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# DILEMMAS OF INFORMATION SOCIETY AND CHALLENGES TO RESPONSIBLE DEVELOPMENT

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ABSTRACT: The concepts of information society and knowledge-based economy present a desirable direction of civilizational changes as a means for the realization of responsible socio-economic development and wisdom-based economy of the future. However, they also generate their own sets of challenges and are characterized by imperfections and barriers to development. Proper identification and reduction of these problems seem to determine the future implementation of responsible strategies of development. The authors emphasize selected challenges that may gravely affect the progress of information society and the associated new model of the economy.

KEY WORDS: an information society, knowledge-based economy, wisdom-based economy, responsible development

## Introduction and research methodology

Even a cursory review of modern scientific studies related to socio-economic development and economic growth provides evidence of a great variety of concepts and approaches employed in this context. Concepts of development range from extensive to intensive, structural to resource-based, endogenous to exogenous, and they are implemented in accordance with strict trajectories of changes in fundamental indices or (as in the last few decades) affected in response to challenges in environmental, technical, technological, sociological or information-related developments. At the same time, new models are postulated in an attempt to integrate such varied aspects of the complex socio-economic process as sustainable development, sustainability, integrated and durable development and responsible socio-economic development. Each of the above postulates provides interesting conclusions, and each can be used as a source of important questions of both cognitive and applicative character.

The researchers are writing about responsible development, its necessity and effects. Infrequent, they are interested in the implementation problems of this strategy, mainly, related to an information society and knowledge-based economy. Why? It is an important and interesting question. In this paper, authors concentrated on identification of the barriers and challenges of responsible development, in literature and researcher's consciousness (Poskrobko, 2009b).

This paper addresses the idea of responsible development from the viewpoint of the information society – interpreted here both as a category of study and as a source of information/communication dilemmas and problems. The main purpose of the study is to identify those basic challenges to the idea of responsible development which are generated in association with information societies, their principles, and their institutions (in a broad definition of the term, i.e. in a sense postulated by new institutionalism or new institutional economics).

The study does not attempt to verify any specific theses or research hypotheses. The authors believe that – at least at this stage of the scientific discourse – it may be more important to pose the right questions and to identify the most important problems which can then be studied in detail with the view of determining their conditions and, ultimately, postulating viable solutions.

Although the problem addressed in this study escapes easy definition, one may attempt to provide a general outline of a leading research thesis. Thus, in accordance with the above reservations, the following working thesis can be formulated: an information society, along with its institutions, gen-

erates serious problems that may significantly affect the progress of responsible development, both in terms of social awareness and support for the idea and in the context of modern economic practice. In other words, an information society represents more of an impediment than a facilitator for the effective propagation and implementation of the idea of responsible development.

The research focused on the identification of main barriers related to an information society and knowledge-based economy in the context of responsible development. The identification based on critical analysis of literature (information sources) and used desktop research methods. In this goal used half thousand Polish and English articles and books, conference pronouncements, which concentrated on similar problems. They were economical, sociological and human communication studies. Based on the several criteria, the authors displayed eight important barriers related to an information society and knowledge-based economy in the context of responsible development (Poskrobko, 2009a):

- barriers of interpersonal and social communications,
- exclusion from information,
- information asymmetry,
- information noise,
- difficult to verify the level of information truth,
- reduced reliability of information sources,
- insufficient wisdom,
- inadequate natural intellectual capacities of the human mind.

The main goal of the research has a form: what is the importance above mentioned kinds of barriers in literature and consciousness of researchers (what is a percentage level?)?

## Disputes over the notions of development and responsible development

Since the 19th century, the concept of socio-economic development has raised numerous controversies and disputes. Representatives of classical economics – Adam Smith, David Ricardo, Thomas Malthus, or John S. Mill – aspired to shed some light upon mechanisms of this process and formulate their own concepts of development. Their early attempts have since inspired many movements, most notably – the idea of secular stagnation (Jabłońska, 1988). For Karl Marx, mechanisms of socio-economic formation were a potential source of important information on future developments of human civilisation (a prognostic aspect of the theory of development).

In time, the increased attention placed upon social aspects of the various theories of development have led, on the one hand, to gradual limitation of economic aspects (which were the central focus of the subjective-marginalistic school of economic development and, on the other hand, to identification of discretional stages of development based on various factors, including non-economic ones (a trend well represented by the Historical School or Veblen's and Schumpeter's institutionalism) (Schumpeter, 1996).

