Towards a Sustainable Information Society:

People, Business and Public Administration Perspectives

Towards a Sustainable Information Society:

People, Business and Public Administration Perspectives

Edited by

Ewa Ziemba

Cambridge
Scholars
Publishing

Towards a Sustainable Information Society:
People, Business and Public Administration Perspectives

Edited by Ewa Ziemba

Scientific reviewer of this research monograph:
Professor Witold Chmielarz, University of Warsaw, Poland

This book first published 2016

Cambridge Scholars Publishing

Lady Stephenson Library, Newcastle upon Tyne, NE6 2PA, UK

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN (10): 1-4438-8688-2
ISBN (13): 978-1-4438-8688-8

This study has been supported by a grant "Designing a system approach to the sustainable development of the information society – by the example of Poland" founded by the National Science Centre in Poland, 2011/01/B/HS4/00974.

I dedicate this book to my main source of inspiration,
my sons Szymon and Adam

TABLE OF CONTENTS

CONTENTS OF CHAPTERS

Chapter One
Concept and Challenges of the Sustainable Information Society

Chapter Two
People in the Sustainable Information Society

Chapter Three
Business in the Sustainable Information Society

Chapter Four
Public Administration in the Sustainable Information Society

Chapter Five
Measuring the Sustainable Information Society

Chapter Six
General Deliberations and Reflections on the Sustainable Information Society

LIST OF FIGURES

LIST OF TABLES

ACKNOWLEDGMENTS

This study has been supported by a grant entitled "Designing a system approach to the sustainable development of the information society – by the example of Poland" from the National Science Centre in Poland, 2011/01/B/HS4/00974, 2011–2015.

There are many I would like to thank for contributing to this book. As editor and leader of this project, my first thanks go to the members of the project team and the authors of the book chapters, all of whom have worked with me on the sustainable information society. I would specifically like to thank:

Maria Jadamus-Hacura from the University of Economics in Katowice for helping with statistical analyses;

Beata Wanic from the Silesian Centre of Information Society in Katowice for practical wisdom concerning the adoption of the information society in Poland; and

Eugeniusz Romański and Łukasz Szczęsny from the Silesian Centre of Information Society in Katowice for providing a forum for researchers and practitioners in the field to meet and network.

Others who helped me with this book include Andrzej Trzęsiara, Marek Śliwiński and Rafał Poździk from the Ministry of Administration and Digitisation in Poland, as well as Dagmir Długosz and Marta Kuzawińska from the Chancellery of the Prime Minister of Poland, and Aleksandra Wanat and Marta Gąsior from the Regional Chamber of Commerce. Thanks to them, the biggest group of respondents for the survey studies was reached, giving the study its representative research results. I am deeply grateful to each and every one of the respondents who participated in the survey studies for their painstaking efforts, time, and willingness to share details of their practice in adopting ICTs. Many thanks for Ewa Jędryka from the University of Economics in Katowice for reading the proofs. Many thanks also to Joe Nankivell for final copyediting and proofreading, and Amanda Millar for typesetting this book.

I wish to thank Witold Chmielarz, professor of the University of Warsaw in Poland, for devoting many hours to a rigorous review of the content, which improved the depth of the topics addressed.

I would also like to acknowledge my family, who have put up with "not another book" for so long. I would like to dedicate this book especially to my mother, Wanda, for always encouraging me to pursue my education, and my two sons, Szymon and Adam, who always make me feel special. Heartfelt thanks to my sisters Alicja and Krystyna for encouraging me to pursue scientific work. Finally, I am indebted to my husband Krzysztof for his patience as I examined the sustainable information society.

I hope readers will appreciate the novelty and value of this book and join me in my various travelogues of the sustainable information society. Because writing a book is always an odyssey of discovery and no information society book is ever complete, future revisions are inevitable. After having gone through this material, dear readers are invited to share their experiences, ideas, or thoughts. Feel free to email the editor at ewa.ziemba@ue.katowice.pl.

Ewa Ziemba
University of Economics
Katowice, Poland

INTRODUCTION

We live in a world that changes by the minute. Change moves enterprises and impacts on people, as well as influencing public administration. For change to be effective, enterprises, people, and public administration must themselves change. The key to achieving the benefits that result from change is learning, innovating, and adopting emerging trends. In the current study, change relates to the transformation of the information society, accounting for a sustainable imperative.

