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## Insights

Welcome to the June issue of the *Technology Innovation Management Review*. We welcome your comments on the articles in this issue as well as suggestions for future article topics and issue themes.

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## Overview

The *Technology Innovation Management Review* (TIM Review) provides insights about the issues and emerging trends relevant to launching and growing technology businesses. The TIM Review focuses on the theories, strategies, and tools that help small and large technology companies succeed.

Our readers are looking for practical ideas they can apply within their own organizations. The TIM Review brings together diverse viewpoints – from academics, entrepreneurs, companies of all sizes, the public sector, the community sector, and others – to bridge the gap between theory and practice. In particular, we focus on the topics of technology and global entrepreneurship in small and large companies.

We welcome input from readers into upcoming themes. Please visit [timreview.ca](http://timreview.ca) to suggest themes and nominate authors and guest editors.

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## About TIM



The TIM Review has international contributors and readers, and it is published in association with the Technology Innovation Management program (TIM; [timprogram.ca](http://timprogram.ca)), an international graduate program at Carleton University in Ottawa, Canada.



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# Editorial: Insights

## Chris McPhee, Editor-in-Chief

Welcome to the June 2019 issue of the *Technology Innovation Management Review*. The authors in this issue share insights on management innovation, female managers and entrepreneurs, ecosystem strategies for technology startups, and the current status and future of action research.

First, **Haven Allahar** from the University of the West Indies, Trinidad and Tobago proposes a project development planning model that integrates management innovation tools related to the field of project planning. Tested by a consulting firm over several applications and focused on the context of a small developing country, the approach has implications for managers, consultants, and professionals involved in the design, planning, and implementation of a wide range of development projects.

In the second article, **Mervi Rajahonka** and **Kaija Villman** from the South-Eastern Finland University of Applied Sciences XAMK, Finland, examine how female managers and entrepreneurs are employing digital technologies in their working and private lives and what they think about digitalization. Through individual interviews and group discussions with 42 female managers and entrepreneurs, the study focused on digitalization, skills, careers, working patterns, work-life balance, and wellbeing. The findings emphasize the importance of contextual features related to digital technologies and the domestication of digital technologies.

Next, **Taina Tukiainen** from Aalto University in Finland and **Thommie Burström** and **Martin Lindell** from Hanken School of Economics, also in Finland, present a dynamic strategic framework of three strategies employed by technology startups seeking to operate within and between ecosystems. In the first strategy, startups choose to act within one defined business ecosystem, in the second and most common strategy, startups use a multi-ecosystem strategy to act between and draw benefits from many business ecosystems, and in the third strategy, startups act as ecosystem creators that challenge the logics of existing ecosystems.

Finally, we feature an interview with **David Coghlan**, Professor Emeritus at the Trinity Business School, Trinity College Dublin, Ireland, who is considered one of the founding fathers of modern action research. He is interviewed by **Erik Lindhult** from Mälardalen University in Sweden, who was one of our guest editors for two special issues on the theme of Action Research in April ([timreview.ca/issue/2019/april](http://timreview.ca/issue/2019/april)) and May ([timreview.ca/issue/2019/may](http://timreview.ca/issue/2019/may)). David offers his reflections on the present and future of the theory and practice of action research, as well as the patterns he sees in these recent publications in the TIM Review.

For future issues, we are accepting general submissions of articles on technology entrepreneurship, innovation management, and other topics relevant to launching and growing technology companies and solving practical problems in emerging domains. Please contact us ([timreview.ca/contact](http://timreview.ca/contact)) with potential article topics and submissions, and proposals for future special issues.

**Chris McPhee**  
Editor-in-Chief

### About the Editor

**Chris McPhee** is Editor-in-Chief of the *Technology Innovation Management Review*. Chris holds an MAsc degree in Technology Innovation Management from Carleton University in Ottawa, Canada, and BSCh and MSc degrees in Biology from Queen's University in Kingston, Canada. He has 20 years of management, design, and content-development experience in Canada and Scotland, primarily in the science, health, and education sectors. As an advisor and editor, he helps entrepreneurs, executives, and researchers develop and express their ideas.

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# A Management Innovation Approach to Project Planning

Haven Allahar

“ *Potential management innovators face severe barriers. For the most part they have not been trained to experiment with processes, practices and structures, because that is not what business schools do. Their companies do not have organizational structures or incentive systems in place to support management innovation.* ”

Michael Mol and Julian Birkinshaw (2006)  
Professors, researchers, and authors

Innovation is viewed as indispensable to the economic and social development of countries, and the subject has been widely researched. The initial research focused on the development of new products and services by firms applying technological initiatives. The concept has expanded to cover many domains and features of innovation that led to innovation in non-technological areas, currently referred to as “management innovation”. Many tools were developed by management specialists and gurus such as strategic planning, vision and mission statements, benchmarking, customer-satisfaction measurement, and outsourcing to target performance improvements in firms. The output of this article is a project development planning model that integrates management innovation tools related to the field of project planning as a novel approach tested by a consulting firm over several applications. The article has implications for managers, consultants, and professionals involved in the design, planning, and implementation of a varied range of development projects.

## Introduction

The study of the theory and practice of innovation continues to generate considerable research articles and projects from academic and practical perspectives. The field has been broadened to include an array of innovation-related topics such as innovation management, open innovation triggered by the Internet, innovation in services as opposed to the traditional product focus, technology innovation, and management innovation as a more recent focus on non-technological innovation involving the employment of different organizational development tools by managers (Birkinshaw et al., 2008; Černe et al., 2015). While the focus on technological innovation remains critical to the sustainability and performance of leading firms, there is increasing attention being paid to the development and implementation of non-technological innovation initiatives (Meuer, 2014). This article focuses on management innovation, also referred

to as organizational, administrative, and managerial innovation (Damanpour, 2014), and particularly the cutting-edge tools implemented by organizational managers over the past three decades. The key perspectives obtained from the literature and past and current management practice are described, and the most relevant management innovation tools are reviewed for an understanding of those tools that are applicable to the context of a small project development consulting firm. The question addressed is: “Which management innovation tools can be combined by a consulting firm for delivering project planning services?”

Research on innovation is a relatively recent area of investigation, which took off with the work of Drucker (1985) who argued that business innovation is based on a systematic analysis of the sources of opportunities, not flashes of inspiration. The early studies of innovation focused on the development of new products and new technologies, hence the definition of innovation as “the

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embodiment, combination, or synthesis of knowledge in original, relevant, valued new products, processes, or services” (Harvard Business Essentials, 2003). Thus, innovation was initially viewed in purely technological terms and considered synonymous with invention. However, as the concept became the subject of studies, it was recognized that innovation could take several forms. Tidd, Bessant, and Pavitt (2005) identified four types of innovation: product innovation (referring to the actual offerings of firms); process innovation (involving the way in which products are created); position innovation (alluding to the context in which products are introduced); and paradigm innovation (involving changes in mental models of an organization). More recently, consideration of innovation in services, business models, pricing plans, market access, and management practices has emerged (Birkinshaw et al., 2011). In this context, two related managerial practices became of interest to researchers and practitioners grappling with how innovative projects in organizations could be effectively handled: the practice of innovation management and management innovation, which are often used interchangeably.

The concepts of innovation management and management innovation are related but differ in their application. For the purpose of greater clarity, innovation management observes a distinct process that begins with idea formulation and ends with implementation and incorporates network interrelationships among participants (Tanev et al., 2009). Further, innovation management is R&D oriented and is seen as the governance and organization of invention and innovation processes that evolved over periods of incorporating corporate R&D laboratories, then applying project management methods to R&D, establishing functional internal collaboration within firms, and finally incorporating the knowledge of users and competitors to enhance the conduct of the R&D function (Ortt et al., 2008). Management innovation, on the other hand, refers to the employment of new management practices, processes, initiatives, and structures with the aim of achieving organizational goals and objectives (Birkinshaw & Mol, 2006). A major distinction is that management innovation is considered as non-technological innovation such as innovation in services, business models, and design and is generally considered an under-researched or generally overlooked area by scholars, particularly in the context of small and medium-sized enterprises (SMEs) (Aromaa & Eriksson, 2014; Hervas-Oliver et al., 2016). It was suggested that “Management innovation is in many ways the missing piece of the innovation puzzle... needed to make technological innovation work yet it remains

poorly understood and scarcely researched” (Mol & Birkinshaw, 2006). Further, the existing research on management innovation was viewed as deficient as evidenced by: relatively few publications from an examination of published articles in leading journals (Damampour, 2014); a mere 3% of articles addressing management innovation from an assessment of articles dealing with innovation (Crossan & Apaydin, 2010); a limited understanding of the subject as a result of the preoccupation with the technological imperative (Meuer, 2014); and under-representation in the significant body of work on innovation (Volberda et al., 2014).

The aim of this article is twofold: 1) to provide an overview of the area of management innovation with a concise description of the key management practices for greater understanding by organization managers and the significant audience listed below; and 2) to identify and explore the key management innovations that can be incorporated into a project planning methodology to answer the question posed in the article. This article contributes to filling research gaps by introducing a management innovation approach to project planning by applying a combination of select management tools and foresight planning as an emerging management tool to the practice of strategic project development planning as a novel and valuable contribution in the context of a small developing country. The results derived from the article are significant for organizational managers, in both the public and private sectors, who are pursuing new management innovation initiatives; firms seeking to gain a competitive edge in the market, especially those based in developing countries; researchers concerned with the subject of innovation in its many forms; and students interested in the study of entrepreneurship and innovation.

The research approach utilized a phased, sequential exploratory strategy comprising secondary research of relevant literature and an empirical analysis of the application of a combination of project planning related management innovations designed and tested by a project development planning consulting firm. The secondary data were sourced from: the leading digital full-text aggregator databases ABI/Inform ProQuest and EBSCOhost; Google Scholar; and reputable texts and reports related to the subject matter accessed from libraries and the Internet. The data were downloaded, sorted, and read, whereupon a thematic analysis was undertaken to identify patterns across the research data and identify the critical themes and issues through a process of data familiarization, coding, and theme development (Braun & Clarke, 2006).

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The results of the analysis were an achievement of a deeper understanding of the dynamics of the phenomenon of management innovation tools. Further, qualitative particularity, rather than generalizability, was achieved through the descriptions and themes developed for the particular research setting (Creswell, 2009; Saunders et al., 2009). The final phase involved an identification of the management innovations relevant to project planning, analysis of the merits of the project-related management innovations, and selection and incorporation of the select management innovations into the project development model. The theoretical underpinning of the article is based on the assumption that individuals introduce innovative solutions to organizational problems and follow up by championing the implementation and adoption of the solution (Birkinshaw et al., 2008) and by utilizing a rational perspective viewed as the dominant approach within a fragmented context (Damanpour, 2014).

The article continues with a discussion of the management innovation process, tools, and practices, highlighting the connectivity of the tools selected for the application to project development planning; a presentation of an integrated management innovation model as a novel application of a live example that captures management innovation in action; and the main conclusions generated from the discussion in the article and the pertinent managerial implications.

### Management Innovation Process, Tools, and Practices in a VUCA World

The management innovation process was distinguished from technological processes by the greater use of external agents such as academics, consultants, and management gurus; by the creation of a highly interactive environment in which ex-employees can participate; and by the typical longer periods and diffuse nature of management innovations, which make it difficult to pinpoint when the innovations occurred (Birkinshaw & Mol, 2006). Management innovations were also different as a result of the inability to gain patent protection; difficulty in observing and defining the process leading to greater subjectivity; lack of expertise and management capability in the area; and the addition of greater uncertainty and ambiguity from introducing new initiatives (Birkinshaw et al., 2008). For the benefit of management innovators, it was suggested that external management thinkers could provide inspiration to explore solutions to a current problem, an impending crisis, or a future threat; an internal champion can pursue internal and external validation and drive the

process; and external validation can be supplied by business school academics, a reputable consulting company, media organizations, and industry associations (Birkinshaw & Mol, 2006). However, the weakness of the management innovation process was the downplaying of the critical role of context relating to most management innovations, and examples from studies are deficient in explaining how context influences management innovation behaviour (Frynas et al., 2018).

An exploration of management innovation tools and practices revealed a wide range of initiatives introduced over a relatively short period, which illustrated a scattered picture of management innovation typologies and lack of an agreed classification (Damanpour, 2014). To demonstrate this situation, no agreed list of effective management innovations exists, but rather attempts at compiling lists were undertaken which identified: strategic planning, benchmarking, mission and vision statements, customer satisfaction measurement, and outsourcing as the main management innovations (Rigby, 2001); the top 10 management innovation tools that emphasized strategic planning, corporate social responsibility, benchmarking, mission and vision statements, outsourcing, knowledge management, and scenario planning as the leading management innovation tools (Dabić et al., 2013); and shortlisting 23 management innovations from a comprehensive list of 181 that was filtered based on completeness and popularity and with a detailed implementation process (Mol & Birkinshaw, 2014). In an effort to rationalize and systematize the classification of management innovations, a categorization system was created comprising: efficiency-driven (e.g., service design, decentralized decision-making, continuous improvement, and participatory strategy development); externally recommended (e.g., decentralized logistic hubs, franchise systems, and activity-based costing); problem-oriented (e.g., involving debt management, user-oriented design, and collaborative supplier innovation); and opportunity-oriented (e.g., value-based selling, and business model thinking (Gebauer et al., 2017).

The literature on innovation is clear in pointing out that organizations utilize different innovation methods and strategies depending on their specific organizational characteristics and the environmental context in which they operate (Rothaermel & Hess, 2010). A feature of the environment is that it is characterized by increasing volatility, uncertainty, complexity, and ambiguity (VUCA), a term introduced by the United States military at the end of the cold war in the late

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1990s (Frynas et al., 2018). Volatility was created by economic factors such as currency fluctuations, which led to an unstable and unpredictable world environment; uncertainty derived from technological impacts on organizations and international trade; foreign direct investments in developed and developing countries introduced increased complexity in international finance; and ambiguity was created in situations where countries were faced with the choice of using local management practices versus adopting western theories (Frynas et al., 2018).

It was argued that a high VUCA environment in a developing-country context can stimulate novel management practices (Frynas et al., 2018), and this led to the formulation of VUCA-driven management innovation clusters including strategic leadership and management, business model innovation, innovation processes, organizational innovation, ecosystems, and strategic foresight (Millar et al., 2018). Successful management innovation in a VUCA world demands the development of dynamic capabilities that are based on early sensing of market changes, detecting shifts in behaviour, and gaining a deeper understanding of the implications for governmental regulations, technological advances, economic and sociopolitical trends, and seizing opportunities early and implementing innovative new systems (Schoemaker et al., 2018).

From the discussion to this point, it is clear that the field of management innovation is still in flux with new practices introduced as elements of management innovation that are exacerbated by the VUCA business environment. The impact is that management innovators are weary of creating new innovations in what has become a complex area of operation with a surplus of management tools, which overlap significantly. The interested manager will have to distil the information available on management innovation, assess the potential impacts on the organization, and evaluate the expertise for pursuing management innovation because, according to Birkinshaw and co-authors (2008), most companies do not have developed capacity in the area that increases uncertainty and ambiguity. Against this background, this article focuses on the management innovations that are directly aligned to the field of project development planning that are demonstrated to be successful innovations and include: business model innovation; open innovation; project management; design thinking; and foresight thinking and scenario planning, which were integrated into a novel project planning methodology as the main output of this article.

