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**Co-Creating and Orchestrating
Multistakeholder Innovation**

6. Orchestration practices in multi-stakeholder co-creation. Case Agile Piloting at Smart Kalasatama

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INTRODUCTION

Over the last decade, orchestration has been widely discussed in the context of innovation ecosystems and networks. However, it is oftentimes used as a metaphor without any specific meaning. In this article, we aim to elaborate on orchestration practices by describing Agile Piloting within the Smart Kalasatama case. On a generic level, we understand orchestration as “planning and coordinating the elements of a situation to produce a desired effect” (MOT Oxford Dictionary 2019).

First, we introduce the context of our study, the Agile Piloting Programme run by Forum Virium Helsinki, an innovation agency owned by the City of Helsinki, in the Kalasatama area. After analysing the extant definitions on orchestration in the context of innovation ecosystems, we discuss different types of orchestrators. Next, we proceed to describing the orchestration practices identified in our case. Finally, as a conclusion we propose our own definition, which captures the special elements of facilitator-type of orchestration.

THE AGILE PILOTING PROGRAMME AT KALASATAMA

Since 2013, Forum Virium Helsinki has been orchestrating innovation platform activities in Kalasatama, the model district for smart city development in Helsinki. Smart Kalasatama is an Urban Living Lab whose mission is to speed up smart city development in Helsinki. The Kalasatama district will offer homes to approximately 25,000 residents and jobs to 10,000 people by 2035. Currently, 4,500 people live in the area. Smart Kalasatama is being developed through co-creation and piloting in close co-operation with more than 200 stakeholders, including residents, companies, city officials and researchers. All activities are guided by a shared vision: smart services save one hour of citizens’ time every day. Co-creation and experimentation activities in Kalasatama have been implemented in the fields of wellbeing, mobility, education, energy, waste management, etc. (Smart Kalasatama n.d.)

The programme model for agile piloting was developed in order to accelerate innovative smart services and public-private collaboration, as well as to enable the participation of smaller players, such as start-ups and small and medium-sized enterprises (SMEs). The aim is to learn as much as possible and co-create value with all the partners. Experimentation provides useful means to approach an uncertain future. The Agile Piloting Programme is a good method for creating something new in order to uncover the best solutions and to gain insight into how users experience the service.

Agile piloting is a means to facilitate multi-stakeholder collaboration and to open up the city infrastructure, data and services as an urban lab for experimentation. The programme invites start-ups and SMEs through an open call to test and co-develop their services in a real-life environment for a period of 3–6 months. To support smaller players, the programme procures pilots for a small compensation (e.g., 1,000–10,000 €). Furthermore, it offers companies and start-ups an authentic real-life environment to test and develop their services together with residents who participate in the process as the experts of everyday life. The process engages citizens and the users of the services as pilot initiators, co-developers and users to provide learnings about what smart city development is all about.

The process requires intensive facilitation from the orchestrator, who engages the various stakeholders in the process throughout the different stages (Figure 1). The process starts with the selection of the theme or the challenge to be solved in multi-stakeholder innovation processes. Next, the orchestrator declares an open call (lasting 1.5 months) for a piloting round. After selecting the pilots (typically 4–6 per round), the experimentation processes continue for 6 months at maximum. The process ends with an evaluation stage. (Mustonen, Spilling & Bergström 2018; Spilling, Rinne & Hämäläinen 2019.)

