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IFIP's mission is to be the leading, truly international, apolitical organization which encourages and assists in the development, exploitation and application of information technology for the benefit of all people.

IFIP is a non-profitmaking organization, run almost solely by 2500 volunteers. It operates through a number of technical committees, which organize events and publications. IFIP's events range from an international congress to local seminars, but the most important are:

- The IFIP World Computer Congress, held every second year;
- Open conferences;
- Working conferences.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

The working conferences are structured differently. They are usually run by a working group and attendance is small and by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is also rigorous and papers are subjected to extensive group discussion.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

Any national society whose primary activity is about information processing may apply to become a full member of IFIP, although full membership is restricted to one society per country. Full members are entitled to vote at the annual General Assembly. National societies preferring a less committed involvement may apply for associate or corresponding membership. Associate members enjoy the same benefits as full members, but without voting rights. Corresponding members are not represented in IFIP bodies. Affiliated membership is open to non-national societies, and individual and honorary membership schemes are also offered.

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Luis M. Camarinha-Matos · Frédérick Bénaben
Willy Picard (Eds.)

Risks and Resilience of Collaborative Networks

16th IFIP WG 5.5 Working Conference
on Virtual Enterprises, PRO-VE 2015
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Proceedings

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Preface

Societies in general, and enterprises in particular, are increasingly challenged by unexpected disruptive events occurring at a continuously rising frequency and causing more and more damages. The acceleration of globalization, demographic shifts, regional economic crises, changes in regulations, and rapid technological evolution, are factors that have led to turbulences and instability. Additional factors contributing to these changes include global warming, terrorism, cyber-attacks, scarcity of resources, and a rise in nationalism, racism, and religious conflicts, among others. Consequently, nowadays, instability may be considered as the “norm” or the default status, which naturally raises the question of how organizations and enterprises, as driving societal forces, can strive to gain in such disruptive environments. Collaborative Networks (CNs) provide tools to help organizations cope with unexpected changes and disruptions, particularly when exploring rapid consortia formation and dynamic structural re-organization. CNs also support addressing new business opportunities in these highly dynamic scenarios.

Although a vast amount of literature highlights the potential benefits of collaboration in general, only a few works have addressed the risks faced by organizations involved in collaborative networks, such as material flow related risks, financial risks, information misappropriation, insufficient performance of a partner, relational behavior related risks, or technological dependency, to name a few. The fear of such risks is often an obstacle to an effective involvement in collaborative processes. Furthermore, risks are not static, and as collaborative networks evolve, so do the risks. This is particularly true for long-duration networks, such as service provision networks for products that need to remain operational for many years. In these cases, the issue of sustainability of the collaboration becomes highly relevant.

It is therefore timely to progress in understanding risks and resilience of networks, to develop new assessment metrics and tools, and to devise proper governance methods towards a new generation of collaborative environments. Such developments require contributions from multiple and diverse knowledge areas (social sciences, organization science, technologies, etc.), which is well in line with the interdisciplinary spirit of the PRO-VE working conferences. This series of annual events provide an important opportunity for the collaborative networks community to share experiences, discuss research approaches, and identify future R&D directions. The selected theme for PRO-VE 2015, focusing on risks and resilience, stimulated this community to address the following challenging questions:

- In which ways can CNs support agility and resilience?
- How can CNs mitigate risks of collaboration in turbulent disruptive environments?

- What are significant examples of application cases and advanced ICT support systems supporting agile and resilient CNs?

PRO-VE 2015 held in Albi, France, was the 16th event in a series of successful conferences, including PRO-VE 1999 (Porto, Portugal), PRO-VE 2000 (Florianopolis, Brazil), PRO-VE 2002 (Sesimbra, Portugal), PRO-VE 2003 (Lugano, Switzerland), PRO-VE 2004 (Toulouse, France), PRO-VE 2005 (Valencia, Spain), PRO-VE 2006 (Helsinki, Finland), PRO-VE 2007 (Guimarães, Portugal), PRO-VE 2008 (Poznań, Poland), PRO-VE 2009 (Thessaloniki, Greece), PRO-VE 2010 (St. Étienne, France), PRO-VE 2011 (São Paulo, Brazil), PRO-VE 2012 (Bournemouth, UK), PRO-VE 2013 (Dresden, Germany), and PRO-VE 2014 (Amsterdam, The Netherlands).

This book includes selected papers from the PRO-VE 2015 conference, providing a comprehensive overview of major challenges and recent advances in various CN-related domains and their applications, with a strong focus on the following areas related to the selected main theme:

- risks in CNs,
- agility and resilience,
- collaboration frameworks,
- logistics and transportation,
- innovation networks,
- governance in CNs,
- collaborative communities,
- information and assets sharing,
- business processes,
- performance and optimization in networks, and
- network formation.

Finally, we would like to thank all the authors, both from academia/research as well as industry, for their contributions. We hope this collection of papers represents a valuable tool for everybody interested in research advances, emerging applications, and future challenges for R&D in collaborative networks. We also appreciate the dedication of the members of the PRO-VE International Program Committee who supported the selection of articles and provided valuable and constructive comments to help authors improve the quality of their papers.

July 2015

Luis M. Camarinha-Matos
Frédéric Bénaben
Willy Picard

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