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DISCUSSION ON A SUSTAINABLE INFORMATION SOCIETY

Summary: The task of this paper is to provide a theoretically and empirically grounded discussion on a sustainable information society. Its purpose is to show the road that lies ahead for researchers in a sustainable information society. Firstly, this paper introduces sustainability as a new dimension of an information society as well as provides a definition of a sustainable information society and its conceptual model. Secondly, the framework of critical success factors for a sustainable information society is indicated. The paper concludes with some academic recommendation concerning the development of research on a sustainable information society. This is a conceptual paper based on the results of a critical literature review, action research and case studies, the Delphi study and systems thinking.

Keywords: sustainable information society, information society, sustainability, information-communication technologies, ICT, critical success factors..

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1. Introduction

The pace of society's advancement has become relentless in recent years. It has been enhanced by the substantial contribution of technological development and the velocity of information's circulation. Countries employing and relying on ubiquitous information and communication technologies (ICTs) and with established information societies – namely, societies that are effectively creating, disseminating, and utilizing information for gaining social and economic advantages – will reach the cutting edge of new markets and pioneer new avenues for the creation of citizens' wellbeing . It should be noted that the development of an information society is – on the one hand – one of the most important contributions to growth and sustainable development [Houghton 2010; Hilty, Hercheui 2010; Johnston 2006; Servaes, Carpentier 2006]. On the other hand, it can be a threat and source of information and digital exclusion, new social divisions and social stratification, eco-

nomic diversification, loss of privacy, information and computer crimes [APC 2009; Echeverri, Abels 2008; Ferro et al. (eds.) 2010].

As a development goal, a sustainable information society is emerging at present, with the aims of sustainability and an information society as its converging elements. Information society, information society for all, sustainable society, sustainable development and a sustainable enterprise are some of the buzzwords that have in recent years been employed in academic and research discourses on what kind of society is desirable. Overall, these discourses signify a shift towards the view that not just any information society that is brought about by the adoption of ICTs is needed, but an information society that is actively shaped by adopting such ICTs so as to gain desirable collective and individual benefits in an efficient and effective manner, in economic, social, political, cultural, personal and occupational dimensions. It is very important to explore the valuable source of the role ICTs are playing on the road to a forward-looking society which is based on the increasing use of ICTs, while at the same time meeting the fundamental sustainability criteria for human, social, economic and ecological comparability. A holistic, methodological and more systemic approach to the development of an information society, covering all the dimensions of an information society and its sustainable development have become more important. However, these current discourses are also fragmented and are lacking a theoretical and empirical foundation that tries to give concise definitions of a sustainable information society and show its various issues that will be explored in academic and political discourses.

The task of this paper is to eliminate this shortcoming by constructing an approach that defines a sustainable information society and to investigate its various dimensions and issues. Firstly, this paper introduces a definition and a conceptual model of a sustainable information society. Secondly, the framework of the critical success factors for a sustainable information society is indicated. The paper concludes with some academic recommendations concerning the development of research on a sustainable information society.

2. Research methodology

This study is a part of research on the holistic and systems approach to a sustainable information society. One of the identified research issues relates to a conceptual model of a sustainable information society, the other research issue is a selection of the critical success factors for the adoption of a sustainable information society. Among others, the following research questions were posed:

- RQ1: Which key components constitute a sustainable information society?
- RQ2: What are the characteristics, areas, conditions or variables that, when properly sustained, maintained, or managed, can have a significant impact on the success of building a sustainable information society?

In order to gain a deeper understanding of these studied issues a wide array of research methods and tools were used. Among them were: a critical review of literature [Boell, Cecez-Kecmanovic 2014; Collis, Hussey 2003], action research [Ellis, Levy 2009; Leedy, Ormrod 2005], case studies [Collis, Hussey 2003] the Delphi technique [Dalkey et al. (eds.) 1972; Linstone, Turoff (eds.) 2002; Hsu, Sandford 2007], systems thinking [Rokita 2011; Weinberg 2011] and creative thinking [Runco, Chand 1995].

