ROUTLEDGE

INNOVATION NETWORKS

MANAGING THE NETWORKED ORGANIZATION

RICK AALBERS WILFRED DOLFSMA

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Managing the networked organization

Rick Aalbers and Wilfred Dolfsma

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"It is painfully rare for a book to offer value to theorists and practitioners alike. Aalbers and Dolfsma square that elusive circle by showing in persuasive detail how communication and network gaps and blockages within organizations derail innovation. With rare but welcome equal billing for formal and informal structure alike, and a keen eye for how they can fruitfully combine, they show how alert managers can leverage the tools of network analysis to create an 'innovation engagement scan' that will jumpstart innovation by putting people together who ordinarily do not communicate. A seminal contribution and an indispensable aid for firms in search of innovation."

Mark Granovetter, Professor, Stanford University, USA

"The reality of organisational life is that we operate through networks of relationships. To make sense of how these networks operate, Aalbers and Dolfsma have put together this impressive book – it explains the theory of networks in a clear and accessible way, and it also shows how these academic concepts can be applied in a practical way."

Julian Birkinshaw, Professor, London Business School, UK

"In a time in which we expect big shifts for many established organizations, the navigation of social networks focused on innovation has become a core competence. Although the importance of networks is recognized, many boards and managers still have limited insights and tools to analyze, influence or even create these networks. This book offers a great opportunity for all of us to come up to speed in this highly interesting domain."

Pieter Hofman, Partner at Deloitte Consulting, the Netherlands

"Effective networks are critical to successful innovation. This valuable contribution demonstrates the significance of networks and reveals how they can best be managed."

Mark Dodgson, Professor, University of Queensland, Australia

"In an era of increasingly connected organizational networks and maturing big data analysis, executives and managers now have additional tools to design and manage the organization for innovation. *Innovation Networks* offers a fresh approach to analyzing and implementing organizational networks through a unique blend of practical methods and examples."

Li Feng Wu, Head of Analytics PayPal, China

"Networks in organizations are crucial for successful innovation. This book will help you understand how formal and informal networks, built up from relationships between people, can boost a firm's innovative power. I am convinced effective networks can improve all functions in an organization. It is all about connecting from person to person and sharing ideas and information amongst each other."

Paul Poels, Director of Digital Analytics, Philips, the Netherlands

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INNOVATION NETWORKS

Organizations are complex social systems that are not easy to understand, yet they must be managed if a company is to succeed. This book explains networks, and how managers and organizations can navigate them to produce successful strategic innovation outcomes. Although managers are increasingly aware of the importance of social relations for the inner-workings of the organization, they often lack the insights and tools to analyze, influence or even create these networks.

This book draws on insights from social network theory; insights sharpened by research in a number of different empirical settings including production, engineering, financial services, consulting, food processing, and R&D/hi-tech organizations, and alternates between offering critical real business examples and more rigorous analysis.

This concise book is vital reading for students of business and management as well as managers and executives.

Rick Aalbers is Assistant Professor of Strategy and Innovation at Radboud University, Nijmegen, the Netherlands.

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"An organization has no presence beyond that of the people who bring it to life."
Gareth Morgan (1993)

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PREFACE

Intra-organizational networks – the topic for this book and its underlying research – has developed and matured for us over quite a few years. During that time – in which we both published and consulted on a plurality of aspects of the phenomenon – we grew our understanding of what organization network analysis is, and how applying a network-based view within an organization can be beneficial – enabling innovation to thrive. Organization network analysis is now on the verge of going mainstream, having developed on the fringes of the social sciences for a long time. Through this book we challenge the false idea that social networks are ephemeral, changing shape rapidly and therefore making them difficult to understand and hard to manage purposively. In the process we open up a variety of analytic and academic network techniques and insights to a managerial world.

What is attractive about organization network analysis is that it allows for very precise predictions about what behaviors and outcomes of behaviors can be expected, given the structure of the connections between actors observed. These insights and understandings complement the more interpretive insights that social sciences have offered, but sometimes challenge these as well. The precise predictions arise from the clear and elaborate tools that have been developed over time to tease out ever more detailed aspects of social network structures that might impact behavior and outcomes.

