	Academy of Management Review	1
2	ACM Transactions on Computer-Human Interaction	1
3	Advanced Engineering Informatics	1
4	Annals of Emergency Medicine	1
5	Archival Science	1
6	Bell Labs Technical Journal	1
7	Business Information Review	1
8	California Management Review	1
9	Communications of AIS	1
10	Communications of the ACM	7
11	Computers & Geosciences	1
12	Data & Knowledge Engineering	2
13	Decision Support Systems	1
14	Economics & Management	1
15	Energy Policy	1
16	Environmental Modelling & Software	2
17	European Journal of Surgical Oncology	1
18	Expert Systems with Applications	1
19	Government Information Quarterly	1
20	IEEE Communications Magazine	1
21	IEEE Internet Computing	1
22	IEEE Network	1
23	Information Processing & Management	1
24	Information Sciences	2
25	Information Systems	1
26	Information, Communication & Society	1
27	International Journal of Digital Earth	1
28	International Journal of Electronic Commerce	2
29	International Journal of Entrepreneurship & Innovation Management	1
30	International Journal of Human-Computer Studies	1
31	International Journal of Industrial Ergonomics	1
32	International Journal of Information Management	1
33	International Journal of Innovation Science	1
34	International Journal of Networking & Virtual Organisations	1
35	International Journal of Product Development	1

	Journal	Count
36	ISPRS Journal of Photogrammetry and Remote Sensing	1
37	Journal of Business Forecasting	1
38	Journal of Business Management	1
39	Journal of Information Science	2
40	Journal of Machine Learning Research	1
41	Journal of Management Information Systems	1
42	Journal of Marketing	1
43	Journal of Network and Computer Applications	1
44	Journal of the American Academy of Dermatology	1
45	Journalism Practice	1
46	Knowledge-Based Systems	1
47	Libri: International Journal of Libraries & Information Services	1
48	Long Range Planning	1
49	M@n@gement	1
50	Management Science	1
51	Mathematical and Computer Modelling	1
52	Medical Image Analysis	1
53	MIS Quarterly	1
54	Neurocomputing	1
55	Phi Delta Kappan	1
56	Planning Theory	1
57	Procedia Computer Science	1
58	Psychological Review	1
59	Public Manager	1
60	Public Relations Tactics	1
61	R&D Management	1
62	Research Technology Management	2
63	Santa Clara Computer and High - Technology Law Journal	1
64	Science & Public Policy	1
65	Social Science & Medicine	1
66	Social Science Computer Review	1
67	Spatial Statistics	1
68	Technological Forecasting and Social Change	1
69	The Journal of Strategic Information Systems	1
70	Transactions of the Royal Society of Tropical	1

	Journal	Count
	Medicine and Hygiene	
71	William Mitchell Law Review	1
	Total	**83**

Table 4. Paper Distribution by Journal

ANALYSIS OF THE RESULTS

Research Focus

The assignment of paper, according to the focus of investigation, reveals that the great majority of the papers in our sample (46 out of 83) focus on issues related to structure and process of crowdsourcing. Significantly smaller portion of papers focus on outcome (16) and goals (14). Seven papers deal with the incentives for members of the crowd. In contrast, none of the papers in our sample deals with staffing or participants in crowdsourcing. The classification of papers in depicted in Table 5.

Dimension	Explanation	Count	Paper(s)
What	Goal	14	Afuah and Tucci [2012] Albors et al. [2008] Anttiroiko and Savolainen [2011] Armstrong [2010] Bernstein et al. [2010] Doan et al. [2011] Epaminondas [2008] Gray [2009] Heipke [2010] Linders [In press] Martinez [2010] Millard [2011] Schweisfurth et al. [2011] Scott [2010]
Why	Incentives	7	Brabham [2010] Frey et al. [In press] Huberman et al. [2009] Mannes [2009] Marjanovic et al. [2012] Sun et al. [2012] Zheng et al. [2011]

Dimension	Explanation	Count	Paper(s)
How	Structure/Process	46	Agarwal et al. [2010] Agerfalk and Fitzgerald [2008] Alonso and Mizzaro [In press] Bazilian et al. [2012] Bojin et al. [2011] Bridge and Healy [2012] Brito [2008] Bucheler and Sieg [2011] Chanal and Caron-Fasan [2010] Corney et al. [2010] Dalal et al. [2011] Davis [2011] Ebner et al. [2009] Estelles-Arolas and Gonzalez-Ladron-de-Guevara [2012] Euchner [2010] Fan and Krishnamachari [2010] Feller et al. [In press] Fienen and Lowry [In press] Fitt [2011] Fraternali et al. [2011] Govindaraj et al. [2011] Gyorffy [2010] Hellerstein and Tennenhouse [2011] Hill and Ready-Campbell [2011] Hoffmann [2009] Hsieh et al. [2009] Hudson-Smith et al. [2009] Ivanov [2009] Kameda et al. [2011] Kuan-Ta et al. [2010] Lee and Chang [2010] Leimeister et al. [2009] Lutz [2011] Lykourentzou et al. [2010] McKenna et al. [In press] Muhdi et al. [2011] Muthukumaraswamy [2010] Robson and Rew [2010] Rossen and Lok [2012] Schall [In press] Skopik et al. [2010] Stieger et al. [2012] Svobodova and Koudelkova [2011]

Dimension	Explanation	Count	Paper(s)
			Vivacqua and Borges [In press] Wang et al. [2012] Zuk [2010]
Who	Staffing	0	
Outcome	Results	16	Adams [2011] Armstrong et al. [In press] Blohm et al. [2011] Brabham [2009] Busarovs [2011] Fritz et al. [2012] Goodchild and Glennon [2010] Goodchild and Li [2012] Greengard [2011] Hirth et al. [In press] Kalfatovic et al. [2008] Raykar et al. [2010] Roman [2009] Schweitzer et al. [2012] Stothard et al. [2011] Tang et al. [2011]
Total		**83**	

Table 5. Research Focus

Given the multidisciplinary nature of this field, as demonstrated by different domains publishing the crowdsourcing work, apart from work by Malone et al. (2010), our literature analysis did not show any papers that could be classified as multidisciplinary. We argue that “a big picture” view across different domains and disciplines would be very useful for knowledge sharing and reuse. Even more, a multidisciplinary approach is required to tackle complex, multi-faceted problems, where crowdsourcing and collective intelligence are especially needed.

We also envisage that a multidisciplinary perspective would enable the researchers to identify “patterns of good practices” and study their possible adoption across different disciplinary domains. In this way, it would not only be possible to “spread good ideas” but also to help organizations and groups better understand if these patterns are suitable in their contexts and for their purposes.

Our literature review also confirmed a lack of research related to critical success factors of the reported initiatives. Yet, this is very important to facilitate the envisaged knowledge sharing. Apart from studying individual examples of crowdsourcing initiatives from a multi-disciplinary perspective, studying them in their own context, we posit that this "big picture" focus is likely to create a very interesting avenue for future research as well as possibly lead to new research methodologies required to conduct such research.

Reference Theories

Since crowdsourcing is based on the assumption that parts of jobs could be delegated to an intelligent crowd, we have excluded from our analysis the "Wisdom of Crowds" idea proposed by Surowiecki (2004). Overall, after reading and analyzing all papers in the final sample (beyond simple content analysis), we were able to identify seventeen papers that used eighteen references theories as outlined in Table 6.

Paper	Theoretical Background (Reference Theory)
Agerfalk and Fitzgerald [2008]	Psychological contract theory
Bernstein et al. [2010]	Social loafing/ Knowledge sharing dilemma
Bojin et al. [2011]	Creative community typology
Brabham [2009]	Deliberative democratic model
Brabham [2010]	Uses and gratification theories
Chanal and Caron-Fasan [2010]	Collective action model
Dalal et al. [2011]	Condorcent's jury theorem
Ebner et al. [2009]	Stage model of innovation.
Frey et al. [In press]	Expectancy theory
Ivanov [2009]	Decision theory
Kameda et al. [2011]	Game theory model
Leimeister et al. [2009]	Motivation theory
Martinez [2010]	Howard Gardner's hypothesis
Raykar et al. [2010]	Item-response theory
Schweisfurth et al. [2011]	Theory of innovation
Skopik et al. [2010]	Fuzzy set theory
Zheng et al. [2011]	Intrinsic motivation theory and job design theory

Table 6. Reference Theories

In order, to compare the reference theories identified in our paper sample, as depicted in Table 5, with the theories listed on the "Theories Used in IS Research Wiki," we used a website that was established as an ongoing project of the Information Systems Ph.D Preparation Program of the Marriott School of Management of Brigham Young University (http://istheory.byu.edu/wiki/Main_Page).

Only one reference theory identified in our sample: game theory is used widely in the IS field. In contrast, seventeen other theories are hardly used in the IS research field. This may, to some extent be explained by the fact that many of the papers in our sample were published outside the traditional IS publication outlets (See Table 4). It is also quite possible that many IS researchers are not familiar with theories that are able to explain a complex phenomenon of crowdsourcing. Indeed, most papers in our sample (66 of 83) did not make any attempt to use a theory.

Moreover, we were not able to identify any paper that systematically tried to build a theory. This again may indicate that the field of outsourcing is lead by practitioners while academic research still lags behind.

Research Methods

The analysis of research methods, using the classification framework proposed by Alavi and Carlson (1992), reveals that most papers in our sample were empirical. Case studies were the most common approach in the empirical studies. In the sub-sample of non-empirical studies, illustrative papers dominated. Table 7 depicts the results of our examination.

Empirical		**Paper(s)**
Secondary data	8	Adams [2011] Bernstein et al. [2010] Estelles-Arolas and Gonzalez-Ladron-de-Guevara [2012] Hill and Ready-Campbell [2011] Huberman et al. [2009] Linders [In press] McKenna et al. [In press] Schweisfurth et al. [2011]
Case study	20	Agerfalk and Fitzgerald [2008] Bojin et al. [2011] Chanal and Caron-Fasan [2010] Corney et al. [2010] Feller et al. [In press] Fienen and Lowry [In press] Fritz et al. [2012] Goodchild and Glennon [2010] Goodchild and Li [2012] Heipke [2010] Hellerstein and Tennenhouse [2011] Hirth et al. [In press]

Empirical		Paper(s)
		Hudson-Smith et al. [2009] Kalfatovic et al. [2008] Leimeister et al. [2009] Lykourentzou et al. [2010] Marjanovic et al. [2012] Muhdi et al. [2011] Muthukumaraswamy [2010] Vivacqua and Borges [In press]
Experiment	4	Agarwal et al. [2010] Alonso and Mizzaro [In press] Bridge and Healy [2012] Schweitzer et al. [2012]
Field study	1	Blohm et al. [2011]
Survey	4	Ebner et al. [2009] Frey et al. [In press] Sun et al. [2012] Zheng et al. [2011]
Field experiment	4	Armstrong et al. [In press] Mannes [2009] Stieger et al. [2012] Stothard et al. [2011]
Interviews	1	Brabham [2010]
Subtotal empirical	**42**	
Non-empirical		
Conceptual Orientation	15	Afuah and Tucci [2012] Albors et al. [2008] Armstrong [2010] Busarovs [2011] Doan et al. [2011] Fan and Krishnamachari [2010] Fitt [2011] Fraternali et al. [2011] Gray [2009] Gyorffy [2010] Kameda et al. [2011] Raykar et al. [2010] Schall [In press] Skopik et al. [2010] Wang et al. [2012]
Illustrative	19	Anttiroiko and Savolainen [2011] Bazilian et al. [2012] Bucheler and Sieg [2011]

Empirical		**Paper(s)**
		Dalal et al. [2011] Davis [2011] Epaminondas [2008] Euchner [2010] Govindaraj et al. [2011] Greengard [2011] Hoffmann [2009] Lutz [2011] Martinez [2010] Millard [2011] Roman [2009] Rossen and Lok [2012] Scott [2010] Svobodova and Koudelkova [2011] Tang et al. [2011] Zuk [2010]
Applied Concepts	7	Brabham [2009] Brito [2008] Hsieh et al. [2009] Ivanov [2009] Kuan-Ta et al. [2010] Lee and Chang [2010] Robson and Rew [2010]
Subtotal non- empirical	**41**	
Total	**83**	

Table 7. Research Methods

As depicted in Table 7, the most common research method in empirical papers is the use of case studies. Contrary, surveys and interviews, data collection methods frequently used in IS research, are used in only four papers. This may again indicate the early stage of academic research in this field.

However, our most important observation is related to the absence of Design Research (DR) and Action Research (AR) methods.

DR is an applied research method that relies upon an application of rigorous methods in the construction and evaluation of a design artifact, aiming to contribute both to the theory and practice (Hevner, March, Park and Ram 2004). Possible contributions include the *foundation concepts* (such as new theories, frameworks, instruments, models and methods) and *methodologies* (such as data analysis techniques, formalisms, measures and validation criteria) and systems (such as IT applications). In the related work, March and Smith (1995) identify four possible design outputs (artifacts): constructs, models, methods and instantiation.

AR uses an intervention into a problematic situation as a means to develop scientific knowledge. AR is fundamentally "a change-oriented approach in which the central assumption is that complex social processes can be best studied by introducing change into these processes and observing the effects" (Baskerville and Wood-Harper 1998). AR links theory and practice in a highly cyclic process where "the main intention is to create a synthesis with specific knowledge that provides actors in the situation, with the capability to act and the general knowledge that is suitable for similar situations (Baskerville and Wood-Harper 1998). In general, an action research cycle consists of the following generic steps: diagnosing, action planning, action taking and specific learning.

Therefore, both DR and AR research methods could help the researchers add to the existing theory while solving practical problems, and thus making a research-based contribution to their practice. They both have a potential to increase the relevance of IS research while providing a rigorous method to guide and inform researchers/practitioners. We argue the emerging area of crowdourcing calls for DR and AR research, enabling IS researchers to design new solutions, and at the same time, contribute to the emerging body of knowledge. However, our research shows that this has yet to be achieved.

FURTHER OPPORTUNITIES FOR RESEARCH

Our research confirms a rapid expansion of the crowdsourcing research with the research papers started to be published by journals in 2008. Number of published papers doubled in three years (2008-2010), reaching over 20 papers per year. Therefore, the area of crowdsourcing research is less than 10 years old.

Furthermore, it is an area led by practice. As shown, it took academic researchers two years to "catch-up" with this new phenomenon with the 'crowdsourcing" mentioned by Howe in 2006 and the first academic papers published in 2008).

It is also possible to observe a wide distribution of the 83 papers over 71 journals, with the exception of the *Communications of the ACM* that published seven papers. This shows that the crowdsourcing research field is still largely segmented and spread across disciplines.

We also observed important opportunities to expand the current crowdsourcing research, taking into account what is already known by the research community interested in ICT-enabled global collaboration.

Most importantly, we were able to confirm a research gap related to crowdsourcing research and practice in the context of emerging and transition. Based on the prior research such as (Roztocki and Weistroffer 2009) we argue that this particular research context (transition and emerging economies) is highly suitable for the future applications of crowdsourcing due to several reasons. For example, in many of these economies there is a large number of knowledge workers who choose not to work for a company but prefer to keep freelancer status. One explanation for this trend is that many, especially highly educated top-notch experts, are dissatisfied with the compensation level and promotion opportunities. In addition, many companies in emerging and transition economies hesitate to hire new permanent employees due to the resource and other constraints, so we envisage new opportunities where the needed work could be conducted through more flexible crowdsourcing involving freelancers. It would be also interesting to investigate how crowdsourcing may result in crowdfounding, where members of the crowd by providing small financial contributions create solid financial base for their activities – this could be one of many possible forms of the future crowd-entrepreneurship. These are just some of many interesting research and practical scenarios that will continue to emerge for many years to come, thanks to global innovation efforts as well as now widely available crowdsourcing platforms, making these new forms of ICT-enabled collaboration possible and within the reach of anyone with a reliable Internet access.

CONCLUSIONS AND FUTURE RESEARCH

In spite of the growing number of papers on crowdsourcing and collective intelligence, published in very recent time, this is still an emerging research area. Research efforts and contributions so far, are very much isolated within disciplinary boundaries. Yet, "The real world does not always present its problems and opportunities conveniently aligned with traditional academic disciplines so mechanisms are needed to facilitate interactions and collaborations between researchers working in widely different field" (Bammer 2012).

Our research confirms an existing research gap related to crowdsourcing in emerging and transition economies and envisages this to be an important new research direction possibly informing new practices.

"There is now a historic opportunity to marshal human skill, ingenuity, and intelligence on a mass scale to reevaluate and reposition many of our institutions for the coming decades and for future generation" (Tapscott and Williams 2010). Based on the research presented in this paper, we argue that this opportunity should be extended to the emerging and transition economies.

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ICT competence management vs. knowledge-based economy and traditional economy in Poland - research results

by

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1. ABSTRACT

The paper presents results of questionnaire research held in 2010/2011 among 339 enterprises located in Poland in Lower Silesia.

Purpose – The purpose of the study was to identify the existing relations between information and communication technology (ICT) competences of management staff and knowledge-based economy.

Design/methodology/approach – In order to verify the discussed hypotheses a quantitative-qualitative research was held, applying the questionnaire method. The strength of the relationship was assessed according to the tetrachoric correlation theory, while the trend was verified in the contingency table by the Cochran-Armitage test.

Findings – A significant effect of ICT competence of management staff on development of knowledge-based economy in Poland was identified.

Research limitations/implications – Extension of conclusions drawn from the research on the entire population is not grounded considering the selection, structure and size of the research sample, but the fact does not reduce the value of the findings, as this area is hardly analysed in Poland.

Practical implications – The research results will allow for increasing attention paid to ICT competence of management staff and thus for a faster development of the knowledge-based economy in Poland.

Originality/value – The study identified a significant correlation between ICT competences of management staff and knowledge-based economy.

Paper type: Research paper

Keywords: competences, ICT, management staff, knowledge-based economy, emerging economies

2. INTRODUCTION

The Polish economy is one of the emerging economies. Their share in the global production as measured by market currency exchange rates has risen from below 20% in the early 1990s to above 30% now. At the same time, their participation in the GDB according to the purchasing power parity is over 45% now. According to the World Economic Outlook report developed by the IMF in 2013 this share is going to exceed 50%[1]. However, data published by HSBC and Markit Economics shows that the Emerging Markets Index (EMI) estimated based on PMI data of 16 developing economies (including Poland) was 49.4 in July 2013 (compared to 50.6 in June)[2]. This shows deterioration of economic situation in these countries. This concerns also Poland, whose PMI in July 2013 grew to 51.1 points from 49.3 points in June. The Polish economy is now transforming to a knowledge-based economy. Only such an economy may nowadays ensure high competitiveness and economic growth by intensive use of knowledge, ICT, innovations and human capital. Information and communication technologies are a specific stimulator for the knowledge-based economy. Using ICT technologies, enterprises and their employees may deliver products and services at a global market for customers worldwide. Unfortunately, statistic data, analyses and research by many authors show that the Polish economy cannot be described as a knowledge-based economy yet[3]. There are certainly a few causes of this situation. An important one is the great discrepancy between Poland and highly-developed countries, especially in the area of information and communication technology (ICT) skills. Basically, change is necessary at enterprises. The process does not proceed fast enough, as evidenced by indicators in many evaluation reports concerning implementation of strategic plans for the Polish economy. Certainly, an important role is to be played by management staff. Transformation related to the knowledge-based economy defines new competence requirements, mainly in the domain of ICT. These considerations evolved to the main purpose of the article which lied in defining and analysis of the existing relations between management staff's ICT competence and knowledge-based economy.

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[1] World Economic Outlook (WEO), http://www.imf.org/external/pubs/ft/weo/2013/01/index.htm
[2] It's assumed that 50 points are the borderline between development and fall zones.
[3] (Kukliński, 2007; Kupczyk & Kubicka, 2010; Browne & Geiger, 2010; Cisco, 2010; OECD, 2011; Education at a Glance, 2012, Knowledge Economy Index, 2012; Dutta & Bilbao-Osorio, 2012; Szczucka & Turek & Worek, 2012; Górniak, 2013; Hollanders & Es-Sadki, 2013)

The empirical research was meant to verify the analysed hypotheses of existence of such relations and of higher ICT competence of management staff in the knowledge-based economy as compared to management staff in the traditional economy. The study was one of the stages of implementation of the project entitled "Support of development and adaptation in Lower Silesia" funded by the European Social Fund and national public contribution within the Human Capital 2007-2013 Human Capital Operational Programme (Funding Contract No. UDA-POKL.08.01.02-02-065/08-00). Presentation of the results will be preceded by terminology considerations and assessment of the Polish economy in the context of the knowledge-based economy.

3. KNOWLEDGE-BASED ECONOMY AND ICT COMPETENCE – TERMINOLOGY CONSIDERATIONS

Despite many years and many publications, the term of the knowledge-based economy still has no clear definition and understanding. There is chaos in terminology and inconsistent methodology. It is especially problematic with relation to representatives of enterprises who find it difficult to determine whether their organisations are already the knowledge-based economy. Consequently, they treat this term rather symbolically, focusing on growing intensity of application of knowledge. A review of literature has allowed for a comparison of a few most common definitions. The OECD has suggested the following definition: «A knowledge-based economy is an economy where the role of knowledge as compared with natural resources, physical capital and low skill labour has taken on greater importance» (OECD, 1996). Powell and Snellman define the knowledge economy «as production and services based on knowledge-intensive activities that contribute to an accelerated pace of technological and scientific advance as well as equally rapid obsolescence. The key components of a knowledge economy include a greater reliance on intellectual capabilities than on physical inputs or natural resources, combined with efforts to integrate improvements in every stage of the produciton process, from the R&D lab to the factory floor to the interface with customers. These changes are reflected in the increasing relative share of the gross domestic product that is attributable to "intangible" capital» (Powell & Snellman, 2004, p. 201). The European Union defines this economy as a commercial adaptation of new technologies, ideas or methods used to introduce new products or improve previous ones (Simme et al., 2002). In the knowledge-based economies there are knowledge communities, which are networks of individuals involved in the production, reproduction and circulation of knowledge through an intensive use of ITCs that strongly reduce cost of transmitting and sharing knowledge (David & Foray, 2003). It is also construed as an economy where the share of labour which applies knowledge intensively is high, the share of information sectors in the economy is its determining factor and the share of intangible assets exceeds tangible assets in the total real capital (Foray, 2004, p. 9). "Firms bring together powerful computers and well-educated minds to create wealth (Brinkley, 2006, p. 3). It is technologically advanced, it has significant technologies and resources and it is characterised by a high level of human capital, research and development expenses and international competitiveness (Puślecki, 2008). Knowledge is the main factor of its productivity, competitive advantage and economic growth (Rakowska & Sitko-Lutek, 2000). It is supplied by innovation, technology and talent (Northern Ireland Knowledge Economy Index 2011, p. 9).