This research took the following steps:

1. The first step – a critical review of literature was drawn up to identify the key components of a sustainable information society and indicate the critical success factors for building a sustainable information society presented in the literature. The search for the appropriate literature began with four bibliographic databases: ProQuest, Emerald Management Plus, ISI Web of Knowledge, and Scopus. Moreover, the open access papers and empirical studies were examined.

2. The second step – the components of a sustainable information society and the critical success factors for building a sustainable information society were indicated on the basis of action research. Action research means the collaboration of the author of this paper with the Silesian Centre of Information Society (SCSI) and The Ministry of Administration and Digitization which are responsible for information society adoption in the Silesian Voivodeship and in Poland.

3. The third step – based on literature findings, action research and creative thinking – a model of a sustainable information society and a framework of the critical success factors for building a sustainable information society were established. The proposed conceptual model of a sustainable information society is the result of systems thinking.

4. The fourth step – thanks to the Delphi technique this original framework of critical success factors was verified and developed. Experts were selected to combine the knowledge and experience of scholars, researchers and practitioners. The group of experts was composed of: sixteen employees of the local and state government, six professors of Polish universities, and six enterprises.

3. The model and the definition of sustainable information society

The background for identifying the term "sustainable information society" is constituted by the collocation "information society" developed and refined for over the past fifty years in a variety of contexts: economic, political, technological, and social [Masuda 1980a, 1980b; Machlup 1962; Bell 1973; Toffler 1980; Drucker 1993; Castells 1996, 1997, 1998; Webster 2002; Karvalics 2007; Mansel 2009a, 2009b; Hilty, Hercheui 2010; Raban et al. 2011]. The term "sustainable information society" has been developed and refined for more than ten years. Researchers and scholars have been exploring some concepts, models, solutions and recom-

mendations which could contribute to a sustainable agenda for the future development of an information society [Bicknell 2008; Berleur et al. (eds.) 2010; Fuchs 2006, 2008, 2009a, 2009b, 2010; Hilty 2008; 2009; Hilty, Hercheui 2010; Houghton 2010; Johnston, 2006; Schauer 2003; Servaes, Carpentier (eds.) 2006; WSIS 2012; Ziemba et al. 2013b].

In defining a sustainable information society and creating its conceptual model, four imperatives were investigated, i.e. "sustainability", "many-sidedness", "holism" and "systems thinking" [Ziemba 2013a, 2013b]. These imperatives constitute the notion of a sustainable information society and they are particularly important and needed for its clarification. The term "sustainability" ("flexible", "stable", "continuous", "sustainable", "supportable", "self-supported", "harmonious") means: sustainable – in relation to development, renewable – in relation to resources and sustained – in terms of growth. Another important imperative shaping a sustainable information society's intension is "many-sidedness," which can also be defined as: "interdisciplinarity", "multilateralism", "anisotropy". This means that a sustainable information society must be considered from a different point (discipline, perspectives) of view. A special imperative to take into account when defining a sustainable information society is "holism." According to the holistic theory, a sustainable information society can be conceived as one consisting of interconnected and networked but open subsystems (i.e. economic, political, cultural, technological, social, and organizational). Each of these systems is shaped by its actors, structures, processes and goals. All of these components are interrelated, dependent and open. Based on "systems thinking", a sustainable information society can be treated as a system. This system has aims and a structure consisting of components and connections between them, and there are many dependency relationships between the system itself and its environment. Its key components are: stakeholders, ICTs, information and knowledge, emerging trends, patterns of behavior, critical success factors and competences. The inseparable elements of a sustainable information society system are the objectives and the measurement of their achievement. Considering all the above, a conceptual model of a sustainable information society is presented in Figure 1.