In addition to allowing for more concrete predictions, translating or providing further precision to existing theories, organization network analysis is

in fact a theoretical approach in itself. If not from its inception, then now. Through its singular emphasis on the structure of interactions, rather than their content, a different emphasis emerges from what is emphasized in other theories in the social sciences.

Partly, what readers will find in this book is a reflection of the precision that organization network analysis provides to existing theories. In that respect, many readers will find it relatively easy to understand what we offer in these pages. In addition, humans are inherently social beings, and so will understand and welcome the insights to gauge their social environment better. Throughout the book we provide insights that we have ourselves added to the field. While based on rigorous academic research that we have conducted, we have aimed to offer insights drawing on this that are accessible to a broad audience. On occasion, however, we have chosen to provide clues of the rigorous research involved in organization network analysis. For those who would like to pursue such research themselves, and for those who would like to have a better understanding of the outcomes of such research, we also provide a chapter with methodological and other research considerations.

As with the topic of what we discuss here – how innovation involves collaboration among multiple individuals that is structured somehow – so with our work on this manuscript: we have hugely benefitted from a number of different people, in multiple ways, and we would like to acknowledge this gratefully.

Over the years, we have worked with Rene van der Eijk, Hans Hellendoorn, Otto Koppius, Roger Leenders, Salvatore Parise, Dave Rietveld, Sander Smit, Jasper de Valk, and Eoin Whelan to further our understanding on a variety of aspects of organization network analysis. We are thankful for the enjoyable and insightful conversations and debates on the fascinating topic of organization networks. We also owe gratitude to Deloitte Consulting and in particular to Pieter Hofman for supporting the early exploration of the various ideas that form the foundation of this book.

We have been fortunate to be able to discuss our insights and suggestions for further work in different settings. We have presented our work at the Organization Science Winter Conferences, DRUID conferences, the SMS special conference on micro foundations of the firm, EGOS colloquia, an International Conference on Innovation and Management (ICIM), an International Product Development Management Conference (IPDMC) conference, and of course multiple International Network for Social

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Network Analysis (INSNA) Sunbelt conferences, and we have been very happy to debate and reflect with participants there.

We have also presented our work at seminars in different universities, including Bocconi, Copenhagen Business School, NUI Galway, University of Glasgow, Lund University, Montpellier Business School, and Rotterdam School of Management (RSM). We have learnt how best to convey our message about organization network analysis, but gained new insights as well, from teaching our students. And finally, this book gained much from responses by those that bring the organization to life, as we presented our insights to a variety of practitioners with whom we engaged throughout our studies.

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1

INTRODUCTION

The networked organization

Organizations are highly dynamic social entities. They are collections of individuals that collaborate to produce something that none of the individuals could produce by themselves. This poses problems – but also offers opportunities – to management and employees alike in complex organizations. In these pages, we introduce a view of the organization as a set of overlapping networks that are vital to the development of a strategic competitive advantage of the organization: the *network based organization*.

The search for innovative potential within the organization evidently is not a new one. How to manage, measure, and profit from innovation has received considerable scholarly and managerial attention over past decades (c.f. Davila et al. 2012; Tushman and O'Reilly 2013; Li et al. 2013; Anderson et al. 2014; Lee et al. 2014). These same studies point out that making innovation work has proven to be anything but a straightforward task. Many organizations that depend on their capacity to be at the forefront of new product and service offerings in a diversity of markets and to a plurality of customers have encountered that innovative knowledge does not easily spread inside organizations. An organization that can improve the spread of knowledge internally will be more innovative (Bartlett and Ghoshal 2002; Aalbers et al. 2013).