Analysis of those opinions confirms that the knowledge-based economy still has not developed an unequivocal and widely accepted definition. In the author's opinion to make this term more understandable and more easily implemented at any enterprise it is necessary to determine such economy's competitive advantage more precisely. This is why she believes that the knowledge-based economy is an economy which builds its competitive advantage through intensive application of knowledge, innovation, information and communication technologies, human capital and its development. This is the definition of the knowledge-based economy that was used in the research presented in this paper.

Considering the fact that ICT competences have become the main object of the presented research, it is necessary to determine their definition. In the most general interpretation ICT competences concern skills to use computers to acquire, assess, store, create, present and share information and to communicate and participate in cooperation networks by internet (cf. Recommendation of the European Parliament and of the Council of 18 December 2006 on key competences for lifelong learning (2006/962/EC)). According to Springer, information and communication competences, termed in publication also as e-competences are defined as an outcome of knowledge combined with expertise and positive attitude to information technologies shown in abilities to use computers and internet to achieve the company's goals. Thus, the e-competences are the employee's potential focused on application information and communication technologies in the professional life (Springer, 2009, p. 66). The international committee for ICT competences resolved that they consist in application of digital technology, communication tools and / or the web to gain access, manage, integrate, evaluate and create information in order to function a knowledge-based society. Access here signifies knowledge on information and knowledge on how to collect and / or retrieve data. Management is application of the existing organisation or classification system. Integration means interpretation and presentation of data and it includes also summing up, comparisons and listings. Evaluation consists in assessment of quality, usability or efficiency of information and creation is generating information by adaptation, application, designing, invention or creation of information (Transformacja cyfrowa… 2001, p. 7).

From the perspective of goals of the present paper ICT competence of management staff will be defined as an ability to use modern information and communication technology in economic operations, including, information retrieval (internet, e-libraries, data warehouses), e-commerce, distance employment, distance learning, management support including operational processes and decision making, teamwork and communication.

4. KNOWLEDGE-BASED ECONOMY AND ICT TECHNOLOGIES IN POLAND COMPARED TO EMERGING ECONOMIES

According to international comparative and statistical data, the Polish economy cannot be classified as a knowledge-based economy yet. In the "Knowledge Economy Index" 2012 (KEI) by the World Bank, Poland ranked 38th out of 146 countries. The highest score was achieved by Sweden, Finland and Denmark. Poland ranked also below Germany (8) and the USA (12). There was also a clear distance between Poland and emerging economies. China/Taiwan rated 13th, Czech Republic: 26, Hungary: 27, South Korea: 29 (Knowledge Economy Index 2012)[4]. The distance between Poland and the European Union in the knowledge-based economy is visible also in analyses of data concerning "knowledge-consuming" sectors. For instance, the share of these sectors' employment in the general employment in industry and services is 8.87% in Poland and 13.03% in the EU (Innovation … 2011). Similar discrepancies are noted in other indicators. The share of knowledge-consuming service sectors in the general Polish export is 30% and in the EU – 49%, while foreign revenues of licences and patents in the GDB compose: in Poland 0.02%; EU 0,21% (Polska 2011 Raport o stanie gospodarki … 2011, p. 64). There are a few reasons contributing to this situation. Among the main ones there's the fact that the Poles invest too little in knowledge and participate in education, especially lifelong learning, to an insufficient extent. By the

[4] KAM 2012 (www.worldbank.org/kam). KAM methodology and KEI, KI indicators (2012) are described at: http://info.worldbank.org/etools/kam2/KAM_page5.asp

"knowledge" indicator Poland is ranked 37th and for "education and human resources" – 24th. This is not a very bad result, especially in relation to the growth of number of persons aged 15–64 who hold university diploma (Education at a Glance, 2013). This result may be even referred to as impressive. However, the situation in lifelong learning is very bad. The percentage of persons aged 25-64 years who participated in organised lifelong learning programmes within last 4 weeks before the study (2011) was below 5%, while the EU's number was 9.7% (Eurostat). The planned level of participation in lifelong learning in Poland is 10% by 2015, but considering the previous slow progress in this area, reduced funding from the European Union and state budget for training and postgraduate studies, as well as barriers experienced by persons who want to develop (Kupczyk, 2006, 2010; Kupczyk, Cierniak-Emerych, 2011), it seems quite improbable. Also the study "Bilans Kapitału Ludzkiego 2013" shows that within the previous 12 months a total of 36% of Poles aged 18–59/64 developed their education in any way. 20% of Poles participated in any courses, training, workshops, readings, seminars, conferences, internships, professional practices or postgraduate studies.

The knowledge-based economy requires innovativeness. In the international comparative analyses, innovativeness of the Polish economy doesn't look well. In the global innovativeness rating Global Innovation Index 2013[5] Poland ranked 49th with the score of 40.1. The first three places were taken by Switzerland, Sweden and Great Britain. Germany was the 15th in the rating, Czech Republic – the 28th and Slovakia – the 36th. Even Bulgaria and Romania ranked before Poland. Among the developing economies, China had the best result (35th place) before the Republic of South Africa (58), Russia (62) and Brazil (64). Currently, only a small portion of enterprises in Poland is classified as innovative. Additionally, a worrisome conclusion of the Innovation Union Scoreboard 2012 report shows stagnation in R&D expenses of enterprises. Experts stress that in a longer term the technological gap between Poland and the leaders will bring reduction of competitiveness of the Polish economy. The previous year brought virtually no improvement of the situation. According to the latest edition of the Innovation Union Scoreboard of 2013 report Poland was promoted from the group of catching up countries to the moderate innovators, but it was classified as last but one behind the Czech Republic, Portugal, Norway, Spain, Greece, Italy, Malta, Slovakia and Hungary.

[5] Global Innovation Index 2013 was developed in cooperation of the Cornwall University, INSEAD business school and the World Intellectual Property Organization.
http://strat-staging.com/content.aspx?page=data-analysis

Application of modern ICT in Poland looks a little better, but still not good enough. By KAM methodology which defines the level of implementation of the knowledge-based economy model in the "information and communication" area Poland rated the 49th with the score of 6.7. World leaders are Sweden, Luxembourg and Great Britain. Germany (8) and Austria (11) are ranked high, as well. Many emerging economies were rated higher than Poland, e.g. China/Taiwan – 9th, Czech Republic: 31st , Hungary: 43rd, South Korea: 29th. Thailand was ranked at the 65th position ["Knowledge Economy Index" 2012, The World Bank, 2012][6]. According to the Global Information Technology Report 2012 which shows network advancement of economies considering application of information technology and innovations (The Networked Readiness Index 2012) Poland is the 49th out of 142 countries with the score of 4.16 (Dutta, Bilbao-Osorio 2012). The score for application of ICT in business is only 3.6, making Poland the 58th out of 142 countries. The level of absorption of technologies in enterprises is not high. With the score of 4.3 Poland was classified on the 100th position out of 142 counties. Staff training looks a little better (score of 4.1; 55th place) in ICT skills Poland has the 41st position among 142 countries with the score of 5.4 (Dutta, Bilbao-Osorio, 2012). According to the data of the Central Statistical Office in 2012 in Poland only 13.5% of enterprises used ERP software to spread information among different functions of the enterprise (e.g. accounting, marketing, production). Companies which applied e-sales via website or EDI messages comprised only 10.9% and those which used CRM software to manage information about customers – 16.7% (GUS). According to Eurostat studies, it can be concluded that only 17% of Polish enterprises use electronic information sharing concerning management of supply chains. The European average is 28% of enterprises while the results of the leaders (Norway, Austria) are about 50% (Giannakouris, Smihily, 2010). Among the perceived reasons of this situation there is the lack of legal regulations concerning ICT and insufficient commitment of the central public administration in developing IT, as shown by the indicator of actual application of information and communication technologies by the public administration (3.4, 99th place). These pessimistic results bring a conclusion that underinvestment in the ICT sector and its insufficient application may eventually be reflected in the growing development gap between Poland and technologically advanced countries (Dutta & Bilbao-Osorio, 2012). Low degree of application

[6] KAM 2012, http://info.worldbank.org/etools/kam2/KAM_page5.asp?tid=0&year=2002&sortby=II&sortorder=DESC&weighted=Y&cid1=s

of ICT technologies in the economy is the main barrier of its development as it hampers collection, processing and especially fast and practical use of information and knowledge.

Analysis of the above data allows for a basic conclusion that the Polish economy cannot be referred to as the knowledge-based economy yet. The distance between Poland and other states in the European Union and in the world concerning knowledge, education and human resources, innovation and ICT shows that Poland is only in the early phase of the process, even though the general direction of the actions is correct.

5. CORRELATION BETWEEN MANAGEMENT STAFF'S ICT SKILLS AND DEVELOPMENT OF THE KNOWLEDGE-BASED ECONOMY

Authors agree that ICT skills have nowadays become essential and they have positive effect on competitiveness and success of enterprises and economies, including emerging economies (Rostowski, 2003; Heiskanen & Hyvönen, 2006; Economist Intelligence Unit, 2008; Penc, 2011, s. 319; Wang & Haggerty, 2011; Michalak, 2012; Kupczyk, 2013). It is worth noting that the importance of these skills in management staff has a great influence on employees' skills in this area, as confirmed by the study by N. Haggerty and Y. Wang of Ontario University which showed that it is managers' involvement in development of employees' digital competences is necessary. The authors include the following skills in this category: (1) virtual social competencies, i.e. skills connected to shaping relationships online; (2) competencies to use social media tools and (3) virtual efficiency which results from self-confidence. In their opinion, it is especially important to develop such skills as: communication using text as the main information carrier, seeking information in various media, independent finding new functionalities of online tools and tolerance to constant availability online. The more the company is committed to online cooperation, flexible employment, use of mobile devices in communication, the more stress should be put on diagnosing the level of virtual competencies of employees, their training and development (Wang& Haggerty, 2009). There is the concept of evolution from *e-learning* to *we-learning* (Bersin, 2009; Gajewski, 2009, s. 56), which – contrary to traditional, passive teaching methods – stresses creating content by users, its modification by other participants and resources sharing (Chrzanowska, 2011, s. 20). Thus, experience sharing, dialogue and drawing interesting conclusions become possible (Pindelski, 2010, p. 79). The most popular tools of this type include: Wiki mechanisms, blogs, file sharing services (podcasting, vidcasting, video sharing, photo sharing etc.), social media (Dąbrowski, 2008, s. 37-44).

Therefore, management staff should follow developments of ICT technologies, promote their use in organisation and show the resulting benefits. In the Polish environment, however, there are not sufficient studies to confirm correlations between ICT skills of management staff and development of the knowledge-based economy. The organised research in this area concerns mainly the traditional economy. This is certainly caused by the fact that the Polish economy cannot be classified as an entirely knowledge-based so far.

6. PURPOSE OF THE RESEARCH, RESEARCH PROBLEMS, HYPOTHESES

The purpose of the empirical research was to identify existing relations between management staff's competences in information and communication technologies (ICT) and the knowledge-based economy as seen by representatives of Lower Silesian enterprises. Another goal was to formulate recommendations concerning modification and improvement of ICT competences of management staff to eliminate deficiencies and improve efficiency in the knowledge-based economy. The empirical exploration was aimed at finding answers to the posed study problems defined as the following questions:

P1. Are ICT competences a strength of management staff of enterprises which create the knowledge-based economy? Is their ICT competences level significantly higher than in the case of management staff in the traditional economy?

P2. Is there interdependency between ICT competences of management staff and the knowledge-based economy and if yes, what are they?

In the preparation phase of the empirical research the following operational hypotheses were applied:

H1. The knowledge-based economy requires management staff whose competences allow for intensive application of information and communication technologies at the enterprise.

H 2. There are certain correlations between ICT competences of management staff and the knowledge-based economy.

7. METHODS

In order to verify the hypotheses a quantitative-qualitative research with a questionnaire was held. The questionnaire was developed specifically for the presented research and it was checked in a pilot study. It contained two parts and demographical data. The first part included questions meant to determine whether the respondent's employer enterprise has already become involved in the knowledge-based economy or whether it belongs to the traditional economy (indicating a definition of the knowledge-based economy). The answer was based on the respondent's assessment / opinion. The second part concerned the respondents' opinion about skills which they find relevant for management in the knowledge-based economy[7] and whether these skills are the respondents' strength[8]. The questionnaire was prepared so that the respondents could select key competences from a suggested list or include their own propositions. Among the competences indicated, there were ICT skills defined as an ability to use modern information and communication techniques and technology in economic operations, including: acquisition of information (internet, e-libraries, data warehouses), e-commerce, distance working, distance learning, management operational processes and decision-making support, teamwork and communication. The article shows and analyses only the part of results that was related to ICT skills, because they are the main object of the study. ICT competences of management staff were evaluated by self-assessment. Selection of this method was justified mainly by a possibility to complete the research within the short term provided for the EU-funded project. On the other hand, management staff is not willing to accept tests or observation. However, if one considers self-description research by a strictly quantitative approach, there have been many more of them than studies based on assessment by an observer. Usefulness of self-assessment in the process of competence assessment was stressed by many authors (McCrae & Costa, 1999, 2005 p. 59, 2008). This is also the opinion of P. F. Drucker who argued that employees are capable of recognising their own strengths and they should do it (Drucker 1999, p. 173). Of course, reliability and diligence of the provided answers has to be considered, too. The author assumed that there is a lesser risk of lack of motivation to answer carefully, because the respondents were not anonymous and they were aware that their statements would be analysed. However, in some cases there could have appeared the respondents' more or less conscious intention to present themselves or their enterprises in a more favourable way. On the other hand, however, it should be noted that the Polish management staff has a tendency to underestimate their strengths (Użycki, 2009) as compared to other nationalities, e.g. American management staff. Despite these limitations, self-assessment seems to be a valuable and reliable source of information. Quota selection was applied chosen not only considering the goal of research,

[7] particular skills were assessed as follows: 1 - irrelevant, 2 - small significance, 3 - medium, 4 - significant, 5 - very important
[8] strengths were assessed from 1 (poor) to 5 (very strong)

but above all considering research possibilities. In the quota selection criteria are defined which significantly differentiate the population with regard to the object of research (Lohr 1999; Rao, 2000). This approach was applied also because the study sample reflected the structure of the population with respect to the selected features and then individuals within a group (class) are characterised by stronger homogeneity. Targeted selection was achieved with reduced number of analysed case and minimisation of differences between them to expose and identify the studied phenomena or processes (Hammersley & Atkinson, 2000; Frankfort- Nachmias & Nachmias, 2001, p. 198-199; Kotler et al., 2002, p. 376; Kotler, 2005, p. 136-137). Thus, the study population was divided into groups by predefined criteria and classification into the groups was targeted. The actual distribution in the general population (according to official statistical data was used to determine percentage of the particular group. The only exemption of this principle concerned division between respondents representing the knowledge-based economy and traditional economy. In this case, these groups were equal. Therefore, the research was idiographic, i.e. the conclusions drawn concern only the studied population. Data was developed with statistic data analysis methods. As the variable had more than two possible values (1-5), it was categorised and the analysis included only the answers of 4 or 5, i.e. the answers of those respondents who found ICT competences relevant (4) or very relevant (5) for the knowledge-based economy and declared that they are strong (4) or very strong (5) in this domain. In the other cases zero was considered. Trend analysis in the contingence table was done with Cochran-Armitage test (Agresti, 2002; Liu et al., 2005), while the strength of relationship between ICT competences and the knowledge-based economy was verified with the concept of tetrachoric correlation (Olsson, 1979; Harris, 2006).

8. DESCRIPTION OF THE SAMPLE GROUP

The study sample consisted of 427 representatives of management staff of 339 enterprises, including 22 big, 100 medium and small enterprises, as well as 89 micro-enterprises. Men composed 57% of the respondents and women – 43%. The age of the respondents ranged mainly between 30 and 49 years (62.8%). There were 22.9% of persons aged 20-29 and the smallest group was that of persons aged 50-65 years (14.3%).

A vast majority of managers interviewed had university education (75.3%). The biggest group was medium management (61%), meaning such posts as president of the management board, president of the supervisory board, member management board, member of the supervisory board, director, deputy director, owner, co-owner. Top management staff included also owners and co-owners of enterprises (39.5%). The lowest level management (39%) included persons employed as managers, foremen. All studied enterprises were based in Poland in Lower Silesia, 21% had foreign share capital. Some of the companies (20%) were ranked at ratings of best enterprises. According to the management staff's declarations, 50% of them were already involved in the knowledge-based economy.

9. ICT COMPETENCE OF MANAGEMENT STAFF. KNOWLEDGE-BASED ECONOMY VS. TRADITIONAL ECONOMY

In order to verify the H2 hypothesis of a significant relationship between ICT competences of management staff and the knowledge-based economy, an empirical study was held including management staff of enterprises which form the knowledge-based economy and traditional enterprises[9]. Competences held by these two groups were confronted and an attempt was taken to determine their relationship to the knowledge-based economy. An important issue for the research goal was the question: if ICT competences of a management staff member or his or her strong skill, does the probability that he/she represents a company that is involved in the knowledge-based economy grow? The Cochran-Armitage test was used to verify this hypothesis. The results revealed a tendency (trend) proving that if the respondent's strength is ICT competences, then the probability that this person is management staff of a knowledge-based economy enterprise grew four times (table 1). These results bring a conclusion that ICT competences are key to management and they are reflected in development of the knowledge-based economy.

Table. 1. Statistically significant relationships between ICT competences as a strength of the management staff and the knowledge-based economy, based on results of the Cochran-Armitage test (respondents of enterprises of the knowledge-based economy vs. traditional economy).

Competences of management staff which are their strong or very strong skill	Cochran-Armitage statistics	p-value[10]

[9] Traditional economy is defined in this research as this part of the contemporary economy which doesn't meet the criteria of the knowledge-based economy.

[10] If the test significance (0.1 was assumed) is greater than or equal to p-value, the null hypothesis is rejected

ICT competences	4.30	0.00

Source: original calculation based on study results

Relevance of ICT skills as seen by the management staff was analysed, too. Test results have shown that there is a tendency (trend) that if a respondent finds ICT competences relevant or very relevant, then the probability that this person is in management staff of a knowledge-based economy enterprise grows three times (table 2).

Table. 2. Statistically significant relationships between relevance of ICT competences as seen by the management staff and the knowledge-based economy, based on results of the Cochran-Armitage test (respondents of enterprises of the knowledge-based economy vs. traditional economy).

Competences – regarded by the management staff as relevant or very relevant	Cochran-Armitage statistics	*p*-value
ICT competences	3.11	0.00

Source: original calculation based on study results

Therefore, it seems grounded to conclude that management staff of knowledge-based economy enterprises not only holds broader ICT competences, but also finds them more relevant than in the case of traditional economy.

From the perspective of the analysed H2 hypothesis it was essential to identify correlations between ICT competences of management staff and the knowledge-based economy. Also, a statistically significant relationship was found indicating that the broader ICT competences of management staff, the more frequently the managed enterprises form the knowledge-based economy (table 3).

Table 3. Relationships (statistically significant) between ICT competences of the management staff and the knowledge-based economy (respondents of enterprises of the knowledge-based economy vs. traditional economy).

Competences of management staff which are their strong or very strong skill	Tetrachoric correlations	Error	Left end point of the confidence interval	Right end point of the confidence interval
ICT competences	0.25	0.08	0.13	0.38

Source: original calculation based on study results

In this case, too, a significant correlation was found by statistically significant tetrachoric correlations analysis. They allow for defining a conclusion that the higher relevance of ICT competences perceived by management staff, the more strongly enterprises they manage are involved in the knowledge-based economy (table 4).

Table 4. Relationships (statistically significant) between relevance of ICT competences as seen by the management staff and the knowledge-based economy (respondents of enterprises of the knowledge-based economy vs. traditional economy).

Competences of management staff which are their strong or very strong skill	Tetrachoric correlations	Error	Left end point of the confidence interval	Right end point of the confidence interval
ICT competences	0.19	0.08	0.06	0.32

Source: original calculation based on study results

The above presented research results have thus confirmed that there are significant relationships between ICT competences of management staff and the knowledge-based economy.

10. CONCLUSION

Analysis of the collected data allowed for drawing conclusions of empirical data and formulating basic postulates for the studied management staff. They are presented below.

Management staff of traditional economy enterprises has lower ICT competences, which is certainly a barrier of development of their enterprises and the knowledge-based economy in Poland and Lower Silesia. The identified competence gap in ICT, as well as the big distance between the Polish economy and the average European Union and world level in this area proves that they are not well prepared to work in the knowledge-based economy. This indicates also weaknesses of the education system, including lifelong learning for managers, suggesting that the system does not fulfil expectations of the economy. It is therefore necessary to modify curricula to programmes that would include a larger number on application of information and communication technologies in management. It is also essential to pay more attention to quality of the education and its stronger relation to the economic practice, involved already in the knowledge-based economy. This concerns both education for students and management staff at postgraduate studies. On the other hand, it seems necessary to increase participation and commitment of managers themselves in lifelong learning aimed at acquiring and developing ICT competences, because it has turned out that they are a key determinant of development of the knowledge-based economy and it is required to pay more attention to them than previously.