The above trends were employed in modern economics in the form of a theory of economic growth, with models construed on the basis of formal mathematical expressions. This particular approach to development proved quite potent and held dominion over modern economic publications, academic handbooks, scientific monographs, and even some of the most important works of numerous laureates of the Nobel Prize in economic sciences (Krelle, 1985). For many years, any alternative approaches to the subject were shunned as nothing more than intellectual curiosities.

The situation changed drastically in the second half of the 20$^{th}$ century, in response to new challenges of economic practice. By then, it became apparent that the available theories and models of economic growth would be inadequate for the identification of such new phenomena, and thus impractical in providing viable solutions. The most dramatic display of this shift was evident in the first two editions of the Club of Rome report (Meadows et al., 1972; Mesarović, Pestel, 1977), with their emphasis on devising a new concept to socio-economic development to integrate the changed reality of economic practice with methodological and cognitive fundaments of the holistic approach in its broadest (global) perspective (Czaja et al., 1993). These ideas were aptly reflected in later approaches, such as the idea of sustainable development originated in the 1970s and 80s (Nasza…, 1991).

Soon after the environmental aspects of global civilizational transformations became apparent, other symptoms came into play, most specifically those related to the ongoing information and IT revolution and the emergence of an information society. The latter came complete with its own set of economic activities, collectively referred to as knowledge-based economy. The scope of changes has brought radically new dimensions to processes of socio-economic development by introducing a number of new phenomena and factors defining directions of the present transformation of the modern world.

Such variety of concepts of development has invariably led to confusion and problems, particularly with regard to their persuasive power and social acceptance, adding a considerable load to the already potent set of challenges associated with their formulation and implementation. Good evidence of this trend is the idea of sustainable development: after the initial wave of fairly

enthusiastic opinions (Rio de Janeiro, 1992), the concept soon faced a number of practical challenges, which strongly affected the pace of implementation while giving rise to more and more criticism. Consequently, new concepts were developed (such as the Millenium Development Goals of 2000), but they also seemed to lack proper economic support or perseverance in their effective implementation. At present, there are more than a dozen large strategies based on such ideas of socio-economic development, but it is difficult to provide an example of a successful implementation of this type (even if we take into account partial or limited implementations). One of the relatively positive examples is the strategy of the European Union (Towards Sustainable Development 2030), which has been implemented with some success, at least in the countries of so-called Old Europe.

Even less numerous are examples of strategies characterised by good adjustment with the modern challenges of an information society, knowledge-based economy, and information as a dominant factor of socio-economic development. Disputes arise not only with regard to the practical operation of information society and knowledge-based economy but also to proper use of the available data/information resources in socio-economic development processes. These have resulted in the formulation of the most recent concepts of socio-economic development, such as responsible development and wisdom-based economy. To what extent these new concepts relate to the most important problems associated with the practical operation of an information society?

## Selected problems associated with the practical operation of an information society

Information society and the associated concept of knowledge-based economy represent not only civilizational progress but also a broad array of new problems and barriers to such development. This section of the paper presents selected problems representative of this type of impact. As it seems unfeasible to aspire to present a complete identification and diagnosis for all such problems, these study places focus on some of the most significant challenges, as seen from the viewpoint of responsible development (figure 1).

Information overload coupled with information noise represents the most difficult challenge from the viewpoint of information society and knowledge-based economy, as a source of problems related to the identification of usable information and elimination of irrelevant data from lists of criteria employed for decision-making purposes (Becla, 2018). Those factors are also responsible for difficulties in information gathering and processing, such as