Why This Book

The pace of the advancement of society has become relentless in recent years. It has been enhanced by the substantial contribution of technological development and the speed at which information circulates. Countries with established information societies – that is, societies that are good at employing information and communication technologies (ICTs) to create, disseminate, and utilise information effectively – can gain social and economic advantages, reach the cutting edge of competitive markets, and pioneer new avenues for welfare creation for their citizens. The establishment of an information society has therefore become a priority for many countries and regions (EC 2010; OECD 2012; MAC 2012; WSIS 2012, 2013, 2014). Simultaneously, researchers have been developing and refining the concept of the information society over the past fifty years in a variety of contexts: economic, political, technological, and social (Castells 1996, 1997, 1998; Goliński 2011; Hassan 2009; Karvalics 2008; Mansel 2009; Raban et al. 2011; Webster 2002).

As mentioned above, the information society is at the core of human growth, progress, and well-being, and is also central to sustainable development (Hilty and Hercheui 2010; Houghton 2010; Johnston 2006; Servaes and Carpentier 2006). It has revolutionised business, public administration, and everyday life. It plays an important role in bridging the economic and social divide and helping raise the necessary commitment to achieve economic and social development.

The potential of the information society for social and economic development is enormous, but regrettably it can also be a source of threats and dangers. Many people's lives are hardly touched by these innovations.

Those unable to acquire the capabilities for using ICTs will be increasingly disadvantaged or excluded from participating in the information society (Mansel 1999). Many scholars emphasise the importance of the societal problems posed by these new technologies, relating to the isolation of individuals, threats to cultural and linguistic diversity, and the widening of the gap between industrialised and developing countries (Lynch 1997). New social problems arise, such as information and digital exclusion, social divisions and social stratification, economic diversification, invasion of privacy, information and computer crimes, and data smog (Echeverri and Abels 2008; Ferro, Dwivedi, Gil-Garcia and Williams 2010; Mansel and When 1998).

Due to the above causes and because such societal and technological changes are enduring, the alignment of ICTs with societies' objectives must not only be understood, but constantly renewed and adjusted. Since 2000 ICTs and sustainable development have been explored by academics around the world (Berleur et al. 2010; Fuchs 2008; Hilly 2008, 2009; Hilty and Aebischer 2015). Overall, these discourses signify a shift towards the view that not just any information society is needed, but one that is actively shaped by adopting ICTs in such a way as to gain desirable collective and individual benefits, efficiently and effectively, in all dimensions, whether economic, social, political, cultural, personal, or occupational. It is very important to explore a 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 on the one hand, while at the same time meeting the fundamental sustainability criteria for human, social, economic, and ecological comparability on the other.

The concept of the sustainable information society (SIS) derives from these discourses (Fuchs 2009, 2009a; Schauer 2003; Servaes and Carpentier 2006; Ziemba 2013a). The SIS entails a new phase of information society development in which ICTs are becoming key enablers of sustainability. However, at this point the SIS is still a theoretical concept rather than a reality. Various researchers and organisations have explored the areas where the information society, sustainable development, and ICTs come together, and the relations between them. But these current discourses are also fragmented, and lack a theoretical and practical foundation that offers concise definitions of the SIS, showing its various issues to be mainly related to ICTs as enablers of sustainability. Moreover, there is a lack of research on the SIS in developing countries, and also in the transition economies of central and eastern Europe.

There is therefore a need for scientific studies and debates on various concepts, models, and methodological assumptions, to create a foundation to formulate theories of the SIS. Moreover, a more holistic and systemic methodological approach to the development of the SIS, covering all dimensions of the information society and sustainable development, has become more important. The burning research question that demands an adequate response is how the SIS stakeholders – people, enterprises, and public administration – can adopt ICTs in order to contribute best to sustainable development.