The results and conclusions presented in this paper show the analysed hypotheses correct.

The knowledge-based economy requires management staff of competences that would allow for intensive application of information and communication technologies at enterprises, including information acquisition (internet, e-libraries, data warehouses), e-commerce, distance employment, distance learning, management support, including operational processes and decision-making, teamwork and communication.

There is a significant correlation between ICT competences of management staff and the knowledge-based economy. The broader ICT competences of management staff and relevance of these competences perceived by the management staff, the more frequently the managed enterprises form the knowledge-based economy.

Thus, a conclusion is drawn that higher skills of application of information and communication technologies in management are reflected in modified methods of economic operations, changing to more advanced ones, based on knowledge and innovation. These in turn, as shown by multiple statistical reports, allow for increase of competitiveness and economic growth in emerging economies. The nature of the study held should therefore inspire and facilitate definition of trends of modern changes in education and selection of the modern management staff concerning application of information and communication technologies. The theoretical research allows for a conclusion that identification of correlations between ICT skills of management staff and development of the knowledge-based economy, and therefore – increased competitiveness of emerging economies is still a hardly analysed phenomenon, not only in Poland. It would be important to consider the gender criterion in such research. It is also necessary to continue theoretical and empirical exploration of this area.

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Information and communications technology in food industry in Poland - study of needs of the enterprises of tomorrow in emerging economy

by

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ABSTRACT

Nowadays enterprises need new endogenous stimulant which will afford them at sustainable development in the global economy. Important role, as the instrument of enterprises' development, is falling to the technology of information and communication.
But still the question is - is this technology the challenge for enterprises, is the instrument providing their innovative development or it is just the simple need for that enterprises which are consciously existing at the global economy. That is especially the question for enterprises of transition, emerging and developing economies.

Keywords: Innovation, IT innovation, IT management, enterprises, information and communications technology, food industry, emerging economy, transition economy.

INTRODUCTION

In order to get out of an economic crisis, the European Union (EU) needs intelligent and sustainable development supporting social inclusion[1].
Development of Europe is directed at investing in research, innovation and entrepreneurship in every Member State and every region of EU in destination of full exploitation of Europe's potential[2].
In accordance to Organisation for Economic Co-operation and Development (OECD) definition, enterprises' competitiveness means their ability for long-lasting ensuring of the

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[1] Communication From The Commission Europe 2020, A strategy for smart, sustainable and inclusive growth, Brussels, 3.3.2010 COM(2010) 2020 final .
[2] Report on the 2012 ERAC Mutual Learning Seminar on Research and Innovation Policies, Brussels, January 24, 2012.

high rate of return from applied production factors and the permanent high level of employment what is determining next their ability of rivalry.

The crucial factors being able to support the improvement of enterprises' competitiveness are constant innovative actions, where through the innovative activity is understood the sequence of operations about scientific (research), technical, organizational, financial and commercial character, which aim is drawing up and implementing a purpose of new or improved products and processes, in addition these products and processes are new at least from enterprises point of view.

So from here an innovative enterprises is that enterprise, which in the analyzed period (most often three-year) implemented to the market new or substantially improved product, or new or substantially improved process[3].

Present article is aimed at showing the problem of growing role and meanings of technology of the communication and information for enterprises, for their current activity.

Because of that reason, apart from discussing the purpose and research methods as well as asking research questions, there was indicated the problem of innovations. So pointed distinguishing is used for better understanding changes in information and communications technology (ICT) scope, but first of all perceiving the technology no longer as the novelty but as tools of the routine work. It serves also as the introduction to the subject of enterprises' innovation in the scope of use the technology of the communication and information but also is a preface to the visualization of the data get as part of research.

1. THE PURPOSE AND METHOD

The purpose of the article is the attempt of the reply to research questions such as:
- what communications and information tools are exploiting by enterprises of the food industry of the Opole Province?
- is it possible, in period of last few years, to point the certain preferences of using communications tools as well as information in analysed group?
- what conclusions for future result for the analysed sector from the last years practise?

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[3] B. Dobiegała - Korona, S. Kasiewicz, *Metody oceny konkurencyjności przedsiębiorstw*, (w:) *Uwarunkowania konkurencyjności przedsiębiorstw w Polsce*, Materiały i Prace IFGN, tom LXXIX, SGH, Warszawa, 2000, p. 89.

For achievement of the purpose an analysis method of the writing including analysis of literature was applied, with particular reference to of ICT industry.
Supplementing of these research methods and obtaining primary data constitute the questionnaire survey (see Appendix no 1) directed at enterprises of analyzed industry, analyses allowing for the achievement of accepted solutions, showing trends resulting from them and concerning innovations allowing to draw conclusions for enterprises. The questionnaire consisted of opened questions, questions with answers to choose from and from questions having apart from the option of choice of the answer possibility of adding the own comment.

Mentioned methodology also serves to leading into the subject of the entrepreneurship.

2. INNOVATIONS IN ENTERPRISES

Implementation of new technological solutions up to the twentieth years of the 20th century were regarded as the effect of the linear process - presently explicitly it is possible to state that they are the result of close relationships on the line: science - technology - recipients - competition - consumers.
Innovation process at the level of enterprise is the agreement connected by mutual feedbacks of the activity.

Innovation by itself is understood as the result of interactive process of teaching in which are involved few outside subjects many times outsider towards the enterprise in which it takes place.[4]

The innovation and its diffusion are becoming the same interactive result and collective network process, personal and institutional connections evolving in the time. They are answering in region at challenges put by "new economy": globalization and acceleration of technological changes, creating, at the same time, chances for economic development in underdeveloped or weak developer regions.[5]

Under comprehending the information technology and communications (called information-telecommunications, teleinformatic technologies or information technologies interchangeably) is hiding the family of technologies processing, collecting and sending

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[4] Schumpeter J., Teoria rozwoju gospodarczego, PWN, Warszawa, 1960.
[5] A. Świadek, Regionalne systemy innowacji w Polsce, Difin, Warszawa, 2011, p. 8.

information in electronic form[6]. Development of these technologies causes that both notions are becoming more and more consistent, being a driving force behind the of civilization, social and economic development in addition.

3. INNOVATION OF ENTERPRISES IN THE ACCESS TO THE TECHNOLOGY OF INFORMATION AND COMMUNICATION

Information and communication technologies (particularly computers and the Internet) are widely acknowledged as important resources for socio-economic advancement in both developed and developing countries[7]. Additionally there is the recognition that these initiatives are serving social needs more so than the economic or other high priority welfare goals usually associated with public access ICT projects[8].

The most promising method of promoting the region development at the base of knowledge is diversification of technologies, products and services which are closely connected with existing dominating technologies and the regional base of ability.

All conclusions point to the fact that financial success is associated with a variety of factors including good management, good locations, strong local demand, new service development, locally relevant services, external linkages and networking[9].

Propagating of knowledge is the most effective, if is held within industries connections (in contrast with the diversity of unrelated sectors). New industries are growing out of most effective, existing already clusters, but only in case of giving up the sector restrictions. Not that much a diversification is counting as such, but rather than the special technological diversification in economic new actions. It begun from the regional existing knowledge and economic abilities, and the purpose are connected actions, but about the higher added value.

But on the other hand Kuriyan and Ray[10] note that it is difficult to meet business needs and social development goals simultaneously.

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[6] Computer technologies are a narrower notion (IT) which refer to technologies associated with computers and the software, however not connected with communications technologies and concerning the network.
[7] Coward, C., Why Do Telecenters Deserve Ongoing Attention? *Telecentre Magazine, 2008*.
[8] Fillip, B., & Foote, D., *Making the Connection: Scaling Telecentres for Development*. Washington, DC: Information Technology Applications Center (ITAC) of the Academy for Education Development, 2007.
[9] Latchem, C., & Walker, D., *Perspectives on Distance Education: Telecenters: Case Studies and Key Issues*. Vancouver: The Commonwealth of Learning, 2001.
[10] Kuriyan, R., & Ray, I., Information and Communication Technologies for Development: The Bottom of the Pyramid Model in Practice. *The Information Society: an international journal, 2008, 24*(2), 93-104.

In the phrases of European Union cohesion policy at years 2014–2020 European Commission purposes that intelligent, called „smart", specialization will be the prerequisite (ex ante) for supporting investments in two crucial guidelines of this policy:

1. strengthening research, technological development and innovation (purpose concerning research and innovation),
2. improvement of access to information-communications technologies and using such Best quality technologies (purpose concerning ICT)[11].

As the result of constant technological progress information became one of basic manufacturing factors.

Progress from one side is contributing to generate more and more information resources, on the other whereas the development of these resources is becoming the condition of coming into existence new technologies, products, solutions. Today's complicated social-economic structures require from the community more and more information resources[12] being under their disposal. Keeping and development of these resources are possible thanks to modern information technologies, integrating processes of generating, accumulation, storage, and providing access to information[13].

4. ICT IN FOOD INDUSTRY IN OPOLSKIE PROVINCE

For the purposes of the research was accepted ranking of ICT products in accordance to Polish Classification of Products and Services, where amongst communications and serving information tools were distinguished:

- computers and the peripherals,
- telecommunications equipment,
- electronic equipment of universal use,
- remaining ICT products.

Anonymously with the questionnaire form on-line survey took part the food industry operators from Opole Province.

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[11] EURADA, Directory of „no-nonsense" activities to build S3-minded regions, Brussels, 2011.

[12] J. Kowal, N. Roztocki, Information and communication technology management for global competitiveness and economic growth in emerging economies, The Electronic Journal on Information Systems in Developing Countries, EJISDC (2013) 57, 0, 1-12,

4.1. Characteristics of the industry

The food sector in polish economy belongs to most important and most quickly developing fields so that was the reason for choosing it as the subject of research interests. The Opole Province is the smallest province in Poland, however is characterized with high absorption from European funds[14] as well as high own initiative of self-government authorities for the region development[15]**.**

Share of analyzed sector in sale value of whole industry in Poland amounts close to 24% and is for circa 9 percentage points higher than in 15 countries of the European Union, where it amounts on average to the 15%. Amongst countries being the member states of European Union higher share of food industry than in Poland is present only in Denmark (28%) and Greece (27%)[16].

Polish food industry is strongly connected with international market and capital which recognized, that in Poland this industry is the industry with future and its worthwhile investing in its development. Simultaneously this industry is still standing before gigantic challenging - accommodating itself - after accommodating to standards being applicable in the European Union – to standards of global economy.

4.2. Contribution

Present article is mainly allocated for entrepreneurs, especially for IT managers in and enterprises owners. Special group are also all persons associated with implementing of internet and all net system in enterprises as well as all persons responsible for innovations in their place of work.

In spite of the fact that analysis of the food sector was the main subject of the article the conclusions from the research concerning the weight of the IT sector are also going to self-

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[13] Społeczeństwo informacyjne w Polsce. Wyniki badań statystycznych z lat 2006-2010, Główny Urząd Statystyczny, informacje i opracowania statystyczne, Warszawa 2010.

[14] Ministry of Regional Development divided the 512 mln euro from the Domestic Performance Reserve, allocated for Regional Operational Programmes for years 2007-2013. Additional resources will receive all provinces, however the highest amount - above the 54 mln euro - found the way to the Regional Operational Programme of the Opole Province, I*nformacja Ministerstwa Rozwoju Regionalnego,* Warszawa, 2011.

[15] Development strategies: Development strategy of the province to year 2020, Programs and sectoral strategies for the Province; own programs: Restoration of the Opole Village, Opole - Here I Stay, Special Demographic Zone in the Opole Province.

[16] Sektor spożywczy w Polsce, Departament Informacji Gospodarczej Polska Agencja Informacji i Inwestycji Zagranicznych S.A., Warszawa 2011, p. 3.

government authorities and all institution involved in supporting of entrepreneurship in each emerging or transition economy[17]. These conclusions are in accordance to the statement, resulting from research, that IT and ICT sector and their tool are the sector with the great developmental potential and it will be the sector, where investments will be connected both in the sphere of consumption its tools and investment in the sector development.

4.3. Findings and Conclusions

Conducted research concerned the technology of communication and information in the food industry in 2010-2013 years. At their base it is possible to formulate the structure of information and communications tools used in mentioned above industry as well as their evolution. It is also possible pointing investments concerning development of this branch and actions taken by enterprises taking part of survey but being purposed at improving of employees awareness in relation to the importance of information and communication for enterprises.

Finding and pointing the role of ICT tools in transition, emerging and developing economies were the next motive for the research as well as showing undoubted trend of using them based on achieved results.

All data are arithmetic average for the group of respondents for the given year.

Researched enterprises pointed that they are medium (62,5%) and big (37,5%) enterprises. However it should be noticed, that these answers do not correspond with next data in relation to the employment, from which, considering the number of the employed results, it is possible to state that most enterprises taking part to the survey are big enterprises, employing over 250 persons[18].

Graph no 1 depicts the change of the employment level, including senior staff, in researched enterprises in analyzed period.

Graph 1. Number of employed in analysed branch in years 2010 and 2013.

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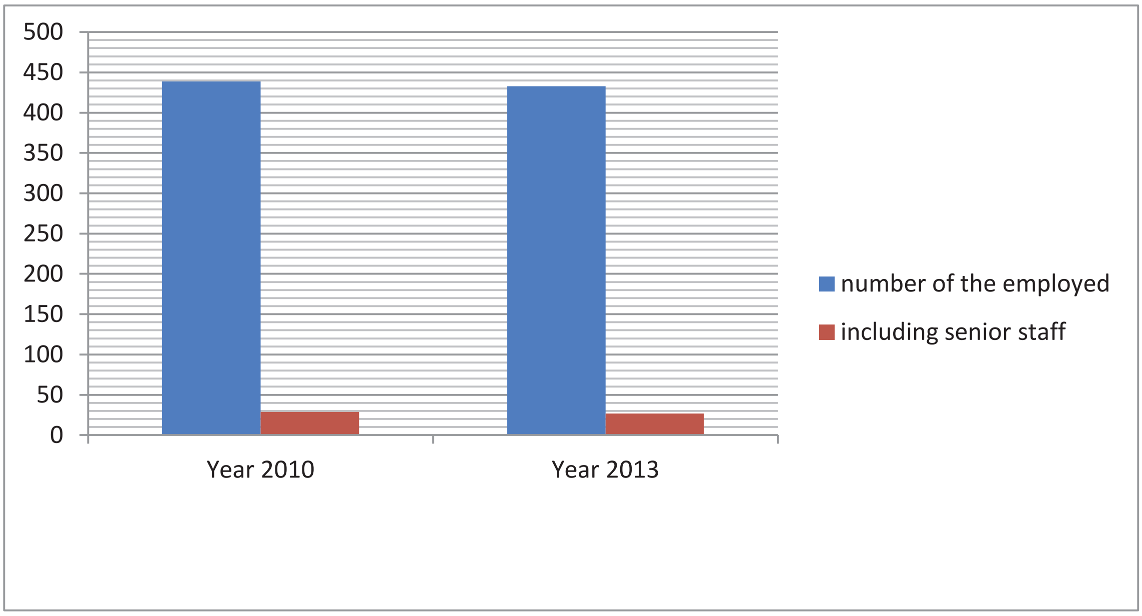
[17] N. Roztocki, H.R. Weistroffer, Information Technology in Transition Economies, *Journal of Global Information Technology Management*, 11, 4, 2008.

[18] Art. of 1 Attachment I to the Commission Regulation (EC) No. 800/2008 from 6 August 2008 recognizing in accordance with the joint market some types of aid in applying of Art. 87 and 88 of Treaty (general regulation on block shutdowns) (Dz. Urz. UE L 214 z 9.08.2008, str. 3)

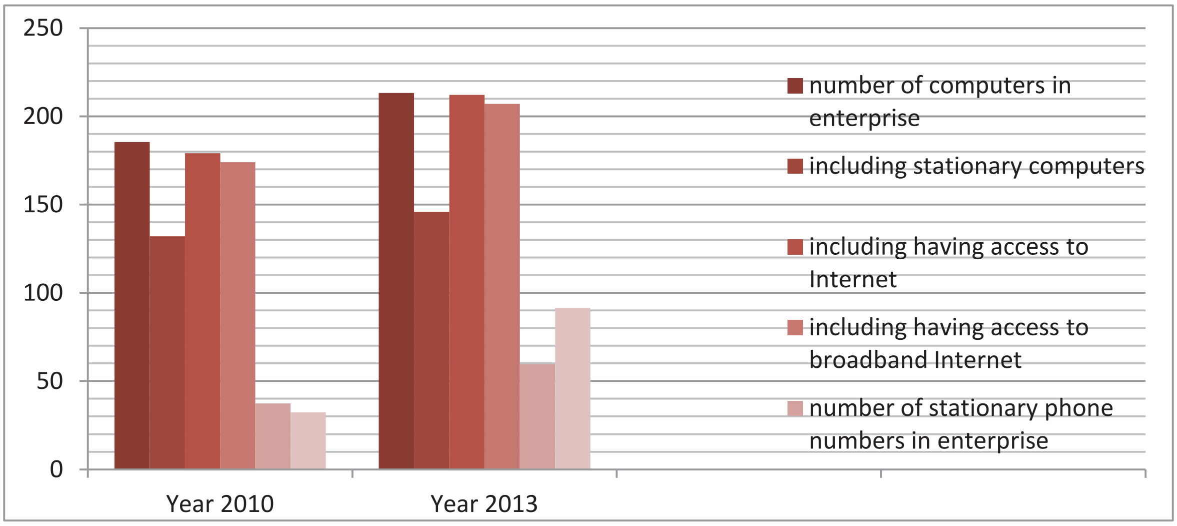


Source : own research

Average number of employed is at the level above 430 persons confirms thesis that researched enterprises are pointing their size in isolation from definitions being in legal force. As the conclusion it was appropriate to make an assumption, like above.

Next graph presents numbers of computers, phones and other ICT tools used by researched enterprises.

Graph 2. ICT tools in researched food industry enterprises in years 2010-2013.

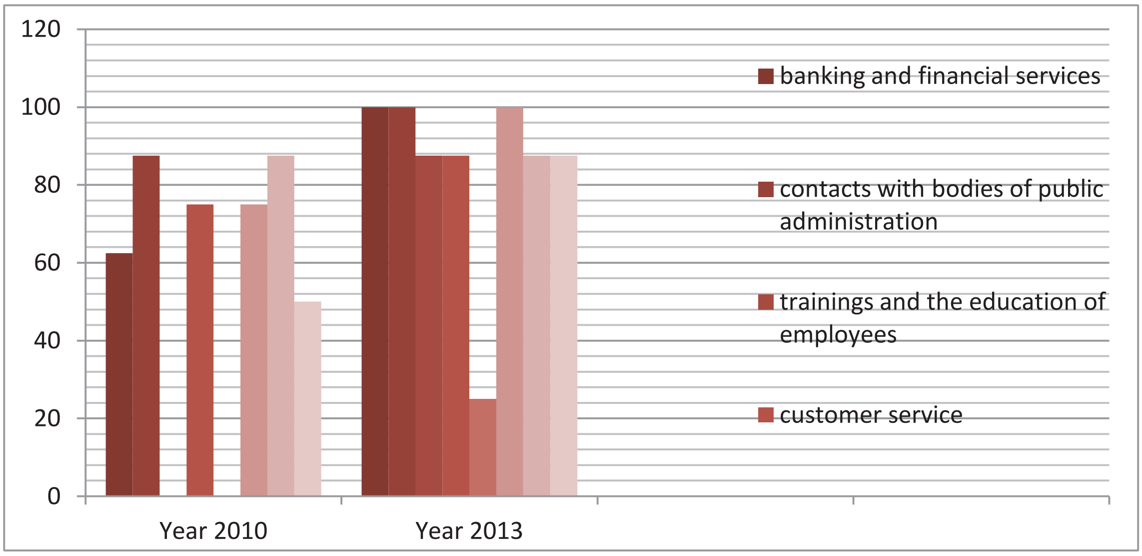


Source: own research

From research data appears that between years 2010 and 2013 demand for communications being used for the processing of information tools grows much. Particularly important is the growth of number of computers used in enterprises, especially those having access to Internet and considerable increase of the number of mobile phones in enterprises. These changes means constant using mobile tools and growing demand to information not only in the enterprises seat but also outside it.

Following graph presents the purposes of using the Internet network in researched enterprises.

Graph 3. The aim of the use of the Internet network in researched food industry enterprises in years 2010-2013.



Source : own research

Moreover, apart from the Internet network, analyzed sector pointed that had had also other ICT devices such as: TV/sat aerial (37,5% in year 2010, any enterprises has it in year 2013), TV set (25% in year 2010 and 75% in year 2013), stationary radio set (87,5% in year 2010 and the same per cent in year 2013), LAN network LAN (75% LAN in year 2010 and 100% in year 2013), Intranet network (50% in year 2010 and 87,5% in year 2013) and ERP systems (75% in year 2010 and 100% in year 2013). This data depicts quick growth of communications and information services being answer on real demand for them.

Analyzed sector pointed that in year 2010 87.5% enterprises had conducted investments connected with the communication and information in enterprises, in addition indicated

62.5% of respondents, which claimed that those investment were not sufficient for still developing enterprise. Simultaneously in year 2013 respondents declared that they had already carried or this year will be conducting investments associated with the communication and information in enterprise (87.5%).

SUMMARY

Without computers and their networks information exchange in the scale, in which it has place at present would simply be impossible. Therefore rational and effective managing of contemporary company without using specialist computer programs is already in principle at present impossible.