The explaining of this model needs to answer the following questions and explore in depth the following issues:

1. What are the emerging trends influencing the development of a sustainable information society?
2. Who are the main stakeholders (actors) of a sustainable information society and what challenges do they have to take up?
3. What are the goals of a sustainable information society?
4. What are the competences of a sustainable information society?
5. What patterns and principles of behavior characterize a sustainable information society and lead to its development?

6. What are the critical success factors for a sustainable information society's development?

7. How can a sustainable information society be measured?

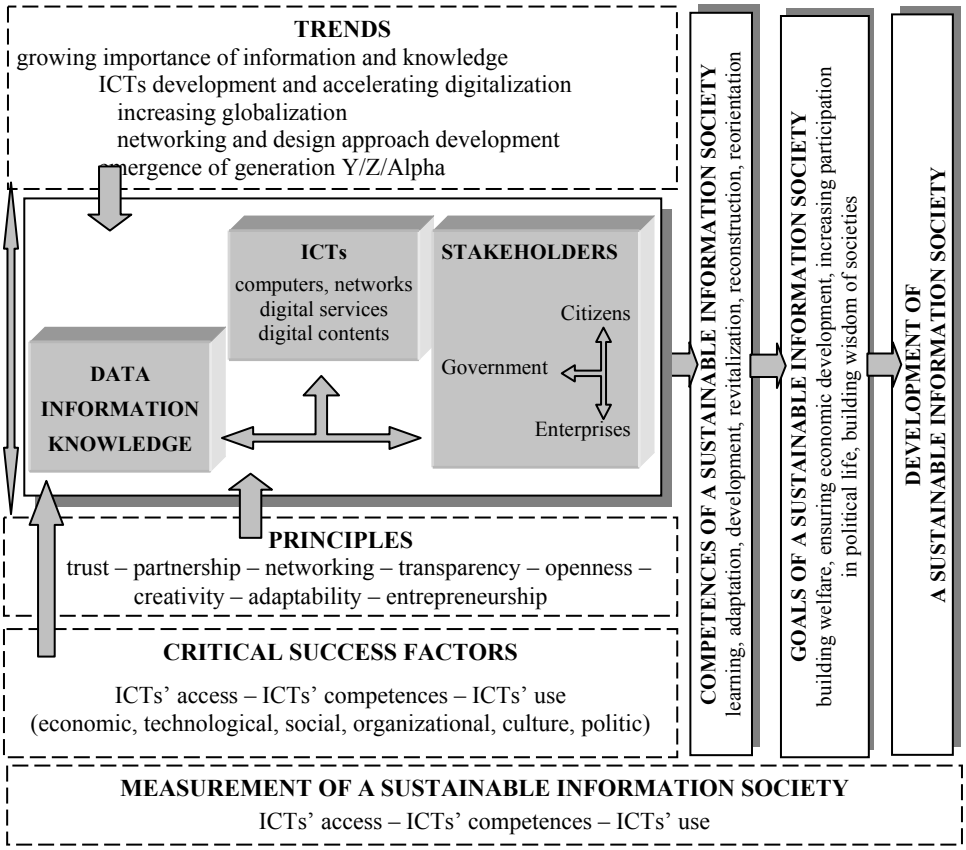

Fig. 1. A conceptual model of a sustainable information society

Source: [Ziemba 2013b].

The current emerging trends consist in growing importance of information and knowledge, ICTs development and accelerating digitalization, increasing globalization**,** networking and design approach development, the emergence of generation Y/Z/Alpha set a trajectory for society development and they are changing permanently**.** They create new challenges and new tasks to accomplish as well as open up new possibilities and opportunities for, and pose threats to, sustainable information society stakeholders, i.e. citizens, enterprises and government units. Sustainable information society stakeholders are capable of continuous learning and competence improvement, resulting in adaptation and development, revitalization, reconstruc-

