

Preface

ABOUT THE SUBJECT: NETWORKED AND VIRTUAL ORGANIZATIONS

Our global society is growing in complexity virtually on the daily base and in all social dimensions. This is happening to the companies, businesses and economies, culture and education, political and social organizations on virtually all levels, regions within one state, state itself, inter-states and inter-state groups, as well as to individuals and group of individuals, and any other subset of our society. One of the manifestations of this process, the “daily” growing in complexity, is that the “old” or “traditional” approaches do not have sufficient capacity to deal with and that, consequently, new organization models are sought (virtually on the daily base too) for virtually all aspects or domains of organizations, across human (social) and technical, formal and informal organizations.

From the other hand, knowledge and physical resources required to deal with the emerging problems (e.g., associated to the development and production of most of today’s products, or capacity to produce an impact on a citizen service quality) often exceed what a single unit, firm or individual, is able to accomplish. From this fact had emerged the perception that networking is a promising tool, or mechanism. Additionally, the indispensable use of ICT (Information and Communication Technologies), especially the use of the Internet, brings the notion of “virtuality”.

And this is exactly the subject of the *Encyclopedia of Networked and Virtual Organizations*, as a tool, or mechanism, or paradigm, that combines (or, responds to the needs for) networking together with the emerging feature of “virtuality” through the use of ICT and the Internet as the characterizing and indispensable technology, for dealing partially, or totally, with the phenomena of today’s world of “daily” growing complexity, spanning virtually over all social dimensions.

Accordingly, the encyclopedia’s contributing authors address a range of networked and virtual organizations (NVO) different issues, as:

<i>Concepts, definitions, models and modelling, processes</i>	<i>Management</i>
<i>Networks as communities</i>	<i>Knowledge management</i>
<i>Reference models</i>	<i>Strategic management</i>
<i>Legal aspects</i>	<i>Technologies, methodologies, tools</i>
<i>Human and social aspects</i>	<i>Information systems</i>
<i>Economic aspects</i>	<i>Security</i>
<i>Meta-enterprise models</i>	<i>Performance measures</i>
<i>Supporting environments and infrastructures</i>	<i>NVO semiotics</i>
<i>Integration and interoperability</i>	<i>R&D projects and supporting programmes, case studies</i>
	<i>Education on VO</i>

and other.

WHAT IS THE STATE-OF-THE-ART?

Currently this field of knowledge is assisting an explosion of the research and development (R&D) effort, which is undergoing at an incredible growing rate. The conscientiousness of the new organizational paradigm is currently at such a level that it is almost assumed, by a large community, to be a leading organizational model of the future. However, this field of knowledge is highly fragmented. As a consequence, many researches and developers are not aware of the actual state-of-the-art or even of activities undertaken in academic, industrial, regional, and business environments. There is also misinterpretation between several concepts such as virtual reality, virtual teams, e-commerce, and so forth, due to the mentioned fragmentation of knowledge and to the inexistence of transfer of knowledge between regions, developers, and researchers. There is also misinterpretation among concepts and definitions originating from different research and development groups or centers due to the mentioned fragmentation of knowledge and to the inexistence of transfer of knowledge between regions, developers, researchers, and users.

As an example, there is still no consensus on the virtual enterprise (VE) definition. It is still an open question whether VE has necessarily the form of dynamically reconfigurable networked structures or not, necessarily collaborative or not, necessarily “virtual” or not, and, further, what is, or better, what are, the interpretations of “virtual”?

In the literature, several designations of organizational forms classified as VE may be found, as virtual organizations, *extended enterprise*, *agile/virtual enterprise*, *OPIM* (one product integrated manufacturing), *smart organization*, *value nets*, *concurrent enterprise*, *supply chain*, *BM_Virtual Enterprise*, and so forth, each with its characterizing nuances and all of them aiming at providing a definition which would be accepted consensually by the community.

However, unfortunately or not, this has not happened yet. There is so far no unified definition of these concepts and a variety of definitions and a broad terminology to this range of concepts exists in the literature, sharing similarities and sometimes overlapping, and yet few of them have been rigorously systematized. But, at least two are for sure: (1) all VE models have in common ICT as a prerequisite and facilitator, or even the core; (2) all these virtual enterprise models belong to the networked and virtual organizations concept, in a much or less broader sense.

Because of these reasons, the high level of fragmentation and low level of knowledge transfer in the area, as well as because of the existing volume of work, diversity of approaches, and solutions and needs, this field of knowledge, the knowledge of networked and virtual organizations, is presently in a state to justify the need of an encyclopedia.