For the company is larger and more extended, it is harder to include all processes having place in it and because of the same reason managing in that kind of such a complicated organism is more difficult. Managing every company will be effective and will bring desired results then, when his functioning is based on real data which precisely characteristic functioning of the enterprise.

Research and its results allows to state that analyzed enterprises explicitly are indicating information and communication as areas important for their activity.

Simultaneously it is also possible to point that growing using ICT tools in daily living of the enterprise – there become exist more and more areas, in which these tools are being used.

The conclusion seems to be clear - in research context - technology of communication and information will be filling more and more large area in enterprises activity, these tools will also have more and more large impact for their activity and will be used in more and more for substantial amount of field/aspects of this activity.

Explicitly it should be state that using tools from the scope of information and communication doesn't already constitute any challenge for enterprises and increasing using them and everyday use is result of the simple need of existing on the market and changes taking place on this global market by themselves.

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3. Latchem, C., & Walker, D., *Perspectives on Distance Education: Telecenters: Case Studies and Key Issues*. Vancouver: The Commonwealth of Learning, 2001,
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5. Schumpeter J., *Teoria rozwoju gospodarczego*, PWN, Warszawa, 1960,
6. Świadek A., *Regionalne systemy innowacji w Polsce*, Difin, Warszawa, 2011,

LEGAL ACTS:

1. Załącznik I do Rozporządzenia Komisji (WE) nr 800/2008 z dnia 6 sierpnia 2008 r. uznające niektóre rodzaje pomocy za zgodne ze wspólnym rynkiem w zastosowaniu art. 87 i 88 Traktatu (ogólne rozporządzenie w sprawie wyłączeń blokowych) (Dz. Urz. UE L 214 z 9.08.2008, str. 3),
2. Communication From The Commission Europe 2020, A strategy for smart, sustainable and inclusive growth, Brussels, 3.3.2010 COM(2010) 2020 final ,
3. Report on the 2012 ERAC Mutual Learning Seminar on Research and Innovation Policies, Brussels, January 24, 2012,
4. EURADA, Directory of „no-nonsense" activities to build S3-minded regions, Brussels, 2011,
5. Społeczeństwo informacyjne w Polsce. Wyniki badań statystycznych z lat 2006-2010, Główny Urząd Statystyczny, informacje i opracowania statystyczne, Warszawa 2010.

Appendix No 1.

ICT in food industry in Opolskie Province

1.The enterprise is an enterprise:

- [ ] micro
- [ ] small
- [ ] medium
- [ ] big

2.How many persons were employed in the enterprise in 2010?

3. Including persons of the managing staff in 2010?

4.How many computers had the enterprise in 2010?

5.Including stationary computers in 2010?

6.How many computers in 2010 had an Internet access?

7.Including, in 2010, having an access to the broadband Internet

8.How many numbers of stationary telephones had the enterprise in 2010?

9.How many numbers of mobile phones had the enterprise in 2010?

10.What was the purpose of using the Internet by enterprise in 2010?

- [ ] banking and financial services
- [ ] contacts with public administration
- [ ] trainings and the education of employees
- [ ] customer service
- [ ] service of suppliers / sub-suppliers
- [ ] the correspondence associated with the current activity of the enterprise
- [ ] advertisement of the own enterprise
- [ ] service of the own web page
- [ ] other

11.Which other, apart from computers and phones, did the enterprises have communications tools in 2010?

- [ ] tv/sat aerial
- [ ] TV set

radio

LAN network (local area network, min. 2 computers)

Intranet network

Extranet network

ERP systems

other

Comment

12.Did the enterprise conduct the electronic exchange of information with suppliers and recipients in 2010?
Only with suppliers

Only with recipients

Both - suppliers and recipients

None

Comment

13.Did the enterprise lead investments associated with the communication and information in 2010?
yes

no

14.Whether investments conducted in 2010, if they took place, were sufficient?
yes

no

15.Did the enterprise lead actions for employees being aimed at safety of the communication and information in 2010?

yes

no

16.Did the enterprise have some of following tools of the communications safety and of processed information in 2010? If yes - which?
Strong passwords
identification and authorization methods
spare copies of data
other - which? (please fill comments file)

Comment

17.Were any interferences recorded in the enterprise in action of the communication and the data processing in 2010?
Yes

no

18.Did the enterprise used outsourcing in 2010? They were services:
advisory in the computer field

telecommunications (apart from the telecommunications and the Internet)

other services connected with the communication and information

19.Did the enterprise buy in 2010:
software adapted to enterprise's needs

ready software packages (including the anti-virus)

20.How many persons are employed in the enterprise in 2013?

21.Including persons of the managing staff in 2013?

22.How many computers has the enterprise in 2013?

23.Including stationary computers in 2013?

24.How many computers in 2013 has an Internet access?

25.Including, in 2013, having an access to the broadband Internet

26.How many numbers of stationary telephones has the enterprise in 2013?

27.How many numbers of mobile phones has the enterprise in 2013?

28.What is the purpose of using the Internet by enterprise in 2013?

banking and financial services

contacts with public administration

trainings and the education of employees customer service

service of suppliers / sub-suppliers

the correspondence associated with the current activity of the enterprise

advertisement of the own enterprise

service of the own web page

other

29.Which other, apart from computers and phones, has the enterprises got communications tools in 2013?

tv/sat aerial

TV set

radio

LAN network (local area network, min. 2 computers)

Intranet network

Extranet network

ERP systems

other

30.Does the enterprise conduct the electronic exchange of information with suppliers and recipients in 2013?

Only with suppliers

Only with recipients

Both – suppliers and recipients

None

Comment

31.Does the enterprise lead investments associated with the communication and information in 2013?

yes

no

32.Are the investments leading in 2013, if they take place, sufficient?

yes

no

33.Does the enterprise lead actions for employees being aimed at safety of the communication and information in 2013?

yes

no

34.Is/Will the enterprise leading/lead actions for employees being aimed at safety of the communication and information in 2013?

yes

no

35.Does the enterprise have some of following tools of the communications safety and of processed information in 2013? If yes - which?
Strong passwords

identification and authorization methods

spare copies of data

other - which? (please fill comments file)

Comment

36.Were any interferences recorded in the enterprise in action of the communication and the data processing in 2013?

yes

no

37.Dose the enterprise use outsourcing in 2013? They are services:
advisory in the computer field

telecommunications (apart from the telecommunications and the Internet)

other services connected with the communication and information

38.Does/will the enterprises buy in 2013:
software adapted to enterprise's needs

ready software packages (including the anti-virus)

39.Communication is for your enterprise:
Very important

Important

Has no influence at the enterprise

Not important

I do not know

Hierarchy of values and quality management of ICT workers

by

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ABSTRACT

In this paper I have attempted to present issues resulting from the theory of economics and the management psychology, including their implications for company management practice and for their impact on ICT workers' well-being and a quality of life. Information and communication technology (ICT) has become an important part of most organizations and businesses these days.

My research, based on M. Rokeach's "Value Survey",concerns the hierarchical values of ICT workers in a medium-sized telecommunication company, which is planning reorganization.

The changes presented both in Lean Manufacturing and in the Toyota principles improve company operations. However, their possible implementation depends on the full acceptance of the ICT employees. This kind of economic transformation undoubtedly contributes to greater verifiability of the theory and raises hopes that discussions will follow with other specialists, for example with management psychologists. This know-how opens up greater possibilities for applying the theory in practice.

Keywords: management psychology, hierarchy and structure of values, lifestyle, ICT workers, transformation, manufacturing

INTRODUCTION

Having an influence in shaping professional space according to his/her own views and noticing both the external (market, legal, and social) and internal (personality, intellectual, age, and experience) limitations on those operations, a manager has to solve a lot of complex problems. The manager's operations result in how a company functions, its resources, prospects, and in its possibility for further development.

While showing the manager's complex operations , one should also pay attention to managerial theory.

I have assumed that company management, with its efficient implementation of four elements - planning, organizing, leading and controlling - is not only the art for mastering and implementing technical skills; there is also the art of applying of one's social and personal skills (Kozminski, 2008).

Management skills can be discussed in respect to the area of one's operations and one's responsibility for management. Based on R. Katz's theory, one can review the dependencies between effective personnel management and the workers' place and role in that company. According to Katz, there are three elementary skills necessary for all managers - technical skills, social skills, and conceptual skills. The skills may be different at different managerial levels (Stoner, Wanker, 1996, Katz, 1982). Three kinds of skills depending on the managerial level are presented in Figure 1 below.

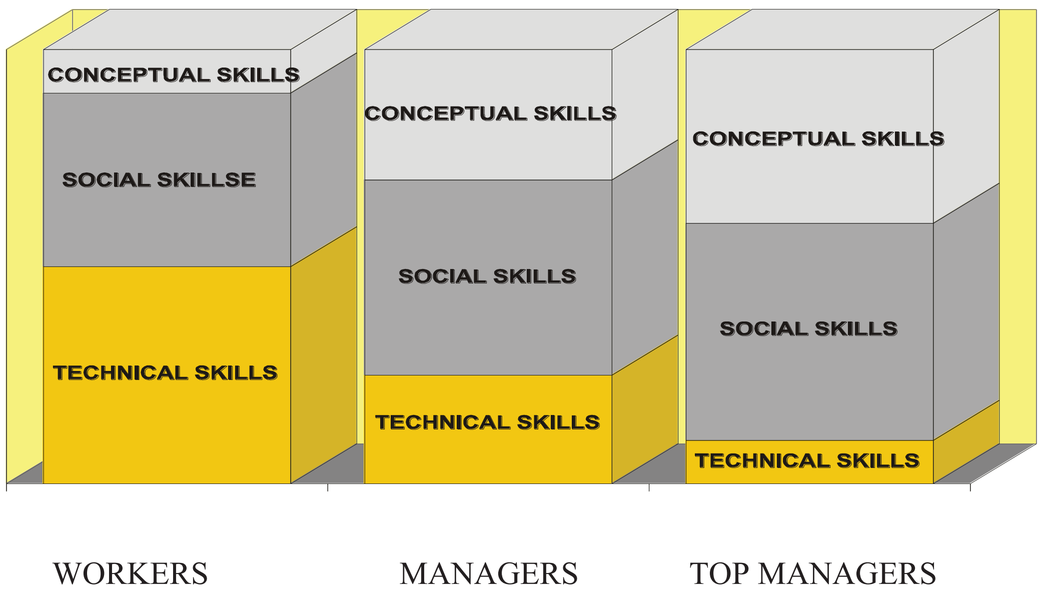


Figure 1. Managerial skills necessary for effective management according to R. Katz (1982).

Technical skills are the ability to use tools, methods or process technology. An accountant, secretary, or specialist must possess technical skills in their fields. A manager also needs to have certain skills but only to the extent that he will be able to communicate in that specific field.

Social skills are the ability to co-operate with other people and to communicate effectively with both different groups of employees and individuals in that group. A manager's social skills are necessary within such a scope so that they enable him/her to co-operate and facilitate leading a team.

Conceptual skills are the mental acuity to coordinate and integrate all interests and operations within a company. It requires the acuity to perceive an organization as a whole as well as to understandhow an activity of any part of the organization will influence it as a whole. The manager needs to possess conceptual skills in order to anticipate influences and dependencies among different departments of the company and to make decisions which serve the whole organization best.

Such a way of perceiving management skills is approved, as a rule, by both psychologists and economists who specialize in management (Kozminski, 2008). However, a lot of them stress the importance of personality characteristics in management more and more often.

It has been suggested that strongly connecting social skills and emotional intelligence with a management style based on targets is not only a trend in theoretical research but is also necessary for effective management (Kożusznik, 2011, Mróz, 2006).

While presenting the Donald E. Super's concept, J.W. Paluchowski underlines its eclecticism and indicates great practical possibilities associated with its application. According to Super, a professional career is looked into from an individual point of view as a description of successive lifetime decisions. Super's concept is based on such notions as value, involvement, and self-assessment. One's professional image is shaped by lots of experience (work observations and identifying with other employees). As the work experience becomes wider and wider, the individual's professional image also becomes richer (Hornowska, Paluchowski, 2001).

A manager's talent for making using all his personality traits optimizes not only his/her professional sphere but also the personal one. Similar assumptions and objectives lie behind David Goleman's concept of personality. Goleman at first concentrated on general development, or education; yet later he reached conclusions which considerably exceeded this area of a man's activities (Goleman, 1997).

In his research, Goleman demonstrated that effective employee management requires, first of all, one's personal and social skills. He distinguished emotional intelligence as a factor responsible for managerial efficiency at different levels. Goleman's works determined a new direction for research into an individual's more and more effective behaviour for changing social and economic realities (Goleman, 1997; Mróz, 2006, 2011a).

Both the labour market and its requirements have (significantly changed in the last 18 years. Apart from drawing attention to emotional intelligence, Goleman distinguished two characteristics which play an important part in being successful. These characteristics are the ability to create teams and the extent to which one can adapt to changes.

It is interesting to follow the changes in research subjects which theoreticians of psychology and economics have dealt with over the last years. Similar conclusions can also be met in ICT (Hawkins, 2002; Roztocki, Weistroffer, 2008; Sey, Araba, Fellows, 2009).

MANAGEMENT CONCEPT: LEAN MANUFACTURING (LM) AND TOYOTA'S CONCERN PRINCIPLES

Among many management theories, especially two constitute an example of interesting solutions in combining organizational structures with personal structures in a company. This paper pairs the Lean Manufacturing concept with Toyota's concern principles, which are an important method used by management to benefit from employee know-how in implementing organizational changes in the staff environment. The concept of Lean Manufacturing. (LM) aims at eliminating wastage in manufacturing, which is erroneously perceived by practitioners only as a technical tool that streamlines the flow of materials through all their stages (Womack, Jonem, 2001).

This misunderstanding consists in believing that making changes is the responsibility of the management staff only (Hornowska, Paluchowski, 2001; Mróz, 2011a). In fact, the aim of Lean Manufacturing is to constantly reduce wasted time, material, and employees power - all energy understood as any activity, process or investment which does not add any value to the product from the Client-Patient point of view. Examples of waste in a nurses' working environment may include:

- waiting,
- moving – making unnecessary movements,
- unplanned technical activities,
- unplanned work stoppage of sections,
- inventory exceeding minimum levels,
- excessive transport of products necessary to operate a given ward,

- inadequate working methods,
- shortages (Czerska, 2002; Mróz, 2007).

Each organization or enterprise aims at reducing production costs, and therefore the Lean Manufacturing method is more and more widely applied by both Polish companies and public benefit organizations which have succeeded in eliminating activities that do not add value to the basic product and related tasks (Czerska, 2002).

In the early stages of implementing LM it may seem that transforming an organization (a hospital, a company, a school) requires radical changes. However, contrary to popular belief and anxiety, implementing Lean Manufacturing is not tantamount to reducing employment but means continuing to increase work effectiveness by decreasing low-quality services or goods (Czerska, 2002; Mróz, 2010).

On the other hand, the Toyota concern management principles are based, to a great extent, on projecting and sustaining high workstation organizational standards (Liker, 2005). The philosophy of sustained improvement dominates as well as the involvement of employees at all organizational levels in the improvement programmes. Additionally, production management is based on a short processing time, production adjusted to the number of orders, and continuous quality control at critical manufacturing stages. The above-mentioned principles are associated with far-seeing visions in order to make one's aims become creative and bold realities (Mróz, 2010, Hawkins, 2002).

MANAGEMENT CONCEPT: HIERARCHY OF VALUES IN ONE'S OWN RESEARCH

Man can choose and present various lifestyles. Most frequently they represent an externalized world within its system of values. If the hierarchy of values is coherent , it may in future, in difficult or extreme situations, constitute support for man (Kozminski, 2008). The values may also become a source of emotions, related to an evaluative relation towards the social background (Mróz, 2011b, 2012).

In 2006 in my own investigations for relating value hierarchies among young managers, I established that "responsibility" - placed by Rokeach in the instrumental group - differentiated the people (Mróz, 2006).

The managers' group most often used encouragement - as seen in Rokeach's first three hierarchy of instrumental values: "ambition", "independence" and "courage". The managers' group proposed most often that the workers should enlarge their range of responsibility. In the first three hierarchical places, I placed such values as “ambition”, “responsibility” and “readiness”.

Young managers who applied salary as a motivator relied more on themselves. They were convinced about their own strengths for professional success, and were characterized by smaller thinking, smaller insights, larger fears, and were also ready to apply less full procedures, though based on ethical principles to a large degree. In their turn young managers applied the motive of joint responsibility for work to be done. They realized management aims by choosing social values to a greater extent.

Spranger’s theory, on the basis of which a research method applied in this paper has been constructed, grouped values into the following types: economic, esthetic, political, religious, social and theoretical. The quantitatively and qualitatively selection of a value constitutes a particular lifestyle (Mróz, 2011a; Allport, 1966).

MATERIAL AND METHOD

My research has investigated the hierarchy of ICT workers’ values in a Polish private medium-sized telecommunication company. The company plans to reorganize and assumes that, as a primary step in the acceptance of changes, there will be a willingness to co-operate in their implementation Research on the hierarchy of values has shown that its stability depends on its intensity or level of choice among the particular categories. This is the way in which values are presented in the Milton Rokeach’s concept, which also worked out a research method.

According to Rokeach’s hypothesis, the value hierarchy is topped by those values representing dominant needs, while the lower ranks are filled with values corresponding either to needs already satisfied or revealed due to lack of appropriate circumstances (Rokeach, 1968).

The ultimate value is tantamount to such statements as “I believe that such and such ultimate goal, for example the world at peace, equality of all people, or salvation – personal or social - is worth fighting for” (Rokeach, 1973).

Rokeach’s theory assumes that a specific conduct mode is individually and socially more attractive than other ways of behaviour and aims in life. In addition, the values in this theory also refer to cognitive, motivational, emotional, and behavioural spheres (Rokeach, 1968). Values for Rokeach are dual in nature. Some of them can be viewed as ultimate human aspirations and some as means and instruments for realizing ultimate values.

Rokeach's questionnaire entitled "Value Survey" has been known and described in psychology since 1973 (Rokeach, 1973). His questionnaire ranks 18 values. The lower the rank, the greater the importance of a value. Coefficients of correlation between the Polish and English versions of the scale equaled .99 and .98 respectively. The Pearson R coefficient for individual values averaged .79 (Brzozowski, 1989, 2007). Rokeach's method was chosen for my research because he had already been adapted to Polish standards: I have been exploring managerial values since 1994. The test also has a long tradition of being applied in our country.

Rokeach`s "Value Survey" as well as the Evaluative Attitude Notebook (Study of Values) by G. Allport, P. Vernon and G. Lindsey in the authorised translation by M. Choynowski have been used in my research (Allport, 1966; Brzozowski, 1995).

The following hypotheses are proposed in his paper:

1. It seems that in such a specific professional group as ICT workers in a telecommunications company, research participants will rather focus on individual values, with health ranked highest.
2. Bearing in mind that they are overloaded with formalized work, they will devalue the values associated with such overload in their working environment.
3. How do hierarchy values and lifestyle depend on each other?

Research was carried out on a group of 90 ICT workers (60 women and 30 men, in the field of telecommunications). All of them consented to their participation in the research.

RESULTS

Research showed that the most stable values were those rated most highly and those rated least highly, which is typical for all ranking techniques. The structure of ultimate values in the ICT group is shown in Table 1, and the percentage distribution of the most and least preferred values is presented in Table 2.

Ultimate values	Mean	Median	SD
Safety	16.40	10.0	3.7

Mature love	7.90	9.5	4.0
Wisdom	8.05	4.5	3.7
Beauty of the world	16.80	10.5	4.7
Peace in the world	12.20	11.0	5.6
True friendship	8.90	8.0	4.1
Enjoyment of life	12.70	9.5	1.7
Equality of people	15.30	11.0	3.3
Outstanding successes	10.30	8.5	5.1
Self respect	2.90	9.0	3.7
Social recognition	10.90	10.0	5.5
Inner peace and harmony	11.70	5.5	3.0
Personal freedom	4.90	7.0	3.1
Comfortable life	15.40	8.0	4.4
Providing financial support for the family	3.80	8.5	3.1
Salvation	13.70	13.5	3.2
Health	2.60	5.0	2.5

Exciting life	16.40	11.0	2.1

Table 1. Ranking of ultimate values in the group of ICT workers of a telecommunications company (N=90).

The ultimate values rated most highly by the ICT workers are as follows: health (68% of choices at the first three places), self-esteem (65%), and supporting one's family (63%). The least approved values are the following: national health (53%) (at the last three places), adventurous life (55%), and beauty of the world (61 %).

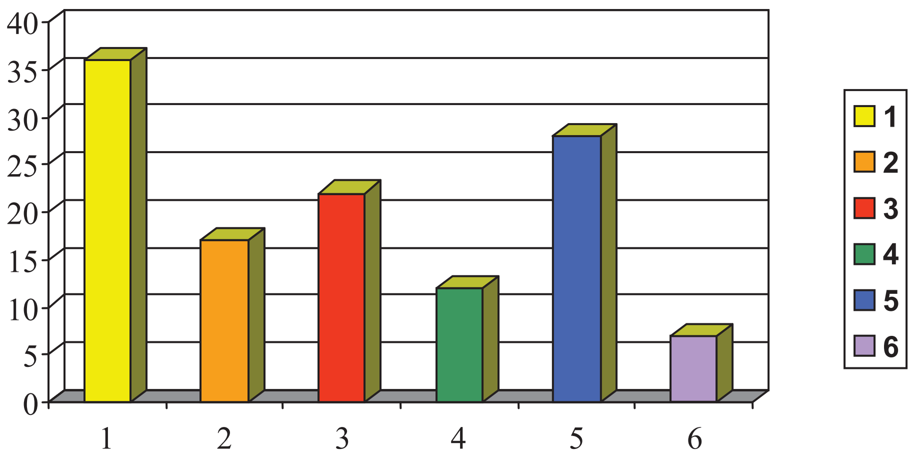
Ultimate values	Most and least preferred			
	1	2	3	18
Health	46	22	0	0
Self respect	15	10	30	0
Providing financial support for the family	5	30	25	3
	1	**16**	**17**	**18**
Safety	10	12	36	26
Exciting life	0	7	26	12
Beauty of the world	0	17	18	28

Table 2. Percentage share of ultimate values which were most and least preferred by ICT workers (N=90).

