Introduction

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1 Introduction

The history of organisational studies is filled with references to engineering. In fact, some of the founding fathers were famous engineers [such as Taylor (1911) or Fayol (1949)]. In an interesting review, Shenhav (1995) claims that many of the practices which are still current in organisational management came from the engineering sciences. The enacting of many of such practices (e.g., work study) gives rise to organisational designs. Hence, although research into organisational design is not usually carried out by engineers, organisational design, in the more traditional sense of organisational configuration, is tightly linked to engineering principles.

With the passing of time, social scientists have become increasingly dissatisfied with the mechanistic approach of engineering-like practices applied to organisation and have placed organisational studies under their wing. Expressions such as 'taylorism' became common place and were used, in the majority of cases, with a negative connotation. More recently, the anti-engineering feeling amongst the social science ranks grew stronger with the advent of the reengineering movement in the early 90s, an epoch which has also marked the maturity stage of the study of the social consequences of IT in organisations. At about the same time, computer scientists became interested in organisational modelling for the purposes of the implementation of software applications to

organisational routines, and a wave of research into organisational architectures was launched.

The relationship between organisational scientists and computer engineers has always been distant, although a degree of bridging has been achieved by the discipline of information systems. However, in terms of the real impact on the ground, what we see are still millions of dollars being wasted on computer applications which never fit the organisation where they have placed and organisational leaders who systematically lose the plot due to their ignorance of the real implications of software technology in enterprise operations and strategy. In spite of this, organisational reality and the world of information technology continue to move closer together, pushed by unrelenting social, economic and political forces. As a consequence, some are of the view that in time the roles of the organisation scientist and of the computer scientist/engineer in the organisation will tend to converge and become one and the same. The *International Journal of Organisational Design and Engineering (IJODE)* intends to pioneer such a development.

2   The intellectual challenge

Organisation design theory as we know today was invented more than 100 years ago. Many of the classical principles put forward early in the 20th century are still the same ones which govern the structuring of today's organisations. In the meanwhile, information technology has changed the functioning of organisations beyond recognition. Loosely coupled, networked or virtual organisational forms have been discussed in the literature for some time but there is still no theoretical framework to integrate and underpin such developments.

The organisational world is being transformed by phenomena that run counter to the traditional command and control model of organisation. Although the idea of the 'networked organisation' has been a topic of discussion for a couple of decades, we are now entering an era in which we can observe real decentralised, autonomous, networked organisations on a global scale. What is important in this development is that not only organisations as institutions are able to network with other organisations, but people are now able to network person-to-person as never before. Internet and mobile telecom technologies are enabling people to meet and to coordinate their activities in ways that are profoundly affecting their lives, both professional and private.

Networking (individual and institutional) is of course intimately related to the proliferation of information technology (IT) in human society. Ever faster enterprise LANs, telephony over IP data networks (VOIP), mobile telephony, home networks, and internet access in automobiles, planes, and trains are all having a major impact on the organisation's and the individual's capability to transmit information. An even greater effect of IT than the ubiquity of information is its ability to represent large chunks of organisational life as information. Balanced scorecards, dashboards, value added analytics, customer relationship management systems, early warning systems, trend monitoring, and knowledge management are examples of systems that facilitate representation of many aspects of an organisation.

Much of the existing research on the impact of IT on economies in general and on organisations in particular has been carried out under the social science-oriented discipline of information systems. Whilst pioneering in nature, such developments have

grown further and further apart from the world of engineering and hard-nosed technology. However, pushed by the force of reality on the ground these two intellectual paradigms are coming closer together. The ERP-dominated bureaucracy, the new business models entirely dependent on information technology or the real-time organisation are all part of the new organisational landscape where design and engineering are ever more difficult to disentangle. So, should we be talking of organisation design or of organisation engineering?