### *Business model innovation*

A business model describes how a firm creates and delivers value and how innovating the model can create competitive advantage provided the innovation sufficiently differentiates the model (Teece, 2010). However, the author suggested that, in order to design and create a new model, “creativity, insight, and a good deal of customer, competitor and supplier information and intelligence” are required, implying high-level collaboration among stakeholders (Teece, 2010). Business models have experienced growth in practitioner-oriented studies and, while there is no agreement on what constitutes a business model, there is growing consensus that a business model is a new unit of analysis, operates on a system-level, and utilizes a holistic approach to firm operations with the aim of achieving value creation and capture (Zott et al., 2011). More succinctly, a business model is an “activity system”, and “business model innovation is important to managers, entrepreneurs, and academics” who can achieve management innovations by adding novel activities which are linked in creative ways, and by changing members in the innovation team (Amit & Zott, 2012). Business model innovation was linked to open innovation by authors who argued that “open innovation requires the adoption of new, open business models... which may prompt additional business model innovation” (Zott et al., 2011). However, the record of attempts at business model innovation revealed many failures that were attributed to the actual type of innovation attempted rather than the management innovators, from which it was suggested that, for greater success, managers should create new models rather than tinker with existing models (Christensen et al., 2016).

### *Open innovation*

Chesbrough (2003) identified the difference between the traditional approach of closed innovation based on internally generated ideas and open innovation, which commercializes both internal and external ideas. The concept was initially restricted to the manufacturing sector but subsequently was expanded to incorporate services innovation based on co-creation with customers (Chesbrough, 2011), applied to the publishing industry as disruptive innovation (Allahar, 2017), predicted to extend to the design of new business models (Chesbrough, 2017), and eventually becoming “fully integrated in innovation management practices” (Huizingh, 2011), an example of which is the concept of living labs (Westerlund & Leminen, 2011).

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### *Project-based management*

The concept of the project cycle emerged almost 50 years ago and became widely adopted, especially by development organizations such as the World Bank, because the techniques were well structured and had an internal logic (Landoni & Corti, 2011). The practice of project-based management evolved from tools such as life-cycle project management, management of international development projects, and project knowledge management, which developed from the project management body of knowledge (Gasik, 2011; Jaafari, 2000; Khang, & Moe, 2008; Tereso et al., 2018). According to Martinsuo and co-authors (2006), project-based management can be considered a management innovation with distinct features such as: a special focus on achieving scope, cost, time, and customer and business goals; introduction of a temporary structure to replace the existing organization structure; organization-specific tools and best practices; and improved distribution of project responsibilities within the organization. However, it was noted that project management was broadening its focus from an engineering-centric position to a strategic business perspective in sync with the impact of design thinking in the development of innovation.

### *Design thinking*

The concept of design thinking emerged in the 1960s from the discipline of the design sciences, and the concept gained popularity within the management discipline. The concept was viewed as critical to the practice of management and management innovation, which led to the formulation of an experiential learning framework linked to design thinking tools and cultures (Elsbach & Stigliani, 2018). The assertion made was that design thinking tools provide effective solutions to ill-defined problems, which “starts the experiential learning cycle” that will “affirm and elaborate values, norms, and design thinking cultures” (Elsbach & Stigliani, 2018). A selection of these tools include ethnographic interviews, brainstorming, customer co-creation, design drawings, design spaces, experimentations, acceptability of failure, and rapid prototyping. Design thinking began attracting the attention of researchers early in the 2000s and shares features with project management as both followed specific methods, applied tools in their processes, and were moving towards a strategic approach. A contention was that design projects followed a system of inspiration, ideation, and implementation and apply diverse approaches involving “observation, collaboration, fast learning, visualization of ideas, rapid concept prototyping, and concurrent business analysis” (Mahmoud-Jouini et al., 2016).

Design thinking employs a cognitive perspective, which alludes to its creative and explorative nature to meet the challenges of the VUCA environment; an organizational perspective, which emphasizes stakeholder involvement in the process and promotes new methodologies and tools such as living labs; and a strategic perspective, which highlights the adoption of strategic management capabilities that facilitate the spread of design practices throughout the organization (Mahmoud-Jouini et al., 2016).

### *Foresight and scenario planning*

According to Greenblott and co-authors (2018), “strategic foresight is a method for systematically considering a longer time horizon and broader scope of issues than other forms of planning”. These authors also suggest that strategic foresight methods, which include environmental scanning for gathering information on emerging or potential developments, trend analysis, and scenario planning that helps with addressing uncertainty, rapid change, and clarifying priorities, should be integrated into the planning system, because it “facilitates a systems approach to problem solving” which helps to “prepare for future threats or take early advantage of emerging opportunities” (Greenblott et al., 2018).

The tool was mainly utilized by the United States military and is not well respected in academia perhaps because it encourages challenging assumptions of the future, which makes persons tied to the status quo uneasy (Greenblott et al., 2018), and further it has not attained acceptance as a formal professional discipline (Hines et al., 2017). Foresight planning is integrally linked to scenario planning that follows a four-step procedure: first, a major environmental scan is conducted, which is maintained through the project development cycle but with less intensity; next, the results from the scan are used to develop a range of scenarios that consider possible futures; the third step utilizes workshops on the different scenarios to assess the implications for the project or the organization executing the project; and the last step involves the identification of the organizational capabilities required to successfully deal with the potential future events gleaned from the scenario analyses (Greenblott et al., 2018). Apart from military applications, foresight methods were applied to industrial development projects (Nehme et al., 2009), but are rare in the area of project development planning.

The discussion of the five management innovations highlighted in this article established close connectivity

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among the concepts and practices, and generated guidelines for managers who pursue management innovation.

1. Managers must promote creativity, insight, and collaboration with customers, competitors, and suppliers to secure up-to-date business intelligence because business model innovation is challenging technological innovation as a major source of competitive advantage (Rayna & Striukova, 2016), and a manager's task is to purposefully design and structure the business model (Amit & Zott, 2012).
2. Failure in business model innovation is likely to continue especially in an environment of business ecosystem change in a context of sustainable circular business model innovation (Antikainen & Valkokari, 2016). The lesson is that, for greater success, managers should create new models rather than tinker with existing models (Christensen et al., 2016).
3. Open innovation, facilitated by the Internet, has spawned a growing open access movement, which is impacting many areas of business and technology, and considered a useful lens for studying management innovation (Mol & Birkinshaw, 2014).
4. The practice of project management consulting, which is critical to construction project delivery, requires a rethinking of consulting methodologies to develop more robust project management consulting approaches (Adesi et al., 2015).
5. Design thinking will introduce challenges, and such thinking should be embedded in the culture of organizations to deal with the challenges and the tensions between analytical and intuitive thinking and linear and lateral or iterative thinking (van Reine, 2017).
6. The integration of the management tools of strategic planning, foresight, and design thinking could improve "the adaptability and innovation capacity of organizations" (Bühring & Liedtka, 2018). The lesson is that managers must be involved throughout the foresight process, noting that success results only after the long-term (Greenblott et al., 2018). Managers should also explore applying foresight methods to areas of consulting and organizational issues (Hines et al., 2017).

## A Project Planning Approach as an Innovation in Management

This article outlines a methodology for planning, designing, and implementing projects by applying an approach that integrates the management innovation practices of business model innovation, open innovation, project-based management, design thinking, and foresight and scenario planning (Greenblott et al., 2018; Mahmoud-Jouini et al., 2016; Martinsuo et al., 2006). The model comprises a four-stage process of: 1) project framing, including project scoping and foresight approach; 2) research and environmental scanning for data collection and analysis; 3) foresight planning involving envisioning the alternative futures (Bishop et al. 2007; Hines et al, 2017); and 4) development of the implementation plan including identifying strategies, organizational resources, preparing operating guidelines, and conducting stakeholder consultations. The methodology identifies the tools to be used including brainstorming, focus group and project meetings, design thinking, and project management. The competencies needed include foresighting, environmental scanning, research analyses, futures search techniques, and scenario planning; and the major outputs are a project brief with fully developed scope of work, a database of research results, an agreed preferred future, and an implementation plan that integrates the key planning tools (Table 1).

The approach is the result of a distillation of the literature on management innovation and the management innovation tools and practices highlighted above. It also draws on empirical insights obtained by the author from an educational background in the discipline of project planning, years of management experience, project consulting practice, and as a future studies practitioner involved in the World Future Society ([worldfuture.org](http://worldfuture.org)), and AAI Foresight ([aaiforesight.com](http://aaiforesight.com)). The method presented benefitted from an exercise in innovating the consulting value chain of the author's firm (Allahar, 2019) and empirical applications by the firm in completing specific development planning projects in areas of business parks, industrial estates, tourism, land development, new highways, and regional development.

The application of this method to the consulting sector contributes to addressing the gap in the existing literature on consulting practice assessed as "devoid of project management consulting methodologies" (Adesi et al., 2015). The strength of foresight as a management innovation is that it challenges assumptions about the future and helps managers question the status quo, although

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**Table 1.** Integrated project planning methodology

Stages	Framing →	Research/Scanning →	Foresight Planning →	Implementation
<b>Activities</b>	Project scoping, foresight planning, work planning, finalizing the work scope, conducting, and negotiating with clients and participants	Primary and secondary data collection, sorting, coding, and analysis  Scanning the environment, situation analysis	Envisioning future perspectives, identifying alternative futures, choosing the preferred future, envisioning the best outcomes, detailing action goals, performance measures	Project implementation strategies, organizational guidelines, stakeholder consultations, project plan and recommendations
<b>Tools</b>	Project meetings, brainstorming, focus group interviews	Literature reviews, online and field surveys, individual and group interviews	Strategic design thinking and foresight workshops, scenario analyses, and organization analyses	Project design, planning, and management
<b>Skills</b>	Domain mapping, organizational foresight audit, contract negotiations	Research skills, survey techniques, environmental scanning; content, stakeholder, trend analyses	Appreciative enquiry, futures search, visualization, scenario planning, alternative futures analysis, systems analysis, technology forecasting	Decision modelling, simulations, strategic planning, technology assessment, activity scheduling, design and management skills
<b>Output</b>	Confirmed project brief, institutional arrangements, reporting system	Information database providing full understanding of the environment and the boundaries of the exercise	Preferred future and scenario implications	Implementation plan linking - project strategies, tactical measures, project management actions, implementation organization, operating guidelines, performance measure tools, progress monitoring system, project close

“foresight as a discipline is not well-recognized in academia” (Greenblott et al., 2018). However, it is an emerging practice in Latin America and the Caribbean in areas of agriculture and food production, ICT, and climate change, especially the application of strategic foresight, which differs from other planning tools by considering plausible, possible, probable, and preferred futures equally (Global Centre for Public Service Excellence, 2014). Design, creative thinking, and foresight principles are growing closer and contributing to enhancing planning processes resulting in the suggestion that combining the tools of these and related planning disciplines can provide a powerful toolkit (Bühning & Liedtka, 2018). The project planning method presented in this article represents a novel application of a planning approach, which integrates five key

management innovation tools as a contribution to the planning toolkit by a consulting firm operating in a developing country context.

## Conclusions, Managerial Implications, and Lessons

The main conclusion is that the concept of innovation has evolved beyond considerations of manufactured products, innovation in services, and technology-related areas to an embrace of innovation in management tools and practices. While tools such as benchmarking, six sigma, supply chain management, business reengineering, the balanced scorecard, and business model innovation will remain relevant to organizations, the complexity of the VUCA environment forces managers

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to explore non-technological innovations to deal with the challenges in the business world and non-profit organizations where social innovation is demanded. Overall, the management innovation process is viewed as complex, which creates a need for establishing legitimacy, “the bringing together of disparate pieces of knowledge and experience” and the involvement of external actors and sources of knowledge in the process (Mol & Birkinshaw, 2014).

An example of a management innovation, based on the integration of the modern management innovation tools of project-based management, design thinking, and foresight and scenario planning, is presented as a potential solution in the field of project planning. The planning methodology proposed incorporates tested tools such as environmental scanning, research techniques, and data analyses, with scenario analysis, design thinking, future foresight, and project management. The application of these tools requires technological input involving the use of computers for systems analysis, technology forecasting, decision modelling, simulations, and project activity scheduling and milestone charting but is management-centred.

The discussion on management innovations and the conclusions reached have implications and lessons for managers seeking to build sustainable, competitive companies. The role of top management is to encourage managers and staff to explore and test new management innovations such as the creation of management innovation systems, noting that experimentation is integral to success; thus there is the need to “build a capacity for low-risk experimentation” (Birkinshaw & Mol, 2006). In developing-country situations, managers should apply an “extended process model of management innovation”, and management innovations should be aligned to the institutional, technological, and competitive environmental context, as well as the organizational structure, leadership, and resource context (Frynas et al., 2018).

Specific guidelines were suggested for managers to accelerate the innovation process by developing dynamic capabilities through the integration of functions and

processes, promoting a culture of questioning and solution finding, searching for successful examples from other environments, becoming a conscious management innovator, and practicing serial management innovation (Millar et al., 2018; Birkinshaw & Mol, 2006). As a summary statement, it was asserted that: innovation should be treated as a way of organizational life; managers must develop new skills and tools for staff applications to support design, foresight, and systems thinking; foresight processes should be an integral part of strategy; new business models must be created at the unit level; best practices should be explored from global best practices; and leaders and managers have a special responsibility to shape the future of organizations by building effective entrepreneurship ecosystems and networks (Millar et al., 2018), while managers are urged to evaluate different models and embrace an ecosystem perspective (Baden-Fuller & Haefliger, 2013).

### About the Author

**Haven Allahar** has served for over 25 years as an Adjunct Lecturer in entrepreneurship and innovation, and a coach of MBA teams’ capstone projects at the Arthur Lok Jack Global School of Business of the University of the West Indies, Trinidad and Tobago. Haven has a wide academic and specialized training background in Economics (BSc, Jamaica), Entrepreneurship and Management (MA and DBA, US), Industrial Project Planning, Financing, and Management (UK and Poland). Haven served for over 40 years in senior management and CEO positions in companies involved in project planning and management, SME development, and urban development. Haven, along with two partners, owned and operated for 15 years a consulting firm that provided project planning, design, and management services to a variety of clients in Trinidad and Tobago and the Caribbean. Haven’s research interests are in broad areas of business and management, and his publications are available at Academia.edu or ResearchGate.

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# Women Managers and Entrepreneurs and Digitalization: On the Verge of a New Era or a Nervous Breakdown?

Mervi Rajahonka and Kaija Villman

“ *Even the biggest problems in the world are just tiny problems stuck together.* ”

Linda Liukas

Software Programmer and Co-Founder of Rails Girls  
Author of *Hello Ruby*, a children's book that teaches coding  
One of *Forbes'* Top 50 Women in Tech Europe 2018

The purpose of this article is to examine how female managers and entrepreneurs are employing digital technologies in their working and private lives and what they think about digitalization. The material for the study was gathered through interviews with women in South Savo, Finland. The article builds on the theory of technology domestication, emphasizing the role of users in making a technology usable in their everyday contexts. The findings show that women experience challenges but also gain clear benefits when employing digital technologies. Among the challenges is that women are traditionally rather reserved when it comes to applying technology. Among the benefits is the practice-oriented stance of women towards digital technologies. Moreover, the rise of digital social media and its increasing importance in the working and business environments could make it easier for women to manage both work- and family-related communication. This may improve their wellbeing at work and help women towards equality at work. However, they need support in finding their digitalized career paths.

## Introduction

The diffusion of information and communication technology (ICT) has brought change to all aspects of our lives, not least our working lives. The digital economy has grown much faster than the rest of the economy; however, the rapid development of digital technologies has created challenges for inclusive growth. For example, there is an identified problem of under-representation of women in economically critical sectors such as ICTs (Pappas et al., 2017).