The high positions of “self-esteem” and “supporting (one’s family” are interesting as well as the choices of values which are rejected. Rokeach stresses that the test results may be interpreted as needs or things missing, not as values fulfilled, and therefore rank so highly (Rokeach, 1973). The participants present themselves as individuals full of anxiety about themselves - their health and personal matters - as well as about maintaining their homes and supporting their families. It is difficult to forecast that they will eagerly implement the changes proposed by the employer, as reserve and resistance tend to dominate among them.

This means that the ICT workers have a greater sense of workplace instability; they feel insecure and have low self-confidence, especially in their own knowledge. Similar conclusions are drawn by Oleś and Kozminski in their research (Oleś, 1989, 2000; Kozminski, 2008).

I conducted the research on a group of 90 ICT workers (women and men). The test "Value Survey" by M. Rokeach as well as the Evaluative Attitude Notebook (Study of Values) by G. Allport, P. Vernon and G. Lindsey were used by means of a method based on Spranger's concepts (Allport, 1966).



1. Economic values 2. Esthetical values 3. Political values 4. Religious values 5. Social values 6. Theoretical values.

Figure 2. Evaluative attitudes of the subjects (N = 90).

The ICT workers ranked the following values according to the lifestyles they had selected: economic, social, political, esthetic, religious, and theoretical values (Allport, 1966; Mróz, 2006).

The subjects' lifestyles stressed the advantage of economical values. The "economic man" treated everything that is useful and practical as the highest value, and also applied the criteria of utility in evaluating people. He did not search for truth for its own sake, but only as it applied in practice. For him, truth is a means to obtain power and influence. The values selected by young people testified to their individual attitudes and, as a result, to their more general lifestyles.

The research I conducted has provided a positive answer to the question concerning dependency between the hierarchical values and the lifestyle of 90 ICT workers. This dependency suggests that their values are realised in their lifestyle, whether selected by themselves or imposed by the surrounding world, fashion, or advertising. The women questioned seem to have a more coherent hierarchy of values than the men questioned. The values selected were significantly different, while there were no such differences within the rejected values. I concluded that the basic motives from which people select particular values favours understanding their lifestyle and personality.

The intention of my paper has been to study the dependencies existing between value hierarchies and the lifestyles of ICT workers in a telecommunication company. Psychological research of values is frequently limited to their evaluation and the application of a hierarchy.

The results I obtained significantly differentiated the women and men questioned as to their ultimate values. The following values appeared to be the most statistically differentiating ones: "outstanding successes" (0.001), "social recognition", "enjoyment of life" (0.001) and "comfortable life" (0.05). Within the lifestyle selected, the ICT workers questioned ranked values in the following order: economic, social, political, aesthetic, religious, and theoretical.

Ultimate values	Women N = 60			Men N = 30			p
	Mean	Median	SD	Mean	Median	SD	
Safety	12.5	14.0	5.0	10.8	11.0	4.3	-

Mature love	6.30	6.0	5.0	8.4	9.0	4.9	-
Wisdom	11.0	10.0	2.6	12.4	15.0	4.7	-
Beauty of the world	10.4	10.0	4.9	9.9	12.0	4.6	-
Peace in the world	12.3	13.0	6.3	14.1	16.1	4.1	-
True friendship	8.1	8.0	5.2	7.8	7.0	3.7	-
Enjoyment of life	9.9	10.0	3.8	13.0	13.0	4.7	0.001
Equality of people	12.1	15.0	6.5	14.4	17.0	5.4	-
Outstanding successes	7.9	8.0	4.0	5.1	3.1	4.0	0.001
Self respect	10.1	11.0	4.7	9.0	8.0	4.8	-
Social recognition	7.9	8.0	3.9	11.1	11.0	5.6	0.001
Inner peace and harmony	8.0	8.0	5.2	9.4	11.0	4.7	-
Personal freedom	5.1	4.0	2.8	5.0	3.0	4.3	-
Comfortable life	7.9	6.0	5.2	5.2	3.5	4.1	0.05
Providing financial support for the family	9.8	11.0	4.8	7.7	8.0	5.3	-

Salvation	11.90	10.0	4.7	13.3	16.1	4.1	-
Health	3.7	2.0	3.6	5.7	5.0	3.4	-
Exciting life	10.3	11.0	4.7	12.1	12.0	3.5	-

Table 3. Hierarchy of ultimate values among the ICT people questioned (N = 90), level of significant differences.

The participants’ hierarchy of values and their lifestyles resulting from them do not seem to fulfil an integrative role. Values like "mature love", "true friendship" or even "providing financial support for the family" take distant places in their hierarchies. Their lifestyles are characterised, by a significant margin, of economic and utilitarian values - a rather "to have" than "to be" attitude (the last place among theoretical values and second to last among the religious ones). It may be assumed that this group’s evaluative abilities have not evolved yet from the extremely subjective to the more objective ones.

The conclusions presented above, resulting from my research on the hierarchy of values and lifestyle of young economists, could become the starting point for a discussion concerning ICT workers’ healthy and unhealthy lifestyles (Mróz, 2010; Sey, Araba, Fellows, 2009).

Interesting results differentiated the women and men regarding ultimate values. The following values appeared to be statistically differentiating: "outstanding successes", "social recognition", “enjoyment of life” at the level of 0.001, and "comfortable life" (0.05). I drew similar conclusions in my former research (Mróz, 2010, 2011b).

The ICT workers obtained the following results regarding lifestyle values: economic, social, political, aesthetic, religious, and theoretical values.

CONSLUSION

The Lean Manufacturing (LM) concept of managing employee know-how with respect to implementing changes in an enterprise or organization makes sense when superiors are able to convince employees that they should change their work habits. As it turns out, applying updated technical tools is more sensible and effective when employees accept them. However, my research results have shown that changes and professional success are not important in the hierarchy of values by which ICT workers are guided in their lives. Therefore, the research strongly suggests that chances of succeeding in implementing significant changes in the LM system without first demonstrating their benefits to the employees are poor. Both the type of work and a greater awareness of employee importance on the job market favour such a ranking. The hierarchy of values shows that medium-rank ICT workers concentrate more on individual values and less on the social ones.

Lean Manufacturing can be applied to all departments of a telecommunication company, including those not directly connected to the production department, for example accounting, customer services and various Technical units; and it improves company operations. However, implementing LM is associated with the full acceptance of the ICT workers.

The article clearly shows the hierarchy of values for functioning workers during changes. This also is significant in any changing economic reality (emerging economies, emerging markets). Worker values are important in many changing or emerging economies - not only in ICT management – for developing competitiveness and economic growth.

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Chapter 6

Organizational, Psycho-social, Political and Legal Frameworks and ICT Management in Emerging and Transition Economies (2)

The Financial and Psychological Impact of Mobile Fraud in Oman and Ways of Protection

by

Zainab Alhashmi, Houd Albarawani, Shadia Alrawahi, Dr.Yousuf Salim AlHinai

ABSTRACT

With the fast technological developments and the spread of the use of Information and communication technology (ICT) in emerging economies, it became critical to understand the implications of such revolution and how to manage new technologies. Mobile technology is one of the most commonly used innovations in emerging economies and one which has had a great impact on people's lives. Although, this innovation has enhanced the way people carry out various daily tasks, there are a lot of drawbacks attached to it such as mobile fraud. The aim of this research is to identify the financial and psychological impact of mobile fraud on citizens in emerging economies, with a focus on Oman. By understanding such impact, this research seeks to identify how ICT management can protect people from the negative implications of new technologies. To gather the required information, a questionnaire was distributed to mobile phone users who are from 18-35 years of age. The findings show that 70% of the sample had been attacked by fraudsters. This research has many implications in both theory and practice.

Keywords:

Emerging economies, ICT management, Mobile fraud, Financial impact, Psychological impact, Oman.

INTRODUCTION

In the past two decades information and communication technology (ICT) has fundamentally transformed emerging economies by reforming the way people live, communicate, interact, carry out tasks and conducted business (Rao, 2001). In these economies, technology has evolved as a medium to fulfill a majority of our daily life needs and fast became means for innovation and creativity. There are commonly five types of technology including medical technology, administrative technology, instructional technology, assistive technology and information technology (WSAC.ORG. 2011). Under each of these types, there are several creative technological solutions.

In emerging economies, telecommunications networks became the link among research, manufacturing, marketing, finance, and distribution (Rao, 2001). The convergence of telecommunications, data processing, and imaging technologies made it possible to combine voice, data, and images according to the user needs; and ubiquity of mobile and personal communications was made possible by advances in wireless technology (Rao, 2001; Hudson, 1997).

Mobile and wireless technology is considered one of the most innovative and fastest growing types of ICT in emerging economies. Mobile phones fast became one of the most important and common devices for communication and business transactions. However, there are several risks that face people from the use of mobile phones. One of these risks is mobile fraud. Mobile fraud has become a big problem that it now needs to be seriously addressed both on individual and societal levels.

This research investigates the management of ICT in emerging economies by exploring the critical issue of fraud using mobile phones. This paper is organized as follows. It first provides a literature review on the issue of mobile fraud, then describes the methodology used in this study, and ends with a discussion of results and a number of recommendations.

LITERATURE REVIEW

Having technology around has lots of advantages. One of those important advantages is making life easier by enabling people to perform most tasks efficiently and effectively, therefore, saving time, effort and money. For example, Internet has helped people to get information whenever they need it and enhance the ways of communication as well. Some of the innovative technologies that people now use are instant messaging, video conferencing, and others. Recently, mobile phones became one of the important devices for communication and transaction. At the end of year 2001, approximately 14% of the world populations – 850 Million people – were mobile phone users" (Naqvi and Al-Shihi, 2009). Mobile phones are the most used type of technology in the Arab World, including Oman. Nowadays communication has become one of the core ways that help Oman and other developing countries to enhance development and economic growth (Business Monitor International, May 2012).

Mobile phones are easy to carry devices that enable the user to contact any other user at any time and place. Over the years, mobile phones became smarter and more innovative in their designs and sizes. These advancements made people more attached and dependent on mobile phones to accomplish day-to-day activities such as scheduling meetings and setting reminders, accessing the internet and emails, selling and buying, and so on.

Despite the benefits mobile phones provide, there are some disadvantages like their high prices and consumption expenses. Also, mobile phones can affect people physically by causing harm to their ears and eyes. In addition, using mobile phones causes distraction to users while they accomplish other tasks (e.g. driving) or even in the way they communicate to others around them. Mobile phones have also been associated with the reduction in personal interaction between humans. Generally speaking, the exponential growth in the usage of mobile devices, the high dependence of people on mobiles, and ease of reaching mobile users anywhere at any time all have created grounds for criminals to target mobile users. For example, phones might get easily stolen (Harrington and Mayhew, 2001) or they can be used by criminals as a tool for fraud to achieve personal and/or financial gains.

The attachment of people to their mobile devices opened the door for new types of fraud. Fraud is one of the biggest problems in the world of communication that has caused people to lose huge amounts of money. Fraud is the general term used to describe actions undertaken by one party to obtain an unjust advantage over another (Behdad, Barone et al. 2012). Fraud became a serious problem for lots of countries such as Australia which lost more than $980 million in 2007 because of it. It is estimated that the losses related to identity fraud alone can reach about $54 billion annually.

There are many types of fraud related to Information and Communication Technologies (ICT) including network intrusion, email spam, online credit card fraud, telecommunications fraud and mobile fraud (Behdad, Barone et al. 2012). Rosset et al. (1999) divided ICT fraud into two main types: Subscription fraud in which the fraudster establishes a new (fake) account but he/she has no intention to pay any bills but rather used it to get benefits and services (such as making calls) for free. The other type is superimposed fraud in which fraudsters "take over" a legitimate existing account. This means that the fraudsters use and share real accounts that belong to real customers and use them in a way the real account holders would not discover. Examples of such cases in telephony include cellular cloning, calling card theft and cellular handset theft.

Fraud becomes even a bigger problem when the parties involved are from different countries and there is money transfer involved between them. One of the most typical styles of mobile fraud is subscription fraud in which fraudsters take advantage of one of the most basic features of mobile devices which is international roaming (Trevisan 2000). International Roaming helps people to make and receive SMS, calls and data while they are outside the country. International roaming fraud is an intrusion made by the fraudsters so that the money paid by the consumers go to their fake organization instead of the service provider and this can cause huge losses for mobile operators. The following figure demonstrates the level of prevalence of the mobile fraud. As it shows, despite the international efforts to contain the problem, mobile fraud is still growing and spreading rapidly. As research describes it, fraud is not going to go away (Graycar, Smith 2002).

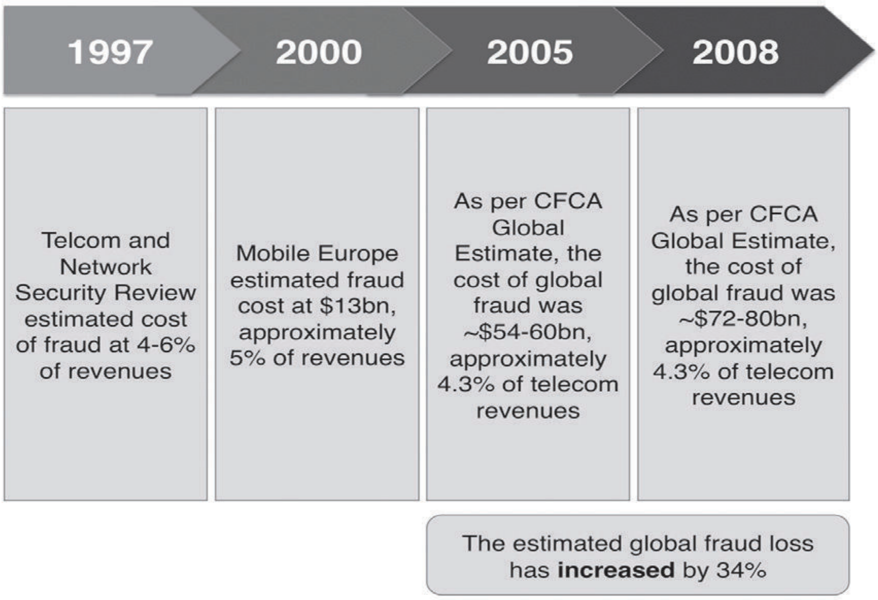

Figure (1): The prevalence of mobile fraud (Ghosh 2010)

Several technical and non-technical strategies must be adopted in order to detect and prevent mobile fraud. All involved organizations like telecommunications, financial institutions, service providers, government bodies, and individual users must work together to fight mobile fraud (Graycar, Smith 2002). Generally, there are three main strategies that can be adopted to control mobile fraud including (Graycar and Smith, 2002):

- Dropping the supply of encouraged criminals: this involves reducing the number of fraudsters, by, for example, judicial punishments like prison and confiscating a fraudster's assets such as home and car which can have an effect on existing fraudsters and discourage new ones.
- Spreading awareness: this involves providing both individuals and organizations with knowledge and information to keep them aware of the fraud and its ways and implications.

- Prevention: this involves making the crime more difficult to commit brings in the other side of the prevention equation, fraud control policies, computer usage monitoring, policing anomalies, corporate governance and professional regulatory procedures.

The result of e-fraud can be either financial or nonfinancial. Financial losses include the cost of resolving the situation (e.g. hiring of consultants to repair the security holes) and/or direct losses from assets stolen or spoiled (Malakedsuwan and Stevens. 2003). Non-financial losses include damage of reputation or image, loss of competitive advantage, personal psychological suffering and/or loss of happiness (Malakedsuwan and Stevens. 2003. P.26). The effect of fraud could harm a single person or it can extend to impact a wider range or individuals or organizations (Malakedsuwan and Stevens. 2003).

Researchers emphasize that it is impossible to eliminate fraud forever and beating the system is something that fraudsters can always do (Shawe-Taylor, Howkev and Burge, 1999). As fraud continues, the expense of fraud countermeasures become increasingly expensive to the point where the cost of fighting fraud can exceed the amounts actually lost because of the fraud itself (Shawe-Taylor, Howkev and Burge, 1999).

Fraud is an international problem facing most countries. Oman is no exception. Sultanate of Oman is a developing country located in the south east of the Middle East. It is a part of GCC (Gulf Cooperation Council) countries. Oman spreads over nine governorates including Adh-Dhahirah, Ad-Dakhliyah, Al-Batinah, Dhofar, Ash-Sharqiyah, Al-Wusta, Al Buraymi, Muscat (the capital) and Musandam. Based on a recent forecast, Oman's population is about 2,945,236 (Oman Population Clock, 2013). Most of the Omanis -about 50%- live in Al-Batinah and Muscat regions, 30000 of them are located in Musandam and 200000 live in Dhofar.

The growth of communication technologies has dramatically reshaped the way the Omani government sets its economic strategies. According to Oman Information Technology Report (2012), IT services in Oman is worth about US$96mn, which represents 27% of overall spending in Oman. Spending money on this field is increasing as IT is becoming more important for the development of various industries. The use of mobile phones in particular is increasing rapidly as a result of companies offers and advertisements (Naqafi, Al-shihi. 2009).

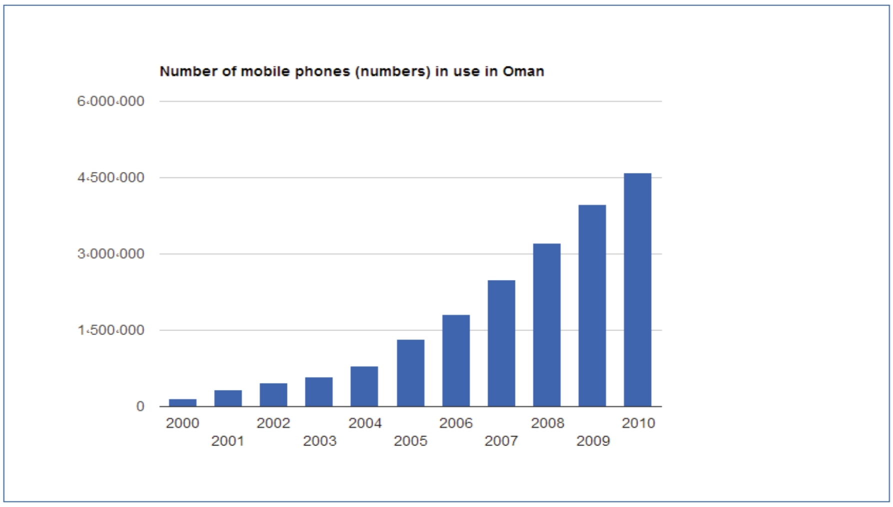

Figure (2): The growth of mobile phones usage in Oman

This diagram shows how many phones are used by people in Oman. It can be noticed that the number has increased from the year 2000 to 2010 which means that the awareness of technology is also increasing and shows how mobile became an important object in people's lives. This interesting trend shows that mobile devices are playing a more important role in the lives of Omani people. In line with this trend, the space for more attraction from mobile fraudesters will also increase. Therefore, this research sets to explore the current status of mobile fraud in Oman, the effect this has on people, and how to protect mobile users in the future.

METHODOLOGY

This paper aims to explore the financial and psychological impact of mobile fraud in Oman. To achieve this goal, we used a questionnaire survey of 630 mobile phone users. The sample of the research is mobile users from different regions of Oman. We chose to cover as many cities and regional areas in Oman in order to explore the level of awareness about mobile fraud among Omani mobile users. The questionnaire (Appendix 1) was distributed in both soft and hard copy.

ANALYSIS AND RESULTS

The following table shows the findings of the survey:

Question/Category	Answers/Frequencies
Age	(18-23) = 423 (24-29) =109 (30-35) = 98
Occupation	Employee = 166 Student = 372 Searching for Job = 92
Are you familiar with mobile fraud?	Yes = 468 No =162
Did you receive such a warning from the ROP, TRA or telecommunication companies warning you about the mobile phone fraud?	Yes =443 No =187
Is the Omani media playing its role in a warring the society about mobile fraud?	Yes =229 No =401
Have you ever received a text message/call from unknown number informing you that you have won an unexpected large prize, or encourages you to enter a competition for which you have send money?	Yes =552 No =78
What types of mobile fraud you faced?	Calls =39 Messages = 311 Both =20
What was your reaction?	Reply =3 Ignore = 51
Did you inform the authorities about it (e.g TRA, OmanTel, Nawras, police ...etc)?	Yes =92 No = 460
Did you receive a reply from the authorities?	Yes =56 No = 496
In your opinion why fraudsters target people?	financially affect =327 Psychologically affect = 8 Both =295
Do you think that, in general, the Omani society usually responds to mobile fraud?	Yes =343 No = 287
What are the main reasons that make people respond to mobile fraud?	Curiosity =253 Seeking for fast earning =262 Imitating =15 Attractive offers =270 Lack of awareness =367
Which effect is more on people as a result of mobile fraud?	Financial impact =462 Psychological impact = 168
Do you think there is psychological effect associate with financial loss?	Yes =597 No = 33

The sample in this study included 233 males and 397 females, totaling 630 mobile phone users. The respondents vary in their age, occupation and living locations. The results show that 87% of the samples receive attractive offers from unknown numbers. Seven per cent of those offers come through messages, 56% from calls while 36% come via both messages and calls. From the 87% of people who received attractive offers, the majority of them did not reply, ignored them and did not inform the authorities about it. While those who said that they informed the authorities are (16%) and only a few of the sample directly replied to the offers.