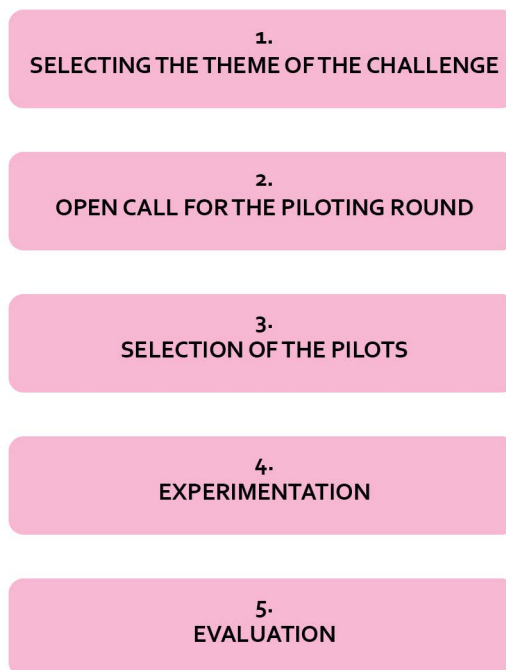


Figure 1. Agile piloting process. (Figure modified from Mustonen, Spilling & Bergström 2018, 21)

WHAT IS ORCHESTRATION?

The concept of orchestration has mainly been discussed in the context of inter-firm innovation networks. Thus, the focus has been on the activities of a hub firm in developing, managing and coordinating the network. In a seminal article by Dhanaraj and Parkhe (2006, 659), innovation network orchestration was defined as the set of deliberate, purposeful actions undertaken by the hub firm as it seeks to create value (expand the pie) and extract value (gain a larger slice of the pie) from the network.

The above-mentioned definition has been criticised as putting too much emphasis on a hub firm, typically a large corporation with hundreds of alliances (see e.g., Gausdal & Nilsen 2011). Therefore, Verhoeven and Maritz (2012, 5) propose a new definition of orchestration:

"The set of deliberate, purposeful actions undertaken by a focal organisation for initiating and managing innovation processes in order to exploit marketplace opportunities, enabling the focal organisation and network members to create value (expand the pie) and/or extract value (gain a larger slice of the pie) from the network".

Verhoeven and Maritz (2012) acknowledge that all the actors strive for value creation, and Hurmelinna and Nätti (2018) point out that different kinds of actors can be orchestrators, not just firms.

Although the definition by Dhanaraj and Parkhe (2006) has earned criticism, many scholars (e.g., Ritala, Armila & Blomqvist 2009; Gausdal & Nilsen 2011; Pikkarainen, Ervasti, Hurmelinna-Laukkanen & Nätti 2017; Hurmelinna-Laukkanen & Nätti 2018) agree with their view of orchestration consisting of three processes: managing knowledge mobility, managing innovation appropriability and managing network stability. The first task, knowledge mobility, refers to the ease with which knowledge is acquired, shared, and deployed by all the actors. Knowledge mobility can be enhanced by reinforcing a common identity among the actors and by socialisation (Dhanaraj & Parkhe 2006). The second process, managing innovation appropriability, means that the actors within innovation ecosystems are able to capture profits and other benefits generated by the innovation processes and their outcomes (Ritala et al. 2009). To avoid freeriding and opportunistic behaviour, the orchestrator has to "play the championing role in building trust levels and in communicating, clear, pre-established sanctions for trust violation" (Dhanaraj & Parkhe 2006, 663).

The third dimension, network stability, does not only refer to maintaining relationships in the innovation ecosystem but also to allowing for entry through recruitment and brokering activities, as well as exit (Dhanaraj & Parkhe 2006). In addition to these three tasks, orchestration activities include coordination, agenda-setting and mobilisation (Pikkarainen et al. 2017).

Furthermore, it has been argued that orchestrators are like community coordinators in communities of practice (Gausdal & Nilsen 2011). Community coordinators are known for their passionate attitudes and their deep knowledge about a community's topic. They understand group dynamics and have good networking and interpersonal skills.

Orchestration is perceived as a dynamic activity and a constantly evolving practice. Orchestrators can take different roles, and there can be multiple orchestrators in a complex innovation ecosystem (Pikkarainen et al. 2017, see also the discussion on a shared governance model in Äyväri, Jyrämä & Hirvikoski 2018).