What This Book Is About

In the light of challenges, some of which were discussed above, this book provides a new comprehensive and forward-looking approach to the SIS. This approach is based on the usage of ICTs by SIS stakeholders in order to build the welfare of present and future generations, ensure economic growth, increase participation in social life, and build the wisdom of society. The primary purposes of this book are to:

- immerse the reader in the SIS orientation and outlook, and provide a feel for the issues involved in delineating the scope of the field (Chapter One);
- trace the evolutionary trends in the information society that culminate in the SIS (Chapter One);
- propose a new comprehensive and forward-looking framework of the SIS, based on four imperatives: sustainability, many-sidedness, holism, and systems thinking (Chapter One);
- tease out theoretical and practical issues relating to the SIS, with a special focus on ICTs as enablers of sustainability (Chapter One);
- provide a conceptual framework of factors for the successful adoption of the SIS, with a special focus on ICT adoption by SIS stakeholders (Chapter One);
- delineate and broadly outline the challenges and tasks of the SIS stakeholders, with a special focus on ICT adoption by them (Chapters Two, Three, and Four);
- describe methodologies of research on critical success factors and the level of ICT adoption by SIS stakeholders (Chapters Two, Three, and Four);
- propose a comprehensive framework of factors for the successful adoption of the SIS, with a special focus on successful ICT adoption by SIS stakeholders (Chapters Two, Three, and Four);

- identify and describe critical factors influencing successful ICT adoption by SIS stakeholders in Poland (Chapters Two, Three, and Four);
- evaluate levels of ICT adoption by SIS stakeholders in Poland (Chapters Two, Three, and Four);
- describe theoretical and practical issues of measuring the SIS, with a special focus on ICT adoption by SIS stakeholders (Chapter Five);
- provide a methodology of building a sustainable information society index (SISI) for measuring SIS adoption, with a special focus on successful ICT adoption by SIS stakeholders (Chapter Five);
- apply the methodology for measuring SIS adoption to assess the level of SIS adoption in Poland (Chapter Five); and
- propose a new survey framework for measuring SIS adoption on the basis of the SISI (Chapter Five).

How This Book Is Organised

Generally, the intent of the studies presented in this book is to explore the edges of our learning while offering a theoretical and practical view of the concepts, frameworks, tools, and methods that support new ways of thinking about the SIS. The chapters are laid out in such a way as to guide readers one step at a time through the landscape of change and emerging ICTs, taking in the processes, behaviours, practices, methods, and tools that support the success of people, businesses, and public administration in the SIS. Here is a quick overview of this book.

Chapter One provides the context for the considerations in the chapters that follow. It looks at the sustainable information society and its concepts and challenges. Section 1.1 describes the birth and the new challenges of the information society. Section 1.2 presents the four kinds of theoretical approach to the SIS (reductionistic, protectionistic, dualistic, and dialectical), and explores the sustainability dimensions in the information society (ecological, social, economic, and cultural). Section 1.3 teases out the imperatives for the SIS, taking in sustainability, many-sidedness, holism, and systems thinking, and identifies and describes the fundamental assumptions and components of the SIS. This section then introduces the definition of the SIS and proposes its conceptual framework. At the end of the section, basic categories and dominant features and metaphors describing the SIS are identified. Section 1.4 takes a broad look at ICTs as a vital nexus of the SIS, exploring them as enablers of ecological,

economic, social, cultural, and political sustainability. In addition, it features the levels of ICT competence of SIS stakeholders that are required in order to use ICTs as enablers of sustainability, and classifies them as ICT Users, ICT Enablers, and ICT Creators. Section 1.5 examines how the concept of critical success factors (CSFs) could provide a good foundation for achieving success in the SIS, and offers a methodology for examining CSFs for the SIS. At the end of this section, the conceptual framework of CSFs for the SIS is proposed.

Chapter Two takes a broad look at how people as the main stakeholders of the SIS are involved in its adoption. Section 2.1 considers how different generations (baby boomers and Generations X, Y, Z, and Alpha), as well as the digital divide, influence SIS adoption. Section 2.2 explores new models of consumption, work, and education determined by ICTs and generationality, such as prosumption, working in the knowledge economy, teleworking, flexicurity, lifelong learning, and e-learning. Section 2.3 explains the methodology for establishing the level of ICT adoption by individuals and identifying CSFs. Section 2.4 presents the framework of CSFs for ICT adoption by individuals, and examines how various economic, technological, socio-cultural, and organisational factors influence the success of this adoption in Poland. As a result, ten CSFs for ICT adoption by people in Poland are found. Section 2.5 probes how people in Poland adopt ICTs in the context of the identified CSFs. Section 2.6 concludes the chapter with a focus on the implications of people adopting ICTs.