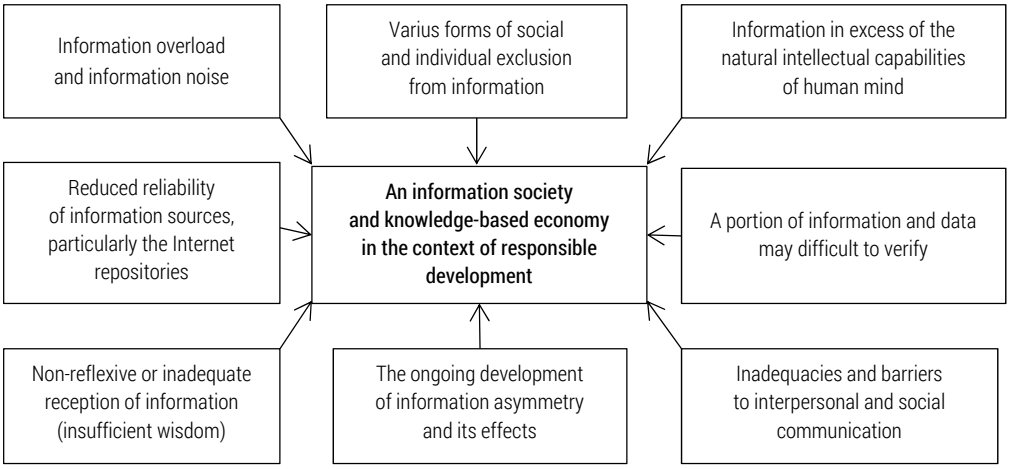


**Figure 1**. Selected challenges and barriers related to an information society and knowledge-based economy

Source: author's work.

long processing times and the associated cost increase, particularly the transaction cost and the alternative cost of information acquisition (Becla, 2019). These challenges also contribute to the limitation of knowledge creation processes, both in individual perspective and with respect to internal knowledge held collectively by social groups. Lastly, information overload results in the devaluation of real and usable information, as its value is much affected by the excessive load of the accompanying 'trash value' information (Cieślarczyk, 2016).

The accelerated development of information society and knowledge-based economy is clearly accompanied by various forms of information-related exclusion, on the level of both individuals and whole social groups (Becla, Czaja, 2010). Such exclusion may be manifested in subjective or objective form. The former type relates information exclusion to such factors as intellectual limitations, inadequate competences or cultural barriers. The latter type, in contrast, represents a result of conscious choices made by individuals or members of social groups. Irrespective of their origin and cause, every form of information exclusion clearly limits the participation of the affected individuals or groups in practical realisations of processes related to information and/or generation of knowledge (wisdom).

Progress of an information society does not necessarily correspond with the individual development of its members and their awareness of recommended civilizational transitions. Many individuals and quite a few social

groups display an inadequate level of intellectual skills required for information acquisition, processing and interpretation. This inadequacy is manifested not only in knowledge but, most of all, in wisdom (Zacher, 2012). The above observation gives rise to the following research hypothesis: a society abundant in information is more prone to display greater levels of intellectual inadequacy which limits their ability to select and utilise information. The above statement, however, needs further verification (Poskrobko, 2017).

Contrary to popular belief, education services provided as part of the broad framework of information society do not contribute to higher average levels of intellectual competence. This paradox is evidenced in such recent phenomena as: (1) gradual but steady simplification of language employed in interpersonal and social communication, (2) rapid progress of functional illiteracy in developed societies, (3) alarming decline of general knowledge in mathematics, natural sciences and technical science, coupled with a radical increase in the use of mechanical and electronic devices, (4) 'pictographic' reception of information and difficulties in interpreting messages presented in the alphanumerical form (texts). In addition, the value of genuine scientific knowledge is also in rapid decline, as valuable information is often buried under layers and layers of 'trash' information, needlessly redundant data and false or even manipulated and deceptive information (Poskrobko, 2011b).

Communication inadequacies and barriers to interpersonal and social communication represent another spacious category of problems related to the development of an information society. These may take on a variety of forms, including information ineffectiveness (in the context of both products and processes), the imperfection of direct communication processes, general barriers to interpersonal communication, or limitations of verbal or non-verbal elements of communication (Becla, 2018). Modern technical and technological solutions do not seem to contribute to the effective limitation of communication imperfections. On the contrary, they only add to the load by promoting such negative effects as a further simplification of communication messages, lack of respect for spoken word and unrestrained use of highly ambiguous pictorial lingo. In modern interpersonal communication, pictures and emoticons are used in place of words, and raw emotions are placed before reason (Fehler, 2016).

In addition, the setting of an information society seems to promote low reflexivity among recipients of information, which ultimately leads to deterioration (inadequacy) of wisdom. This includes not only lack of proper and rational use of the available information and knowledge, but also application of information and knowledge for immoral or criminal purpose or mindless use of information/knowledge with no regard for potential effects of our actions. Taking responsibility – be it social, legal or intellectual – for our spo-

ken words and their effects seems to be a thing of the past, and has ostensibly been replaced by a sense of impunity or at least general latitude in this respect.

The context of information society and knowledge-based economy is also a favourable setting for rapid development of information asymmetry and proliferation of its various effects, from abuse of information advantage, through the adverse selection and moral hazard, up to ideological manipulation (Becla, 2018). Economic, social and political consequences of these and related phenomena have already been subject to extensive studies (Potencjały, 2018) stimulating vivid interest in the scientific community and gaining formal recognition, including one Nobel Prize in Economic Sciences[1] (Pala, 2016).