DIFFERENT TYPES OF ORCHESTRATORS

In business innovation networks and ecosystems literature, the orchestrator role is typically played by a firm, thus aligning with the definition by Dhanaraj and Parkhe (2006). The hub firm as an orchestrator can be categorised as a player-orchestrator that focuses on improving its own competitive advantages and profitability through utilisation of the network (Hurmerinta-Laukkanen & Nätti 2018). In addition to player-orchestrators, there are two types of non-player orchestrators: sponsor-orchestrators and facilitator-orchestrators (Hurmelinna-Laukkanen & Nätti 2018; Pikkarainen et al. 2017).

Sponsor-orchestrators are commercially oriented actors (e.g., venture capitalists, technology centres), but they do not offer solutions in the same market as the other actors in the innovation ecosystem. They generally have a long-term perspective for profiting. They might, however, claim membership fees, a commission or joint ownership of the innovation. (Hurmelinna-Laukkanen & Nätti 2018.)

Facilitator-orchestrators, in turn, aim to foster the co-creation of ideas, solutions and knowledge within the whole ecosystem, without any financial gain for their own organisations (Hurmelinna-Laukkanen & Nätti 2018). In addition, facilitator-orchestrators are not interested in utilising the innovation process outcomes themselves but are mainly concerned with the wellbeing and functioning of the ecosystem (Pikkarainen et al. 2017). Furthermore, facilitator-orchestrators are boundary-spanning actors aiming at increasing intellectual and social capital and widespread dissemination of ideas and innovative solutions (cf. Hurmelinna-Laukkanen & Nätti 2018).

As a city-owned innovation agency, Forum Virium Helsinki is a typical boundary-spanning actor striving to enhance the building of innovation ecosystems and co-creation of new solutions, without any financial gains for its own organisation. Thus, Forum Virium Helsinki can be regarded as a facilitator-orchestrator.

CASE: ORCHESTRATION PRACTICES IN THE AGILE PILOTING PROGRAMME

Our description of the orchestration practices was inspired by Russo-Spena and Mele (2012), who were among the first to adopt a practice-based perspective of innovation, conceptualising innovating as a set of co-creation practices. Orchestration practices were placed in three main categories of: (1) practices related to building and maintaining relationships, (2) coordinative and supportive practices to foster co-creation and (3) practices related to learning and knowledge mobility.

Next, we present the practices in Tables 1-3 and briefly elaborate on each bundle of practices. We wish to highlight that quite many of the facilitator-orchestrator's practices are relevant throughout all stages of the Agile Piloting Programme (see the x-marks in the table columns).

1. Practices related to building and maintaining relationships to mobilise actors with versatile resources

The role of the facilitator-orchestrator is to ensure that key stakeholders are motivated and have the necessary resources to engage in the process throughout the whole innovation process. Inviting key stakeholders to serve as jury members in pilot selection is one way to enforce their commitment. In this vein, the facilitator-orchestrator also ensures that the selection of the pilots is based on wide expertise from different professions and fields.

Many of the practices mentioned in Table 1 are related to the role of a bridge-maker: for example, start-ups highly appreciate the access to city professionals and infrastructure and to local communities. New

networks open up for all the actors involved in the Agile Piloting Programme in the events organised by the facilitator-orchestration or through active communication. Access to potential users of the new service is essential in the process. The users are important value co-creators in the programme, and it is essential to think about the process from the user perspective. Piloted services, as such, can be compelling and meaningful to the end-users and, in addition, participation may offer social value. Maintaining relationships with local communities of citizens and users calls for a user-centric approach in planning how to make the process a positive experience for the end-users, who contribute their time and expertise from their everyday lives.