Chapter Three addresses the second main SIS stakeholder group, namely enterprises, and the adoption of ICTs by them. Section 3.1 brings up contemporary trends in business transformation. Section 3.2 deals with the new concepts and models of business, such as dot-coms, hybrid enterprises, brick-and-mortar enterprises, the virtual value chain, e-marketing, customer relationship management, customer knowledge management, supply chain management, enterprise resource planning, freelancing, management 2.0, and sustainable enterprises. Section 3.3 expounds on the methodology for identifying the level of ICT adoption by enterprises, and their CSFs. Section 3.4 proposes the framework of CSFs for ICT adoption by enterprises and examines how various economic, technological, socio-cultural, and organisational factors influence the success of this adoption in Poland. Ten CSFs for ICT adoption by enterprises in Poland are recognised. Section 3.5 evaluates how enterprises in Poland adopt ICTs in the context of the identified CSFs. Section 3.6 concludes Chapter Three with a focus on the implications of the adoption of ICTs by enterprises.

Chapter Four deals with the third SIS stakeholder group, namely public administration, and the adoption of e-government in government units. Section 4.1 addresses contemporary trends in public administration transformation. Section 4.2 focuses on e-government as a solution for public administration, and broadly outlines its four components: e-administration, e-government services, e-democracy, and e-governance. Section 4.3 details the methodology for identifying the level of e-government adoption by public administration, and the associated CSFs. Section 4.4 proposes the framework of CSFs for e-government adoption and examines how various economic, technological, socio-cultural, and organisational factors influence success in e-government adoption in Poland. As a result, ten CSFs for e-government adoption in Poland are identified. Section 4.5 assesses how government units in Poland adopt e-government in the context of the four identified CSFs. Section 4.6 concludes the text with a focus on the implications for adopting e-government.

Chapter Five turns the spotlight on the measurement of the SIS. Section 5.1 provides the theoretical foundations for measuring the SIS. Section 5.2 broadly outlines sector, indicatory, and streaming approaches to the measurement of the information society. Section 5.3 goes beyond the approaches described in the previous section to showcase the sustainable information society index (SISI), comprising the sub-indices of ICT adoption by, respectively, individuals, businesses, and public administration. Additionally, indicators for each sub-index are shown on the basis of the CSFs described in the previous chapters. Section 5.4 pulls together the proposed SISI into the measurement of the SIS in Poland. Section 5.5 offers a survey framework for evaluating the SISI. For each indicator, its description is presented and the survey question is proposed.

Chapter Six is a discussion on the research findings and the likely direction to be taken to help people, enterprises, and public administration succeed in the full adoption of the SIS.

Who This Book Is For

This book is likely to appeal to researchers and practitioners interested in the development of the information society and its evolution into the SIS. For researchers this book shows significant areas and directions for the research on the SIS. For practitioners, including enterprises, government units, government authorities, and individuals, this research suggests important issues for programming, building, and adopting the sustainable

information society. All readers may find answers to important contemporary questions, in particular the following:

- What are the emerging trends that influence the sustainable information society?
- Who are the main stakeholders or actors of the sustainable information society, and what challenges do they have to take up?
- What are the goals and competences of the sustainable information society?
- What patterns and principles of behaviour characterise the sustainable information society and lead to its development?
- What are the critical success factors for the sustainable information society?
- How can the sustainable information society be measured?

How to Use This Book

The chapters of this book can be read alone or in the linear arrangement suggested by the book form. Chapter One, on the definition and evolution of the SIS, may be read separately to get the background on the SIS space. Chapters Two, Three, and Four, which deal, respectively, with individuals, enterprises, and public administration in the SIS, also stand alone and can be read with or without the other chapters or in any sequence. Chapter Two may be read in various combinations with Chapters Three and Four to make comparisons between the SIS stakeholders and their ICT adoption. Sections 5.1 and 5.2 in Chapter Five stand alone as a background to the measurement of the SIS. Sections 5.3, 5.4, and 5.5 do not stand alone, however; they are dependent on Chapters Two, Three, and Four. Additionally, these sections are dependent on all that has gone before and they should be read according to the linear arrangement.

CHAPTER ONE

CONCEPT AND CHALLENGES OF THE SUSTAINABLE INFORMATION SOCIETY

EWA ZIEMBA

1.1 The Birth and New Challenges of the Information Society

The turning point for civilisation, initiated around the 1960s, is variously referred to as the post-industrial society (Bell 1973), the third wave (Toffler 1980), post-capitalism (Drucker 1993), and, finally, the information society (Mansel 2009; Porat and Rubin 1977; Webster 2002; Olszak and Ziemba 2010; Raban, Gordon, and Geifman 2011). An information society may be contrasted with societies in which the underpinnings of economic and social wealth are primarily industrial or agrarian. It does not solely rely on material and financial resources, but is also based on an intangible asset – information. The information society is the first in the history of civilisation in which information becomes a key to economic growth, business development, and the well-being of citizens.