The purpose of this article is to study how women managers and entrepreneurs are employing digital technologies in their working and private lives and what they think about digitalization. Our research questions are: 1) How do digital competences shape the careers of women? 2) How are women using digital technologies?,

and 3) What opportunities or threats do women have concerning digitalization when it comes driving career development and finding a balance between work and life? The focus of this article is on the relationship between digitalization and the careers and wellbeing of female managers and entrepreneurs. As far as we know, this is one of the first articles studying the relationship between digitalization and the careers and wellbeing of female managers and entrepreneurs.

The article is organized as follows. First, we review prior literature on women and technology, women as managers and entrepreneurs and ICT, and technology diffusion and domestication. Thereafter, we document the research methodology and data collection. Next, we discuss the empirical findings based on our interviews and discussions with women in South Savo, Finland. Finally, we present concluding remarks.

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### Literature Review

#### *Women and technology*

The digital economy grows as such as rate that there is a constant lack of qualified ICT staff. In the European Union, initiatives to deal with this skills shortage highlight the need to activate the female population through training with a focus on ICT (Pappas et al., 2017). Traditionally, technology-related careers are linked to competences that are not commonly associated with women (Mora, 2015). Women represent about 50% of university students in most developed countries, but they are under-represented in the science, technology, engineering, and mathematics (STEM) fields (Waaijer et al., 2016). For younger children, there is no difference in the use computers but, at the age of 16 or 17, the gender gap grows (Dixon et al., 2014). Computer software is usually developed for (and by) males, which may explain why boys tend to find computers more appealing and more easily develop confidence in using them, at least generally. In addition, even when gender differences in skills are insignificant, women perceive their skills as being lower than those of their male counterparts (Dixon et al., 2014; van Dijk, 2017.)

It is said there are “leaks” in the education pipeline of women, as evidenced by girls with higher mathematical skills not being as likely to enter STEM fields at university as boys with lower skills (Ferguson, 2016). Research has even shown that computer science is seen as a domain for men according to cultural beliefs and that some males respond by “chasing” girls and women away from the field (Michell et al., 2017). Consequently, women currently represent only 30% of ICT workers in Europe and have created only 9% of ICT applications (Pappas et al., 2017). This is a contradiction because research indicates that women are more creative than men and that a strong female presence in business leads to more effective decisions (Pappas et al., 2017).

#### *Women as managers and entrepreneurs in a digital context*

In general, women are under-represented at the highest levels of organizations, receiving lower pay and fewer promotions than men (Joshi et al., 2015). In the European Union in 2016, only 33% of managers were women (European Union, 2017). Also, women managers in Europe earn less compared to their male peers: when comparing different professions, managers had the largest differences in hourly earnings (23% lower for women) (European Union, 2017). Women face both “glass ceiling” and “sticky floor” problems: whereas the

glass ceiling is an obstacle for highly educated women, the sticky floor is a problem for less-educated women (Ahmad & Naseer 2015). It has been claimed that being more qualified may be a woman’s best hope, although having an education does not necessarily bring women the same benefits that it brings men (Ahmad & Naseer, 2015; Mora, 2015).

Moreover, when women choose male-dominated work, they do not “fit” the expectations and may face bias: women may be seen as less able (e.g., having lower leadership skills) or less effective than men (Joshi et al., 2015). Furthermore, peers or superiors may discount women’s efforts. In their research spanning many industries and occupations, Joshi and colleagues (2015) found that gender-based differences in organizational rewards were almost 14 times larger than gender-based differences in performance evaluations. It has also been claimed that the common perception of women being more risk averse than men causes women taking risks to either be disregarded or seen negatively as “cocky” (Jewell, 2011). Considering all the above mentioned, women’s rare high positions in organizations have a great symbolic value for other women (Jewell, 2011; Joshi et al., 2015).

Women in the European Union earn, on average, around 16% less than men, but computer skills have a significant impact on pay that is slightly greater for women (5.3% for men, 6% for women) (European Union, 2017; Pappas et al., 2017). Therefore, learning digital skills can be seen as especially beneficial for women with respect to their careers.

According to the Statistical Data on Women Entrepreneurs in Europe, female entrepreneurs represent about 30% of entrepreneurs in Europe (European Commission, 2014; Pappas et al., 2017). It has been stated that women increasingly start their own businesses as a way of avoiding the “glass ceiling”. This effect can be seen in, for example, in Canada and Norway, where women start about 60% of all new businesses (Afrah & Fabiha, 2017). Moreover, women form the clear majority (78%) in one-person businesses in Europe (Pappas et al., 2017). Digital technologies are transforming how business is done, opening up opportunities for entrepreneurs – including women entrepreneurs –to enter global value chains. Therefore, digitalization and use of ICT increase opportunities for women entrepreneurs to develop themselves and their businesses and to gain access to equal opportunities with men in business development (Afrah & Fabiha, 2017; Pappas et al., 2017; Shah & Saurabh, 2015). Even new concepts based on this notion have

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been suggested, such as the “Female Digital Entrepreneur”, who has been defined as “a female entrepreneur who explores market opportunity exploiting the digital space to create something new” (Scuotto et al., 2019).

However, there are also challenges that women face in their careers. It has been noted that female entrepreneurs, more often than their male peers, experience a lack of time or human resources or challenges in receiving funding, such as start-up capital (Jewell, 2011; Sinell et al., 2018). Further, women are generally more family-oriented compared to men. Also, societal expectations still load most of the responsibility for social reproduction (e.g., preparing food, cleaning, taking care of children and elderly family members) to women, constraining their career development (Jewell, 2011). In the European Union, this effect can be seen in statistics from 2016: 79% of women cooked or did household work and 92% took care of their children on a daily basis, compared with 34% and 68% of men (European Union, 2017).

Also in 2016 in the European Union, 32% of women in employment worked part-time, compared with 9% of men, and the employment rate of women with three or more children was 55%, compared with 84% for men in the same situation (European Union, 2017). Also, other kinds of “non-standard working arrangements”, such as hybrid entrepreneurship combining employment and entrepreneurship, have been claimed to be attractive approaches for females (Solesvik, 2017).

Digital technologies have led to work becoming more flexible, in general, and have blurred the borders between work and free time (Grönlund & Öun, 2018). This creates opportunities and challenges for women in terms of how to integrate work and family responsibilities. Flexible work combined with the increasing usage of digital technologies could have positive impacts concerning the work–life balance for women. For example, it has been noticed that the usage of mobile phones has helped women manage and schedule their family affairs efficiently while working (Roy, 2016). Nevertheless, in our modern and flexible working lives, individuals are expected to be able to define and structure their own work and draw the line between their work and private lives. Research also suggests that women actually have less control than men over their work and schedules, and therefore it can be claimed that today’s working life has not yet adapted to the expectations of modern women (Grönlund & Öun, 2018.)

As technologies can be understood as tools or methods to accomplish certain tasks, they do not have any value as such, and they must fit into social contexts, which often are dynamic and gender-related. Huyer and Sikoska (2003) remind us that women need to be convinced that ICTs are useful to them. Also, because ICTs today are not gender neutral, they are not always appropriate to women’s needs (Huyer & Sikoska, 2003); at least not without proper adaptation.

### *Technology diffusion and domestication*

Technology is an important driver of innovation. Innovation research has studied, among other issues, the diffusion of innovation, meaning the process through which innovations are adopted through a network of organizations (Rogers, 1995). Usually, this process has been described with a curve, where different types of users adopt innovations in different phases (Meade & Islam, 2006). Yet, the adoption of technologies may not automatically lead to improvements for the adopting organizations, because new technology has to be combined with the organization’s own activities (Hazen & Byrd, 2012; West & Bogers, 2014). This requires a compatible culture as well as technological knowledge to adapt innovations to the organization’s own contexts (West & Bogers, 2014).

The critics of the diffusion theory claim that it ignores the role of users in shaping or reshaping technologies (Deidre, 2007). The social construction of technology theory argues that technology is not merely “trickled down” or diffused, but it is socially shaped to different social contexts; furthermore, technology itself is shaping society and its contexts (Harwood, 2011). For example, gender shapes the construction and meanings of technology, but technology in turn also shapes gender roles. As an example, computer usage was originally strongly associated with men, but this situation began to change as women started to use computers. Therefore, the gender gap that was originally seen in overall computer and Internet use in the late 1990s had diminished by the late 2000s (Dixon et al., 2014.)

The theory of technology domestication is based on the idea of contexts, and it emphasizes the role of users in innovation and their efforts to make a technology usable in their daily lives. Domestication theory describes the process of how innovations, especially new technology, are “tamed” or reformed by the users to better fit their purposes. There are four phases in the domestication process: appropriation, objectification, incorporation, and conversion. In the appropriation phase, when

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a technology is sold to a user, ownership is central. In the objectification phase, the user tries to capture the value of the new technology, which involves spatial and temporal fittings (e.g., finding a place and time for the technology object in their home and life). The incorporation phase emphasizes how the object is used. The conversion phase is about the user's interpretations of the technology – how the user describes their relationship with the technology (Deidre, 2007; Silverstone et al., 1992).

Constructive and domestication approaches challenge the traditional roles of the active producer versus the passive user, and they call for a deeper understanding of how technologies are created, adopted, and used, and how they change over time (Harwood, 2011). According to these approaches, the use of technology involves social processes and learning to make the technology work. The “struggle” to make the technology work itself involves some degree of innovation (Harwood, 2011).

Based on his research on small business owners, Harwood (2011) remarks that entrepreneurs typically have to adapt technologies during their otherwise busy days; this is problematic because there are many important activities that frequently interrupt the domestication process, and entrepreneurs have to postpone the task for the next day's to-do list. Consequently, they also have to settle for tolerable solutions, as the “taming” cannot always be fully achieved. Further, business and private spaces may often blend together in the busy days for small business owners (Harwood, 2011).

### Research Design

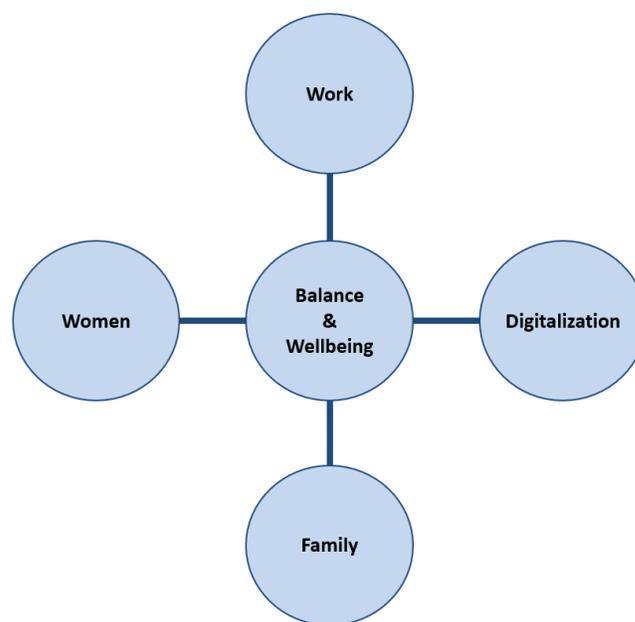
The material for the study was gathered through 40 individual interviews with female managers and entrepreneurs, and additional group discussions attended by 15 of the interviewed women plus 2 others, meaning the total sample was 42 women. Furthermore, the material includes timelines describing both personal and working lives of 14 of the women. All the material was gathered in South Savo, Finland, in 2017 and 2018. The data were collected mainly through face-to-face interview meetings. The 40 individual interviews were done at the beginning of two training and coaching programmes arranged by the DigiJoko project, and other material was gathered at the end of the programmes.

The aim of the DigiJoko project was to promote women's career paths, leadership, and female entrepreneurship in the digitalized working life. Measures of the

project taken by South-Eastern Finland University of Applied Sciences Small Business Center included practice-oriented research on women's career paths – presented in this article – and WoManager training and coaching programmes targeted to women who are currently in a leading position; who are moving up to a manager, team leader, or role with manager tasks; or who are entrepreneurs. The training and coaching programmes focused on strengthening women's leadership skills and networks and improving the success of women-led companies. A total of 62 women participated in the programmes. The DigiJoko project (3/2017–3/2019) was funded by the European Social Fund and the South Savo Centre for Economic Development, Transport and the Environment.

The study followed a multi-staged data analysis process, including coding of the data and theorizing the codes to link the collected data with theory. The interview and group discussion themes included digitalization, skills, career, working patterns, work–life balance, and wellbeing. Figure 1 illustrates the relationships between the main themes in the research.

The women worked in several sectors as entrepreneurs or managers in companies, associations, or public sector organizations. These women attended one of the two training and coaching programmes arranged especially for women to develop their leadership skills in



**Figure 1.** Relationships between the main themes in this research

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addition to skills and opportunities for using digital technologies at work. The identities of organizations and informants are withheld due to confidentiality reasons, although some background information about the interviewees is summarized in Table 1. The backgrounds sectors represented by the interviewees were consulting (e.g., media, IT, finance), health and well-being, other services (e.g., education, tourism, transportation), and other (e.g., primary production, trade, industry).

### Findings and Discussion

In the study, we investigated how female managers and entrepreneurs are employing digital technologies in their working and private lives and what they think about digitalization. We also studied the relationship between digital skills and career development and the wellbeing of women. In particular, we examined the challenges and opportunities women encounter when applying digital technologies at work.

The analysis of the interviews conducted at the beginning of the programme shows that the women's reasons for attending the training and coaching programme were diverse. Some of them wanted to find solutions for work-life balance and time management, while others wanted to increase their leadership skills or gain more self-confidence. Others wanted to get advice about how to recognize their current competences and competences they need to improve. Furthermore, important reasons to attend the programme were self-development and getting new ideas or practical tools usable in daily working life. In the first discussions, as a reason to attend the programme, most women mentioned that they wanted to develop their networks with other women working in different fields and to exchange experi-

ences with them. Almost as important was the desire to improve skills in digital social media at work or to gain more knowledge about digitalization from a more strategic point of view, including the building of digital identity or brand, or related to the company's digital strategy. The need to improve digital skills was mentioned more often than management skills even though the programme was primarily a leadership training and coaching programme.

The women's actual digital skills at the beginning of the programme varied considerably. Some of them were just starting to use digital tools, whereas others had used them since the beginning of their careers. Specifically, some women had not used social media at work at all, whereas others were using social media fluently for different purposes. However, it was clear that all of the women wanted to improve their digital skills, regardless of how good their skills actually were. Some of the women already used digital technologies in their businesses, some even had online stores, while others used them for communication or marketing. Others emphasized that they wanted to learn to understand what the digital future looks like and how the world is changing.

