Effect of ICT on the Social Dimension of Short-Term and Long-Term Alignment of the Participants in the Construction of a Knowledge Society

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Abstract. Information and communication technologies are also facilitating a rapid globalization of economic activity. In an increasingly global economy, where knowledge about how to excel competitively and information about who excels are both more readily available, the effective creation, use and dissemination of knowledge is increasingly the key to success, and thus to sustainable economic and social development that benefits us all. Innovation, which fuels new job creation and economic growth, is quickly becoming the key factor in global competitiveness. In order to realize the goals stated, a modelling method was used by setting causal models derived by applying the PATH analysis, as viewed from the aspect of the social dimension of short-term and long-term alignment, which were obtained by conducting research on a sample composed of 45 institutions from the higher education system of the Republic of Croatia and their managers in permanent (finance director, secretary) and elective positions (chancellor, vice-chancellor, dean, vice-dean). Research results abstract the conclusion which expresses a novel premise that strategic planning of the integrated business and information system significantly depends on long-term management alignment, directly influenced by common knowledge on domain and financing. The propounded premise represents a possible impulse for further in-depth research that should be undertaken longitudinally in this author’s view, using as large sample of international character as possible.

Introduction

Innovation fundamentally means coming up with new ideas about how to do things better or faster. It is about making a product or offering a service that no one had thought of before. And it is about putting new ideas to work in enterprise and having a skilled workforce that can use those new ideas. It is a further feature of the knowledge economy that it increasingly relies on the diffusion and use of information and knowledge, as well as its creation. The success of enterprises, and of national economies, becomes increasingly dependent on the information infrastructure that is necessary for the gathering and utilisation of knowledge. The importance of broadband telecommunications infrastructure in this context must be recognised as no less significant than the importance of electricity to 20th century industrial development. Knowledge has become the key resource. [1].

The Information Society

The metaphor of information society was first used in Japan by Kohyama (1968) and it was in Japan that this metaphor was first used as a rationale for national policy [2]. In the 1970s, the authors of computer-related texts were not likely to refer to an information society but instead used words like
information age and a computerized society [3,4]. However by the late 1970s and early 1980s, the information society was mentioned so often around the world that many forgot that it was only a metaphor. In fact by the late 1980s information society had become a phrase that captured the essence of a culture inundated by information and dominated by information technology (IT). Daniel Bell’s ‘framework for the information society’ spearheaded the movement to legitimize the information society concept [5]. He confirmed that a majority of the jobs were information oriented in that they were structured to produce information rather than material products. In subsequent years, as global networks became ubiquitous and a global information economy became more obvious, the information society metaphor became even more widely accepted [6].

The Knowledge Society

Ironically, the information society concept was undermined by the emergence of a new metaphor in the 1990s, the knowledge society. While the information society metaphor was associated with an explosion of information and information systems, the knowledge society metaphor primarily referred to economic systems where ideas or knowledge functioned as commodities. Many, if not most, people could not differentiate the two concepts because they tended to largely equate information and knowledge [7]. Confusion about the nature of knowledge is still a problem, especially in the field of education. The educational community tends to define knowledge mostly in terms of facts or declarative knowledge, but the field of management defines it much more broadly encompassing insights, value, and other tacit cognitions [8].

Information vs. Knowledge

Increasingly, the definitional distinction of information from knowledge is that information consists of intentionally structured and formatted data, but knowledge consists of cognitive states needed to interpret and otherwise process information [9]. While information can generally be reproduced for minimal costs, knowledge reproduction requires training, apprenticeships, and other more costly forms of transmission. Knowledge that is difficult to codify and reproduced is called tacit knowledge. Tacit knowledge includes judgment, experience, insights, rules of thumb, and intuition and its retrieval depends upon motivation, attitudes, values, and the social context [10,11]. A knowledge economy necessarily depends upon information as well as the intellectual capital of economic communities. Thus, a knowledge society necessarily presumes an information society, but not the other way around.

Knowledge Societies in Education

While economists tend to think of knowledge society as a global economy, other social scientists tend to think of it as a smaller level social collective. Thus, a knowledge society may exist on at least four levels: a global, national or cultural system, a social organization like a professional society, and a smaller community.

A knowledge society is generally defined as an association of people with similar interests who try to make use of their combined knowledge. Of course, knowledge societies are not new, but what is new is that there has been a quick rise with them and they are much more visible now. Their rise follows digital networks which make them possible without members cohabiting in the same region while the technology enables accessing and sharing the knowledge that emerges from the knowledge economy.

Unless the educational unit devotes particular attention to knowledge-related activities, it is not particularly useful to call it a knowledge society. When an educational group invests considerable effort toward sharing and producing new knowledge, then it can be called a knowledge society. Communities of practice, typically groups of teachers that work with each other to improve their teaching, are good examples of knowledge societies, especially those that use all the tools, electronic and other, to facilitate their goals.
ICT - Information and Communication Technology

ICT stands for information and communication technology and refers in principle to all technologies used for processing information and communicating to others. In most educational circles, it means computer technology, multimedia, and networking, especially the Internet. In business and industry, the most commonly used label is IT, but sometimes the terms ‘new media’ or ‘digital media’ are used. This semantic diversity derives from rapidly evolving integration of computers with communication, video, and audio technologies, where the separate technologies become nearly indistinguishable. The scope of ICT is dynamic and continuously changes with the inventions of new technologies. At one time, technology referred only to hardware, now it includes software as well. Daily invention of new technologies provides a major challenge to implementation of ICT based educational strategies. It is imperative to track such developments because they impact society and change research priorities of ICT research internationally [12].