Table 1. *Orchestration practices related to building and maintaining relationships in different stages of the Agile Piloting Programme.*

PRACTICES RELATED TO BUILDING AND MAINTAINING RELATIONSHIPS					
	1. Selecting the challenge	2. Open call for a piloting round	3. Selecting the pilots	4. Experi- mentation process	5. Evaluation & upscaling
Engaging the key stakeholders	X	X	X	X	X
Providing access to city infrastructure, services and professionals	X		X	X	X
Providing access to local communities of citizens and businesses	X			X	X
Providing access to new networks	X	X	X	X	X
Inviting key stakeholders to be jury members in selecting pilots			X		
Marketing communication via many channels	X	X		X	X
Engaging actors in communication	X	X		X	X
Organising events open to all	X	X		X	X

Active communication via many channels is a key element in the Agile Piloting Programme. It is a means to create commitment: the facilitator-orchestrator engages all stakeholders to collaborate in communication activities in their own channels before, during and after the experimentation process. The pilots have also proven to be compelling to interesting for a wider, even global, media as they provide concrete examples of the services for a smarter future. Media visibility is a powerful means to pave the way for getting new con-

tacts and upscaling. For start-ups, the market reference gained through the pilot is important – collaborative communication helps start-ups tell their stories to new audiences.

2. Coordinative and supportive practices to foster co-creation in an empathic atmosphere and to solve conflicts

Forum Virium Helsinki, as the facilitator-orchestrator, coordinates the joint activities of the key stakeholders during the first three stages of the Agile Piloting process (see Table 2). During the experimentation process, when 5-6 pilots are running almost simultaneously, the orchestrator coordinates experimentation and piloting activities both time- and resource-wise – for example, when implementation is being planned for several pilots in the local health and wellbeing centre.

Table 2. *Orchestration practices related to coordination and support in different stages of the Agile Piloting Programme.*

COORDINATIVE AND SUPPORTIVE PRACTICES TO FOSTER CO-CREATION					
	1. Selecting the challenge	2. Open call for a piloting round	3. Selecting the pilots	4. Experimentation process	5. Evaluation & upscaling
Coordinating the open call and selection process	X	X	X		
Coordinating the experimentation activities of the chosen pilots (e.g., help in organising multi-stakeholder meetings or finding users)				X	
Facilitating multi-stakeholder meetings to establish a joint focus and aims	X		X		
Facilitating meetings and workshops to create a shared terminology and shared meanings	X			X	X
Facilitating workshops to create and maintain an empathic atmosphere	X		X	X	X
Utilising service design tools and templates to ensure user-centricity	X			X	X
Sensitively listening to and balancing the interests of different actors to minimise conflicts	X		X	X	X

Documentation of all activities and learnings is vital for scaling up both the pilots and the process. In Agile Piloting, the facilitator-orchestrator writes detailed descriptions of the pilots together with the start-up or SME and uploads them, with photos, to the facilitator-orchestrator's website. These might lead to scaling up the piloted services in other districts or city sectors. Videos are also a powerful way to document key ideas and learnings. In addition to these, the engaged key stakeholders – representatives of the city, start-ups and SMEs, large corporations and research partners – are asked to document their own learnings as presentation slides and discuss the slides in the workshops or events.

We wish to highlight that the orchestrator may delegate the implementation of some practices to other actors in the innovation ecosystem. For example, workshop facilitation services can be procured from service design firms. Likewise, in one of the Agile Piloting rounds (a Fiksu Kalasatama project called Co-Designing Wellbeing, 9/2017-12/2018, funded by the Helsinki-Uusimaa Regional Council), Laurea University of Applied Sciences was a research and development partner and responsible for the evaluation and development of the process from the companies' point of view. In the project, Laurea UAS was an active partner throughout the whole process, not just in the final phase. Laurea's responsibility was to produce two evaluation reports: one for the facilitator-orchestrator's internal use and the other for anybody interested in agile piloting (Äyväre 2019). In this case, Laurea also updated the previous version (Hirvikoski, Lehto & Äyväre 2016) of the manual for Kalasatama Health and Wellbeing Centre as an innovation platform. Documentation such as Cook Book by Mustonen et al. (2018) or the report by Äyväre (2019) helps to scale up the overall learnings from the Agile Piloting Programme and orchestration practices.

Over the last five years, the Agile Piloting Programme has been adopted in different domains of smart city and used widely in the network of the six biggest cities of Finland (see more What is 6Aika, n.d). In 2019, the programme was adopted by the city of Stavanger in Norway. (Spilling et al. 2019.)