Another important challenge in the development of an information society and knowledge-based economy is the problem of declining reliability of information sources and the associated difficulties in determining reliability and veracity of specific information or data. In general, IT and information systems store four types of information (as seen from the viewpoint of data reliability), namely: (1) true and reliable information founded on scientific knowledge and confirmed using various methods of verification (falsification) – the scientific knowledge, (2) true information construed by individuals on the basis of empirical evidence – practical knowledge, (3) false information provided without verification, but not intended to deceive – such as gossip or hearsay, and (4) false information prepared with the intention of deceiving or manipulating their recipients. All four types of information are often published side by side in joint online repositories, with no regard for their factual content, generating steep barriers to access true information, both in terms of expertise needed for the task and the steep cost associated with evaluation of their true value (veracity, accuracy, etc.) (Kiszka, 2016).

The authors of analysed information sources were conscious of these eight kinds of barriers and their importance in the information society and knowledge-based economy (on the average over 50% sources). Next precision researches are necessary. In another situation, the implementation of responsible development will threated. The threat symptoms are existing now.

[1] G. Akerlof, A. Spence and J. Stiglitz jointly received the Nobel Memorial Prize as early as in 2001, in recognition of their analyses of information asymmetry and information economics.

Table 1. The results of desktop research

| Kind of barriers | Numbers of analysed information sources | Percentage information sources, where kind of barrier was noticed |
|---|---|---|
| 1.Barriers of interpersonal and social communications | 325 | 68% |
| 2. Exclusion from information | 120 | 70% |
| 3. Information asymmetry | 200 | 75% |
| 4. Information noise | 290 | 60% |
| 5. Difficult to verify the level of information truth | 110 | 50% |
| 6. Reduced reliability of information sources | 150 | 70% |
| 7. Insufficient wisdom | 85 | 60% |
| 8. Inadequate natural intellectual capacities of the human mind | 90 | 50% |

Source: author's work.

The above challenges and barriers in the development of an information society result in aggravation of the following phenomena (*Nasza…*, 2018):

- the rise of *wrongly-informed man* and *bad-informed man*,
- the growing predisposition of certain groups and individuals to be steered by ideological manipulation,
- the growing number of individuals and groups excluded from information processes (information exclusion),
- the rise of an *informationally-confused man*, and
- the growing number of people with less than adequate knowledge, including those deemed 'utterly stupid'.

Such conditions are prone to generate unique problems and challenges with regard to propagation and implementation of such a specific knowledge-based concept as the idea of responsible socio-economic development. Which elements of the process should be emphasised in order to ensure effective dissemination of the idea of responsible development in the changed context of information society and knowledge-based economy, or more specifically, in the context of the wisdom-based economy? (Skinner, 2018; Tegmark, 2019).

## Responsible development and dilemmas of an information society

Responsible development should be founded on several base elements, namely (cf. figure 2):

- proper understanding and correct operationalisation of the idea,
- propagation of awareness of the associated strategies of development among individuals and groups and in varied contexts (from local to global),
- acceptance for objectives and principles of responsible development both in relation to a worldview (shared values) and in practical applications (habits and customary behaviours),
- provision of scientific fundaments for the selected strategy of development (knowledge) complete with proper axiological and emotional use of such knowledge,
- provision of suitable economic resources (in terms of quality and quantity), including human, material, energy and information resources (*Ekonomia…*, 2011a).

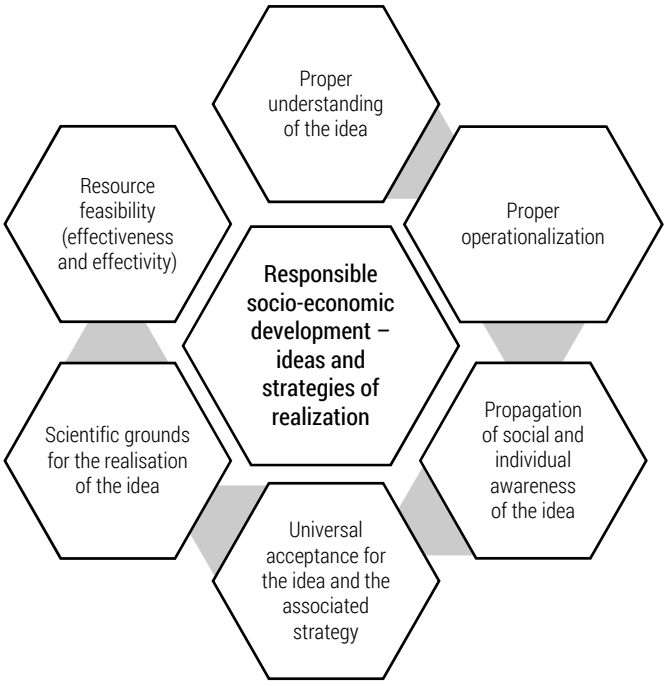


**Figure 2.** Fundaments of responsible development

Source: author's work.