OBJECTIVES OF THE ENCYCLOPEDIA

Two main strategic objectives, or meta-objectives, of the *Encyclopedia of Networked and Virtual Organizations*, are:

- To overcome this fragmentation of knowledge, contributing to a more qualitative development of the concept
- To incentivize and support future trends for development

The more specific objectives of the encyclopedia are:

- To document the emerging paradigm of the networked, virtual, dynamic, and agile organizations and enterprises
- To clarify of this new and emerging paradigm
- To document the most relevant contributions, from theory to applications in business, education, health, nonprofit organizations, and so forth
- To document advantages, opportunities, and future trends for this organizational model
- To constitute a comprehensive state-of-the-art documentation
- To create, and to serve as, a repository of the up-to-date main developments and characterizations and definitions of the approaches around the subject
- To serve as a manual for implementations and development
- To serve as support for higher education courses in business, management, IT technologies, industrial engineering, economy, and so forth

Regarding the networked and virtual organizations in a broad sense, definitions, characteristics, comparisons, advantages, reference models and architectures, supporting environments, practices, enabling technologies, and best practices.

This encyclopedia is expected to give incentive and guide technology solution developers, from academe, research institutions, and industry, giving them a broader perspective of networked and virtual organization requirements and rais-

ing their awareness on which technology and how technology can serve the needs of an expanding organizational model and on potential that users should be able to exploit. The encyclopedia widens horizons for researchers interested in this emerging field, presenting the state-of-the-art background and developments.

In other words, the encyclopedia provides guidance and helps the awareness, pro-activeness, and agility of users, ranging from enterprise managers, including top level managers, to common citizens, for strategic and dynamic alignment with society requirements and opportunities on the networked and virtual organizations development and implementations as well as on the evolution of their actual organizations towards networked and virtual organizations.

The editors are expecting also that the encyclopedia will contribute to the diffusion of networked and virtual organization concept in other parts of the world, not only in the most developed countries.

And, the third meta-objective is to prepare the grounds for the future generation of networked and virtual organizations that will be widely implemented and accepted as commonplace in our global society. In other words, maybe the question is: will the networked and virtual organizations change our global society?

TARGET READERSHIP: USERS

The encyclopedia is targeted for an academic audience: teachers, researchers, and students, mainly of postgraduated studies; professionals like managers, technology solutions developers, and enterprise managers (including top level managers); and others, especially users willing to get knowledge and incentives around the concept.

THE SCHOLARLY VALUE OF THE ENCYCLOPEDIA

In terms of scholarly value and contribution to the literature in the discipline, the encyclopedia represents a very good:

- Overview and discussion of the emerging paradigm, with IT as an underlying technology, presenting contributions by internationally renowned experts
- Support to research
- Support to teaching

The presentations include both compilations of older results as well as completely new and original contributions, not submitted for publication or published elsewhere, which means that the encyclopedia addresses the area of networked and virtual organizations *diachronically* and *synchronically*.

A number of research themes, problems to be addressed in the future research, examples of analysis of applications, as well as a number of projects from the management point of view are presented, covering all levels of a *semiotic framework*: *social*, *pragmatics*, *semantics*, *syntactic*, *empirics*, and *physical world* levels, for research, development, and applications of the networked and virtual organization concept.

The encyclopedia can be an excellent support to teaching and to research planning, helping and supporting teachers of several graduate and postgraduate courses, from management to information technology, and in particular the emerging new courses on the networked and virtual organization concept itself, providing a basis for understanding a content and area for further study, research, and solutions development.

In this way, the encyclopedia represents a unique presentation of results and interpretations of the area to the widest public and the unique opportunity for readers to find in one place all proposals, approaches, and solutions by a large number of internationally renowned scholars and practitioners in order to creatively and competitively apply and improve them.

Organization of the Encyclopedia

The *Encyclopedia of Networked and Virtual Organizations* provides a compendium of terms, definitions, and explanations of concepts, processes, acronyms, and information. It consists of articles explaining concepts, definitions, models, applications, articles about research/development/implementation projects, write-ups or descriptions of applications, in-depth description of key terms, and concepts related to networked and virtual organizations.

The encyclopedia's structure follows the IGI Global organization template for encyclopedias with minor changes (see also the Table of Contents):

- **List of authors and reviewers:** A complete list of authors of articles and write-ups, and other contributors, together with their affiliations, from more than 35 countries all over the world, is presented.

- **Articles:** More than **225** explanation articles, including at the end of each article a list of, in medium, six to eight key terms.
- **Index of terms and definitions:** Pointing to more than 1,000 terms and definitions associated with each article.

At the end, the editors will be grateful to the readers for any constructive criticism, proposals for future developments, and indication of errors: conceptual, omissions, or typographical.

The Editors

Goran D. Putnik

Maria Manuela Cunha

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