

## Preface

This volume is the result of nearly two years of intensive work to define relevant terms and scope, invite contributions, initiate and facilitate revisions, and finally edit a collection of chapters which will hopefully make a step towards an improved understanding of existing literature, prevalent practice and future trends related to community thinking, virtual practices and their intertwining with new technologies and social media.

This collection of chapters appears at a moment that virtual communities have already started to dominate our daily residential and business activities, acting as amplifiers of human intellect and making tremendous inroads in expanding our social substance and professional competence, both as individuals and members of society. The popular press provides subtle evidence. More than 15 out of the top 20 most popular Web sites are either social network sites per se, or have embedded social networking functions. Furthermore, numerous studies indicate the increasing engagement of users, especially young people in blogging activities, making Weblog hosting sites such as Myspace and Xanga among the most active sites on the Web with millions of daily visits.

Examining critically this new situation, one may pose several questions, recurring with every novel idea, new virtuality and technological trajectory:

- What is the innovative ground upon which it is based?
- Is it the result of advances in scientific endeavor, technical progress or incremental response to the end-users' ever increasing demand for information processing?
- Why does it happen when it does and what implications it bares upon human activities?
- How far-reaching are its effects and do they constitute a paradigm shift?

These are only a few of the questions one may ask when observing the new reality at home, in the office, the university and the variety of physical and virtual social gathering places. At the core of these new experiences are novel practices which increasingly determine how we think about ourselves as individuals and as members of wider social groupings. Some of these practices, such as for example social networking have matured to the point that they are already part of our culture. Others put into question our very existence as social creatures. For instance, multiple identity management in our virtual endeavors challenges our traditional means of presenting our selves to colleagues and peers.

Against these developments, the current volume aims to investigate critically some of the forces shaping present and future virtual community life, driving developments in new media and enabling either reproductions of existing practices or the emergence of totally new virtualities. The term virtuality refers to any kind of technological construction or mediation, which allows humans to attain business, residential, social or communication-oriented activities in a virtual space.

## KEY THEMES AND ORIENTATION

In recent years, virtual communities of various sorts and types such as “place”-based online communities, virtual social networks, intra- and inter-organization distributed communities of practice, to mention a few, have stimulated a truly interdisciplinary thematic domain of discourse attracting the attention of scientists and researchers across a variety of disciplines, including the social sciences (e.g., sociology, cognitive psychology, anthropology, management science) and several engineering disciplines such as software engineering, telecommunications and multimedia. As in many other cases, the cross-disciplinary nature of the innovation creates the potential for a new virtuality, which as it turns out, it brings about a wider impact and has far-reaching effects than initially intended or anticipated.

Communities are not just aggregates of people, temporarily interacting; they are dynamic entities whose added value results from their continuous evolution. Their inherent complexity becomes evident from the variety of definitions attempted and the different connotations assigned to this social phenomenon. Community has been defined as a group of people who share social interactions, social ties, and a common “space”; as a social network of relationships that provide sociability support, information, and a sense of belonging, and as a set of relationships where people interact socially for mutual benefit. The key seems to be strong and lasting interactions that bind community members and that take place in some form of common space.

Accordingly, their virtual counterparts, in whatever way they are coined, are complex social systems enabled by a complex set of information technologies. Despite their infant stage, they have already shown the potential to provide the new virtuality, which in an increasingly networked society, can augment “collective” human intellect and set new standards for individuals and organizations. Stated differently, this new virtuality can re-shape the conduct of social activities, deepen professional knowledge and practice and create new grounds for knowledge management.

In the early 1990’s when the first theoretical works on virtual communities appeared many scholars seemed to converge on the idea that the only difference between traditional and virtual communities is that the later exists in cyberspace. However, recent empirical studies indicate that this is no longer a valid assumption or sufficient distinction. In fact, virtuality brings new vocabulary and expands the community’s language in many different ways. Consequently, the challenge is not only reproducing established practices online, but more importantly, it is gaining the required insight and understanding to design for new practices, specific to the new media, and viable only in virtual settings. This last point is intended to provide a preamble of this volume’s orientation and point of departure from other relevant contributions found in the literature. Specifically, chapters within the volume aim to explore the intertwining between virtual communities, new media and the social practices emerging or reproduced as a result of new technology.

## OBJECTIVE AND PERSPECTIVES

In light of the above, the objective of the volume is not simply to compile and disseminate state of the art knowledge on a truly multidisciplinary area, but also to highlight issues, which will further catalyze developments in the years to come. To this end, the scope of the volume is broad and covers the theoretical foundations of virtual communities, technological and engineering perspectives on the construction of community-based virtualities as well as the type, nature and scope of reconstructed or novel practices emerging in specific applications domains.

An explicit effort has been made to solicit contributions on current theoretical community thinking as advanced by developmental perspectives in social and management sciences, as well as contributions which improve our understanding of the engineering base of virtual practices as shaped by the synergistic fusion of emerging technologies. As for practical insights, the last part of the volume brings together results from recent and on-going research and development projects and case studies in various practice domains such as science and engineering, education and learning, collaborative music performance, tourism, health, entertainment and gaming.

The contributions in this volume come from professionals across a range of scientific and engineering disciplines, unfolding a variety of perspectives relevant to the study of the core subject matter. Depending on their interest, readers will find useful contributions rooted in developmental social sciences, management science, information management science, human-computer interaction, computer-supported cooperative work, computer science, biomedical engineering, to name a few. In terms of specific design methods and techniques, chapters provide details on the application of activity theory, online ethnography, distributed cognition and situated action models, structuration theory and symbolic interactionism in the design of virtual communities. Equally rich is the insight provided on new media, architectural models and tools. There are chapters reporting on architectural models for supporting communities of practice, emerging Grid infrastructures, the social Semantic Web and social TV, as well as chapters dedicated to specific practice-oriented toolkits and technologies such as social visualization, games, 3D imaging, and so forth.