The timelines as well as the group discussions at the end of the programme indicated that some women had had challenges in balancing their work and family lives. Many of them had stayed at home to take care of children for many years, usually at the beginning of their careers. Staying at home had interrupted their career development for several years. Continuing education – while simultaneously working – had been crucial for many of them to get back on track. Maybe because of that, constant further education while working had become a habit for many of them. Also, some women explained that their family had moved to another city

**Table 1.** Positions and organizational background of the women in this study

Background	Consulting	Health and Wellbeing	Other Services	Other	Totals
Entrepreneur	5	3	4	6	18
Manager, private company	6	1	3	3	13
Manager, other organization	4	0	1	0	5
Expert	0	1	5	0	6
<b>Totals</b>	<b>15</b>	<b>5</b>	<b>13</b>	<b>9</b>	<b>42</b>

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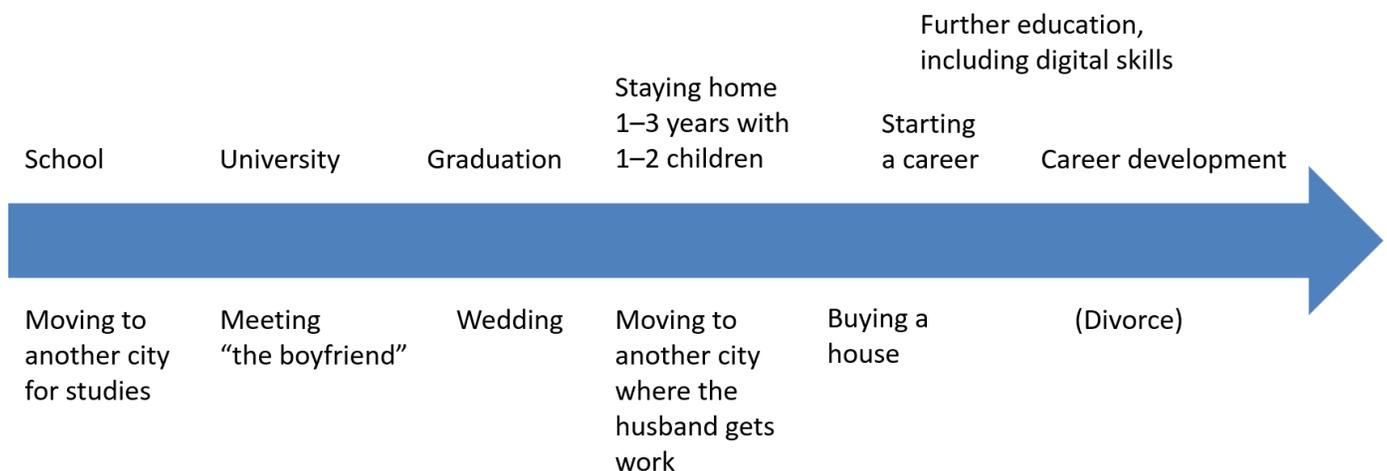
when their husband was hired for a new job or was relocated. Thus, the responsibilities of taking care of children and women typically being the secondary breadwinner of the family increase the demand for flexibility in women’s careers. However, some of the women emphasized that the understanding and support of their families had been an important promoter of their careers. A generalized timeline based on 14 visualized timelines made by the interviewed women is presented in Figure 2.

In the group discussions at the end of the programme, motivations, careers, and work–life balance were discussed. Many of the women told us that they had made their choices based on intuition, but that their interests had also changed over time. Quite a few had multiple second- or third-level degrees or had received further training while working. Most of the women had university degrees, but only a couple had a degree in a STEM field. They also emphasized that developing oneself at work requires being open to new opportunities and going bravely into new projects, while not being afraid of challenges. The main idea is to be flexible and accept that it is not necessary to do the same work forever. Some of the women had altogether turned their careers around. For example, one lady, after starting a career in textile design, started business studies in accounting and begun to work as an employee in the health sector; and another, after graduating and working as an employee in the field of energy engineering, took over an online shop in a completely different field as an entrepreneur. Explanations for these radical decisions had been changes of interests but were also motivated by economical or family-related reasons.

Also, most of the women told us they had developed digital competences at work through “learning by doing”. In particular, the mature women described digitalization as the biggest change in their entire working life. Many of them emphasized that it has been necessary to constantly keep up with the pace of digitalization, but most of them also underlined that digitalization had created great opportunities for them to advance in their careers. For most of the women, their perspective on technology is as a user and is practice-oriented; in other words, they need to “tame” the technology to fit the practical purposes of their lives. Many told us that they were currently actually seen as ICT experts in their workplaces – even though only a few had undertaken any formal schooling in it. It is obvious that the group of women selected in our study – and that participated in the training and coaching programme – was used to developing themselves at work. They had progressed well in their careers by not being afraid of challenges and by being open to new opportunities, often enabled by digitalization. Therefore, we may conclude that digitalization and women developing their digital skills create opportunities for women to advance in their careers.

Some examples of the viewpoints from the interviews and discussions are presented in Table 2. Furthermore, we produced a video of some illustrative examples of the interviews, which is publicly available at [tinyurl.com/WoManager](http://tinyurl.com/WoManager) (also see Figure 3).

However, the findings of our study also show that women have multiple challenges related to digital technologies. Our interviews suggest, for example, that it seems to be rather challenging to move from “a free-



**Figure 2.** A generalized timeline of working women based on the 14 timelines gathered in the study

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**Table 2.** Some quotations from the interviews and discussions

Theme	Quotation
Career	<i>"In high school, I was a very good student, but physics and mathematics were impossible for me. So, I chose business studies in university."</i>
	<i>"I only did my bachelor's degree first, and then went to work. After that, it was much more meaningful to study for the master's degree, because I could compare theory and practice."</i>
	<i>"There have been millions of choices. When you are young, you just drift somewhere, but when you get older, you become more aware of your choices."</i>
	<i>"My life choice has been not to get stuck into my previous choices."</i>
	<i>"The biggest choice in my career has been that I always hop into projects I cannot do and then learn by doing."</i>
	<i>"I established my own company, even though I was in a public office – although I liked my work, I wanted to do the work in my own way."</i>
	<i>"I have studied for 10 years at the same time I have been working, and it has a lot to do with my situation today."</i>
Work-life balance	<i>"We moved because my husband got a working place here. My work has to be flexible because of the family."</i>
	<i>"After the maternity leave, I did not continue my old career because I had moved from a city to the countryside to live with my husband... I cannot see clear logics behind this choice, but my husband helped me with the decision to buy an online store."</i>
	<i>"Now, as the children are still at home, this is a good situation, but after a few years I can think about other choices, somewhere else in Finland."</i>
	<i>"It has been a balance between family and entrepreneurship. The youngest was seriously ill... We lost our dog ... and then there was the divorce."</i>
	<i>"I have always been work-oriented, and luckily my husband has understood that."</i>
	<i>"It is a challenge to take care of wellbeing because it is so easy to work with this". [talking about a smartphone]</i>
	<i>"When you are an entrepreneur, there is nobody who would say that you have to take a holiday now."</i>
	<i>"I have a lot of business trips, and it is challenging to balance the timetables of the family."</i>
Digital skills	<i>"I have been forced to learn digital competences at work, learning by doing... It has made work easier but brought more work, too."</i>
	<i>"I have not used much [digital technologies], and I have always been a bit allergic about them, but along with my own entrepreneurship I should know more."</i>
	<i>"Lack of digital competences would be very bad. My current role is due to the fact that I have had the interest... I'm a self-taught person."</i>
	<i>"My career started when I just jumped as a greenhorn into the implementation project of a digital HR system and, suddenly, I was the main person responsible."</i>
	<i>"Digital competences have been one of the greatest changes at work. There is always catching up there."</i>
	<i>"On one hand, it is compulsory [to develop digital competences], and on the other hand, it enables one's development at work but also taking care of leisure time things."</i>
	<i>"I have realized that I am a digi-wizard. I have studied humanities, but still I am the ICT support person at our working place."</i>
	<i>"I cannot imagine my situation without digital competences. I have had my own web store for 10 years now."</i>

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**Figure 3.** Screenshot of illustrative interviews available at: [tinyurl.com/WoManager](http://tinyurl.com/WoManager)

time user” of social media to “a working user” and in that way fully “tame” social media. Nonetheless, long-time users of social media – typically younger women in the group – were used to move around in different channels and use the media for different purposes, easily combining work, family, and hobbies. However, the domestication of digital tools is not always easy and straightforward for everyone. Furthermore, social media and mobile tools create a great opportunity for women to find a balance between their work and family lives. However, this can also be a trap: if women do not know how to draw their own lines between their increasingly flexible digitalized work and their family lives, their wellbeing can be at stake, and burnout can be just around the corner.

In addition, our findings show that women need role models in advancing their career development in general, but also in promoting their usage of digital technologies at work and in their free time. We found that women sometimes lack self-confidence and trust in their own competences. Therefore, encouragement and support from other women in their network are of utmost importance. However, we may conclude that, for a woman, developing digital competences is an important means to accelerating her career. Digital tools, when properly domesticated and combined with appropriate self-management skills, increase both women’s wellbeing and opportunities to develop and advance in their careers.

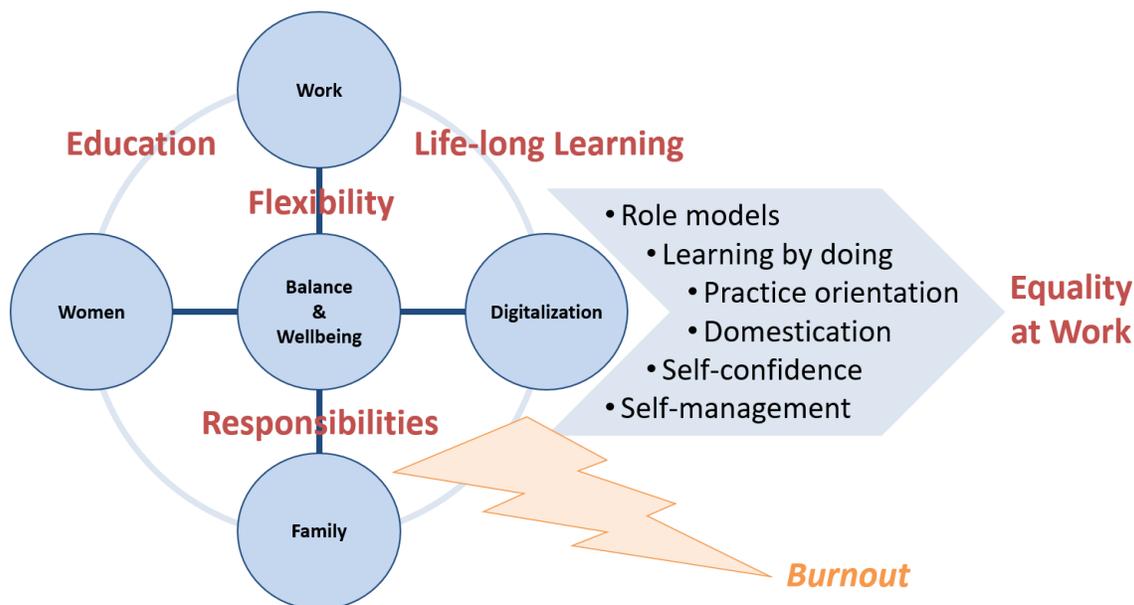
Figure 4 – revisiting our research themes – summarizes our main findings on the relationship between digitalization and women’s careers and wellbeing (i.e., women’s domestication process of digital technologies).

### Conclusion

The focus of the study has been on the relationship between digitalization and the careers and wellbeing of female managers and entrepreneurs. The findings of our study confirm that women have challenges, but also clear benefits when employing digital technologies. Most of the interviewed women had positive attitudes towards digital technologies, and they thought that digital technologies had created great opportunities for them to advance in their careers.

The opportunities created by digital technologies are open for women, although most of them do not have STEM backgrounds. The varied backgrounds of women can even be seen as an advantage: by proceeding with learning by doing and by seeing technology as a means to an end, not an end in itself, they learn to translate the language of digital technologies into the language of organizations. When learning continuously changing digital technologies, one needs to have a positive attitude towards continuous lifelong learning. This is obvious for female managers and entrepreneurs because women are accustomed to developing themselves continuously while working.

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**Figure 4.** Main findings on working women's domestication process of digital technologies

Digitalization, especially social media and smartphones, and their increasing importance in working and business lives offer opportunities for women to fluently manage both work- and family-related communication. Yet, our findings indicate that digital tools must be properly domesticated and combined with self-management skills to be able to enhance both women's wellbeing and opportunities to develop and advance in their careers. However, taking these findings altogether, we conclude that digitalization creates opportunities for women to advance towards equality and prestige at work.

Our main findings and conclusions can be summarized with following points:

1. Women's careers – due to family responsibilities – may bend and break; therefore, women learn flexibility.
2. Women managers and entrepreneurs develop themselves at work; they also develop their digital skills at work.
3. Women managers and entrepreneurs are practice-oriented in relation to digitalization.
4. Digitalization offers opportunities for career advancement, especially for women.

5. To avoid the danger of burnout, digital technologies have to be properly domesticated and combined with self-management skills.

6. Women need encouragement, role models, and networks to find their digital career paths.

There are also limitations in this study, as there are in any research. The empirical material of the study was gathered through interviews in South Savo, Finland. The data are rather limited and the conclusions are not widely generalizable, especially because the group of female managers and entrepreneurs selected to be in the study are from a rather privileged group in good positions and are interested in advancing their careers with the help of digital technologies.

The theoretical contribution of this research is pointing out the importance of contextual features related to digital technologies and discussing the domestication of digital technologies related to women managers and entrepreneurs. Innovation researchers and practitioners, especially those working with gender- or minority-related issues, may find the results of our study interesting.

The significance of contextual features in using technologies suggests that more research is needed on the

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work–life balance of women, and how the usage of digital technologies may help women find a proper balance between their working and private lives. It may be assumed that the contextual features and need for the domestication of digital technologies will probably increase in the future, as more and more digital tools will emerge, further increasing the complexity. Therefore, the theory of domestication is a promising theory for studying not only women, but also managers and entrepreneurs in general, and their relationship to technology. Most managers and entrepreneurs do not have STEM backgrounds but, instead, they have to deal with digital technologies while adapting – or taming – them in their own contexts, during the busy days of their lives. More research using this approach would be most welcome.

### Acknowledgements

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**Keywords:** women, ICT, technology, domestication, work, family, wellbeing

# The Strategies of Technology Startups Within and Between Business Ecosystems

Taina Tukiainen, Thommie Burström, and Martin Lindell

*“Strategy is a style of thinking, a conscious and deliberate process, an intensive implementation system, the science of insuring future success.”*

Pete Johnson  
Consultant, author, and speaker

Technology startups build strategies in order to survive within the framework of business ecosystems. However, the knowledge required to make such strategies effective is scarce. This article poses the question: “How do small technology startups strategize within and between business ecosystems?” Based on an explorative qualitative study, this article defines and presents a dynamic strategic framework of three strategies employed by technology startups. Some startups choose to act within one defined business ecosystem, most startups use a multi-ecosystem strategy to act between and draw benefits from many business ecosystems, and the rest act as ecosystem creators that challenge the logics of existing ecosystems.

## Introduction

There little research and even less evidence to help technology startups strategize in relation to business ecosystems. Therefore, it is important and relevant to study and understand how technology startups behave and develop their strategies and value propositions in a business ecosystem context. We need to broaden our theoretical and practical understanding of business ecosystems and how to support the them. Accordingly, this article takes a business ecosystem perspective and studies strategizing activities among technology startups that have excelled in international listings.

There is a lot of research on how big established business ecosystem leaders act as orchestrators and develop business ecosystem strategies (e.g., Frankort, 2013; Iansiti & Levien, 2004; Moore, 1993; Peng & Sanderson, 2014). Indeed, business ecosystem leaders, by dominating technological solutions, have a strong influence on the logic of the whole ecosystem. However, technology startups, who lack both resources and power, may play other important roles than business ecosystem leaders (Brink, 2017; Carree & Thurik, 2010; Findikoglu & Watson-Manheim, 2015; Kapoor, 2014; Muegge, 2013; Overholm, 2014; Smith & Fleck, 1987; Suh & Sohn, 2015).

Technology startups analyze the technological convergence trends of leading firms (Suh & Sohn, 2015) and find a role as a niche player, a complementor, or a challenger for the leaders (Iansiti & Levien, 2004). However, the story is not so simple; there is something missing in our understanding of the strategic behaviour of technology startups (Franco & Haase, 2013; Sadler-Smith et al., 2001).