tion and reorientation in response to the emerging trends and challenges. These trends should be adopted by the stakeholders mainly for building welfare of present and future generations, ensuring economic growth, increasing political participation and building wisdom of societies while balancing the interests of stakeholders. A sustainable information society requires sustainability in individual and collective dimensions, i.e. at a personal, local, national and global level. Hence the goals of a sustainable information society are to achieve individual wellbeing, security, freedom and self-determination as well as wealth for all, social security for all, political participation for all, and health and education for all. The most important principles that shape conditions for a sustainable information society, conditions for actions, cooperation and behavior of its stakeholders are: trust, partnership, networking, transparency, openness, creativity, adaptability, and entrepreneurship. Moreover there are different determinants that are indispensable for the adoption of a sustainable information society to be successful and the barriers that are crucial for adoption. The characteristics of these determinants and barriers are varied, mainly of an economic, technological, social, organizational, cultural and political nature. In addition, they concern ICTs access, ICTs competences and ICTs use. Furthermore, they have influence on the "breadth and depth" of a sustainable information society, that is its maturity level reflected in various indicators and indexes.

In summary, a sustainable information society is driven in large part by the smooth integration of information and knowledge with ICTs, coupled with ICTs competences, forward-looking government policies, an attitude to lifelong learning, the ability to absorb emerging trends, and a desire to improve efficiencies and harness innovation in a sustainable manner. Following this line of reasoning, a sustainable information society is a society which [Ziemba 2013b]:

- effectively uses the knowledge and ICTs of stakeholders (citizens, enterprises, government units and non-governmental organizations);
- learns and improves competences continuously in order to enable adaptation and development, revitalization, reconstruction and reorientation;
- positively adapts to trends;
- and thus builds the welfare of present and future generations, ensures economic growth, increases participation in political life and builds the wisdom of societies; and
- at the same time balances the interests of diverse stakeholders as well as natural and socio-technical systems.

A sustainable information society must enable citizens, enterprises and government units to respond positively to the opportunities and challenges of a rapidly changing world. The stakeholders need to be prepared to engage with economic, social, cultural change, with new learning, work and leisure patterns, with new business models, and with the rapid expansion of ICTs. ICTs can be approached from two angles: as a tool and as an industry. As a tool, available and usable ICTs can truly

change the way societies function in the dimensions of work, entertainment, studies, government and life – at personal, organizational, sector, vocational and national levels. As an industry, ICTs have become a major economic drive in branches of hardware, software, and telecommunication and consulting services. In a sustainable information society, the possibilities offered by ICTs contribute to societal and economic goals for growth, innovation, sustainability, quality of life and equality. In particular, these goals can now include ameliorating sustainable economic growth, improving productivity, offering employment opportunities, supporting innovation, enhancing the effectiveness and responsiveness of government services, ensuring welfare for citizens and fostering social inclusion, creating conditions for the formation of competitive, equitable and sustainable knowledge economies.

4. The framework of critical success factors for building a sustainable information society

Building a sustainable information society is not straightforward and is not only the responsibility of governments. These are complex endeavors that implicate different tiers of government, citizens and businesses. A sustainable information society requires close cooperation between citizens and businesses, in conjunction with national, regional and local governments. In order to turn the idea of a sustainable information society into reality, all stakeholders in society must recognize their own share of responsibility. It becomes critically important then to define clear mandates and responsibilities, and ensure that policies are coherent with the goals of a sustainable information society. Furthermore, the coordination of many activities aimed at technological, organizational, social, economic and political issues is needed. In general, several factors contribute to the success in building a sustainable information society and so many matters can compete for attention that it is often difficult to see "the wood for the trees". Hence, a major challenge is to identify these factors and issues. This is where the theory of critical success factors (CSFs) can help.

