Real-time foresight : preparedness for dynamic innovation networks

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Preface

My intention to write this thesis was born during a speech at the 'Global Entrepreneurial Summer School' in Munich in 2009. It sprung from inspiring discussions with the audience consisting of entrepreneurial students and professors. My talk was on innovation in crisis management and my mind was still occupied by a professional experience after the 2004 Tsunami. At that time, 2009, I was still collecting material on real-time procedures for ongoing crisis management, recovery and reconstruction in Tamil Nadu, South-India. The most intriguing questions were raised by Prof. Dr. Bernhard Katzy and Dr. Bernward Joopen. We debated the staggering discovery that so many professional humanitarian, governmental and private actors had been unable to collaborate more directly towards sustainable ends. In consequence, I asked myself about ways of real-time collaboration for more successful and for more innovative rehabilitation processes. Given the magnitude of the international donations and the technological support after Tsunami 2004 it seemed obvious that there were problems, other than financial, that blocked sustainable global relief. But why was successful ad hoc and long-term collaboration so difficult? What were the obstacles that had to be managed?

In 2010, I started to work academically on these questions as an external PhD candidate at the Leiden Institute of Advanced Computer Science (LIACS) at Leiden University. My employer, the Strascheg Center for Entrepreneurship (SCE) at the Munich University of Applied Sciences (MUAS), supported my interdisciplinary research project.

In this thesis, I took an interest in discovering entrepreneurial solutions for handling the obstacles to ad hoc collaboration in dynamic and

unpredictable processes. In brief, the research deals with preparedness to engage in dynamic innovation networks (DINs). The main assumption is that successful ad hoc collaboration meets underlying dynamic patterns of network emergence. To investigate this assumption and to explore the network patterns of successful dynamic innovation processes, a process study on sustainable long-term relief was conducted. Thus, in the thesis, three different examples of collaborative global-local disaster management after the 2004 Tsunami serve as case studies of collaborative innovation management. These three DINs emerged around coastal villages in Tamil Nadu between Chennai and Kanyakumari, namely the villages of Ayam, Keniparam, and Kanni.

The thesis at hand has five main results of different scientific scope. First, it identifies (1) *five dynamic network patterns* that facilitate ad hoc collaboration in innovation networks. From those, it develops (2) *a new method of foresight* that prepares for real-time collaboration in innovation networks, and (3) *a process evaluation tool* - or indicator catalogue - that allows for identification of emerging DINs in mass collaboration instead of adding to standard end-of-pipe evaluations. As a further finding, it proposes (4) *a network typology of innovation strategies* and (5) a *robust taxonomic tool* for rapid matching in global-local relief.

In summary, the research explores how network emergence unfolds in dynamic multi-sector collaboration and how network evolution is part of successful, sustainable innovation processes. The *co-evolution* of DINs and local sustainable outcomes of complex crisis response leads to vital global-local partnerships and to viable solutions to ad hoc challenges with unpredictable ends.

Now, many years after my personal involvement in global-local disaster management, an increasing digitalisation challenges actors in the field, and in politics, economics and everyday life. My intuition is that digital societies need more sustainable entrepreneurship activities, more networked foresight and more collaborative mindsets to initiate the change necessary to manage shifts (cf. Dicken, 2003) towards a global sustainable future.

In its final form, the thesis aims to learn from the intercultural, asymmetric and unpredictable collaboration of global disaster management. From understanding innovation management in this complex and often chaotic situation, we may learn about entrepreneurial processes and ad hoc management in general – and about local sustainable entrepreneurship in particular. Dynamic network approaches can seize the plurality and the contingency of our seemingly 'individual' activities. The results of this research contribute to improvement of managerial practice in uncertain *collaborative* processes - with a complementary real-time and collaborative foresight.

I express my deepest thanks to my parents, my brother and my three children Mia, Anton and Leo. They have always supported my work, and here I would like to thank them. I thank old and new friends for all their interest in my research. I am aware that I have mastered this long-term challenge due to a truly dynamic and beautiful network of family and friends.

“There is no universal solution,

but there is a universal process to find appropriate local solutions.”

Carl Taylor, key contributor to the 1978 Alma Ata Declaration (WHO)

“Without any foresight we are like logs adrift in a river.”

Tuomo Kuosa (Kuosa, 2016)

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List of Abbreviations

ACT	Actor
ANT	Actor-network theory
CI	Critical incident
CIT	Critical incident technique
DIMA	Disaster management
CONCORD	Confédération Européenne des ONG d'urgence et de développement
DIN	Dynamic innovation network
ECSB	European Conference on Small Businesses
EMON	Emerging organisational network
GHA	Global Humanitarian Assistance
GIN	Global innovation network
GTM	Grounded theory method
HRO	High reliability organisation
HU	Hermeneutic unit
ICSB	International Conference on Small Businesses
IFA	International foresight academy
INGO	Intermediary NGO

INNOACT	Innovative activity
ISCRAM	Information Systems for Crises Response and Management
ISPIM	International Society for Professional Innovation Management
KPI	Key Performance Indicator
LCDS	Leiden Centre of Data Science
LNGO	Local NGO
MSF	Médecins Sans Frontières
NCRC	NGO Coordination and Resource Center
NETDYN	Network dynamics
NGO	Non-governmental organisation
NITIM	Network of IT and Innovation Management
OPP	Obligatory point of passage (moment of interest alignment)
LP	Local panchayat, elder group that governs in Indian villages
PD	Primary document (reference to ATLAS.ti classification)
RTET	Real-time evaluation tool
RTF	Real-time foresight

SHG	Self-help group
SIKS	School for Information and Knowledge Systems
SM	Strategic management
SME	Small and medium entreprise
SNA	Social network analysis
STS	Science and technology studies
SRDS	Society of rural development services
TF	Technological foresight
TFS	Technological foresight and Social Change
TNGO	Transnational NGO
TNTRC	Tamil Nadu Tsunami Relief Center
TSM	Traditional strategic management
UN	United Nations
UNISDR	United Nations International Strategy of Disaster Reduction

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