Researchers propose that firms can find various routes to success by developing new capabilities (Laamanen & Wallin, 2009; Zaefarian et al., 2017), undertaking new strategic actions (Rong et al., 2015), and going beyond acting as passive followers. This article draws on research that indicates that small startups can make various choices when strategizing within one or between many ecosystems. They can increase sales by following a single specific ecosystem leader or use a multi-ecosystem strategy in order to create a strong global niche position or even form new ecosystems (Ceccagnoli et al., 2012; Garnsey et al., 2008; Overholm, 2015). This article brings these findings together in proposing the research question: How do small technology startups strategize within and between business ecosystems?

# The Strategies of Technology Startups Within and Between Business Ecosystems

*Taina Tukiainen, Thommie Burström, and Martin Lindell*

The structure of the article is as follows. First, we review the relevant literature. Then, we describe the explorative approach used to study the strategic activities of technology startups (Franco & Haase, 2013; Rong et al., 2015; Suh & Sohn, 2015). Finally, we describe the results on how technology startups are forming business ecosystem strategies and discuss the implications and limitations.

## Literature Review

### *Strategic behaviour within and between business ecosystems*

In this article, we define a business ecosystem as a loosely coupled business community and propose that ecosystems are orchestrated by ecosystem *leaders* in order to create value in collaboration with a community of other actors (Moore, 1993). From the managerial point of view, we often use mobile phone business ecosystems as examples. In these examples, the framework is global and high-tech. However, these examples may or may not work in other industries. In practice, we believe that organizations develop *networks* that result in competitive advantage, new *innovations*, or both (Dyer & Singh, 1998; Gawer, 2014; Sharma & Henriques, 2005). However, this belief is not sufficiently supported by existing theories. The scope of this article and literature review includes technology startups from the perspectives of business ecosystem leadership, networking, and innovation (Müller-Seitz & Sydow, 2012). The literature review and resulting research questions are summarized in Table 1.

Taking a leadership role requires resources over long periods of time, whereas taking a follower position requires choosing which leader to follow and how to defend a niche position (Adner, 2006). Niche players can leverage complementary resources from other actors in the ecosystem in order to develop their own special competencies (Iansiti & Levien, 2004; Maine et al., 2012).

Such leverage demands a relationship view, where firms learn to manage various degrees of close or distant relationships with other actors (Gulati & Kletter, 2005). For example, small software firms can increase sales by following a specific ecosystem leader (Cecagnoli et al., 2012), by using a multi-ecosystem strategy (Garnsey et al., 2008), or even by creating ecosystems of their own (Heikkilä & Kuivaniemi, 2012; Overholm, 2015). Based on the above, our first research question arises:

**RQ1.** What strategies can technology startups use to act within and between ecosystems?

### *Business ecosystem leadership*

Ecosystem leadership, platform utilization, interdependencies, and the rules of the game are complex. Business ecosystems are dynamic constructs with no off-the-shelf strategic solutions for achieving ecosystem orchestration. Ecosystem leaders need to decide on strategic engagement models that define how they will collaborate and compete within and between business ecosystems (Bosch-Sijtsema & Bosch, 2015). Governance mechanisms work differently in different collaborative arrangements, and orchestration cannot be taken for granted (Frankort, 2013). Thus, our second research question arises:

**RQ2.** How do small technology startups respond to orchestration attempts, and do all technology startups respond in the same way?

Being a business ecosystem leader is not with the same as being a platform leader. Platforms may play an important role when business ecosystem leaders orchestrate business ecosystems (Rong et al., 2013; Yang & Jiang, 2006). This article defines a platform as an evolving innovative system made of interdependent pieces (Gawer & Cusumano, 2002). A platform strategy is as an emerging pattern where technology, applications, and organizations play complementary roles (Gawer, 2009; Rong et al. 2013). Ecosystem leaders use platforms as they address the “needs of large, globally heterogeneous group of end users in a manner that would be prohibitively difficult for the platform core to do alone” (Wareham et al., 2014). The relationship between startups and ecosystem-leading platforms have not been sufficiently researched. From a practice and managerial point of view, understanding of this relationship is essential and important and may have a huge effect on management practice.

Less is known of the strategic behaviour of startups in a relation to ecosystem leaders, especially those who are platform-based. From the complementor point of view, our understanding is that a winning formula is to invest in and create products that match the most viable platform (Moore, 1993) and choose to cooperate with a platform owner with the best conflict-control capabilities. However, such selection is far from obvious, since the context seems to be case dependent (Kenney & Pon, 2011; Tee & Gawer, 2009;). As an example, a game developer would create its own internal platform and

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**Table 1.** Overview of the literature review and research questions

	<b>Established Knowledge of Business Ecosystem Strategies</b>	<b>Knowledge Gaps and Research Questions (RQs) Relating to Technology Startups</b>
<b>Strategies</b>	Business ecosystem leaders are both powerful and resourceful, and their orchestrating strategies are well described.	Technology startups lack any significant power and resources, and they are in search of sustainable business models.  <b>RQ1. What strategies can technology startups use to act within and between ecosystems?</b>
<b>Leadership</b>	Business ecosystem strategies are created by a business ecosystem leader who orchestrates the business ecosystem and its development.	Little knowledge about how technology startups respond to orchestration attempts in business ecosystem.  <b>RQ2. How do small technology startups respond to orchestration attempts, and do technology startups respond in the same way?</b>
	Large, platform-based companies leverage their business ecosystem strategies globally.	Little knowledge about how technology startups connect to leading platforms in business ecosystems.  <b>RQ3. Can startups utilize different strategies when choosing to connect to ecosystem-leading platforms?</b>
	Business ecosystem leaders often create the rules of the game, which dictate how collaborators are expected to behave.	Little knowledge about how startups respond to the rules of the game.  <b>RQ4. Should startups strictly follow the rules of the game, stretch the rules of the game, or create new rules of the game?</b>
<b>Innovation</b>	Business ecosystem leaders are utilizing developed innovation networks to cooperate with multiple stakeholders, including universities and research centres, in order to generate new innovations.	Little knowledge about how technology startups go about creating innovations and what type of innovations they create.  <b>RQ5. How do the innovations that technology startups create (and their types) relate to the specific business ecosystems the startups are in?</b>
	Business ecosystem leaders are managing three types of risks: 1) initiative risks, 2) interdependence risks, and 3) integration risks.	Little knowledge about how technology startups manage these risks.  <b>RQ6. How do various strategies used by technology startups cover different levels of risk?</b>
<b>Networks</b>	Business ecosystem leaders are in control of large and relative stable complex networks where value is co-created.	Little knowledge about network management in technology startups.  <b>RQ7. How are startups dealing with network complexity?</b>  <b>RQ8. What characterizes the change patterns related to various business ecosystem strategies?</b>

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then distribute it using global platforms such as Apple's iOS or Google's Android. This strategy may not be suitable for other businesses. For technology startups, the choice is whether to actively create and utilize their own platforms or more passively choose to connect to one or more leading platforms. Thus, our third research question arises:

**RQ3.** Can small startups utilize different strategies when choosing to connect to ecosystem-leading platforms?

Ecosystem leaders may also try to manage interdependencies by creating and applying the *rules of the game*, which are necessary for many ecosystems (Jansen & Cusumano, 2013) and implement the standardized interfaces such as application domains with specific requirements or offer products and complementary services to meet the specific requirements (Mazhelis et al., 2012). As examples, certain software applications are used throughout and across various forms of industries, as in the case of data security, where the software crosses borders. Thus, our fourth research question arises:

**RQ4.** Should startups strictly follow the rules of the game, stretch the rules of the game, or create new rules of the game (Schumpeter, 1942)?

### *Innovation in business ecosystems*

The relationship between business ecosystems and innovation is important since new business ecosystems are shaped around novel technologies (Kim et al., 2010). Business ecosystem leaders should orchestrate an innovation infrastructure (Isckia, 2009; Iver & Davenport, 2008), where novel technologies can form a base for business ecosystem formation (Mazhelis et al., 2012; Rohrbeck et al., 2009). Technology startups can act as niche players and create collaborations within these technological infrastructures (Findikoglu & Watson-Manheim, 2015; Iansiti & Levien, 2004). Less is known of the options for strategic approaches that technology startups may have in collaborative environments.

Innovations are traditionally described as either incremental or radical. Technology leadership is based on breakthrough innovation (Adner & Kapoor, 2010; Bessant & Tidd, 2007). And, between incremental and radical, there is modular innovation (Henderson & Clark, 1990). An example of a modular innovation is when analogue telephones were replaced by digital phones. The core concept changed, but the linkages between the core design and components stayed the same. Tech-

nology startups acting as complementors engage in creating a wide range of innovations, but most are concerned with incremental innovations (Fransman, 2007; Kapoor, 2014). Startups acting as suppliers to business ecosystem leaders face very different innovation challenges: some startups face significant technological challenges, while others do not need to innovate at all (Adner & Kapoor, 2010). And, some startups focus on component innovation challenges, since components are easier to manage. Thus, our fifth research question arises:

**RQ5.** How do the innovations that technology startups create (and their types) relate to the specific business ecosystems the startups are in?

On a more practical level, there are three relevant types of risk (Li & Garnsey, 2014; Shepherd et al., 2000; Smith, 2013; Timmons & Spinelli, 1999): 1) initiative risks, 2) interdependence and coordination risks, and 3) integration risks (Adner, 2006). The managerial and business understanding, reasonably, states that, the more challenging the business model, R&D, or IP issues, the higher the risk to the venture. For example, a game producer that chooses to connect to one or two single existing business ecosystem leaders and follows the rules of the game, takes a lower risk than a producer acting to change the whole system. Consequently, it seems that different potential technology startup strategies bring various risks. Thus, our sixth research question arises:

**RQ6.** How do various strategies used by technology startups cover different levels of risk?

### *Networks in business ecosystems*

The roles of orchestrators and niche players are very different in nature. As an example, business ecosystem leaders are orchestrating a value network where they collaborate with a community of complementors (Isckia, 2009; Moore, 1993) and create value sharing mechanisms (Zhang & Liang, 2011). Less is known about how technology startups act in relation to different networks (La Rocca et al., 2013). As studied, networking can improve effectiveness and efficiency (Gnyawali & Park, 2009; Perrone et al., 2010), and technology startups can achieve business leverage by connecting to a local keystone (Clarysse et al., 2014). Yet, these dynamics are understudied (Adner 2010; Lin & Zhang, 2005; Miles & Snow, 1992).

Technology startups in business ecosystems are interconnected through a network of interdependent actors

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(Christensen & Rosenbloom, 2013; Thomas & Autio, 2013). However, network complexity may differ between various types of businesses (Fleck, 1979), making it more or less difficult to manage within ecosystems. As an example, a game developer that links to a single business ecosystem leader would manage within a simple dense network where synchronization is easy to achieve. On the other hand, a technology startup that aims to create a global platform such as MySQL would need to create a global complex network, and synchronization would be difficult to achieve. However, the knowledge of how ecosystem leaders act in such network complexity is limited. Thus, our seventh research question arises:

**RQ7.** How are startups coping with network complexity?

Value creation and sharing is context and business dependent (Lin & Zhang, 2005; Isckia, 2009), and change patterns would vary depending on the business strategy a company chooses to follow. For example, in high-tech industries, such as the microchip industry, an ecosystem leader may maintain bargaining power through the control of key elements of value (Adner et al., 2013; Moore, 1993) and business would be relatively stable. If the network is emerging, it is difficult to keep control of any key elements, and that suggests an emerging and novel value-creation pattern. Thus, our eighth research question arises:

**RQ8.** What characterizes the change patterns related to various business ecosystem strategies?

### Research Methods

Previous business ecosystem studies have focused on the strategic behaviour of powerful and resourceful business ecosystem leaders. In this study, we focus on technology startups, the entrants of business ecosystems.

#### *Data collection and data sources*

We studied 43 small Finnish technology companies that have excelled in the following international listings: Deloitte (2012), Wired (2012), and RedHerring (2013). Our interest is to study how these startups are acting in relation to ecosystem leaders. We decided to explore what kind of relationships these startups have to the ecosystem leader, whether or not they connect to ecosystem leaders, whether they connect to multiple ecosystems or just one, whether they utilize a platform of their own, and how they view opportunities to manoeuvre within and between ecosystems?

These small technology startups were all founded between 2002–2007 and have 11–50 employees. Semi-structured interviews and available reports were used for data collection. Two interviews were conducted in each firm (with the CEO and other executive managers). We conducted 86 interviews based on semi-structured questions. Each interview lasted for about 1.5 hours. Having more than one respondent per firm provided richer and more elaborated data (Eisenhardt & Graebner, 2007). Interviews were taped and transcribed. The main themes discussed were the company's: a) historical development, critical events, and acquisitions; b) business ideas and business logics; c) business strategies and competences; d) customers and if those customers were local, international, or global; e) networks, partners, and cooperators; f) product and service development and the use of technical platforms; and g) employee recruitment and leadership; and h) entrepreneurship in a small company; and i) profitability. These themes represent critical business areas. The combined information of these themes allowed us to understand the complexity behind the startups' strategic behaviour. The multiple levels of analysis and the breadth and richness of the data we collected allow us to use qualitative research methods (Strauss & Corbin, 1990; Yin, 1994). A report was developed for each firm, and each respondent had the opportunity to read and correct a draft version before it was finalized.

#### *Development of a coding schema*

In this study, we used established knowledge of business ecosystem leaders as point of reference for studying the behaviour of small technology startups. We created a qualitative coding scheme allowing us to systematically analyze patterns of management practices (Helfat & Raubitschek, 2000).

First, we analyzed the characteristics of the startups. We found that 88% of the startups were acting within a business-to-business (B2B) context, 70% of the startups were classified as software and consultancy startups, and 90% of those had software business elements. In other words, the sample includes a broad range of different services that relate to software business models that make use of software.

We continued the analytical process by performing a thematic analysis (Braun & Clark, 2006). We then performed a cross-case analysis and classified them into three groups based on their strategic behaviour and relationships to ecosystem leaders: 1) startups connected to one ecosystem leader, 2) startups connected to two

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or more ecosystem leaders, and 3) startups that did not connect to any specific ecosystem leader but instead had ambitions for creating leading an ecosystem.

After identifying this grouping, we analyzed the strategic behaviour of these three groups in greater depth. We compared process data with process theory (Orton, 1997). That is, we first studied our data and then compared it to business ecosystem theory. Initially, three solid behaviours were identified through the analytical process: leadership, innovation, and networking, which had a large impact on the success of the technology startups. The analysis next identified key elements that could explain the variation in behaviour between startups in the three different groups: leadership and platform utilization, interdependencies, and rules of the game; innovation and risk; and network complexity, formation, and value.

### Preliminary Analysis

Based on the cross-case analysis, three empirical storylines describing the typical strategic behaviour of technology startups were identified: 1) linking to one ecosystem leader, 2) linking to many ecosystem leaders, and 3) having ambition to create new ecosystems. These classifications were determined by three researchers and were validated by the participating firms. Results and typical quotations are summarized in Table 2. Also, Boxes 1 to 3 provide overviews of individual companies following each type of strategy.