CONCLUSION

Based on the extant literature on innovation ecosystem orchestration and the description of the orchestration practices in the Agile Piloting Programme, we conclude by proposing a new definition of orchestration, focusing on the special features of a facilitator-orchestrators' goals and tasks. We maintain that:

Orchestration refers to participatory and supportive management practices in innovation ecosystems to enable multi-stakeholder co-creation, maximize learning of all actors involved and finally to achieve the shared vision of the ecosystem.

We consider co-creation as target-oriented interaction and collaboration covering all stages of the innovation process. Thus, co-creation refers to identifying key problems and solving them in a way that benefits all the parties. Moreover, co-creation involves integration of different actors' resources. (See more on co-creation of services in Oertzen, Odekerken-Schöder, Brax & Mager 2018.) Resource integration is linked to participatory management (Table 1) in innovation ecosystems: it is the facilitator-orchestrator's task to mobilise actors with versatile resources and to ensure that all stakeholders' voices are heard during the process. Supportive management (Table 2), on the other hand, includes facilitation of encounters to motivate, inspire and foster collaboration among multiple stakeholders.

We wish to emphasise that our definition of orchestration refers to managing within innovation ecosystems, not managing of ecosystems. Hence, the main issue is not control of but participation in and influence

of the formation of shared meanings and sense-making (Kilpi 2017). The facilitator-orchestrator coordinates activities (Table 2), but coordination “resembles enabling leadership rather than strict management” (Ritala et al. 2009, 571). Therefore, it can be concluded that orchestrating is about managing interactions with others, not about managing others (see, e.g., Ritter, Wilkinson & Johnston 2004).

In previous conceptualisations of innovation eco-system orchestration, knowledge mobility has been identified as one of the three main processes. Based on the case of Agile Piloting at Smart Kalasatama, we prefer to address the same issue by the notion of “maximising learning of all actors” in order to emphasise active reflection, experiential learning and knowledge co-creation, supported by tools and events organised by the facilitator-orchestrator.

As discussed above, facilitator-orchestrators are concerned with the wellbeing of the whole ecosystem. Therefore, we propose that achieving the shared vision (at Kalasatama: “smart services save one hour of citizen’s time every day”) should be the ultimate goal in the orchestration of the innovation ecosystem.

Finally, we acknowledge that the orchestration practices outlined in this paper require a wide set of both organisational capabilities and individual competences and skills (see, e.g., Ritala et al. 2009; Äyväri, Hirvikoski & Uitto 2019). More research is needed to capture the vast array of practices in the context of innovation ecosystem orchestration in order to fully understand the capabilities and competences enabling successful management within them.

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WE ARE LIVING in a world that is changing at a rapid pace. Globalization and technological development are bringing about many benefits. However, the challenges we meet are often complex, inter-connected and systemic, so-called *wicked problems*. The challenges are no longer local or one-dimensional.

Addressing wicked problems requires new rules and new ways of thinking that are determined by collaboration, inclusiveness and openness. These global challenges call for updated models that both help to enhance involvement of multiple stakeholders in *co-innovation* and *value co-creation*, and help stakeholders to benefit from them.

The set of articles within this book demonstrate how such concepts as *multi-stakeholder partnership*, *co-production of research* and *participatory Research, Development and Innovation* take place in practice. The articles epitomise how new collaborations, dialogues and partnerships are being formed among academic, public and private partners, and civic society. As the described collaboration is characterised by impactful interdisciplinary and creative methodological experimentation, this publication seeks to engage a wide audience of researchers, educators, policy-makers, practitioners and others with an interest in combining collaborative academic, business and public expertise.

These articles introduce research results, methodological considerations and practitioners' experiences on multi-stakeholder collaboration allowing for and benefiting from open research, innovation and educational processes. They make apparent the wide range of practices, tools and benefits of co-creation in the context of *Open innovation*, *Open science* and *higher education*. The articles shed light on the prerequisites of purposeful multi-stakeholder partnership and collaboration in different thematic and regional contexts.