Following the trend of deep fragmentation among the sciences in general, organisation behaviour, social processes, information, and systems are commonly treated as independent aspects of organisations, divorced from each other both in theory and practice. As a result, IS/IT development, implementation, and management are often presented as separate issues from strategic analysis, organisational development, or change management. This discrete treatment of interdependent phenomena places severe limitations not only on the development of multidisciplinary approaches in organisation theory, but also on the search for solutions to the practical problems that both management and information systems specialists face on a daily basis.

The problem of integrating IS/IT and the organisation cannot be solved by either organisation theorists or computer scientists. In order to move forward, we have to abandon the 'either-or' mindset. Such an artificial divide has been a major obstacle to the development of organisational thinking in the 21st century and must be abolished. This is the key challenge of organisational design and engineering (ODE).

3 The international journal

The *International Journal of Organisational Design and Engineering (IJODE)* is a project that was conceived in parallel with the International Workshop on Organisational Design and Engineering (IWODE), launched in December 2009 (http://iwode09.ist.utl.pt).

ODE can be classified as a sub-discipline of information systems, but is manifestly open to influences from organisation science and computer science/engineering. The distinguishing features of the *IJODE* are as follows:

1   Whereas, other journals from computer science or organisational science are aimed mainly at their own internal communities, articles from the *IJODE* aim at establishing bridges between these two communities

2   Whereas, traditional information systems journals place emphasis on building up information systems as a discipline, the *IJODE* places information systems alongside computer science and organisational science with no particular preference for any of the three disciplines

3   Whereas, many information systems journals focus on post-hoc analysis of the deployment or implementation of computer-based artefacts in organisations, the *IJODE* will show a preference for papers dealing with the intertwined design, construction and change of the assemblages of technology and organisational processes.

The bulk of every issue of *IJODE* will be made up of research papers. Some issues, however, may feature special sections. There will be three types of special sections: state-of-the-art, case study and research notes. All papers will be peer-reviewed and should broadly conform to the following definition of ODE: the application of social science, computer science or design science research and practice to the study and implementation of organisational designs and designing, to include the integrated structuring, modelling, development and deployment of IS/IT and social processes.

The section on 'state-of-the-art' will feature mostly invited papers on topics related to ODE. Suggestions for topics and/or authors for this section are very much welcome. Contributors are also encouraged to submit case studies to the 'case study' section. These papers will be lighter on theoretical content, but should contain good and reliable empirical data. 'Research notes' are usually shorter papers from researchers who have an interest in the theoretical development of one or more topics and wish to share their latest ideas with colleagues.

## 4	This issue

The first issue of *IJODE* opens with a comprehensive analysis of some of the concepts of ODE in the light of IT-reliant work systems by Steven Alter. In the second paper, Jeroen Van Bree, Marinka Copier and Thijs Gaanderse discuss an interesting empirical case where organisational design rules are explored. The paper by Piero Migliarese and Vincenzo Corvello introduce the notion of organisational relations as a key mediating variable between organisational practice and information systems implementation. Daniel Olguín and Sandy Pentland from the MITs Media Laboratory begin to build an essential bridge between the material and the social nature of ODE with their paper sensor-based organisational design and engineering. Peter Rittgen approaches the topic of collaborative modelling of business processes by using a comparative methodology. Staying on the methodology theme, Matti Rossi and Tuure Tuunanen's contribution puts forward a method and a tool for rapid consumer application development. Next, we are please to have an invited state-of-the-art paper by Robert Winter from the University of St. Gallen. Robert's paper is about business engineering, an established approach bridging the gap between business and IT, very closely related to ODE. Lastly, a research paper by Andrea Wiggins and Kevin Crowston discussing the innovative topic of virtual organisations for citizen science closes the issue.

With 13 authors representing seven countries, this is a truly international issue. In months to come, we look forward to receiving contributions from colleagues working in countries not yet represented in *IJODE*, with research articles, state-of-the-art papers, case studies or research notes highlighting their own views and approaches to ODE.

References

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