#### *Connecting to one ecosystem leader*

One group of startups in the study were communicating and interacting within the boundaries of a specified business ecosystem – more specifically, with one specified platform. In this case, the business ecosystem

#### **Box 1.** Example case company: Innofactor

Innofactor was founded in 1983, but the present business base was created in 2000. Innofactor is listed at NASDAQ OMX Helsinki. Its turnover in 2015 was 44.5 M€ and it has 427 employees. The CEO describes the company's development as follows: "We have counted that there have been four stages. The first four years were the start-up phase, a bit like seeking direction. The next four years were about taking over certain niche markets in Finland. The third phase was about getting the number-one spot among the Finnish Microsoft operators. The fourth phase, which is still going on, is about pursuing the number one spot in the Nordic countries."

The goal has been to build up long-lasting customer relationships. The company has operated strictly within the Microsoft ecosystem. In 2011, the company achieved its goal of being the largest firm in the Microsoft ecosystem in Finland and was chosen as the Finnish Microsoft Partner of the Year. The current goal is to be the number one Microsoft partner in the Nordic countries as well.

Innofactor's strategy is to build competitive advantage as the leading provider of Microsoft-based solutions. Innovations are typically of an incremental kind. Innofactor are focusing on solution areas where Microsoft's market position and offering are strongest and which allow Microsoft partners and

ecosystem members to grow. Therefore, the risk related to the operation for the company is primarily business risk related to its subsidiaries that carry out business operations. Innofactor plays a central role for Microsoft due to its relationships with customers, but the firm also delivers value-added components for Microsoft business solutions.

The CEO points out that, if Microsoft wants to expand the partnership with someone, they do it with a company with whom they do not have to risk anything. He emphasizes that all partnerships come down to co-operation between people. It requires that you know people: if you want to be a Microsoft partner, you need to know people in Finland and globally.

Observations in relation to research gaps: Microsoft is strongly governing the ecosystem. Innofactor mainly act as a passive adapter and apply Microsoft solutions (RQs 1, 2, 3 4). Innofactor produces to some extent component innovations (RQ5) and mostly carries initiative risks, but perhaps also to some extent integration risk when providing system solutions (RQ6). Innofactor is strongly connected to the Microsoft network (RQ7) and the network can be characterized as esoteric (RQ8). The ecosystem of Microsoft is rather stable and not open for sudden and radical changes (RQ9).

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boundaries might be slightly changed due to companies' business activities; however, the "rules of the game" stayed the same. Startups followed the rules of the game set by the ecosystem leader. Thus, the business was based on and dependent on the ecosystem leader. From the startup's point of view, their business was regulated by that leader. These startups create value within a certain framework based on the ecosystem leader's technology.

Startups in this group of companies depended on a few tight couplings in the value network. The value creation was simple, with few direct connections. A typical company is an application provider that uses the distribution channels of the ecosystem leader in order to reach customers.

Summing up, companies in this group aligned to a strategy where there was a single ecosystem leader to follow and the rules of the game were defined by that ecosystem leader. The ecosystem leader provided a global platform, while the technology startups utilized platforms of an internal type, as product platforms. The followers were highly dependent on the leader, and business was regulated by that leader. The business and value network did not change much and could be considered to be stable. The network was simple with a few tight connections.

### *Connecting to multiple ecosystem leaders*

These technology startups are communicating and interacting across business ecosystem boundaries, and they are active within multiple ecosystems. In this way,

### **Box 2.** Example case company: Nitor Creations

Nitor Creations was founded in 2006 by six software experts. The turnover was in 2015 9 M€ and there were 52 employees. Nitor provides architecture design, agile development methods, training, and consulting services. The high level of expertise is emphasized by the CEO: "we founded an expert company for experts, which will serve the customer the best. The most essential thing is the quality of the experts, their passion and ability to do things. Every one of us has at some point been in a reasonably high position and created demanding systems for big customers."

The software solutions are customer co-created with an aim of higher quality at lower cost. Customers are typically large Finnish organizations with their own IT units and with the ability to purchase professional consulting services at the high-end side. The CEO says the following about their customers: "our clientele includes corporations from a variety of fields. All of them have a common goal of concentrating on their core business and on ensuring the proper functioning of their business-critical software solutions with a competent and trusted partner. Our existence is founded on creating genuine added value for customers. We provide an agile and profitable alternative to large and expensive development programs. The competence is based on both on years of real-life experience in customer projects and also through networks. Nitor participates actively in various agile and open sources communities."

Java and Java based programming languages are among Nitor's core competences. The software and system architects have experiences in the most Java Enterprise Edition application servers including Oracle WebLogic, JBoss, IBM WebSphere, Tomcat, Jetty, and Resin. The most important application framework used is Spring Framework.

Observations in relation to research gaps: Nitor builds tailor-made solutions for customers using a wide range of technologies supplied by many different ecosystem leaders (RQs 1, 3). Thus, Nitor is not dependent on orchestrating attempts performed by any specific ecosystem leader (RQ2). When building tailor-made solutions for customers, Nitor stretch the rules of the game (RQ4). Nitor is mainly an applicator of existing technologies, with focus in architecture building and solutions (RQ5). Nitor has a focus on project management and is open for all three types of risks: initiative risk, interdependence risk, and integration risk (RQ6). When building architecture, Nitor experts are utilizing personal networks (RQ7). The network needed for a project is often complemented with some new required contacts. The network is esoteric (RQ8). The changes in the networks depend on the experts of Nitor and their contacts to agile and open source communities. These contacts are exoteric and competence developing (RQ9).

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they were creating connectivity across ecosystem boundaries, but these boundaries were not being changed. From the platform strategy point of view, there were multiple platforms to follow. The Managing Director in one of the technology startups described why they decided to act across ecosystem boundaries:

“In this strategic option, there was not one specific ecosystem leader that regulated the business. On the contrary, there were multiple platforms to follow, the ‘rules of the game’ were stretched, and leader dependence was concerted. For the group of startups following this strategy, the business model was adaptive and modular. The technologies adapted were typically known and not new to the industry.”

For startups following this strategy, one network implication is that the number of loose couplings increased, and so did the complexity of the company’s networks. There were multiple networks to be connected and network density and complexity was moderate. Due to the dynamics of the business model, the value network was changing all the time. A typical company using this strategy would be a system supplier or application provider that connects to various industries; therefore, the innovations are typically modular and need to be reconfigured to various environments. The companies learn from various ecosystems and they test the rules of the game, but they do not change the rules of the game.

As a summary, applying this multiple ecosystem strategy means that there are multiple ecosystems and platforms to follow. The ecosystem leader provided a global platform, while the small startups utilized platforms of an internal type, as product platforms. Some were very well developed, while others lacked significantly in maturity. The ecosystem leader dependence was concerted and the rules of the game were stretched. The innovation was modular. The business and value network are multiple, larger, and changeable compared with the one-ecosystem strategy.

## *Creating new ecosystems*

In the last strategic option, the “rules of the game” are challenged. This type of challenge opens up avenues for new global ecosystem leaders or new platform “wannabes”. These wannabes create new rules of the game by trying to orchestrate the new evolving business ecosystems. Startups are trying to span previous business boundaries, thereby putting traditional business boundaries into flux. As these startups typically performed global business, the network became complex

with multiple, loose network connections, and the value network found an emerging character. Previous “rules of the game” were therefore severely challenged and re-created. Radical new technology was introduced or business was established in a significantly new way. As a consequence of choosing a radical pathway for conducting business, the risk level was substantially high. A typical company using this strategic option would be a company introducing a new way of doing business, like Uber developing its car-sharing model or Apple’s changing the music business by introducing the iPod, or with Apple’s new smart e-health solutions, which were launched when the company was still just a technology venture and changed the whole or part of the health industry value logic.

As a summary, if a technology startup were to apply this strategy, it could be seen as a challenger and a new global ecosystem leader wannabe. Typically, these wannabes are aiming to create global new platforms and dictate new rules of the game, thus orchestrating other players. These startups have well developed platform strategies. Radical innovations create opportunities for new ecosystems or ecosystem leader wannabes. With this strategy, the networking requires a lot of multiple, loose connections, it is complex, and new value networks emerge.

Thus, in order to survive in business ecosystems, the technology startups in this study chose to follow one of three strategies. The important elements of each of these strategies are summarized in Table 2, which includes illustrative quotations from the interviews.

## **Further Results and Discussion**

The preliminary analysis identified three categories of business ecosystem: 1) single-ecosystem, 2) multi-ecosystem, and 3) ecosystem-creation. Among the 43 technology startups in the study, the clear majority (83%, 36 startups), with less than 10% following either a single-ecosystem strategy (7.5%, 3 startups) or an ecosystem-creation strategy (9.5%, 4 startups) followed a multi-ecosystem strategy. Figure 1 shows the distribution of the startups across the three types.

### *Single-ecosystem strategy*

Findings in this section confirm and extend the theory of technology startups benefitting from connecting to a specific ecosystem leader (Ceccagnoli et al., 2012). In the single ecosystem strategy, the technology startup follows only one ecosystem leader (RQ1). The platform is given and the firm is complementing the ecosystem

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### Box 3. Example case company: Kiosked

The company was founded in 2010 and had, in 2015, a turnover of 0.6 M€ and 36 employees. The CEO said the following about the company's first development: "We started in 2010. We built the company stone by stone. We recruited only top-class professionals from the very beginning. We have had quite an international company culture from early on. We have 25 nationalities here. We are a very internationally networked company."

Kiosked operates globally in North America, Asia Pacific, and the Europe, Middle East, and Africa (EMEA) region. The business idea was to build so-called "Kiosked" advertisements. The value added for customers is that they do not have to leave the medium they are using to act on an advertisement. If they, for instance, see an appealing holiday place or some interesting new clothes, they can make an order directly without leaving the magazine they are reading or the film they are viewing. Only a click on "K" in the corner is needed in order to connect them to the system and get all information, and also buy the item.

Kiosked is building their own platform where they aim to use open interfaces. The wide toolset should make it possible for just about anyone to utilize the platform. As described by the CEO: "If we can create

a good situation for the ecosystem, we can also create a win-win situation for us and also for the end user."

The firm is working with an extensive network of partners as Magento, Get, PayPal, and global solution partners. They have also created a partner program which tends to grow as business goes by. All of the partner operations are global.

Observations in relation to research gaps: Kiosked is aiming to build a global ecosystem of its own (RQ1), and this ecosystem creation involves new technologies, new tools, and system development. Kiosked acts as orchestrator of the platform and ecosystem and does not follow any other global leading company (RQ2). Kiosked is an active co-creator who aims to create win-win situations (RQ4). Kiosked's focus is on building a new business model and develops a platform with novel technical solutions (RQ5). Platform competition is global and so is the strategic intention of Kiosked. The Kiosked business model involves all three types of risk: initiative risk, interdependence risk, and integration risk (RQ6). Kiosked is building its own global network of partners. Networking is based on earlier personal relationships between the partners and the network has an emerging character (RQs 7, 8). Kiosked follows an emerging novel value-creating pattern (RQ9).

by their service offering (RQ3). The firm has to be accepted to the ecosystem by the ecosystem leader. The ecosystem leader sets the "rules of the game" and niche startups follow these rules (RQ4). Thus, startups are highly dependent on the ecosystem leader; the environment can be described as regulated (RQ2). The leader makes decisions on system architecture, interfaces, intellectual property, and the nurturing of entrepreneurship (Jacobides et al., 2006). The leader governs the relationship between the external complementors and decides what to do inside the ecosystem and what should be done outside by external startups (Gawer & Cusumano, 2002). For technology startups, the innovations are incremental and modify the existing systems (RQ5). In terms of risk, a startup follows a single-ecosystem strategy with initiative risk (Adner, 2006). For example, in the case of developing and launching a new game, technology risks are limited since the ecosystem leader provides technology and distribution help (RQ6).

The contacts to the leader are intensive, there are a few significant partners, and the network formation is reminiscent of a simple classic value chain (RQ7). The network can therefore be labelled as esoteric (Fleck, 1979). From the technology startup's point of view, the value network is simple and stable (RQ8).

### *Multi-ecosystem strategy*

Findings from these startups confirm and extend the theory of a startup benefitting from connecting to multiple ecosystem leaders (Garsey et al., 2008). These startups cross boundaries and perform activities within two or more ecosystems (RQ1), thus they may utilize multiple platforms (RQ3). A system integrator is usually following this type of strategy. The startup needs to interpret the behaviour of several ecosystem leaders. Both the challenge and the opportunity involve catering to the ecosystems involved. Consequently, there is a great demand for adaptability.

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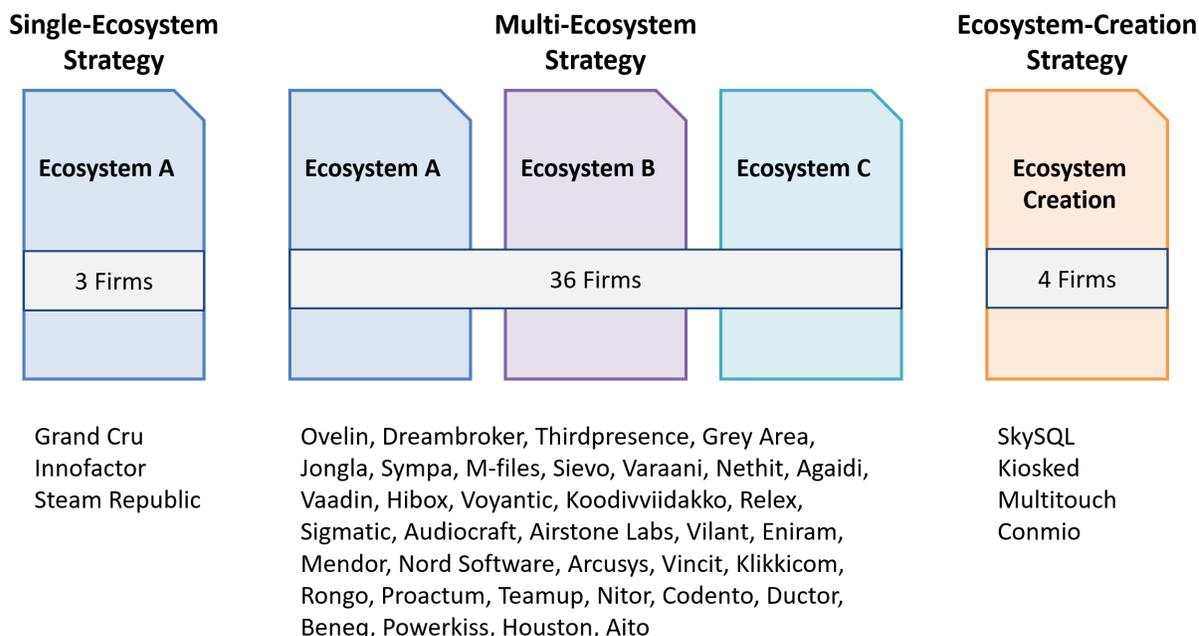
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**Table 2.** Ecosystem strategies of technology startups

Knowledge Gaps	Single-Ecosystem Strategy	Multiple-Ecosystem Strategy	Ecosystem-Creation Strategy
<b>How to utilize platforms</b>	“During the years 2007–2008, we set the objective to be number one player in the Microsoft sector in Finland.”	“We have had to be ready for the fact that our customer’s business ecosystems can be anything; others may be in open source type solutions, others are in the Microsoft ecosystem, while others are in Oracle.”	“This is a leading platform enabling smart content turning any online content, images, videos, and applications into interactive and virtual storefronts.”
<b>How to manage business ecosystem leader dependence</b>	“Follows a relatively strict protocol created by the business ecosystem leader.”	“Ecosystems vary enormously and, therefore, we have had to adapt to it.”	“We build an open interface to our platform. This has also been the starting point in building our ecosystem and toolset.”
<b>How to manage in relation to the rules of the game</b>	“From Microsoft’s point of view, they don’t have to risk anything; they go according their guidelines.”	“There are multiple platforms to follow, “the rules of the game” are stretched.”	“The rules of the game are being created as the business grows.”
<b>How to manage types of innovation</b>	Main competitors are the other companies offering traditional information technology services and software.	The technologies adapted are typically known and are modified in order to serve various customers.	The technology is new and the business enabling role of technology has to be invented.
<b>How to manage risk</b>	Profitable implementation of projects requires that planning before submitting a tender is done successfully as regards the amount of work and delivery schedule, and also that the deliveries can be made in a cost-effective manner.	“Our challenge is to manage within all of these ecosystems and to find the focus there.”	A typical company using this strategic option would be a company introducing a new way of doing business.
<b>How to manage network complexity</b>	The value-creation network is characterized by simplicity and few direct connections.	As demanding software solutions are today more and more often multivendor environments, independence is further emphasized	“We have had quite an international company culture: we have 25 nationalities here. We are a very internationally networked company.”
<b>How to manage network formation</b>	Startups in this cluster of companies typically also depend on a few tight couplings in the value network.	We are a horizontal actor; we strive with many extravagant ways to cover the entire value chain, from content production, editing, publishing, and maintenance.	“How do we build international organizations? The simple starting point is that good people bring good people with them. When you know these good people, there are more good people in their network. It is very simple and it works.”
<b>How to manage value network</b>	“When the technology was working, we started to wonder how to get international clients. We thought; who is the person we want to meet and convince him of us and our product?”	“The value network is changing all the time.”	“We are operating in global business. We have technology, development, delivery, and solution partners. We have a very extensive partner network and partner program. This is the way we scale our business quickly, we are not the bottleneck ourselves.”