In the light of the above requirements, strategies of responsible development can only be implemented under conditions of well-established information society and suitable economy, one based not only on knowledge but also (or most of all) on wisdom. This conclusion emphasises the need for competent individuals and social groups able to operate efficiently under conditions of information overload, equipped with skills needed for effective filtering of information in any available forms. At the same time, individuals should display adequate emotional maturity (emotional wisdom) to ensure their awareness of information significance and potential consequences of its use. They should be ready and willing to overcome inadequacies and barriers to interpersonal and social communication. As information creators, they should take proper care to ensure that information generated by them is reliable and verifiable. They should be able to avoid the effects of information asymmetry with due consideration for the good (i.e. interests and expectations) of other individuals or groups, which can only be obtained through the limitation of competition for rare economic resources and through the natural limitation of effects of responsible development. Such a mindset typically takes the form of more or less radical abstinence from patterns of excessive exploitation and consumption. As such, it presents a model of 'a new cyberman' which, for the moment, seems to escape easy categorization.

The available analyses of an information society and knowledge-based economy are clearly dominated by the assumption that individuals and social groups are suitably equipped to deal with new civilizational conditions and that they are able to predict and project the desired consequences of new phenomena or other determinants. As evidenced in the protracted realisation of the idea of sustainable development, the early fascination with a new concept soon gives way to controversies in interpretation, with the additional load of practical problems and obstacles to strategy implementation. In general, the more complex and ambitious is a general idea, the more pronounced are the associated challenges, and the less identifiable are the goals and objectives. This statement holds true for any type of development concept, including the ideas of sustained and durable development, integrated development or, as the case may be, responsible socio-economic development.

Empirical studies in this area are fairly scarce, but provide a much more critical evaluation are based on more solid grounds, as opposed to theoretical research founded on a priori models. In effect, they provide a more accurate picture of those imperfections and challenges associated with an information society and knowledge-based economy which may hamper or even prevent the effective realisation of strategies of responsible socio-economic development and creation of wisdom-based economy. Contrary to popular beliefs, participants of information societies and global communication net-

works are not necessarily well-informed as a whole and not that much resistant to ideological manipulation. The recent development of stupidology (the study of human stupidity) as a genuine discipline of science over the last few decades can be seen as evidence for the validity of these unsettling observations.

## Conclusions

We have to research the problem of barriers related to an information society and knowledge-based economy in the context of responsible development. The researches should have empirical and theoretical nature. This is the basic condition of implementation of responsible development strategy, on the micro (single persons and household) and macro (society and economy) level (Piergud, 2016). The responsible development policy must to limitation above mentioned barriers. This is second conditions of effectiveness implementation responsible development strategy. Above mentioned barriers are one of the biggest dilemmas of information society and knowledge-based economy. They are the challenges of human civilization future.

The researchers have a consciousness above mentioned barriers. But they interest in this problem sufficiently rarely. Majority difficulties implementation process of the responsible development strategy have reasons in existing barriers, in this area.

Information society and knowledge-based economy represent an interesting direction in the development of human civilization. However, to effectively cater for the needs of the nearly 8 billion members of the human population, it is essential to correctly identify the associated dilemmas (as well as barriers and imperfections) which will then be used in design and implementation of suitable corrective measures. If the future of human civilization in each of its dimensions (from individual to global) is to progress in man's best interest and expectations, it must be founded on suitable forms and principles of an information society, information-competent individuals, and wisdom-based economy. If these postulates cannot be satisfied, the effective realization of responsible socio-economic development will not be possible. This conclusion alone makes them a promising area of study, and one deserving further scientific exploration.

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## The contribution of the authors

Agnieszka Becla – 50% (conception, literature review, methodology, conclusions).

Stanisław Czaja – 50% (conception, literature review and discussion, methodology, conclusions).

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