To compete effectively, being able to innovate continuously is a must. We have found – based on our research and consulting experience – that being able to scale and intervene in organization networks sets apart trailblazing

organizations from the rest in this respect. Innovation results from the combination and recombination of existing and newly developed pieces of knowledge. Knowing how to identify the critical resources that can serve as the foundation for new products and services to be brought to the market early on therefore is of high value to most growth aspiring companies. In an organization, having knowledge available and accessible at a moment's notice to the right people, ensures that it can be innovative, responding quickly to the highly dynamic environments it operates in. Intra-organization networks provide the social infrastructure to manage such exchange effectively.

The structure of social networks and the nature of the ties in them provide essential cues as to what the social interactions in an organization may be expected to deliver. To understand the inner workings of organization networks an understanding of the core notions of organization network analysis and the underlying network theory is essential. This chapter sets out to review these core notions as a point of departure for a fact-based approach to rendering insights into the networks within an organization, as brought to the fore in the remainder of the book.

It will have become evident by now that a powerful way in which to understand the social nature of organizations, and the leading way in which to analyze this, is by looking at the organization as a constellation of different networks. A network, in its essence, is the interconnections between nodes constituted by ties. Inside an organization, the people are the nodes who exchange (have ties) with others. The interconnected relations, the ties, show relationships or flows between the nodes. These simple notions easily combine into an intuitive picture of the social fabric of intra-organizational relations, an intra-organizational network (see Figure 1.1 for an example). Managers need to learn the language of networks to understand their organizations better. Others, including fellow scholars, would also benefit greatly from understanding organizations as a constellation of networks.

Here we introduce and discuss key terms drawn from the field of network analysis such as tie, node, tie strength, and centrality, and place these in an organizational context. We do so from an almost technical point of view, and also, importantly, from a strategic point of view, that takes innovation as a prime driver of strategic advantage, as well. We focus on what these terms mean in the context of business and zoom in on intra-organizational networks. Understanding network concepts and the avenues they offer for purposive intervention will augment organization performance and help management to steer towards innovation and sustainable competitive advantage.

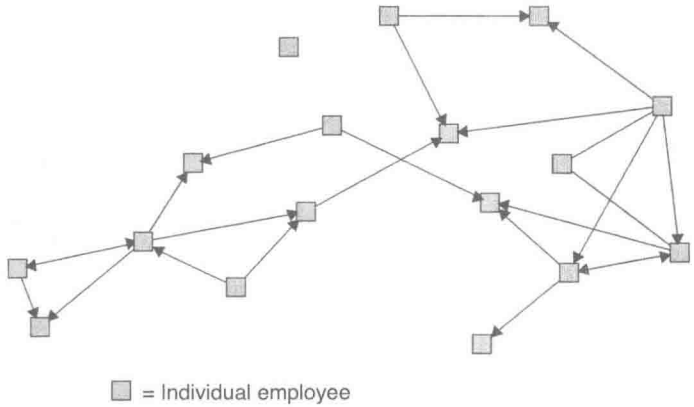

FIGURE 1.1 An intra-organizational network

Intra-organizational networks may be instrumental, affective, strongly mandated, or largely discretionary. Accordingly, various networks can be identified, from formal or workflow networks that are strongly mandated by management, to informal networks that may or may not form the shadow-vertebrae of an organization. What is actually exchanged is – or can be – very different in each of these networks. The knowledge that is actually exchanged in a network is highly context dependent as well. For an accounting firm, for instance, in one network, accounting data is exchanged, while in another network advice about how best to relate to customers is exchanged, in still other networks new ideas and knowledge that will contribute to innovations for an organization is exchanged. There are networks of individuals discussing last night's football or basketball game, as well as networks of those who smoke together during breaks. Each network has its own merits to those involved. These are all different networks, each with their own structure and dynamics over time. Individuals can be involved in more than one network at the same time. Any two individuals in an organization can then be connected with another individual in the organization in more than one way. Adapting a view of the organization as a set of diverse, and overlapping networks, provides an alternative path to more traditional modes to understand and enhance the strategic competitive advantage of the organization.

Approaching the organization as a constellation of networks offers an *intuitive* yet *thorough* insight into its functioning. Social networks are easily understood, since they are close to just about anybody's immediate understanding of family, friends, and society. Networks can be visualized readily

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