The results also show that about 26% of the sample is not familiar with Mobile Fraud. Seventy per cent of the sample said that they have received warnings from telecommunications regulators and authorities about mobile fraud. Moreover, the majority of people - about 64%- said that the Omani media does not play any role in warning mobile phone users about this phenomenon.

The samples were asked about their opinion about the reason why fraudsters target people and the majority said that the fraudsters attack in order to achieve financial gains (51.9%), 1.26% said the reason is to cause psychological harm, and 46.8% said it's a mixed reason of financial and psychological reasons. In addition, 54.4% of the respondents believe that the Omani society, in general, tends to respond to fraudsters and the main reason for this is the lack of awareness (31%).

There are many reasons why mobile users respond to fraud. Twenty Three per cent of the samples think that seeking for fast earnings is the reason while 23% thinks it is the inability to resist the temptation of attractive offers. Other reasons for responding to fraud include curiosity (22%) and imitating others (1%). Furthermore, regarding the most critical impact on victims of mobile fraud, 73.3% of the responding think that it's the financial losses, while 26.6% believe that the psychological impact associated with those financial effects is more critical on them.

DISCUSSION AND CONCLUSIONS

After collecting the data it was found that 74% of people are familiar with mobile fraud which indicates that this problem is a well-known issue. People may hear about mobile fraud through word of mouth from other mobile users. Word of mouth is known to be one of the most effective information transfer channels in the Omani society. Moreover, the high number of people who said that they received warnings from telecommunication authorities indicates that the government and the other private sector companies are doing their best to spread awareness among people. However, a large percentage of respondents said that role of the Omani media (e.g. TV, Radio, Newspapers, etc) in informing the society about mobile fraud is greatly lacking. Therefore, there needs to be a more structured approach in fighting against mobile fraud where the media and responsible organizations gather their efforts in more planned and organized awareness programs.

The large percentage of the sample who received fraud calls or messages indicate that Oman is facing a real issue. As the number of fraudsters is increasing, more people will eventually become victims and will be affected. Also, the fact that many respondents indicated that they have not received any response from the authorities after informing them about the fraud attempts they faced, is alarming. Fraud is a phenomenon that must not be tolerated and needs serious and systematic method of prevention and protection. The urgent existence of measures becomes more critical when we know that the extent of damage as a result of fraud seems to exceed the financial aspect. A large percentage of respondents indicate the seriousness of the psychological effect associated with financial losses.

Lack of awareness was indicated as the number one reason of why people respond to fraud. If fraudsters do not target a specific country but rather randomly distribute SMS or Calls to cover large number of potential victims, then the role that awareness plays becomes even more critical. Those who are aware will not respond, and those who are not aware will most probably be tempted by the attractive offers and prizes fraudsters offer. It is also important to periodically evaluate the effectiveness of awareness programs against the number of victims lured into financial or psychological losses. This evaluation will help provide a systematic mechanism for deciding which tools or methods are the best to enhance mobile user awareness.

CONTRIBUTIONS

This paper investigates the management of ICT in emerging economies, particularly focusing on the issue of mobile fraud and how to manage this growing issue. Theoretically, the paper offers a better understanding of mobile fraud since there is a scarcity of research in this area in developing countries. The study provides insights into the extent of spread of mobile fraud and what makes individuals respond to such threat. To practice, it helps measure the effectiveness of awareness campaigns currently used to protect people from mobile fraud. It also provides telecommunications authorities with insights on the best tools to use to raise awareness about this issue, and the importance of complementing the mainly SMS-based campaigns with other tools such as TV, newspapers and social media. All this will help authorities revise their currently used ICT-management strategies by informing them on the reasons and response styles individuals use when they are faced with mobile fraud attack.

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Appendix 1: The Questionnaire

Gender: Male - Female

Age: (18-23) (24-29) (30-35)

Occupation: - Employee - Student - Searching for Job

Are you familiar with mobile fraud? Yes - No

Did you receive such a warning from the ROP, TRA or telecommunication companies warning you about the mobile phone fraud?
Yes - No

Is the Omani media playing its role in a warring the society about mobile fraud?
Yes - No

Have you ever received a text message/call from unknown number informing you that you have won an unexpected large prize, or encourages you to enter a competition for which you have send money?
Yes - No

<u>If your answer is yes, answer the following four Questions:-</u>

What types of mobile fraud you faced? Calls - messages - Both

What was your reaction? Reply - Ignore

Did you inform the authorities about it (e.g TRA, OmanTel, Nawras, police ...etc)?
Yes – No

Did you receive a reply from the authorities?
Yes – No

In your opinion why fraudsters target people?
Financially - psychologically -both

Do you think that, in general, the Omani society usually responds to mobile fraud?
Yes –No

What are the main reasons that make people respond to mobile fraud? *<u>You can select more than one option:</u>*

Curiosity - Seeking for fast earning - Imitating - Attractive offers - Lack of awareness

Which effect is more on people as a result of mobile fraud? <u>Choose one</u>

Financial impact - Psychological impact

Do you think there is psychological effect associate with financial loss?

Yes – No

The Socio-Cultural Adaptation of Internet Dating: Approaches towards Online Relationship Creation among Poles and Americans in Computer Mediated Communication

by

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ABSTRACT

This study aims at investigating the social approval of Internet dating through the ranking of vignette scenarios, in Poland, a transition economy. The scenarios are manipulated by the conditions of face-to-face interaction, existence of mutual acquaintance, and employment of Internet technology. Measures of legitimacy, predicted longevity, and social perception test for changes in attitudes of the varied ways in which a hypothetical couple meets. One of three randomly distributed scenarios was ranked by a total of 15 Poles and 15 American to unravel the above conditions and test for an effect on social approval.

Positioned in the framework of cultural adaptation, script theory and the saturated self, support is found for low cultural approval of Internet dating. Conditions of face-to-face interaction, issues of trust, and affinity to the Internet show apparent effects on the approval of relationships created through Internet dating.

Keywords:

computer-mediated communication, scenarios, online dating, deception, Internet dating, transition economy

INTRODUCTION

In contemporary society, there is an important discrepancy between the attitudes and opinions held toward the social acceptability of Internet dating (Madden and Lenhart, 2006). This is not amazing when Internet dating is studied as the latest addition to an ongoing progression of dating practices within the Polish and American society.

The shifting nature of culturally tolerable practices frequently follows major technological advancements. This period of change between material advancements (Internet technology) and a consequential shift of non-material, cultural practices (Internet dating) is defined as cultural lag (Ogburn, 1922). This indispensable model places the foundation for the present state of cultural attitudes towards Internet dating. The perseverance of dating scripts (culturally normative scenarios unfolding how a date takes place) and additional effects of technology on communication, self identity, and trust demonstrate that this process is not only linear but also dynamic and reflexive. It is suggested that the effect of the Internet on traditional dating practices is similar to that of the automobile decades earlier (ibid.).

Uninfluenced by the technological implications of computers and the Internet, early ideas on relationship formation and attraction appear to be quite indispensable. These concepts are studied in the light of modern technology to demonstrate the requirement for adaptation of cultural conditions. A review of literature is offered with the detailed focus of online dating to chart its development. The early stages of this form of intimate relationship formation and the broad variety of its implications is simply noticed in the work that has been accumulated thus far.

This study aims at examining the cultural attitudes held toward this new practice of seeking love online. More specifically, it concentrates on the contradictory opinions about exploiting such services and why they may exist. This study manipulates facets of Internet dating that separate it from traditional possibilities to check if it is the technology that is source for diverse cultural attitudes or the effect of other factors: a lack of face to face communication, the nonexistence of a third party vow, or a general stigma- something that damages the reputation of social identity (Goffman, 1963).

Additionally, a questionnaire component offers insight to the customs and practices presently held in the dating scene of Americans and Poles. A test for Internet attraction measures if attitudes about Internet dating are related to one’s aptitude to use and connection to the technology. A measure of dating practices and experience correspondingly checks for an associated alteration in attitudes. In conclusion, an indefinite question permits for a discussion of why people do, would, or would not take part in Internet dating.

CULTURAL LAG THEORY

Theories of technology, social interaction, and self-identity offer a framework for evaluating attitudes about Internet dating. Communication seems to be changing and it influences the way people form relationships (Ogburn, 1922: 199)

Living in a time when technological and social changes are plentiful Ogburn assumes a relationship of their correlation. He states that society is composed of "material conditions" and an "adaptive culture" which function like variables independent and dependent.

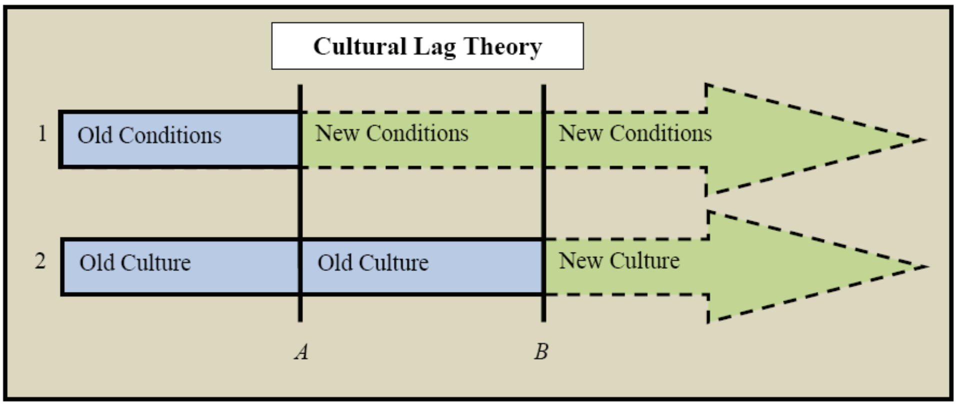

Figure 1. Cultural Lag Theory (adopted from Ogburn 1922)

In the aforementioned figure, line 1 is representative of the condition of the material object and line 2 represents the policy of exploiting the adaptive culture. Firm lines indicate the old conditions of abundant material objects and policy of management and the dotted lines are the new conditions of reduced material objects and a policy of conservation. The period between *a* and *b* is where the distorted conditions of the material objects have been realized but the policy of exploitation remained in place creating a period of maladjustment (Ogburn, 1922). This is the Cultural Lag. It is the time between realization of a material change and society"s adjustment.

Whenever there is an invention that changes the material conditions in one part of culture there is a reaction and alteration in any dependent parts of the culture. Typically, this happens with a lag in response "during which time there may be said to be a maladjustment" (Ogburn, 1922: 201). This justification of a link between conditional changes and cultural adaptations begins to clarify the relationship between Internet dating and the current attitudes held. A current example can easily be made by replacing the material object with Internet technology and replacing the adaptive culture of conservationism with the culture of dating. As it can be seen access to these technologies amplify, then one begins to perceive shifts in culture to adapt. It is apparent that the recent past has provided the context for cultural lag with accelerated advances in technology coupled with a balanced increase in access to it.

Cultural Lag Theory offers a appropriate foundation to create a better comprehension of the present state of Internet dating. It also exemplifies a common path by which changes in one part of society give rise to a response by a associated area of society which facilitates an adaptation of culture. Particularly, it is stated by a period of maladjustment formed by a lag in the cultural response to the material change.

SCRIPT THEORY

A *script* is considered to be a "coherent sequence of events expected by the individual, involving him either as a participant or as an observer" (Abelson, 1976: 23). These sequences are learnt and culturally reinforced over the lifetime of an individual. People hinge on symbols and definitions to comprehend their role in different situations. Interactions that are very common or routine become a finite arrangement of events that predicates behavior. People create expected behaviors of a situation before or as they start the interaction (Kuzio, 2010). Common scripts are present for most human interactions and can be perceived in small things such as going to the restaurant or ceremonies like weddings. While script theory in general is recognized as both a psychological and sociological phenomenon; sexual script theory is grounded most specifically to sociological study (Frith and Kitzinger, 2001).

Sexual Script Theory (SST) is perceived as a way to "define the who, what, where, when, and why of sexual conduct- guiding our sexualities at personal, interactional, and cultural-historical levels" (Gagnon and Simon, 2005: xiv). SST clarifies how the expression of sexuality is socially created and sexual behaviors are culturally reinforced. This is also evident in dating practices and in the process of communication. Studies show that common dating scripts do happen and those people with more dating experience are more acquainted with the script (Pryor and Merluzzi, 1985; Rose and Frieze, 1993). Through analysis of popular magazine dating tips, editorials and other media, Bailey (1988) reveals several examples of these scripts and how the traditional method to date changes with the standard of culture.

TECHNOLOGY AND THE CONCEPT OF 'SELF'

Besides the forces of technological revolution and the adaptation of dating scripts, theories clarifying self-identity also contribute to an clarification of attitudes about Internet dating. Two contemporary theories are noticeable when investigating the effects of globalization and technology on the creation (or deconstruction) of the self. They both approve that contemporary society is characterized by increasing numbers of interactions and subsequently diverse perspectives.

Kenneth Gergen states that individuals have lost the capability to maintain a core self because of globalization and increased exposure to conflicting perspectives. This incursion of standpoints causes a “saturation” of the self. He explains this condition through *multiphrenia*- “the fragmenting and populating of self-experience” (Gergen, 1991: 16). This happens through three stages. First of all, as others are incorporated into the self so too are their desires instigating an inaccessible goal of wants and needs. This places guilt into the saturated self by continuously assessing the values one embraces with contradictions. Finally, this lessens the capability to make rational decisions in light of opposing perspectives. Generally, multiphrenia can lead to a confusion of desires, values, and decisions within the individual. He also provided a personal example of how the self is affected in daily interactions. He describes how the computer has substituted the pen and the Internet is taking relationships electronic (Gergen, 1999). It was emphasized that this was constant access to multiple perspectives that raises multiphrenia. The capacity to cooperate quickly and with numbers of others in spite of distance shows how the rapid movement of politics, economics, people and their lifestyles effects individuals to lose sense of what is worth valuing.

Jaber Gubrium and James Holstein (2001) approve that the self is being separated and influenced by an growing number of perspectives. They part from Gergen in their belief that this does not lead to a loss of true self but rather offers a myriad of perspectives from which a core self can emerge (Gubrium & Holstein, 2001). As opposed to a breakdown of the self, concentrated on contrasting perspectives, they perceive the self as composed of institutional beliefs. The self becomes defined by the belief systems of the numerous institutions that we regularly interact in as they provide “distinct patterning for our thoughts, words, sentiments, and actions” (Gubrium & Holstein, 2003: 43).

Notwithstanding the effect on the true self, both theorists define the contemporary condition of a multitude of morals and perspectives contributing to our identity. Taken in light of Internet dating, followers of Gergen would question if we can trust anyone to represent themselves truthfully because “under postmodern conditions, persons exist in a state of continuous construction and reconstruction; it is a world where anything goes that can be negotiated” (Gergen, 1991: 7). Supporters of Gubrium and Holstein would question the profiles of Internet daters as signifying their true and total self. Instead, they would expect a representation connected with the specific association as an online dater.

COMPUTER-MEDIATED COMMUNICATION

Expanding on this problem of ever increasing perspectives and associations, Sherry Turkle investigates the recent question of how individuals are changed as technology continues to recommend more substitutes for face-to-face (f2f) interaction (Turkle, 2011). She clarifies the cycle in which technology proposes a way to communicate when traditional face-to-face interaction is impossible by suggesting that "[…]the network--the world of connectivity-- to be uniquely suited to the overworked and overscheduled life it makes possible." (Turkle, 2011). This cycle of technology providing more spare time that one simply uses to cram in more connections is a conundrum reiterated throughout. Continuous connection through our devices has started the emergence of a new self, one divided between the virtual and the personal, called to existence through technology. She persists to question the effect of communicating through these new technologies and emphasizes a few paradoxes that appear.

The concept of "alone together" denotes the observation that when people in groups are offered some break they commonly refer to their mobile devices rather than talking to the physical others around them. This indicates the idea that individuals are more connected yet more alone- "what people mostly want from public space is to be alone with their personal networks" (Turkle, 2011: 14).

As more and more of our lives become infused into the virtual, the paradoxes above question the costs to profits. Moreover, there may be repulse and varied feelings about exploiting this technology for creating intimate relationships. Particularly with intimate matters like establishing a relationship it is questioned whether expedited, mediated communication is "well suited for opening a dialogue about complexity of feeling" (Turkle, 2011). Although efficiency can be amplified, connections can be maintained continuously, and "free" time can be created- these are all accomplished at the expense of more intimate and substantive communication. Those distinguishing these qualitative divergences may be reluctant to compromise efficiency for quality when it approaches such interactions as dating.

The above theories seem to be valuable while the matter of constructing a more thorough interpretation of cultural attitudes about Internet dating is considered. Separately they each provide insight but together they propose a more robust interpretation. Cultural lag describes a fundamental relationship between conditional advancements and cultural adaptation. Bailey supported the foundation by investigating the multiple factors that have guided the progression of forming relationship by indicating that cultural adaptation is not inevitably a simple linear function but more of a dynamic process in which many factors can control dating customs. Script theory seems to sustain Bailey's account of the transformation of satisfactory dating practices by amplifying that common interactions (going on a date) become interpreted and understood in relation to the cultural normative scenario. These scripts are guided by the majority's behavior and belief and are continuously altering in reflection to the culturally popular. This indicates that the process is not just dynamic but also reflexive. Taking it into consideration, society and culture may be entering a new era rather than basically experiencing an adaptation or transformation (Turkle, 2011).

RESEARCH STRATEGY AND METHOD

This research aims at testing several hypotheses. The most important was derived from cultural lag and script theory. To test for signs of this maladjustment, scenarios of relationships begun online are contrasted with other scenarios to observe if they are established as less culturally. H1 predicts that relationship begun through online interaction will be recognized as less culturally acceptable than relationships begun through other ways of meeting. Turkle (2011) evidently observes some of the negative aspects of online communication which also seem to support the prediction that online relationship formation will be less culturally approved.

The next hypothesis concentrates on the general exploitation of scripts with specific interest in the control. Script theory aims at explaining that most common practices of interaction become scripted scenarios reinforced by society and employed to base expectations and judgments. This research tests for variation in acceptance of relationships based on the manner in which a couple met using three scenarios (one being the control). Each description starts with the same concise description of a couple and then varies by the conditions under which they met (online, face-to-face, etc.). As scenarios differ from the most common script they are seen as less normative and hence less acceptable. The characteristics of the couple were selected to be generic and void of any tarnishing qualities so that any variance in approval from the test scenarios could be qualified to the way they met and not the description of the couple. It is predicted, H2, that the control group will be ranked with the highest cultural approval.

The last two hypotheses aims at testing for exposure effects on cultural approval of relationships created through Internet dating. The affect that people hold towards almost any stimuli is perceived to increase with familiarity through mere or repeated exposure. Therefore, those who have close relations to others who have Internet dated or those who are more convenient with the technology will likely rank relationships that begin on Match.com or Sympatia.pl as more acceptable than others because of the exposure. Amplified familiarity by mere exposure and high Internet affinity should affect increased positive sentiment toward Internet dating.

The fourth hypothesis states that participants' social connection to others who have experienced changeable degrees of online dating interaction to observe if this exposure affects perceptions of Internet dating. H4 suggests that those close to people with higher amounts of online dating practice will have higher rankings of approval for the Internet dating scenario.

METHODOLOGICAL PROCEDURES

A quantitative quasi-experiment was chosen since the attitudes attributed to various ways in which people meet was to be tested. A vignette questionnaire was selected as the instrument in the design of this experiment. Vignette studies propose a more distinct way to study an array of social hypotheses (Alexander and Becker, 1978: 93). Vignettes suggest a way to hide the explicit intention of the study and disentangle multiple variables within each scenario while holding all other information stable.

30 participants (15 Poles and 15 Americans) took part in the experiment. This was vital for analysis so that a diverse set of participants was exposed to all possible vignettes. With the intention of comparing results amongst demographic characteristics such as race it is essential that a significant number of participants from each race and background category respond to each version of the vignettes.

Each instrument begins with the same brief description of a lately formed hypothetical couple, Megan and James/ Tomasz and Gosia, including their occupation and interest. This is directly followed by one of three probable variables describing the conditions under which the couple met. The first set of vignettes depicts a face-to-face interaction and the variable of whether or not there is a mutual, third-party acquaintance is manipulated. The second set of vignettes portrays a cold meet (lacking face-to-face interaction) and again manipulates the third party involvement. The final set of vignettes test if there is an result in using a dating site (match.com/sympatia.pl) to initiate a relationship. Last, there is a control vignette that provides no description of how the couple met.

The following scenarios were used:

Coffee Shop Scenarios-	A1: f2f; 3rd-party; no tech
	A2: f2f; no 3rd-party; no tech
Phone Call Scenarios-	B1: no f2f; 3rd-party; no tech
	B2: no f2f; no 3rd-party; no tech
Online Scenarios-	C1: visual; no 3rd-party; tech

C2: visual; no 3rd-party; tech

A total of eight questions are asked in response to the vignette; all are scaled employing a likert-type seven point distribution. First up is the measure of social legitimacy which embraces three rankings. This asks participants to rank their perception of the hypothetical couple's relationship. The main hypothesis analyzed is that relationships that form through online interaction will be scored as less legitimate than relationships that derive from any other means.

The next question deals with the predicted longevity attributed to Megan and James's /Tomasz and Gosia's relationship, simply asking, "How far along will the relationship make it?" The responses vary from "hook-up/dating to "happily ever after" to contain a total of seven categories.

The final section of responses to the vignette is a four-question measure of social approval of the relationship. This section solicits if friends would approve, if family would approve, if they would socially interact on a double date with the new couple, and if Megan and James /Tomasz and Gosia are "a model for new couples beginning a relationship."