The theory of critical success factors (CSFs) [Rockart 1979; Klaus et al. 1992; Amberg et al. 2005] gives a sound basis for stating what criteria should be followed during transition to a sustainable information society. CSFs are those characteristics, conditions or variables which should be focused on primarily in order to achieve the most satisfying results for the adoption of a sustainable information society. They are the most important areas of activity that must be performed well in order to achieve the mission and objectives for building a sustainable information society. By identifying them. a common point of reference is created that helps to direct and measure the success of a sustainable information society. As a common point of reference, CSFs help all the stakeholders of a sustainable information society to know exactly what is most important, which helps stakeholders to take more effective and strategic

actions in the right context and so pull together towards the same overall aims. Overall, applying the CSF approach helps determine those factors on which the attention of sustainable information society stakeholders should be focused.

Consistent with the research findings, a framework of the critical success factors for a sustainable information society is presented in Figure 2.

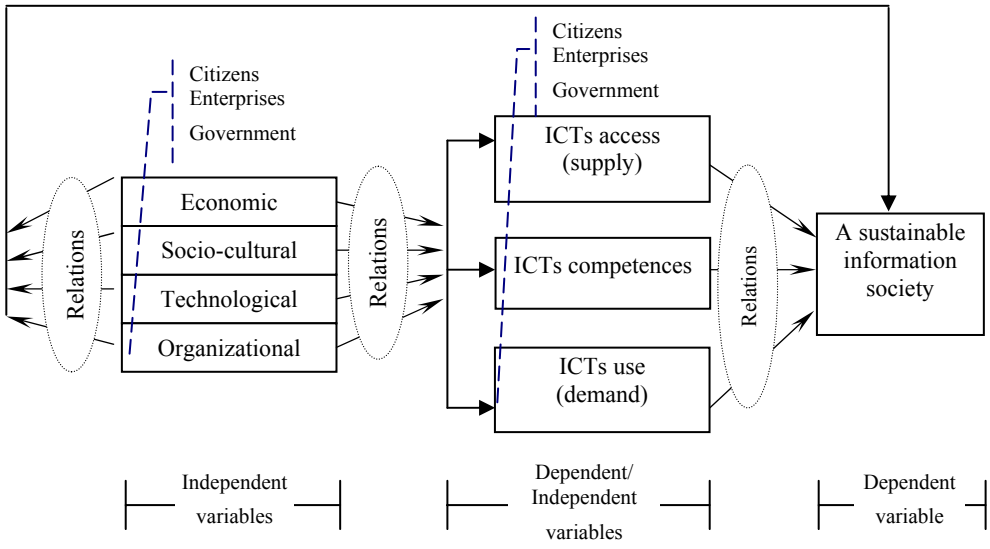

Fig. 2. A framework of CSFs for a sustainable information society

Source: own study.

All the factors are considered necessary in relation to stakeholders of a sustainable information society, i.e. citizens, enterprises and government. In a sustainable information society there are imperatives relating to those stakeholders:

- the transition to e-government, which means improving government processes, providing government services electronically, improving democratic decision making, and developing cooperation and partnerships between government stakeholders [Ziemba et al. 2013a; Ziemba et al. 2014];
- the transition to the growing role of the ICTs sector and ICTs used by the enterprises to effectively achieve their strategic business goals and improve effectiveness, productivity, innovation, creativity, competences and competitiveness; and
- the transition to the growing use of ICTs by citizens to effectively achieve a high quality of life and successfully fulfill personal goals in the areas of work, study, entertainment, personal life etc.

Moreover, in the proposed CSFs framework the factors are classified into four main dimensions: economic, social-cultural, technological and organizational.

Firstly, there is the relationship between economic factors and a sustainable information society. The economic factors are related to national wealth, the economic well-being of the nation, the financial situation of government stakeholders, the availability of economic endowments as well as the economic benefits. Secondly, socio-cultural factors influence building a sustainable information society, e.g. the mentality and awareness of stakeholders, the digital divide, information culture, digital culture. Thirdly, technological factors influence the building of a sustainable information society, e.g. ICTs innovations, innovative e-services and their maturity, open source software licenses, integration of front-office and back-office information systems, user-friendly information systems, ICTs standardization, competitive ICTs professionals, and quality of ICTs. Fourthly, building a sustainable information society depends on organizational factors, such as leadership, rule of law, managerial innovation, and management of ICTs.