Results of the PATH Analysis for the Proposed Model of SP-IPIS

Set causal models presented in continuation have been derived applying the PATH analysis, based on examples and suggestions by Dillon and Goldstein which served for designing the SP-IPIS model, as seen from the aspect of the social dimension of short-term and long-term alignment [13].

In the widest sense possible, the issue of managing IT technology can be seen as the issue of aligning the relations between the business domain and the domain of IT infrastructure, aiming at best possible utilization of IT possibilities and potential – as considered by Sambamurthy and Zmud [14]. Research literature dominantly features two approaches to the alignment topic. The first focuses on testing planning strategies, structure and methodology in organizations. The second researches people by testing their values, communication with others, and their understanding of the domains of their co-workers [15]. Support for such a dualism in approach is also found in Horovitz who states there are two dimensions for creating IS/IT strategy: intellectual and social dimensions. Studying the intellectual dimension focuses on the content of plans and planning methodology, while studying the social dimension focuses on the people involved in the creation of alignment [16]. By joining Horovitz’s duality with the construct which states the alignment is the outcome, the intellectual dimension of alignment is being defined as the ‘state in which a quality group of IT and business plans exists’.

The social dimension of alignment is defined as the ‘state in which business and IT leader within an organization understand and are dedicated to business and IT goals, mission and plans’ [17]. Even though there is the conviction that both dimensions are important and that these should be studied as they are indispensable in order for an organization to achieve a high degree of alignment, research that is the object of this work was focused merely on the social dimension of alignment and the factors impacting onto it. The dimension has not so far been researched in equal quantity as the intellectual dimension, even though the creation and maintenance of understanding within an organization and dedication to it can cause more difficulties than the development of business and IT plan themselves.

The foundation, and support for, the study of the social dimension exists in literature. For example, Taylor and Cummings state differences in the culture of IT specialists and business leaders as the principal reason for lack of success in developing systems. Another theoretical perspective supporting the construct of the social dimension of alignment is the social construction of reality. This view states that along with the study of artefacts (such as plans and structures) used for forecasting the presence or absence of alignment, the content of participants’ thoughts should be researched: their convictions, attitudes and understanding of artefacts. Such a research is attempting to measure understanding of IT and business plans by business managers. Other authors also studied the social dimension of alignment (such as Nelson and Cooprider, Subramani and others). The approach used in the studies used statistical methods on large samples, aiming at measuring the relations between independent variables and alignment [18,19].
This work studies the social dimension of alignment in two different groups of respondents – managers in permanent and elective positions, as viewed from the temporal dimension, and directed at measuring the state in which different manager groups within the same business field understand and are dedicated to strategic planning of the integrated business and information system. The research was focused on the approach affording best possibilities for interpretation, in order to determine how certain key factors interact, as defined through four principal constructs, with the goal of creating conditions for enabling or disabling short-term and long-term alignment. The approach used in designing the model is based on the use of statistical methods in a limited sample, aiming at measuring the relation between independent variables in the context of short-term and long-term alignment. Even though initially identified principal factors, with potential effects on alignment, are in the form of the constructs of KNOWLEDGE – PLANNING – ATTITUDE – FINANCING, taking into account the fact that there is no universally accepted theory of the social aspects of alignment, this work is of research character. Since research goals have been directed at defining alignment and developing measures for measuring the impact of individual constructs on short-term and long-term alignment in terms of perception of the importance of SP-IPIS, these must be defined. Short-term alignment, in the context of this work, is defined as the state in which managers in permanent and elective positions understand and are dedicated to current, short-term plans and goals. Long-term alignment, in the context of this work, is defined as the state in which managers in permanent and elective positions share a common vision on how strategic planning of the integrated business and information system can contribute to the success of their institution. In order to determine the level of influence of independent model constructs (ATTITUDE, FINANCING, KNOWLEDGE), the most favourable model is the PATH analysis, with the help of which direct and indirect impacts on the dependent variable can be appraised.

Conclusion

The paper presents the original heuristic method of creating the constructs of short-term and long-term alignment, identifying interactions between these constructs, determining the weight factor of each model construct and identifying variables that can be used to foresee the degree of alignment based on the degree of correspondence.

Also, the work proves the cause and effect sequence of constructs which determines differences in their sequence in terms of the perception of the importance of strategic planning as shaped by the influence of inter-relations between the research of knowledge and attitudes of different management groups. Connected to the above, the paper, by applying the innovative methodology of quantitative research type, shows which relevant managerial characteristics exist in the higher education system.

Based on this, it has been determined the higher degree of interaction between different manager groups makes a higher education institution potentially more successful in terms of business operation, as seen from the aspect of short-term and long-term alignment in the planning domain.

Also, the qualitative, quantitative and logical means as well as relevant statistical methods successfully determined the connection and impact of each individual construct in relation to success of strategic planning for the integrated business and information system, and confirmed the original scientific hypothesis claiming the social alignment of different management groups significantly hinges on four principal constructs that have a statistically set sequence of KNOWLEDGE–FINANCING–ATTITUDE–PLANNING, based on which it is possible to determine the level of management perception of strategic planning for the integrated business and information system.

The application of the model is possible at both, macro and micro levels of higher education institutions, at the university, faculty, individual scientific branch or individual managerial function level. Moreover, the application of the model is sustainable in any institution where there are different management groups that constitute management, and which is by its vocation in charge of its strategic profiling – within which it is in charge of strategic planning of the integrated business and information system as well [20].
Further deep research needs to be conducted longitudinally on an international sample as extensive as possible. The first step in this effort is the implementation of research on bilateral project *Integrated University Information System Model Design* of the University of Zagreb, Faculty of Electrical Engineering and Computing (Croatia) and the University of Belgrade, School of Electrical Engineering (Serbia).

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