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**Figure 1.** Technology startups in this study, categorized by their business ecosystem strategies

The technology startup learns from the various ecosystems. Startups have to master various technologies, satisfy different types of customers and build their own competence base, and stretch the different types of “rules of the game” (RQ4), but rules are not radically changed (Jansen & Cusumano, 2013). The environment can therefore be seen as concerted (RQ2) rather than regulated. To survive in these competing environments, the business model and innovation are typically modular (Henderson & Clark, 1990) (RQ5).

The challenge is to act within all ecosystems and find a focus. The risk level is higher than when following a single-ecosystem strategy. These technology startups face both initiative risk, interdependence risk, and to some extent integration risk (Adner, 2006). Since each business relationship is unique, it follows that each relationship with different ecosystem leaders brings unique initiative, interdependence, and integration risks. For example, a system integration firm faces the challenge of integrating its own knowledge base with various business ecosystem leaders and customers. Since these startups need to manage all three types of risk in multiple ecosystems, the risk pattern becomes more complex and difficult to manage. However, the business ecosystem leaders can give guidelines of how initiative risk, interdependence risk, and integration risk might be managed. Therefore, the risk level can be defined as moderate (RQ6).

There are many network connections and partners in the value network (RQ7). The network is significantly enlarged in comparison with a single platform user (Fleck, 1979; Overholm, 2014). Working with several ecosystem leaders at the same time means that the value network is continuously developing and changing (RQ8). The boundary-crossing startups have to be alert and carefully follow the technological development in the involved ecosystems.

### *Ecosystem-creation strategy*

Findings from these startup startups confirm and extend the theory of a startups benefitting from acting as ecosystem creators (Overholm, 2015). A technology startup following an ecosystem-creation strategy is a global challenger (RQ1). Typically, this startup challenges previous market boundaries and aims to become a global technology leader. It tries to create its own type of platform, and is therefore, in this study, labelled a “platform wannabe” (RQ3). These platform wannabes are creating “the rules of the game” by attempting to orchestrate other players (RQ4). They want to be new global ecosystem leaders and need to have a vision of the platform architecture (Gawer & Cusumano, 2002). As ecosystem leaders, they are aiming to decide what to do inside the firm and what to do outside, while also determining the role of external startups in the emerging ecosystem. With this strategy, all stakeholders, complementors, and supplementors are

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highly needed. The ecosystem-creation startup needs to figure out how create distinct modular system architecture with open interfaces that allow for the protection of intellectual property (Gawer & Cusumano, 2002; Peng & Sanderson, 2014).

Previous “rules of the games” are to be challenged as new rules are created with novel technological innovations. The innovations are radical, and new dominant designs are created (Henderson & Clark, 1990) (RQ5). The radical innovations create opportunities to develop platforms and new ecosystems. At the same time, these startups create destruction in the market and usually disturb existing ways of doing business (Schumpeter, 1942). In terms of risk, boundary-spanning startups not only face all three types of risk (initiative, interdependence, and integration) (Adner, 2006), but they also need to figure out by themselves how to manage the risks. These types of startups are challenging previous ways of doing business; therefore, the risk level is high, and it could be expected that it will take years to reach a positive return on investments (Adner, 2006) (RQ6). The partner network is complex including many tight and loose connections (Jack, 2005) (RQ7). The new platform wannabes work on the border of several industries, and the network formation can be labeled as exoteric (Fleck, 1979). The platform is built step by step, and the value network is in flux and emerging (Adner, 2006; Isckia, 2009) (RQ8).

## *Summary of results*

The results from the analysis are summarized in Table 3. The first column illustrates research gaps identified in the literature, and the letters and numbers within brackets refer to the questions identified in the review (e.g., RQ2, RQ3). The next columns illustrate the characteristics of each strategy. For example, a technology startup may utilize a single-ecosystem strategy by following a single platform leader, acting in a regulated environment, and following the rules of the game as decided by the ecosystem leader. In reality, the situation is not stable, so the startups also would be able to change from one strategic approach to another.

To answering to the research question about how small technology startups strategize within and between business ecosystems, we have identified and recognized these basic patterns of behaviour. We also found that small startups can have ambitions to create business ecosystems of their own, as described in Table 3. Table 3 indicates that there has to be a fit in the pattern of behaviour between leadership, innovation, and network activities. The small companies select and develop the basic strategy depending on their ambitions and goals.

## Conclusions

The purpose of this article was to understand, discuss, and frame how small technology startups are forming business ecosystem strategies (Brink, 2017; Rong et al., 2015; Zaefarian et al., 2017). This study draws on and integrates previous research findings (Ceccagnoli et al., 2012; Garnsey et al., 2008; Overholm, 2015) and creates a dynamic small-firm ecosystem strategy framework describing three different strategies: a single-ecosystem strategy, a multi-ecosystem strategy, and an ecosystem-creation strategy.

Technology startup strategizing behaviour can differ significantly between startups, and therefore, it can also bring various managerial implications. The traditional approach to business ecosystem research paints a picture of business ecosystem leaders orchestrating their respective ecosystems, where small technology startups are passive followers. This study points out that small technology startups may be masters of their own destinies if they learn to manage the dynamics of related business ecosystems. However, such strategic work demands thorough business ecosystem analysis so that fundamental business interdependencies and value sharing mechanisms are understood in depth. The difference between a single-ecosystem strategy and a multiple-boundary-spanning strategy is substantial; thus, the choice of strategy also places different demands on the dynamic capabilities of the firm.

This article has studied the micro-roles performed in ecosystems (Rong et al., 2015) to better to understand the impacts of various types of startup in ecosystems. In this study, the companies studied were all internationally listed technology startups and were operating in rapidly changing environments, where global business ecosystem leaders such as Intel, Google, Apple, and Microsoft play a dominant role. However, there is a multitude of other businesses, industries, and ecosystems that would be worth examining in future studies. As an example, it would be beneficial to contrast strategies of low-tech startups with the strategies identified in this article. Small startups in such business ecosystems might find a need to apply other business ecosystem strategies.

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**Table 3.** Dynamics of ecosystem strategies

<b>Knowledge Gaps</b>	<b>Single-Ecosystem Strategy</b>	<b>Multi-Ecosystem Strategy</b>	<b>Ecosystem-Creation Strategy</b>
<b>Leader Dependence (RQ2)</b>	Regulated	Concerted	Orchestrated
<b>Platform Utilization (RQ3)</b>	Single-platform follower	Multiple-platform follower	Industry-platform wannabe
<b>Rules of the Game (RQ4)</b>	Follows	Stretches	Creates
<b>Innovation Type (RQ5)</b>	Incremental	Modular / Architectural	Radical
<b>Risk Level (RQ6)</b>	Limited	Moderate	Substantial
<b>Network Complexity (RQ7)</b>	Simple	Multi-part	Complex
<b>Network Formation (RQ8)</b>	Esoteric	Enlarged	Exoteric
<b>Value Network Stability (RQ9)</b>	Stable	Changing	Emerging

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**Keywords:** startups, strategy, business ecosystems, entrepreneurship, boundaries

# The Status and Future of Action Research: An Interview with Professor David Coghlan

David Coghlan and Erik Lindhult

*“The innovation process is about how people think, how they create new perspectives and technologies to address pertinent issues, more than it is about the externalized data and technologies apart from the human mind... So, published accounts of how people work through the cognitive and collaborative challenges of an innovation initiative is what I value rather than the impersonal reports of studies based on quantitative analysis.”*

David Coghlan  
Professor Emeritus and Author

## Introduction by Erik Lindhult

The recently published special issues on action research in the *TIM Review* (April 2019: [timreview.ca/issue/2019/april](http://timreview.ca/issue/2019/april) and May 2019: [timreview.ca/issue/2019/may](http://timreview.ca/issue/2019/may)) are an indicator of the viability and fruitfulness of expanding this type of approach for research and practical development in the technology and innovation management area.

To further clarify the contemporary status as well as opportunities and challenges for future development, we invited David Coghlan, Professor Emeritus at the Trinity Business School, University of Dublin Trinity College, a leading scholar on action research and a founding father of modern approaches in the area, such as “insider action research”, to give his personal reflection and views. The interview also touches on patterns and themes in the two special issues and how they point to contemporary status, opportunities, and challenges of action research.

The interview starts with David Coghlan’s view on action research as experience-based and value-oriented inquiry by people into issues that concerns them with an ambition to involve everyone in improving the systems in which they participate. Dimensions and issues in insider action research are also explored, such as the relationships between insider and outsider positions and perspectives. Then, we discuss the landscape of action

research today, where David is on the one hand enthused about the proliferation of exciting action research work but at the same time sees budding scholars forced to comply with philosophies of research and evaluation criteria of universities and journals that sometimes have a restrictive view on knowledge related to experience and action. The interview explores some dimensions of a required intellectual conversion in research and academia: philosophically, in education, what does it mean for scholars in the technology innovation management (TIM) area and how does this relate to patterns seen the recent two special issues in the *TIM Review*. David points out that innovation processes enable people to create something new in addressing pertinent issues. In our volatile, unpredictable, complex, and ambiguous (VUCA) world, it is essential to attend, in the present tense, to dynamic operations and make accounts of how people work through the cognitive and collaborative challenges of innovation initiatives.

The last section of the conversation looks into opportunities and recommendations for further development and their implications for the epistemic ecosystem of actors, for example, issues of quality, publication of action research work, and innovative action by researchers, academic environments, founders of research, journal editors, etc., that can make the system more conducive to action research.

## The Status and Future of Action Research: An Interview with Professor David Coghlan

David Coghlan and Erik Lindhult

### Interview with David Coghlan

**Lindhult:** *David, what is the background for your engagement in the action research field? What made you interested in action research and participatory methods?*

**Coghlan:** When I was introduced to the field of organization development in the early 1970s, through the writings of the organization development pioneers such as Edgar Schein and Richard Beckhard, I discovered a collaborative organizational and systems approach that parallels the individual therapeutic work of Carl Rogers with which I was familiar. Rogers in his field and Schein and Beckhard in theirs were articulating a philosophy, methodology, and methods on how to work with people in a facilitative manner that supported those affected by a change to make the change themselves. Then, in the 1980s, I was introduced to Lewin, his notion of action research, and the rich tradition that flowed from his work. In the subsequent decades, from my participation in the action research community in US, UK, and in Europe, I grew in my understanding, appreciation, and internalization of action research's theory and practice and, in particular, in the core insight that we do collaborative research on things that matter.

**Lindhult:** *What are you working on right now?*

**Coghlan:** Since I have become a professor emeritus and have moved into a quieter phase of reflective living, I am focusing on interiority and on my educational role, which I express through reflective writing about philosophical and methodological issues (Coghlan, 2017). I continue to develop my work on insider action research (The 5th edition of *Doing Action Research in Your Own Organization* was published recently; Coghlan, 2019) and through giving seminars on action research's philosophies and methodologies.

**Lindhult:** *What are the special considerations and features in conducting this type of research?*

**Coghlan:** On doing action research as an insider, I think that enabling people to engage in the present tense by attending to their experience, inquiring into it with other insiders, formulating and testing answers in a context of a value-oriented inquiry, intentionality and action is significant for people to pursue in addressing issues that concern them and to generate actionable knowledge through the process. Seeing the potential of action research is foundational. Doing it follows. Everyone improving the systems in which they participate is a powerful alternative to leaving it to experts.

**Lindhult:** *We can agree that people create knowledge and change through action in their own organizations, but some knowledge is tacit and may be of varying quality, so how do we as action researchers best go about capturing the richness and ensuring the quality of knowledge created in change processes?*

**Coghlan:** By engaging with others in collaborative ventures and consistently attempting to inquire into our experience – how we are understanding it and questioning the experience and understanding of others – we can draw out what is tacit. So, rather than discussing issues and debating positions, if we explore how we have come to know, then we have the ground for fruitful dialogue. Argyris' action science provides tools for uncovering privately-held inferences and for testing assumptions, and Schein's humble inquiry gives us a way of working with others.

**Lindhult:** *You emphasize "actionable knowledge", which can be interpreted as knowledge in action research having the primary goal of supporting action, should there not also be processes geared for "knowledgeable action"?*

**Coghlan:** "Actionable knowledge" is typically defined as knowledge that is useful for practitioners and robust for scholars. Practical knowing subsumes other forms of knowing as we draw on both theory and reflected practice so as to become skilled. So, if by "knowledgeable action" you mean that our action is informed by knowledge, then I affirm that. I see the role of understanding the context plays as essential.

**Lindhult:** *You have been leading the methodological development of insider action research. Why have you found this development particularly important? What are the differences in the considerations and features of insider action research compared to outsider action research?*

**Coghlan:** In the late 1990s, I was working in an executive action research master's program where the executives were doing their dissertations on an initiative they were taking in their organizations. I found that most action research literature talked about the action researcher as an external agent (for example, Greenwood and Levin refer to the "friendly outsider"). But the executives with whom I was working were doing action research through their managerial roles in their own organizations. So, from the discussions with them, I began to put class notes together, and these eventually became the book *Doing Action Research in Your Own*

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*Organization* which is now in its fifth edition (Coghlan, 2019). From my work with these executives over several cohorts, some core themes emerged: preunderstanding (managing being familiar with the organization and thereby blind to the culture), role duality (managing holding both a management role and a researcher role, with ambiguities, tensions or conflicts that might arise between them) and managing organizational politics (as the manager may wish to stay in the organization when the research is completed). Since 2001, these themes have been confirmed as key to insider action research. As so many executive programs, across business, healthcare, nursing, social work, etc. have an action project or thesis that the participants have to do, this work of mine has met a theoretical, methodological, and practical need.