The meaning of the collocation "the information society" is conveyed by its two components. The component "society" can have a double meaning. In its broader perspective, society refers to the totality of human relationships. A narrow perspective of society shows it as "any human group that perpetuates itself, more or less linked to one specific geographical region, holding its own institutions and culture" (Pinter 2008, 21). In this sense, both tribes and nation states belong to this category; it also provides a good basis for the discussion in this book. "Information" simply refers to those attributes of society in which information plays a crucial role; access to good-quality information determines the creation and development of this society. In the information society, the creation, inventory, codification, distribution, and utilisation of information have become the most significant economic, cultural, technological, and organisational activities for people, businesses, and public administration.

The information society is therefore characterised by a high level of information intensity in the daily life of most citizens and in the everyday activities of most business and public administration organisations. Additionally, the manipulation of large information resources requires the use of information communication technologies (ICTs).

Accounting for the above changes, scholars and practitioners have developed and refined the concept of the information society over the past fifty years in a variety of contexts: economic, political, technological, and social. The term "information society" probably first emerged in Japanese social science, and was coined by Kurosawa and Umesao in the early 1960s. Umesao (1963) distinguished three sectors of the economy: endodermal (agriculture, fishing, and farming), mesodermal (transportation, heavy industry), and ectodermal (information, communication, culture, education). He suggested that ectodermal industries must increase with a society's development, and he called this change *johoka* or informationisation (Ito 2012). According to Masuda (1980a, 1980b), the information society is a new type of society in which the possession of information, rather than material resources, is the driving force behind its development and transformation, and where human intellectual creativity thrives.

US researchers contributed considerably to the research on the information society (Mansel 2009; Raban, Gordon, and Geifman 2011), and they in turn had a strong impact on Japanese researchers. Machlup (1962) introduced the concept of the "knowledge economy." He enumerated the main information industries of the knowledge economy, such as education, law, media, and the computer industry, and estimated their impact on economic transformation and development. Japanese and US researchers then measured the percentage of the information industries against the gross national product, and noted that the percentage was increasing both in Japan and the USA (Ito 2012). These considerations were further developed by Porat and Rubin (1977). They undertook empirical studies aimed at assessing the importance of information activities in the US economy. In 1970, Garfield focused studies on the social aspects of the information society in which he described the difficulties people encountered in accessing information and stressed that access to information represents a social problem (Raban, Gordon, and Geifman 2011).

Additional great contribution to research on the information society was made by Bell (1973). He is the key proponent of the theory of the "post-industrial society": according to him, "the post-industrial society is an information society" (Bell 1973, 467). Bell explained his theory by

identifying eleven major dimensions of the post-industrial society. They are as follows (Bell 1973; Waters 2002):

1) *The creation of a service economy*. The majority of the labour force is engaged in such services as trade, finance, transport, health, recreation, research, education, and public administration.
2) *The pre-eminence of the professional and technical class*. According to Bell (1973, 17) "the expansion of the service economy, with its emphasis on office work, education, and government, has naturally brought about a shift to white-collar occupation." At the heart of the post-industrial society are scientists and engineers, and together they will become a knowledge class.
3) *The primacy of theoretical knowledge*. This is indicated as the axial principle of the post-industrial society: it is organised around knowledge that becomes the basis for innovation, social policy, political management, and decision-making. In Bell's opinion, theoretical knowledge is the key strand to the society. This knowledge is encoded in an abstract symbolic system and can be used to illuminate a wide variety of areas of experience.
4) *The rise of a new intellectual technology*. Computers and software based on mathematical and economic principles are used to define rational actions and identify strategies to achieve the optimal solutions to economic and engineering, if not social, issues.
5) *A change in the character of work*. Work focuses on engagement in relations with other people. It is "primarily a 'game between persons' (between a bureaucrat and client, doctor and patient, teacher and students, or within research groups, office groups, service groups)" (Bell 1999, xcv).
6) *The role of women*. Work in the service sector provides employment opportunities for women and creates a secure base for their economic independence.
7) *Science as the imago*. Scientific institutions, and the relations between them, are the emergent and central feature of the post-industrial society.
8) *Situses as political units*. A situs means a vertical order of a society. Bell specified four functional situses – scientific, technological, administrative, and cultural – and five institutional situses – business, government, university and research, social welfare, and military. Situses are more important than horizontal units of society (i.e., classes or strata). The major conflicts of interest occur between situses rather than between classes.