## STRUCTURE OF THE VOLUME

The volume is split into five sections. Section A is the *Introduction* and includes one chapter by the editor providing an overview and setting the context of the volume. Subsequent parts focus on clusters of on-going research and development activities.

Section B is concentrated on *Communities of Practice* and contains five chapters. The chapter by Edurne Loyarte and Olga Rivera (Spain) investigates conditions and key success factors for the management of communities of practice as revealed by recent theory and the authors' empirical work across a range of communities of practice. Richard Ribeiro (UK) and Chris Kimble (France) concentrate on a relatively unexplored issue regarding communities of practice, namely the search for "hidden" virtual communities of practice. Their chapter is motivated by the need for managing organizational knowledge and presents results of a recent case study focusing on identifying a "hidden" community in a virtual setting. Vat, H. Kam (China) elaborates on appreciative inquiry and its potential for managing knowledge in communities of practice within organizations. Natalie Pang (Australia) considers the broad topic of virtual knowledge commons and motivates the use of participatory design approaches to establishing sense of community and collective memories. The last chapter in this part is by Demosthenes Akoumi-anakis (Greece) detailing the components of the "Social Experience Factory" and how it may be used to facilitate mission-driven collaboration in communities of practice tasked to assemble information-based products and services.

Section C is entitled *Social Media and Tools* and contains five chapters. The chapter by Evangelia Mantzari, George Lekakos and Adam Vrechopoulos (Greece) reviews virtual communities formed around an emerging medium, namely Social TV, and outlines issues relevant to the enhancement of the users' viewing experience. Diana Schimke, Heidrun Stoeger, and Albert Ziegler (Germany) describe the relevance of social visualization to virtual communities and provide empirical evidence indicating how this technology may be used to strengthen sense of community amongst members. Ioannis Barbouna-

kis and Michalis Zervakis (Greece) explore the new opportunities for virtual communities offered by computational and data grids as well as how the underlying component technologies can be exploited in support of the concept of “virtual organizations”. Vivian Hsueh-hua Chen and Henry Been-Lirn Duh (Singapore) provide an interesting account of social interaction taking place in a virtual gaming community. Their chapter, informed by symbolic interactionism, details a virtual ethnographic study of social interaction in World of Warcraft. The last chapter in this part by Stelios Sfakianakis (Greece) and elaborates on the promises and challenges of the social Semantic Web and Semantic Web services for virtual communities.

Section D is entitled *Practice Toolkits and Design Perspectives*. It contains five chapters reporting on a variety of practice-oriented technologies and how their design may be informed by established and emerging design techniques. The chapter by George Triantafyllidis, Nikolaos Grammalidis and Dimitrios Tovaras (Greece) investigates the new possibilities for virtual community practicing offered by 3D imaging technology. Their chapter reviews key components of this technology and presents recent examples of virtual collaborative activities in a variety of community settings. Theodor G Wyeld (Australia) and Ekaterina Prasolova-Førland (Norway) concentrate on online 3D learning communities and how learning materials and the learning experience can be informed by the activity theoretic perspective of cultural-historical psychology. Wes Shumar (USA) reviews the Math Forum and offers an informative account of how it fosters interaction, imagination and community building. The final two contributions in this section bring to the surface human-computer interaction issues related to the design of community workflows. The chapter by Demosthenes Akoumianakis, Giannis Milolidakis, George Vellis and Dimitrios Kotsalis (Greece) discusses design issues relevant to building practice-oriented interactive toolkits for communities of practice, either as facilitators of existing practices or as new practice enablers. Finally, Josefina Guerrero, Jean Vanderdonckt and Juan Manuel González Calleros (Belgium) describe a methodology for building user interfaces for community-oriented workflow information systems which exploits model-based user interface engineering techniques.

Section E, entitled *Practice Domains and Case Studies*, provides informative accounts of virtual community practices through recent case studies in a variety of application domains. The chapter by Manolis Tsiknakis (Greece) reviews virtual community in E-Health and the emerging practices with a strong insight to the ethical and legal issues involved. Dimitrina (Dima) Dimitrova (Canada) and Emmanue Koku (USA) provide a contextual account of professional research communities focusing on trust, independence and the role of technology. Chrisoula Alexandraki and Nikolas Valsamakis (Greece) explore virtual music communities, the variety of purposes they may serve, as well as the authors’ recent work on collaborative music performance in virtual community settings. Chris Stary (Austria) offers an enlightening account of sustainable virtual communities in desktop-based and mobile device E-Learning contexts. Finally, Nikolas Vidakis, Dimitrios Kotsalis, Giannis Milolidakis, George Vellis, Anargyros Plemenos, Emmanouela Robogiannaki, Kyriakos Paterakis & Demosthenes Akoumianakis (Greece) present their recent experiences on developing a new computer-mediated virtual practice to support information-based product assembly by cross-organization virtual communities of practice in E-Tourism.

The volume is concluded by a chapter entitled *Social Interactive Media and Virtual Community Practices: Retrospective and an R&D Agenda* which reflects the editor’s attempt to consolidate the contributions to the volume and to sketch a possible roadmap for future research and development on virtual community practices.