Furthermore, a sustainable information society requires:

- technical and economic accessibilities of ICTs – ICTs access (supply) stage;
- competences and awareness related to the use of ICTs – ICTs competences and awareness stage; and
- usage of ICTs by government units, citizens and businesses – ICTs use (demand) stage.

The unique character of the framework appears through its multi-dimensionality. The CSFs are considered holistically. They are related to the stakeholders of a sustainable information society. In addition, they are reflected as economic, social-cultural, technological and organizational issues. Moreover, the CSFs are respondent to the three stages: ICTs access, ICTs competences and awareness, ICTs use.

5. Conclusions

Generally speaking, building a sustainable information society creates new challenges, and thus is an interesting subject of research. Researchers, government authorities and enterprises require frameworks and tools that can help them to participate in building a sustainable information society. The researchers' role is to answer such needs and focus on this emerging research topic. This paper aims to stimulate such research and makes an effort to provide a valuable contribution in this context. It explores the original concept of the sustainable information society, proposes the model of this society, and investigates the framework of CSFs for its building. That may give a starting point to develop a framework for the further development of a sustainability-oriented information society. The research findings can be used to strengthen the analyses of a sustainable information society and present new roadmaps for researchers, businesses and policymakers. They show important issues for the programming and building a sustainable information society.

This model of a sustainable information society and the identified CSFs are universally applicable to any country. Practitioners can find answers to these important questions: (1) which key components constitute a sustainable information society?, (2) which characteristics, areas, conditions or variables that, when properly sustained, maintained, or managed, can have a significant impact on the success of transition to a sustainable information society? This research suggests important issues for programming, building and developing a sustainable information society. Thus, the model of a sustainable information society and the CSFs framework need further development and testing in different contexts. The replication of this study in other countries will be useful to improve their knowledge related to the factors impacting the building and development of a sustainable information society (or lack of thereof) in such contexts.

These research findings justify that a sustainable information society is a new and a more enlightened phase of an information society. Moreover, the current status of its research is at an early stage. Therefore, the exploration of a sustainable information society is important for information science and the related research disciplines, such as: economics, management, government, sociology and social studies. Hence a sustainable information society should constitute an important area of research within these disciplines. It may be expected that future research will continue to be developed from the conceptual stage to the more applicative stage of empirical research. It seems necessary that future studies scrutinize this deeply, and with these research findings will:

- formulate government and business strategies which can contribute to building a sustainable information society;
- use ICTs to create unique capabilities for business, government and citizens which can contribute to building a sustainable information society;
- explore and enumerate the critical success factors for a sustainable information society;
- establish the methodology for building a sustainable information society; and
- develop methodology for the measurement of a sustainable information society.

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PRZYCZYNEK DO DYSKUSJI NA TEMAT ZRÓWNOWAŻONEGO SPOŁECZEŃSTWA INFORMACYJNEGO

Streszczenie: Artykuł poświęcony jest teoretycznym i empirycznym zagadnieniom zrównoważonego społeczeństwa informacyjnego. Jego celem jest wskazanie kierunków badań nad tym społeczeństwem. Po pierwsze, artykuł wprowadza „sustainability" jako nowy imperatyw społeczeństwa informacyjnego oraz definiuje zrównoważone społeczeństwo informacyjne i proponuje jego model konceptualny. Po drugie, dyskusji poddano krytyczne czynniki dla rozwoju zrównoważonego społeczeństwa informacyjnego oraz zaproponowano ich typologię. Artykuł kończą rekomendacje dla dalszych badań nad zrównoważonym społeczeństwem informacyjnym.

Słowa kluczowe: zrównoważone społeczeństwo informacyjne, społeczeństwo informacyjne, zrównoważony rozwój, technologie informacyjno-komunikacyjne, ICT, krytyczne czynniki sukcesu.