These three sections appraise the attitudes of the participant and their perception of the sentiments others hold toward the manner in which a couple meets. With random distribution of the vignettes, each participant reacts to the same set of measures with the independent variable being the method in which Megan and James/Tomasz and Gosia meet.

Cumulatively, this generates a set of data that emphasizes and evaluates the perceptions of a relationship varied only by the form of initial introduction. This section of the questionnaire asks about dating preferences and patterns. Modeling earlier survey research, questions similar to those asked in a 2005 national survey to assess experience and participation in online dating are to be included (Madden & Lenhart, 2006). It starts by asking if they are single, how many committed relationships they have been in, and if they have ever visited an Internet dating site. Then, the question concerning creation a profile or an account with an online dating site is asked. This is followed by, "if yes, how many" and "if no, would you". Subsequently, is an indefinite question asking, "Why you do, would, or would not internet date?" Finally, three questions question whether the participant identifies someone close to them who has used an online dating service, attended a date with someone they met through a dating site, or been in long-term relationship as a result of Internet dating. It can be hypothesized that more second-hand experience with online dating will be associated with a more legitimate view of online relationships.

RESULTS

In the primary hypothesis it was affirmed that online relationships will be ranked as the least culturally approved. In the first of three measures to test this hypothesis, it was predicted that online relationships are seen as less "acceptable, normal, and valid" than the other test groups in an indexed measure of legitimacy. In order to verify this, a cross tabulation between the legitimacy index and the seven scenarios was run. On this measure there was no support found since the means of the online scenarios (C1, C2) were not the lowest in both Polish and American culture; therefore a fail to reject the null hypothesis can be found. Generally, for the main hypothesis (H1) it was noticed that support was found by the measures of family approval and friend approval but on the other six variables the null hypothesis failed to be discarded. This linear relationship for these two measures, A1 being the most approved and diminishing till C2 is the least approved, not only supports this hypothesis but also gives support in the next.

The last two hypotheses test for exposure effects. The first suggests participants' social connection to others who have experienced varying degrees of online dating interaction. The vignette rankings of those who reported knowing someone close to them who has "been in a long term relationship or married someone they met through a dating site" were compared to the vignette rankings of those who did not even know someone who "used an online dating site". This was mainly observed among Americans (74%) while this trend is not so widely recognized among Poles (12%). Yet, it can be hypothesize that those close to people with higher amounts of online dating experience will have higher approval rankings for the Internet dating scenario.

The open-ended question asked participants to clarify why they do, would, or would not Internet date. This was included as a supplementary measure to allow for input not surveyed and to get a general concept of the reasons behind attitudes about online dating. Almost 75% Americans and 73% Poles of questioned said they would not internet date. With such a large number, this category lent satisfactorily to pulling out common recurring reasons as to why not. An analysis of some common codes or themes reveals that trust (45% USA and 37% PL) and lack of face-to-face communication (53% USA and 42% Poles) were the two most frequently listed reasons why people would not use the services. In light of the data gathered in the vignette portion, this seems to support the finding that the scenario which included face-to-face introduction was constantly the most socially supported.

Reasons why people did use online dating services contained: for fun, compatibility, it worked for a friend, and had not found anyone through other ways. One simply said, "to meet new people (I) normally wouldn't." Another articulated the cliché, "Don't knock it till you try it." These attitudes reveal some of the innocent and positive applications of employing such services. Not all users spoke praise, some participants expressed a negative opinion after giving it a try.

Those who replied maybe (10% USA/ 8% PL) to the question represented a unique and actually larger group than those answering yes (6% USA/ 3% PL). Within this group, a recurrence of similar phrases was observed. People who were not single employed phrases like, "in a relationship now" or "married, engaged, etc." signifying that it would be an option if they were single. The phrase "no need to" came up in some places and was sometimes complimented with statements like, "if old and desperate" which was also a repeated theme for those who answered "maybe."

DISCUSSION

A tendency was observed with the first two face-to-face scenarios which were almost constantly recognized with the most approval of the test groups and followed most closely behind the control. Even though A2 (coffee shop without 3rd party) is frequently ranked slightly higher, the proximity of the two and their separation from the rest is a strong statement that the tradition of an in-person meet is the more significant quality of a legitimate way to begin a relationship.

The fact that there was little variation between the two coffee shop scenarios (frequently switching places as 1st and 2nd most approved of the test groups) evidently implies that the variable of 3rd party promise is not as big of an issue as face-to-face (f2f) interaction but it can be suspected that something else is contributing to this ranking. The face-to-face scenario without 3rd party was the highest ranked scenario of the test groups for the indexed measure of legitimacy and for the measure of longevity; for the measures of double date and model couple it even exceeded the control in both cultures. Taken in context of open-ended statements that mentioned meeting through a mutual friend as a "normal" way to initiate a relationship, the minimal variation resulting from 3rd party manipulation implies a perplexing effect. Most apparent is the idealized romantic script of two strangers meeting eyes across the room of a mundane location (coffee shop) and romance sparks, as is so frequently seen in pop media. This clarifies the constantly high ranking despite the lack of face-to-face.

The tumble in rank of the online meet scenarios (amongst themselves and with rankings of the phone meet scenarios) also proposes some interesting considerations. When ranked on indexed legitimacy, longevity, and as a model couple, it is noticed that the online scenarios obtain higher approval than the phone meet scenarios. When compared to the measures of friend approval and family approval this trend is overturned- the phone scenarios are last and the match.com/sympatia.pl meet is ranked with higher approval among Americans. It can be suggested that there some factors determining the result. First of all , the observation that there is diminutive separation between the rankings of the phone meet and online meet scenarios in general reveals that their approval rankings are comparable.
It can be predicted that the phone scenarios are ranked lowest because of the lack of face-to-face interaction, absence of third party promise, and the employment of technology deserves re-examining.

The coffee shop scenarios being ranked the highest imply that face-to-face is the main variable affecting approval and the 3rd party vouch was negligible in its effect. Analysis of Internet affinity and trust implies that the technology itself is not a hindrance to this sample (although trust of people online is very limited). Therefore, if 3rd party vouch and technology are detached from the equation, it must be that the difference in face-to-face interaction is most affecting the rank of approval. Initially, the online scenarios were considered “without face-to-face” variables. Taking into account the accessibility to pictures (and other profile information) it could be disputed that an online meet is more comparable to a face-to-face meet than the blind, over the phone scenarios. This is maintained by the fact that the face-to-face scenarios were ranked much higher in comparison and the reappearance of its importance in the open-ended questions. It can be suggested that this feature of limited visual communication is what diminished the separation in ranked approval between the phone and the online meet scenarios.

Secondly, it can be proposed that this pattern change is a consequence of a variation in the framing of the different measures. The framing of the family and friend approval measures is done in a subjective manner, asking for a personal assessment by bringing the subject into the hypothetical. On these two questions the participant has to imagine how *their* friends and *their* family would respond to the aforementioned situations. On the other measures this assessment is left as objective, asking only of the scenario if it is valid, how long will it last, etc. This implies a contradictory social acceptance vs. personal acceptance. It is almost as if the data states people think unpretentiously that online relationship formation is legitimate but personally and within close circles it is less approved.

CONCLUSION

The attitudes held towards Internet dating are better understood as part of a dynamic and reflexive process of cultural adaptation in both Polish and American culture. Cultural lag clarifies how important changes in the condition of society are shared to an alteration with associated cultural attitudes and customs.

Frequently, the adjustment of culture happens at a slower pace than the conditional change in society. This basic relationship is apparent in the effects of Internet technology on the changing beliefs and practices of online interaction.

One major factor contributing to the unwillingness of change related to attitudes held toward Internet dating is script theory. This illustrates how a given society endorses scripted patterns of behavior that are exploited to guide expectations in common interactions. Guided by the practices of the majority, scripts do adjust to changes in cultural beliefs. Yet by their nature, scripts typically strengthen common behavior rather than encourage change. Dating scripts through the history of research demonstrate how this process both promotes the persistence of common patterns of interaction and has a reflexive nature of adjustment to change.

The effects of Internet technology on the self and our resulting trust in others appears to be the third factor contributing to existing attitudes held toward Internet dating. The inflexibility of a core and true self is questioned as an effect of conflicting perspectives and institutional associations. This causes people to question the aptitude of others to represent themselves truthfully. Furthermore, the creation of mediated communication brought about by the technology leads to doubts concerning the authenticity and overall benefits of employing these methods for forming relationships. It is apparent that Internet technology has associated matters of trust and disbelief of mediated communication which also affect cultural attitudes of Internet dating. Taking into account the above theories, it can be admitted that the realization of Internet technologies aiming at facilitating relationship formation has been accomplished within society, showed by a moderate level of social approval. Yet, the adaptation of the culture that would similarly maintain this realization is dawdling. So while the general approval of Internet dating as a technique of starting a relationship varies it is still perceived as the method that people would associate with the least and would get the least approval within the customs and norms of friends and family.

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Exploring the Role of Social Networking on Social Changes in Developing countries: The case of Oman

by

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ABSTRACT

Information and communication technology (ICT) is one of the most important tools for growth in developing countries. ICT plays a vital role in the improvement of a country's economic and social developments. In recent years, social networking and social media became one of the pronounced types of ICT for causing noticeable changes in developing countries. Social network websites are a new way where people can engage with each other. Millions of people daily update their status and different news that may influence the reader positively or negatively. These websites are spreading in our society among adults and teenagers. The aim of this paper is to know whether SNS influences our society and identifies the changes. We distributed a questionnaire to 186 university students since they are the most active in social networking use, they comprise the majority of the Omani society demographics, and they are the most prone to be influenced by new trends and changes. The findings show that there are different areas that affect Omani society and they tend to follow some specific areas on SNS. Also, Omani users believe that SNS has brought them closer to the outside world. This study has many implications on both theory and practice.

Keywords:

Emerging economies, social networking, Oman, political, religious, economies, social interaction.

INTRODUCTION

For the past two decades, international organizations such as the International Telecommunications Union (ITU) have been pushing towards more utilizations of ICT in developing counties with the hope of achieving faster economic and social developments (Shirazi F. et al 2010). Over the years, many influential ICT emerged which had the potential to cause many economic and social changes. Among these is social networking and social media.

Social Networking Sites (SNS) are the main communication media for the younger generation which now is competing against the traditional communication and telecommunication methods (Donald K. Wright & Michelle D. Hinson, 2008). Keeping in touch with others is no more an issue. SNS are designed to increase social interaction on the Internet (Anita Zehrer and Alice Grabmüller, 2012). These websites have made important changes in societies. Workplaces as well as social relationships have been re-built and re-shaped in a way that allow people to share their life, beliefs, values and opinions with whoever and whenever they want.

It's been interesting to watch the effect of social media in Oman as a developing country. Based on a study done by students of Dubai School of Government; the percentage of Facebook users increased by 30% since last June. Moreover, more than half of them think that SNS allowed them to accept new ideas. Also, around 46% believe that SNS has played an important role in changing the society (Salm F & Murtada R, 2012).

In this research, we study how the SNS has changed the Omani society in different aspects of life particularly personal relationships and interaction, religious beliefs, political beliefs and consumer behaviour orientations. We have focused on these aspects specifically because they are among the most important and sensitive aspects of life in the Omani society, as they change and shape the society's overall behaviour.

LITERATURE REVIEW

Who would have thought back in 2001-2003 when social media such as hi5 came to life that they will become an integral part of people's lives. People are posting on such websites activities of their daily lives thoughts and pictures. They have found a new way to connect with relatives, friends and new people. Research indicates that social networking has influenced the public in different ways. According to a survey done by (Havas Worldwide), a future-focused global ideas agency, 70% of young people believe that social media is a force for change. These changes might not include only young people, but also the older ones, since social media has introduced people to have changes in different aspects of their lives.

Social network sites are "web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system" (Ellison, 2007,p 2). Social networking sites allow users to connect with people who you share a relationship with or a same interest (Huberman, 2008). This means that people interact with the ones who are listed as part of their social network. These websites can be focused on work related information, music, politics, social events and gatherings and/or merely to interact with each other (Ellison, 2007).

According to the Gulf News article, Internet world state website showed that more than 90 million people used the internet in the Middle East in 2011. Also, based on TNW website statistics Egypt tops the list of users numbered at over 11 million, but the most population who uses SN is UAE with over 47.83% of population. In addition, twitter users reached more than two million across the Arab in mid of 2012 and focusing on Gulf region, Qatar and Bahrain have the highest twitter penetration, and UAE was found to have the 2nd highest number of users. Locally 1 out 3 people who use the internet has an active Facebook account. Moreover, 81% of users are between 18-44 years old and there are more than 2000 people using twitter.

The effect of social media on human interactions

Because relationships in modern life are generally not on the same level of depth or closeness as they used to be years ago, people are trying to compensate for that through social media. When people are trying to develop relationships, they aim to reduce the uncertainty between both sides. One way to do this is to ask the person for personal information before starting the interaction between them and it depends upon the level of relationships, because at the beginning of the relationship the person can't ask for detailed personal information. But, while the relationship progresses, people feel more free to disclose about them, which in turn increases the level of the relationships and closeness through the social media (Ch.Yang. ,B. Bradford ,Michael T Braun, 2013).

Users on internet are more open; they do and say things they wouldn’t say face to face. They are less stressed, which means they express themselves without any fear. This makes the use of anonymity social networking provides, when people start to differentiate between their actions and lifestyle online from those in actual life. This makes them less fearful of being known to others and what they do or say will not be linked to the rest of their lives (Suler, 2004). Moreover, social media has changed relations between people and the way they communicate with each other. Based on study done by Donald and Michelle, two-thirds believe that blogs and social media have helped what happens in people’s relationships. Also more than 61% respondents believe that social networking in specific and social media in general have changed the way the organizations communicate with each other (Wright &

Hinson, 2008). Also, friends and family can connect with each other and know about each other lives on daily bases regardless of the distance. Facebook, for example can increase such relationship, but it may not strengthen the already-strong relationships (Burke & Marlow, 2011). These websites have downsides; people have become more isolated where they cannot have an average size conversation. Uploading photos to share online is the only activity where users discuss from different backgrounds (Hampton & Her, 2008). Another study showed the opposite result, Facebook and social capital have a positive relationship but this relationship isn't that strong as trust, participation in activities and life satisfaction are influenced by the user's personality and his lifestyle (Valenzuela, Park & Kee, 2009).

The effect of social media on religious beliefs

Considering the relationship between religion and social media, many people change when they use social networks. Because they have the ability to hide their real identity by anonymity, they usually turn to be more open in their opinions, since they feel they are hidden from supervision. This attitude can violate their confession and doctrine or even the religion they follow (Gamson, 1992; Suler, 2004).

Social media has a great impact on religion where it can form and change the person's belief. A lot of people may change according to whom they follow and communicate with. In addition to the above, the strength of the relation between people affects their beliefs; the stronger the relation the more affective it is (Gilbert, 2009). However, the change can be positive or negative depending on the personality or belief (Suler, 2004; Meyer, 2006).

The effect of social media on Political beliefs

Social networking sites could be one of the main reasons in the reduction of face-to-face communication between people in real life, but nowadays it has been the strong reason for the active civic participation among people. The greatest impact of the participation through social media is that it allows voting, exchanging and acquiring information, leading to increase the individual's participation in the political activities (Weiwu Zhang, 2009).

SNS are also used for politics among students. As old media has become less important in younger generations lives, the new social media allows users to seek political information at a more interpersonal level. The information that is hard to obtain from traditional sources is now easy to access through social networking sites. In addition, the new generation uses different websites such as YouTube, Facebook and blogs to get political information and other people's opinion. (Kushin & Yamamoto, 2010).

The effect of social media on Business and Consumer Behavior

The social networking helps the marketer to spread the message around quickly, the powerful impact of SNS to public relations and marketing people "is to harness the amazing power of . . . whatever you call it – viral, buzz, word-of-mouse, or word-of-blog – having other people tell your story drives action. One person sends it to another, then that person sends it to yet another, and on and on" (Donald K. Wright & Michelle D. Hinson, 2008, p 20). Social networking sites become an immediate way to interact with organizations and it becomes a powerful method to respond quickly to customers (Donald K. Wright & Michelle D. Hinson, 2008).

Social networking sites have made a big revolution in the marketing area. They created strong relationship between marketer and customer by shortening the distance between the two. They can use a variety of social sites. They can now access the needs of their customers easily more than before. The marketers now can easily track their customers leading to promote and advertise their merchandise based on targeted customer (Smith, 2011). Social networking has cut the cost spent in marketing by more than a half. The business has become much easier and even more productive because products are now produced upon the customer's preference (Smith, 2011; Evans, W,2008).

Research emphasises the importance of utilizing social media in order to develop entrepreneur's businesses especially through Facebook (Black et al, 2012). Even marketing in social networks sometimes aims to promote healthful behaviors that can influence adults by using children's ads and influence children by using adult's ads and that to stop them from doing certain mistakes and to benefit themselves and their community(Evans, W,2008).

METHODOLOGY

The objective of this study is to explore the changes that social networking has made within the societies in developing countries, particularly in Oman. We also want to find out the areas where SNS affected Omani users the most and to study the citizen's reaction towards these changes. To achieve these objectives, we selected our sample study of 186 Omani users of SNS from the ages 18 and above. The questionnaire (Appendix 1) includes six general questions that determine which areas of SNS affect the Omani user in specific and the society in general. In addition, the questionnaire is divided into the four aspects that we focus on in this research including: personal relationships and interaction, religious beliefs, political beliefs and consumer behaviour orientations. Each of these aspects includes 5 questions that help us understand how SNS has made changes in these areas. The last question was an open-ended question, aiming to identify the users' responses toward these sites and towards the existence of these changes in the society. The questionnaire was put online in three social networking sites/apps (Facebook, Twitter, and WhatsApp). An open invitation was made to university students.

ANALYSIS AND RESULTS

The respondent gender was about equal percentage, fifty-four of the respondents were male, while forty-six of the respondents were female. Most of the respondents' age was between 18-26 years old (about one hundred thirty five percent), thirty-nine of them were between (27-36) years old, while only twelve percent were above (36) years old. The number of times they log in Social Networking Sites per day comes like this; only twenty-six present log in from (1- 3)times and twenty-eight of users login between (4-7) times and, about half of the users login more the 8 times per day (about forty six percent).

The aim of this research was to find out changes that social network has made in the Omani society. According to the user's preferred news in the social media, the first one was the entertainment news then educational news, after that, the political news while both Technology and Religious news got the same ranking, last was the economic news in the rankings. The Religious news was on the top of the issues that affect people as a person, and then the results were as following: political news, educational news, entertainment news, technology news, economic news respectively. The next findings show the ranking of the news that effect the Omani society, the political news was the most powerful issue that affects the Omanis then religious news, economic news, entertainment news, educational news, and finally technology news. The vast majority (ninety- eight percent) agree that the social media connects them to the outside changes that happen in the world, while only two percent disagree with this point. Thirty- seven percent agree that they spend less time with their family and friends since they started using the social media, and only thirteen percent disagree with this point but twenty-nine percent were neutral

The reasons why the usage should be increased is because of the increase of the technological development in the society, Omani voice can reach everywhere in the world, keep updating the latest news globally, increasing the awareness of the Omani society, increasing the popularity, the effective and positive participation of the Omani users. This leads to increase the connection in news and ideas between us and the outside world, because it is a good approach to disclose the experience and ideas, therefore, resulting in more knowledgeable users.

On the other hand, the reasons why the usage of the social media should be decreased is because it might affect the reliability and credibility of spreading the news consequently which will affect the users mentally, worrying them of the increase in political instability. Moreover religions have a strong effect on the society; they have the power to force users to use it continuously which leads to spend less time with the family. More than half of social media users (77%) said the news on these sites are reliable, while only twenty percent disagree with is point.

In the relationship dimension, forty-eight percent of our samples agree that since they started using social media they are spending less time with their families, but 23% disagreed about that, maybe because they have the ability to control the time they spend on using SNS and the rest were neutral. The majority of the sample is saying that they have more friends in real life than in SNS. On the other hand; only twenty-three percent are saying the opposite and the rest are in between. A question was asked in the questionnaire saying that whether people feel more comfortable in expressing their feelings while using SNS or in face-to-face dialogs, forty-four of the samples answered that SNS are more comfortable and thirty-one prefers the face-to-face. Furthermore, fifty-one percent of the samples are agreeing that their social life has been affected since they started using SNS also seventy-one percent of them believe that SNS has changed the relationships among people in Oman.

For religious orientation, the majority of our sample agrees that SNS makes them aware of religious information and it has allowed them to participate more freely in discussions related to religions. However, the above helped new religious parties to appear and this has a great impact on the Omani society. The rest of the sample is between opponent and neutral. Religious intolerance as twenty-nine of the samples agree has been increased after using SNS, twenty-six of them disagree and the rest are neutral.

For political orientation, the results show that sixty percent of users became more interested in politics after they started using SNS. Moreover, they agree that after using SNS they became active followers of political news. In addition 38% of users agreed that SNS affected their participation in political issues. The SNS also helped political groups to appear as this showed in more than half of users' responses that believed that SNS has an important impact on political groups. Also 53% of the respondents thought SNS had the ability to reform the political parties which exist and survive in a society.

The fourth dimension is consumption behavior; more than 120 users agree that after they started using SNS, they became more aware of the products they want to buy. But only 12% disagreed on the fact that SNS didn't increase their awareness on products they are aiming to buy. To make it more interesting, 63% of users use SNS as a tool to know the quality of services that companies' offer. Also, more than half of the users (52%) believe that SNS is made to communicate with companies before and after purchase. Regarding the price and quality compression of products, 34% of users thought that SNS helped them to compare between prices of products they want to buy and 31.7% of users thought that SNS allowed them to compare the quality of products.