9) *Meritocracy*. A position in a society is based on education, skills, and ability rather than on class privilege or wealth.
10) *The end of scarcity*. In the post-industrial society, there is a scarcity of information and of time instead of a scarcity of goods. An individual is becoming "homo economicus in the disposition of his leisure time" (Bell 1999, xcvi).
11) *The economics of information*. By its nature information is not a private but a collective good. Therefore, a cooperative strategy is needed to increase the spread and usage of information and knowledge in society.

The above dimensions illustrate very well the essence of the information society. Many of Bell's predictions have come to pass, while some have yet to be seen. Several of them were later explored by a range of the world's influential researchers.

The theory of the information society was further developed by Toffler. In the 1980s he introduced the concept of the "third wave," in which he showed civilisation as being shaped by three waves of technological innovation. The three waves defined by Toffler corresponded perfectly to the endodermal, mesodermal, and ectodermal sectors of the economy defined by Umesao. The third wave, which from the late 1950s onwards pushed the older society and culture aside, is the post-industrial society. This new society is based on information, and was called the information or knowledge age by Toffler. To Toffler's mind, information, coupled with ICTs that form information superhighways and digital networks, gives rise to striking changes in a society (Toffler 1980). With information and ICTs, the new society radically changes business, modifies the face of consumption, creates a new code of behaviour, restructures schooling and education, redefines scientific research, develops "the electronic cottage," shapes the business and social environment more intelligently, creates a new social memory for storing cumulative knowledge, and offers alternatives to the mass media.

Toffler's forecasts were in line with what Drucker (1993) suggested a dozen years later: in *The Post-Capitalist Society* he stated that capital, natural resources, and manpower are no longer basic economic resources. The new economy is led and empowered by people who have the capacity to manipulate information. Already in 1966, Drucker had coined the term "knowledge worker," and later explored various issues concerning people who use their brains more than their backs in the workplace (Drucker 1967). The preferred terms varied – for example "symbolic analysts," "knowledge experts," "informational labour" – but one major

characteristic of their work is that it involves creating and using information (Webster 2002).

While discussing the concept of the information society, the contribution made by Castells (1996, 1997, 1998) should be stressed. His views on the information society are consonant with some issues shown by Bell, Toffler, and Drucker. In his trilogy he profoundly analyses the new information age. He proposes a conceptual model of a networked society, arguing that modern human existence has developed a new mode, namely the information society, in which the central role is played by the production, recording, processing, and retrieval of information in organised networks. Castells explores the key phenomena of the network society: (1) the network enterprise; (2) the cultural consequences of informational capitalism; (3) a space that allows distant, synchronous, real-time interaction; (4) timeless time, with the blurring of crisp boundaries between work and relaxation; (5) the power of identity; (6) new forms of stratification concerning better- and worse-educated informational labour; and (7) the demise of the working class and the birth of meritocracy. Castells (2001) also presented a comprehensive overview of the impact of the internet on global civil society, government regulation, and economic development. In addition, he pointed to the growing impact of ICTs on the transformation of society.

In Poland, studies and empirical activities on the information society have developed since the mid-1990s. Researchers have explored the information society in various contexts, mainly economic, technological, social, and political (Babis and Czapiewski 2011; Bliźniuk and Nowak 2006; Cellary 2002; Goliński 2011; Hales 2013; Olszak and Ziemba 2010; Papińska-Kacperek 2008; Sienkiewicz and Nowak 2009; Szewczyk 2007). Because of its economic, social, and political significance the information society was very clearly referred to in a recent government strategic document, "The strategy for the development of the information society in Poland until 2013" (MSWiA 2008). In this document, the information society is defined as one in which information is processed with the use of ICTs, and constitutes an economic, social, and cultural value. In this respect, effective support of modern and friendly public administration is needed; the adoption of the information society therefore involves strategic activities, using ICTs to target the following three areas (MSWiA 2008):

- *Human*. Acceleration of the growth of the intellectual and social capital of citizens.