**Lindhult:** *How is an insider perspective related to outsider perspectives in research? For example, Levin saw research perspectives as always having an aspect of outsider perspective. What are the advantages of insider perspectives? What about knowledge interests? Does it also imply a risk that insider (research) perspectives can be “co-opted” so that some of the status as a research perspective is lost?*

**Coghlan:** The notion of “insider” and “outsider” is a social construction and is not a pure distinction a lot of the time. One can be an insider to the organization as a whole and be perceived as an outsider by the particular department where the action research is taking place. So, the clarification of role as perceived and role as enacted is a task to be explored in any insider action research project. Insiders have a rich knowledge, though a lot of it may be tacit and not brought to explicit awareness. Hence, my emphasis on preunderstanding as a key challenge for insiders, that is, to build on the closeness they have to the setting and to achieve a critical questioning of what it is they don’t know or are blind to. Hence, the value of having a research group (as separate from the project management group) that challenges thinking and tries to uncover privately held assumptions and interpretations. There may be non-organizational members in this group who perform an important role in asking critical questions.

But your question also points to a different dynamic. When we think of the subject as subject, then we can talk about our self-awareness, not from outside ourselves but as integral to consciousness. We don’t become outsiders to ourselves when we engage in critical thinking. When we are watching a thriller on TV, we can be aware of ourselves becoming tense at particular

exciting moments. So, we can attend to data of consciousness (what we are thinking, feeling, etc.) and to data of sense (what we are seeing, hearing, etc.) at the same time. This is what I call “interiority” and is what I understand as being a philosophical approach to dealing with the philosophical issues within research philosophies (Coghlan et al., 2019). I have argued that interiority forms the “new enlightenment”, a synthesis of modern thesis and postmodern antithesis (Coghlan, 2017).

### The Landscape of Action Research Today

**Lindhult:** *How would you describe the status and landscape of action research today? What trends in its development do you see?*

**Coghlan:** I am somewhat conflicted when I look at the action research landscape. On the one hand, I am enthused as I think that there is exciting action research work being done on our key global and social challenges: sustainability, working with migrants, inequality, innovation, and so on. On the other hand, I feel depressed as I see budding scholars being forced to comply with requirements to publish in journals that are locked into a philosophy of research that excludes action for their careers. It is the restrictive view of what knowledge is worth producing and how scholars are evaluated that bothers me. While this is not a new challenge, in some respects it has worsened because the criteria for how universities judge scholarship and how they themselves are judged are narrowing. There are powerful structural forces inhibiting the development of action research. I think that there is a need for an intellectual conversion to understand how there are many approaches to research, and the academy need not confine itself to one approach. So, investing in creating an eclectic environment for a range of rigorous, relevant, and reflective research should be encouraged.

**Lindhult:** *How would your proposals for criteria for how universities judge scholarship differ from the dominant ones? Do you see them emerging in some university settings?*

**Coghlan:** Davydd Greenwood and Morten Levin have written extensively on this topic and make the case for a complete redefining of the university. In the context of this interview, I’m simply arguing for a more eclectic notion of research that accommodates different forms and methodologies of knowledge production and that values how different forms of knowledge contribute to the sustainability and development of our planet.

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*Lindhult: Do you see that this type of research is present in the TIM area? What are positive potentials and barriers for its further development?*

**Coghlan:** Research is undertaken by people and so, in my view, how people work from experience, through questioning to understanding to verification and judgment and to action, is what is most valuable. The innovation process is about how people think, how they create new perspectives and technologies to address pertinent issues, more than it is about the externalized data and technologies apart from the human mind. In this volatile, unpredictable, complex, and ambiguous (VUCA) world, attending in the present tense to the dynamic operations of how we come to know and to collaborate are essential. So, published accounts of how people work through the cognitive and collaborative challenges of an innovation initiative is what I value rather than the impersonal reports of studies based on quantitative analysis. How we deal with VUCA challenges as they emerge is not amenable to research approaches that depend on fixed variables.

*Lindhult: What do you recognize as significant in the two special issues in the TIM Review from your horizon? How does it relate to the contemporary status, opportunities, and challenges of action research?*

**Coghlan:** The two special issues of the *TIM Review* (April 2019: [timreview.ca/issue/2019/april](http://timreview.ca/issue/2019/april) and May 2019: [timreview.ca/issue/2019/may](http://timreview.ca/issue/2019/may)) demonstrate how action research can be undertaken in a variety of contexts, where there are real issues to be addressed and useful knowledge to be generated by addressing the issues and reflecting on the challenges in addressing them. I point to accounts of crossing boundaries (organizational and disciplinary), the collaborative challenges, including with different stakeholders, dealing with emergent issues as providing reflective accounts of researching-in-action.

But action research is not consulting or project management, though many of its process are shared. The word “research” is important as it denotes an intention to contribute knowledge to a setting beyond the immediacy of any given initiative. This is a central difference. In terms of the quality dimensions we’ve discussed, action research must be explicit in showing an understanding of the context (both the practical strategic and operational context of the issue and the literature on research in this area), the dynamics of collaborative engagement across boundaries, disciplines, and the engagement in shared action and reflection, so that the

dual outcomes of practical and actionable knowledge are evident in how they emerged from the collaborative engagement and how they contribute to the context. The two special issues of the *TIM Review* also provide several theoretical articles about the nature of action research, which are very informative and demonstrate the theoretical foundations of action research.

*Lindhult: You are also pointing to the philosophy of science as crucial. What kind of philosophy for research would be more supportive of this kind of research, and how would it change how universities judge scholarship? Are there some good examples?*

**Coghlan:** There are many colleagues who believe that, if there are no numbers in a work, then it is not real research. For them even case studies are suspect. And, even more so, if there is action and subjectivity, then the breach of the canons of statistical objectivity and universal theory in action research is too much. This is how researchers are trained and socialized, and it is the dominant model. In recent publications, I have begun arguing for “interiority”, that is, attending to data of consciousness as well as data of sense so that *how* we know is as important as *what* we know. The two special issues of the *TIM Review* provide solid examples of this kind of research in action.

### Future Opportunities and Recommendations for Further Development

*Lindhult: What opportunities do you see for further developments in the action research domain?*

**Coghlan:** The need for an intellectual conversion to understand how there are many approaches to research and the academy need not confine itself to one approach. So, investment in creating an eclectic environment for a range of rigorous, relevant, and reflective research needs to be encouraged.

*Lindhult: You have done a lot of work in the areas of education, skills, and textbook development. How can competence development be organized, be it research methods courses or in other forms of learning processes, so as to best further the kind of inquiry skills you see as fundamental in action research?*

**Coghlan:** How often is it that so-called “research methods” courses typically point to the design and implementation of surveys and the writing of cases while rarely even touching on the development of introspective interiority and face-to-face collaborative inquiry

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skills? Of course, researchers need to learn how to work with numbers, and there are fundamentals that need to be taught. But, in parallel, I think it is valuable to engage students and aspirant researchers in practicums and internships where they engage in action and then come together to reflect on their experience by questioning what took place (or didn't), questioning their questioning and exploring how they might understand (supported by relevant reading) and so on. Through this method, they learn to process their own thinking and learn to engage in a collaborative inquiry of others' thinking.

*Lindhult: For researchers and other actors considering initiating an action research initiative instead of a "normal" research project, what is, in your view, most important to think about?*

**Coghlan:** Rather than starting with a theory and a review of literature, start with the existing practical situation with which there is a concern or potential for development and work from there in building a coalition to address it and in doing so draw on the trove of others' work, both practical and theoretical, to build understanding of what's involved. The guiding questions are: What do we want to do to address our concern? Who needs to be involved? How can what we do and what we learn be of use to others, both practitioners and scholars?

If we start with our worldview (what research philosophy calls "ontology") of what we believe about the world and people – I heard Bjørn Gustavsen say that his worldview was democracy theory and so any research he was doing would have to be participative because that's what democracy is about – then methodology and choice of methods flow from that. We can then ask how we design what we want to do and capture the process in a manner that is rigorous and transparent for others to learn from it.

*Lindhult: What is your own worldview? Does it also relate to democracy? What does it mean for methodology and research design?*

**Coghlan:** The human person is a symbolic animal, and the core of human living in large measure is mediated through acts of meaning. We express ourselves through language, art, symbols, rituals, how we live, and what we do. Meaning is not only what is experienced but is also what is questioned, understood, interpreted, and affirmed. Organization and community are only possible through a common ground of meaning, which

find expression in the articulation of shared values and aims and in shared actions. Action research works through interpreting events and intentional acts that envisage ends, select means, and work collaboratively to achieve those ends. It works by understanding how these ends are achieved, by critiquing these ends, and by deciding whether we want to achieve these ends or something different. Beyond the world we know about, there is the future we create by intending, investigating possibilities, planning, weighing options, taking action, and learning. We are constantly engaging in acts of meaning in our experiencing, our understanding, our judgments, our decisions, and our actions. So, for me, exploring the meaning of what we care about, what concerns us, and what we might want to do about it is both an individual process of valuing and a collaborative process of coming to a shared understanding and common courses of action. In this way, it is democratic as we have so many examples in history of groups coercing others to adopt their meaning and trying to destroy dialogue.

*Lindhult: What about publication, the dominant measure of academic success? Action research is often perceived to be more difficult to publish, particularly in higher-ranked journals. In a publish-or-perish academic climate, this is a challenge for people considering doing action research in the academic community. However, in a literature review in the special issue, you are mentioned as one of the most productive scholars in the action research field (Guertler et al., 2019). Thus, you have been successful in combining a focus on action research and publication productivity. Another study in the special issues on publication outlets for action research did not find lower frequency of action research publication in high ranked journals (Hoppe, 2019), thus partly questioning received assumptions. How should action research scholars think concerning publication? Please share your thoughts and experience on how scholars can develop viable publication strategies and tactics?*

**Coghlan:** Journals and their editors reflect the culture in which they have been trained and formed. And, as I said earlier, this is becoming narrower. As the number of journals has proliferated, they have narrowed further. I submitted an action research paper to a conference some years ago and the reviewer's opening line was "I have no problem with a sample of one". That told me that this reviewer had no idea of what I was doing in my action research paper if they had to assert their starting point in terms of sample size. Due to my age, I am now immune from the publish-or-perish

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pressure and so I pursue journals that I think will be interested in what I have to say. But it is a struggle and I get both outright rejections and encouraging challenges to develop my thought. This is not much use to the young scholar who needs publications in high-ranked journals for tenure and promotion. Students of Edgar Schein report that he would say “just get your work out there”. With electronic access and the use of key words, anyone’s work is accessible. At the same time, reporting on an action research work in an article, writers need to follow some key norms that editors and reviewers can recognize. They need to show how action research is a normal mode of inquiry that arises in a practical and an academic context and how the engagement in addressing the issue is transparent in how participants were engaged, questions were asked, answers were subjected to rigorous questioning, and how there is a consistency between the outcomes, the engagement in action and inquiry, the relationship between the participants in that action and inquiry, and where it fits with what questions were posed from the practical and academic contexts. It is interesting how some journals are now insisting that authors have a section on implications for practice as well as for further research.

**Lindhult:** *What are your recommendations for the ecosystem of actors – academics; professionals in industry, public service, and civil society; policy makers; sponsors and funders; journal editors; etc?*

**Coghlan:** Let’s realize the potential of an extended epistemology – different ways of knowing – and give value to a philosophy of practical knowing, and not only to its propositional form. While the term “science” is problematic once we move beyond the natural sciences, if we hold a broader understanding of different forms of inquiry and how they can be conducted in a manner that meets defined quality criteria, then we can produce actionable knowledge, that is knowledge that works for practitioners and is robust for scholars.

**Lindhult:** *The discourse and views on quality in research and science are varied and in flux. The special issues contain efforts to clarify the meaning of scientific excellence and research quality in action and participatory research. You have also been contributing to this debate. How can we clarify research quality, in your view?*

**Coghlan:** It is only in the past fifteen or so years that the action research community has articulated what might be the quality dimensions of action research. How would we recognize *good* action research? You have written an extensive exploration of this subject in the

May issue of the *TIM Review*. Rami Shani and I have framed four factors: i) how the context is shown to be understood; ii) the quality of the relationships between members and between members and researchers in working and inquiring together; iii) the quality of the action research process in the intertwining dual focus on both the action and the inquiry processes; and iv) the dual outcomes of action research in creating some level of sustainability (human, social, economic, ecological) and the co-generation of actionable knowledge (Coghlan & Shani, 2014; Shani & Coghlan, 2019). These four factors comprise a comprehensive framework as they capture the core of action research and the complex cause-and-effect dynamics within each factor and between factors. They provide a unifying lens into wide variety of the reported studies in the literature, whether or not the factors are discussed explicitly in a high-level guide for the action researcher. It allows the distinct nature of each action research effort to emerge, and it magnifies the added value of each study.

**Lindhult:** *What advice would you give to different ecosystem actors to help to realize the potential of action research?*

**Coghlan:** Maybe it’s about being innovative and taking risks. The system won’t change unless we change it.

**Lindhult:** *I agree. There is a need for innovative ideas and taking some risks in pursuing them by all actors involved. Academics and academic environments need be open to different ways of understanding and pursuing scientific inquiry and also for developing appropriate competencies for doing action research. Professionals need to be open to Socratic knowledge of the limits of their knowledge through critical questioning, and taking time for reflective and interactive learning through collaborative knowledge creation. Policy makers need to consider the goals and steering parameters for science and its contribution to society, and the appropriate incentives for researchers (e.g., publications, focusing on important societal challenges and concerns of stakeholders). Sponsors and funders need to be open to engaged research that deals collaboratively with important concerns without promising general models or easy solutions. Journal editors need to be open to research building sound knowledge from experience and accounts of how people work through the cognitive and collaborative challenges of innovation initiatives. These actions combined can build a movement towards an epistemological ecosystem conducive for action research.*

**Coghlan:** Well put. I agree.

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Lindhult: *What are your thoughts on improving this ecosystem in constructing a good future for action research?*

**Coghlan:** As I've said, let's go after things that matter and do research on how we build collaboration to address them and build rigorous, relevant, and reflective methods to cogenerate actionable knowledge. In the VUCA world, this involves direct engagement in addressing what some authors refer to as "wicked problems", which require innovation. If we keep publishing rich accounts, then our work is getting out there and can be accessed readily.

Lindhult: *In this emerging VUCA world, do you see some areas of interest that provide opportunities for action research scholars and practitioners?*

**Coghlan:** No. The whole point is that our experience constantly throws up new challenges. That's what VUCA means. If I were to focus on my areas of interest, then I would be closing myself to the volatile, unpredictable, complex, and ambiguous dynamic of our world. This takes me back to the emphasis I've been placing on context. Action research arises from a real issue in a real context, not the interests of researchers. So, the opportunities for action research are the issues we care about. If we lose sight of that, then we have lost the vision of action research.

Lindhult: *Thank you so much, David, for your interesting and valuable responses.*

**Coghlan:** You're welcome.

**David Coghlan** is Professor Emeritus at the Trinity Business School, Trinity College, Dublin, Ireland, and is a Fellow Emeritus of the College. He specializes in organization development and action research and participates actively in the both communities internationally. He has published over 180 articles and book chapters. Recent books include: *Doing Action Research in Your Own Organization* (5th ed. Sage: London, 2019); *Conducting Action Research for Business and Management Students* (with Rami Shani, Sage: London, 2018), *Inside Organizations* (Sage: London, 2016). He is co-editor (with Mary Brydon-Miller) of the *SAGE Encyclopedia of Action Research* and (with Rami Shani) of the four-volume sets, *Fundamentals of Organization Development* (Sage: London, 2010) and *Action Research in Business and Management* (Sage: London, 2016). He is a member of the editorial advisory board of several journals, including *Action Research*, *The Journal of Applied Behavioral Science*, *Action Learning: Research and Practice*, *Systemic Practice and Action Research*, and *OD Review*.

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