DISCUSSION AND CONCLUSIONS

The results of this research show that the preferred category of news to acquire through social media is entertainment news because most of the users' ages were less than 30, so they are searching for fun which is one of the reasons for social media development. On the other hand, the least preferred category was the economic news because of its wide spread everywhere (on TV, radio, newspapers, specialized websites, etc) and does not require a channel like social media and because such news does not interest the majority of young users. The strong effect of the religious news was on the top of the categories that affect people. No one can deny the powerful role of religion in any society since it is a sensitive issue currently.

To point out, the political news have the greatest influence percentage on the Omani society because of its strong role that might change the political science in a society, and the least influential type of information on social media is technology news because of its low effect on cultural changes within a society.

The huge role brought by the social media to connect the world in one click made almost all of the users agree that the social media made them better connected to the outside world, global changes and events. Also more than half of the users agree that the use of the social media effects their time spent with their families and relatives. This can directly affect family structures in the future and cause many social changes because of the openness in the social media world that provide most of the user's needs, which is the need to belong and find friends and other needs. Also, because of the availability of such sites on hand and everywhere else.

Furthermore, the effect of SNS on the social relationships in the Omani society is taking a big place as the results showed because a lot of people are using social media mostly for social purposes. As a result of the ease in using SNS as mentioned above, people have become more obsessed with SNS and have made them spend a lot of time away from their families and friends also because people behind screens feel more comfortable expressing their feelings than face-to-face. Hence, their personal social life have been affected since they started using social media, but still this did not eliminate their normal relations.

Moreover, the Omani society is interested in learning all the aspects of their religion and discusses whatever is related to it. Social networks helped people to get a better and easier place to obtain all these discussions because it has brought whoever is difficult to reach to one place along with the public. People have become more aware of their religion, information flows easier from one person to another and they can ensure that it is verified in a very easy way by asking SNS experts. In addition, SNS helped new religion parties to appear because of the ease in communication, people have the ability to gather in clusters around certain doctrine.

Furthermore, this study tested the effect of the political area on Omani society via SNS. Most of the users have become more interested in political issues after using SNS. This is because SNS has opened doors for different people to participate with different backgrounds, so political issues can find their way to impact on the users, especially when this kind of information can affect the environment a user is living in. Their interest results an increase in following the politicians. As we mentioned before that SNS is open for everyone and anyone, users have started to follow politicians to know who they really are, what do they really think and it's an easy way to access into their personal information. The activity didn't stop on following, as 38% of users' participations have increased in the political issues after using social media sites.

This is because SNS has fewer boundaries, it allows users to interact more with each other, exchange ideas and have online debates too, especially when people of high stature in the Omani society have become members of such sites and Omanis started to exchange ideas with those members more easily. Our findings also showed that 55% of users think that SNS helped political groups to appear. Users with the same ideas and thoughts came close easily to each other by SNS. Since some sites allow creating pages, different people who have similar thoughts are gathering to discuss about what they belief and think of. Strong words have strong impact on a person and this is what the users' believe in that such parties have more impact on Omani society after SNS appeared. Since people have the freedom of what they want to write, they can impact others by words rather than action.

The last dimension we tested was consumption behaviour. To begin with, most of the users have a better idea of the product they want to buy. This is because SNS made it easier to get a review of a consumer who has already purchased the same product also; the respondents' believe that SNS has made comparing between products quality, company quality of service and prices of similar products easier. There are sites that only provide all the information about products, in terms of the price, the quality and the company's service quality, such sites make it easier for consumer to get all the information he needs before he makes any purchase. Moreover, the users think that they can communicate with companies before and after purchase. Many companies nowadays have profile/ page on different social media sites, where consumer can provide feedback or ask specific questions and get answers in few minutes.

According to the level of social media usage by Omani user, there are different sides of the user's point of view, either increasing the usage or reducing it. The reasons related to supporting the increase in the use of social media include improving the utilization of new technology in the society, making use of the excellent power of social media to facilitate the sharing ideas and making a difference, and improving the way of thinking by continuously communicating with and learning from others. On the other side, few users think that the social media usage should be reduced because of the bad effect of the social sites or the internet in general like the long hours spent which might influence religious concerns or ideas.

The results of the preferred news category was the entertainment news because the younger generation, which comprises the majority of social media users, are interested in following the news of celebrities and looking for fun and enjoyment. Social media users are not generally keen to acquire news about the economy because such information is readily available through other means such as TV, Radio and newspapers. Religious information, on the other hand, comprise a major aspect of the culture and belief systems, which makes people more receptive of such information. Therefore, it was emphasized by the respondents that the impact of social media on individuals is mostly in this area. Ranking the political category on top of the most influenced aspect by social media refers to the power of politics in any society. Social media has a hand in gathering people around the world to know about each other and discovering new areas that might be unknown to people before the use of social networking sites. All these influences that social networking and social media are making on the orientations of people are important considerations for governments, policy makers and media regulators.

CONTRIBUTIONS

This paper studies ICT in emerging economies, focusing on Oman. It aims to better understand the impact of social networking technologies emerging economies and how much societal change this fast spreading technology has caused. Therefore, this study offers important insights on a largely unexplored research area especially in emerging economies. The exploration this paper presented will help future research to focus on a specific issues such as politics or religion.

From a practical perspective, this paper offers insights to people and organizations responsible for managing ICT in emerging economies. It gives them deeper understanding of the extent to which new ICT such as social networking can make changes in societies in emerging economies.

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APPENDIX 1: The Questionnaire

Age:
Gender: Male Female

how many times do you log in (SNS) per day ?
- 1-3 times
- 4-7 times
- more than 8 times

Usually, what's your interest in SNSs ?

Religious news	Political news
Entertainment news	Technology news
Educational news	Economy news

Which one of the following you think it is affecting you more?

Religious news	Political news
Entertainment news	Technology news
Educational news	Economy news

In social networking sites , which one of the following areas has more impact on Omani society?

Religious news	Political news
Entertainment news	Technology news
Educational news	Economy news

Do you think that your use of social networking sites (SNS) made you more connected to outside world changes? Yes No

In your opinion, the news you read via SNSs are:

Strongly reliable	Reliable
Not reliable	Not reliable at all

Relationships and SNS

Indicate the extent of your agreement to each of the following statements

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Since I started using SNS, I am spending less **time** with my family and friends					
I have more **close friends** online than I have in reality					
I feel more **comfortable** in expressing myself online than face-to-face					
I feel that my **personal social** life has been affected since I started using SNS					
In **general**, I think that SNS changed the relationships among people in the **Omani society**					

Religion and SNS

Indicate the extent of your agreement to each of the following statements

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
SNS made more **aware of** religious information					
SNS allowed **to participate** more in discussions about religions					
SNS helped **New Religious parties** to appear					
Because of SNS, **religious parties** have more **impact** on the Omani society					
Intolerance Religious in the society increased after SNSs was discovered					
Politics and SNS Indicate the extent of your agreement to each of the following statements					
Statement	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
I became **more interested** in politics after I started using SNS					
After I started using SNS, I became an **active follower** of politicians and activists					
Because of using SNS, I started participating more in political issues					
Because of SNS, more **political groups** appeared in the Omani society					
Because of SNS, political parties have more impact on the Omani society					
Business, Consumer Behavior and SNS Indicate the extent of your agreement to each of the following statements					
Statement	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
After I started using SNS, I became more aware about **products** I want to buy.					
SNSs made it easier for me to evaluate the **quality of service in companies** before I deal with them					
SNSs made the **communication** easier between me and companies					
Because of SNSs, it became easier for me to compare and evaluate **prices of products**					
After I started using SNSs, I can evaluate the **quality of products** more easily before I buy them					

Chapter 7

Problems of ICT Knowledge and Skills Transferrence from Highly Developed Countries to Emerging Economies (2)

Regional aspects of standardization and innovation in technology management

by

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ABSTRACT

In this paper we wish to present general guidelines for the technology management, aided with standardization, and the guidelines regarding process innovation oriented to technology in transition economies. We also want to point to the fact that these activities are conditioned by a general government strategy, current national economic condition and the availability of the necessary resources. Depending on these factors, different directives considering technological activity may be identified. These issues will be presented on the examples of the economic situation of the Republic of Kazakhstan (RK) and the Republic of Poland (RP) with regards to the regional differences, which, in fact, determine the objectives of technological activities. In the current situation of globalization and increased competitiveness, the necessity of improvement and standardization of the technology applied, together with innovative aspects of its advancement, is a development chance for an organization. Design and implementation of the technology management system is conditioned by the specificity of a given technology as well as regional pro-development aspects. It is also advisable to use the guidelines included in reference books. In case of the Republic of Kazakhstan, it seems to be advisable to pay special attention to the creation and improvement of the technological potential directed to the product of utmost need, with the use of the recommendations included in prCEN 16555 referring to process and production innovation. In the case of Poland, special attention should be paid to the improvement of the technological activity and taking full advantage of the recommendations and requirements included in prCEN 16555 standard for this purpose. The above activities could be substantially facilitated, and their quality improved, if the proper systems of IT-aided activities for building the standard systems of technology and innovation management were designed.

Keywords: design, implementation, information technology, innovations, IT-aided activities, technology management, transition economies

E-communication as a cultural discriminator and stimulator of market activities

by

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ABSTRACT

This paper presents the initial results of research devoted to e-communication as a stimulator of contemporary economical culture and e-culture in the countries in transition on the example of Poland. This study sought to answer questions regarding an instant messaging at work, e-messaging in business, using of E-comm for effective work, career success, better achieved organization's objectives. We examine modern culture development by the use of e-messaging and their impact on such cultures elements like language, religion, traditions, customs, rites, rituals, right, knowledge, politics, art, fashion, nutrition, technology, the entertainment industry, tourism. We test and discuss the modern market functioning and development through the use of e-messaging and its culture affect by shaping the values, needs, attitudes, style of behaviour, the perception and understanding of environmental phenomena, the world creation by providing it with meaning. The evolution of market mechanisms, that shape a postmodern economy model as well as the emergence of new relations between entities participating in IT, have activated (in theory and practice) different attitudes towards relations between economic processes and cultural background and surrounding. Communication plays a major role in a cultural context of marketing. The results of our study may help IT managers to identify changes in the surrounding world and to indicate factors determining market chances. Complex recognition of cultural conditions favors to refine transfer methods and to reinforce the meaning of communication in achieving business success. Special role play online regional and local media which can be a source of knowledge about career development prospects, having an influence on the labor market in the region.

Keywords: culture, e-business, e-communication, e-culture, e-marketing, information technology, transition economy

(The culture of learning organization)

by

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ABSTRACT (REQUIRED)

The subject of this work is the organizational culture that occurs in learning organizations. The first part is devoted to the issue of organizational culture and its typology. The second one discusses the concept of the learning organization and its fundamental disciplines such as personal mastery, shared vision, mental models, team learning and system thinking. The third part is the research. The main hypothesis is an assumption that the learning organization's organizational culture is open and the organizations managed traditionally manifest a closed culture. A questionnaire consisting of six parts (each of which was created to explore different areas of organizational culture) was used as a research tool. The survey examined two companies which are examples of opposite types of businesses: Science Institute as a learning organization and manufacturing company as an organization managed traditionally. The results of the survey made plausible main hypothesis which states that learning organizations are based on an open organizational culture. Conclusions were drown from the answers to the survey sent to organizations previously mentioned and are located at the outset of this work.

Aim of this paper is to show the importance of the issues of organizational culture which are crucial to the organization ability to learn. Hence its impact on the smooth functioning of the company and also a boost to its efficiency. It also shows the importance of the organizational culture as a tool for organization to fully use its social capital.

In fact it is one of the causes of the phenomena taking place in the organization and can even serve as a tool in the process of managing people by allowing them to have a large impact on organization.

Keywords (Required):

Organizational culture, learning organization, the process of learning the organization.

Impact of ICT on the phenomenon of modern terrorism

by

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ABSTRACT

The aim of research undertaken by the author is the analysis of the impact of the ICT on the phenomenon of the contemporary terrorism and the analysis of threats connected with the use of new technologies by terrorists, which the countries implementing ICT for the efficient management in business and public sphere are facing today. The research is conducted based on the observation of the activities of terrorist groups on the Internet and based on the available documents of the international organisations and government institutions, dealing with the issues of terrorism.. The author analyses the phenomenon of terrorism within the so-called postmodern paradigm of terrorism, perceiving modern terrorist groups as transnational structures, which skilfully use the modern information and communication technologies for their own benefit. According to the author, under the influence of the popularisation of ICT in the mode of action and organisation of terrorist groups there occurred significant quality changes, such as the occurrence of the network terrorist structure, improvement of the inter-organisational communication, expansion of the funding sources and a more direct and profiled way of communication of terrorists with their auditoriums. Yet another effect of the use of ICT by terrorists is the increase of operational abilities within planning and coordinating terrorist attacks as well as the use of ICT, as the means of destruction and the attack goal. The issues of threats connected with the use of ICT in the terrorist activity will, according to the author, increasingly concern the developing countries, basing their development on the investment in ICT. Because together with the implementation of ICT in the private and public sector there increases the risk of attack on the IT infrastructure, as well as the risk of using this infrastructure for goals of the terrorist organisations. This problem requires the development of relevant laws, establishment of procedures and institutions responsible for the safety of the information and telecommunication infrastructure, conducting the informative campaign among the society and establishing the public-private partnership, in order to develop principles of the information security.

Keywords: terrorism, cyberterrorism, Information and Communication Technologies

An empirical study in the test of theoretical claim for the relationship between Value Added of Economic and stock return in production sector in Poland

by

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ABSTRACT

Authors in this research study looked at the analysis of the practical relationship between VAE and stock returns, as the research dealt with analysing the success of the investment policy based on generally accepted accounting indicators in Poland, a transition economy. Having reviewed the theoretical research on a scale of VAE in terms of the relationship between stock prices and earnings, and the VAE, the extend of the benefit of scale of the VAE in the design of investment policies in production sector (including information technology and Internet) will be use to achieve extraordinary returns. Authors also presented research results of the study support the operation of the previous studies that indicated that in spite of the existence of logical justification of the relationship between the theory of VAE, stock prices and revenues, results do not justify this relationship. The term of study included three years in the period from the beginning of 2010 to 2012, over 40 businesses, representing the most active companies according to the official index of the Warsaw Stock Exchange - mWIG40. The results agreed with the previous studies, which tested this relationship in the stock market and the benefit of the investment policies adopted to measure the VAE compared with the average market return and averages return achieved by the policies adopted indicators of accounting. The results showed the invalidity of the theory that the allegations refer to the benefit of the use of investment policies based on the VAE to achieve average returns greater than average returns achieved by the investment policy based on accepted accounting indicators. The investment policies based on the conventional accounting indicators were superior to those policies based on the VAE. The possibility of using the investment policy based on generally accepted accounting indicators to achieving up normal returns compared with the average market return. In general, the results of the study provide practical evidence added to the accumulated results of the previous studies, which refers to the lack of veracity of the theory claims relationship between the VAE, stock prices and stock returns.

Keywords : accounting indicators, information technology, Internet, investment policies, stock prices and stock returns, transition economy

Chapter 8

Research in progress: Problems of ICT Knowledge and Skills Transference from Highly Developed Countries to Emerging Economies (2)

Towards Green IT and Energy Management Strategy in Emerging Economies: The Case of Oman

by

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Keywords

Energy Management, Green IT, Individual Behavior, Emerging Economies, Oman

ABSTRACT

Recently, Green IT has become one of the hottest areas for both research and practice. This paper is Work in progress as part of a larger project which aims to develop a Green IT Management Strategy in educational institutions. The objective of this part of the project is to develop a contextual understanding of the current level of awareness and behavioural orientations/attitudes towards green practices among individuals. This understanding will help identify key points or areas where the Energy Management Strategy will focus on, discussing the challenges that developing countries could face in order to implement these strategies. We have conducted a survey of 136 faculty, staff and students in the main university in Oman. In addition, interviews conducted with several departments in Sultan Qaboos University (SQU) to cover the key points from organizational perspective. The results clearly point out that individual's attitudes and behaviours towards greening is a critical factor which can affect the implementation of any energy management strategies in any organization which affected by the country status. Specifically, the findings show that, firstly, the level of SQU contribution in energy management practices is very low based on a very simple basic actions such changing the type of lighting bulbs, timing of ACs to be on which is done manually and not efficient with no IT management systems applied . And in the term of spreading awareness among students and stuff, the contribution does not go beyond hanging some sheets and signs in different places, offices, above the power points inside colleges. Secondly, having a positive behavioral awareness without organizational contribution will not be that effective. Users' behavior need to be refined in order to maintain a well understanding and awareness of the importance of energy conservation. Such a goal will not be obtained unless some practices, means and actions are applied within the institution. Consequently, successful energy conservation will be achieved. This study has many implications in both theory.

Exploring Oman Readiness for Could computing

by

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Keywords

Could Computing, Readiness, ICT Management, Emerging Economies, Oman

ABSTRACT

A couple of decades ago, Information Technology has changed our world of communication from a disconnected to a connected one through the wired Internet and networking technologies. Interestingly, Information Technology is once again re-shaping this world back to a disconnected one! Could Computing is a new trend the Information and Communication Technologies (ICT) industry. It provides a platform for communication and exchange of information without the need for many of the hardware that were essential a number of years ago. It offers flexibility, reachability, interactivity and cost saving in such ways they weren't available before. Despite the appeal of this new technology, it might not be suitable for all countries. As part of a larger research project, the objective of this paper is to explore Oman's readiness for using Cloud Computing technology. By exploring this area in general, future stages of this project will build on this study to determine the suitability of cloud computing for individual industries and their level of readiness to utilize this technology. In order to achieve the objective of this research, two different methodologies were used, questionnaires and interviews. The findings show that the Sultanate of Oman is currently not ready yet to adopt Cloud Computing technology due to insufficient planning, security, privacy and fast internet connection. Furthermore this kind of technology requires proper evaluation for the vendor in terms of reliability and security in addition to a highly trained IT crew to handle the threats and weaknesses of this technology and consequently a better infrastructure for an ideal implementation of Cloud Computing technology. This research has many implications on both theory and practice.

Appendix 1

Panel discussion

Knowledge Economics: How Can Innovation be Created in Emerging Knowledge Economies?

Knowledge Economics: How Can Innovation Be Created in Emerging Knowledge Economies?

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DESCRIPTION

Knowledge economics is defined as "the financial impact of the creation, modification, distribution, and use of knowledge" (Brockmann and Roztocki, "Knowledge Economics Minitrack Introduction." *Proceedings of the 46th Hawaii International Conference on System Sciences (HICSS-2013)*, January 7-10, 2013, Grand Wailea, Maui, Hawaii). Frequently, knowledge creation and innovation are seen as a prerogative of the wealth of a given country. Today, most innovations are still created in a few developed countries primarily located in North America and Western Europe. In contrast, despite the availability of information and communication technology (ICT) many of the emerging economies lag behind in knowledge and innovation creation. Based on their experiences, the panelists will discuss possible reasons for this gap and propose creative ideas on how to shrink this gap.

Keywords:

Emerging economies, knowledge creation, knowledge economics, knowledge economy, knowledge management, knowledge workers, knowledge transfer, information and communication technology, information technology, ICT, information systems, innovation, transition economies.

Appendix 2

Panel discussion

ICT in Emerging Economies – Differences that Can Make or Break a Project

Panel: ICT in Emerging Economies – Differences that Can Make or Break a Project

by

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ABSTRACT

Although considered the engines of the global marketplace, emerging economies lag behind the developed countries in per capita income and standard of living. Conversely, these countries exhibit rapid and dynamic economic growth and are ardently investing in information and communication technologies (ICT) to solve existent problems. However, these emerging countries have different requirements and pose unique challenges compared to the mature, developed economies. Equally, developed countries may also benefit from the innovative uses of ICT in emerging economies. This panel discusses the cultural, economic, societal, and political characteristics that differentiate emerging economies from developed economies and how these characteristics impact the success of ICT applications. Moreover, the areas where further information systems research is most needed are also discussed.

Keywords:

Emerging economies, education, emerging markets, human capital, ICT investments, ICT management, IT professionals, IT project management, knowledge management, knowledge transfer

OBJECTIVES

The objectives of this panel are to highlight the cultural, economic, societal, and political factors in emerging economies that impact business operations and the successful application of information and communication technologies (ICT), as well as point to areas where information systems research can help in improve development in these countries. Emerging economies differ from developed countries in the availability of resources and the quality of the infrastructure. In essence, resources are generally limited and the infrastructure often underdeveloped. In addition, cultural and political characteristics also play a significant role and need to be taken in consideration when embarking on ICT investments (Roztocki and Weistroffer 2011). Furthermore, emerging economies are not homogenous in these respects, as for example, some countries are struggling financially while others are rich, mainly by extracting natural resources. Some emerging economies may have poor education systems while others have a large well-educated populace, but nevertheless lag behind in knowledge creation while importing knowledge from the developed world. Cultures also vary and may impact ICT investment differently. Inappropriate management approaches and obsolete political structures often also reduce competiveness.

APPROACH

Four panelists representing different regions of the world each present their view as to what significant factors in their cultural sphere are most important to be taken in consideration for major ICT implementation projects, and where they see the most opportunities for further academic research. A set of questions prepared in advance of the conference helps the panelists in preparing their presentations. After these brief presentations, the floor is opened to the audience for questions and comments. It is intended that a summary of the discussion will be prepared after the conference and made available to the information systems academic and professional community.

PANELISTS

The four panelists represent different geographic regions and cultures. Two panelists represent the transition economies of Central and Eastern Europe, one panelist represents the Middle East, and one panelist is from a highly developed country. These panelists are all active in research on information technology for development (IT4D). In addition, they have a cumulative, rich experience in teaching, and consulting.

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Wroclaw, Poland, September 16-17, 2013