

Innovation Leadership with Mentors for Team Performance in Municipal Hackathon

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ABSTRACT

One of the two main tasks of innovation leadership, a practice to inspire and enable creativity and innovation in organisations, is to construct a creativity-enabling organizational environment. One form of this main task is using developmental interactions, like mentoring, as innovation leadership practices. Hackathon is one type of innovation contest with three designed phases: pre-hackathon, hackathon event and post-hackathon, involving multiple stakeholders with distinct roles, such as hackers and mentors. In a hackathon, the central activity of mentors is to support the hackers' innovation process, especially in idea creation and concept development. The mentor role has not been focal in hackathon studies; thus, this chapter addresses the role, impact, and ways to acknowledge the mentors as an integral, contributing innovation leadership practice in hackathons. As an empirical study, this chapter presents the results of a public sector case in a Swedish multi-disciplinary municipality conducting intra-organizational hackathons in three different collocations. The chapter contributes to the literature on innovation leadership at the team level with mentorship in innovation contests in the public sector context by revealing the dual-role tension of innovation leadership in mentor activities in the hackathon event phase from both the hackers' and mentors' viewpoints, and the necessity of mentor-benefitting training in pre-hackathon phase.

KEYWORDS:

hackathon; mentor; coach; innovation leadership; dual-tension; training; organizational innovation; public sector innovation; municipality; innovation contest;

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1. INTRODUCTION

Innovation leadership is described as, “*a practice to inspire and enable people, teams, organizations and networks to create and innovate, from concept to market. It involves the full innovation cycle with attention to exploration and exploitations for a sustainable innovation process with a long-term view to deliver value for a global and digitally connected environment.*” (Innovation Leadership ISPIM SIG, 2022). As a practice, it has two main tasks: the construction of the creativity enabling climate cultivation, and the management of strategic innovation goals and activities e.g. (Alsolami, Cheng, & Twalh, 2016; Carmeli, Gelbard, & Gefen, 2010; Denti & Hemlin, 2012), which can take place in group or team level, like innovation group leadership (Van de Ven & Chu, 2000). Particularly developing a creativity enabling environment takes many forms. One is utilizing developmental interactions, such as coaching and mentoring, as innovation leadership practices (D’Abate, Eddy, & Tannenbaum, 2003; Mullen & Klimaitis, 2021; Rock & Garavan, 2006) in hackathons.

Hackathons as innovation contests have been studied to some extent (Medina Angarita & Nolte, 2020). Arranged in radical, virtual and hybrid collocations (Halvari, Suominen, Jussila, Jonsson, & Bäckman, 2020), hackathons have pre-hackathon, hackathon event and post-hackathon phases (Pe-Than & Herbsleb, 2019; Pe-Than, Nolte, Filippova, Bird, Scallen, & Herbsleb, 2019). The hackathons are designed with various elements (Medina Angarita & Nolte, 2020), and for multiple stakeholders with specific roles in different hackathon phases (Pe-Than & Herbsleb, 2019; Pe-Than, et al., 2019). The role of hackathon coaches and/or mentors is to inspire and enable the hackers (Medina Angarita & Nolte, 2020) in developmental interactions or relationships, one type of innovation leadership practices (D’Abate, et al., 2003; Mullen & Klimaitis, 2021; Rock & Garavan, 2006). As there is no conceptual clarity on the differences between coaching and mentoring in general (Rock & Garavan, 2006), and especially in the hackathon context (Medina Angarita & Nolte, 2020), we use the concepts of mentor and mentorship while addressing the hacker-supporting role. Previous research has recognized the importance of mentors in hackathons, yet focusing on their expertise and mentoring approach without elaborating on their goals, previous experience and background and the potential effects of these on their mentoring approach and subsequent hackathon outcomes (Medina Angarita & Nolte, 2020).

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Since mentoring has not been a focal in the hackathon studies, there is a need for more research on the topic. More specifically, there should be more clear descriptions of how mentors can contribute to the value creation in various phases of a hackathon. Therefore, this chapter addresses mentoring in hackathons as innovation leadership practice. Specifically, it focuses on the role, impact, and ways the mentors can be acknowledged and supported as integral and interconnected innovation leadership contributing stakeholders of hackathons. From an innovation leadership viewpoint, the study concentrates on the team level. As a descriptive empirical study, this chapter presents a case in a Swedish multi-disciplinary municipality conducting intra-organizational hackathons in three different collocations for public sector innovation creation during 2020–2022. This case examines the different types of mentor roles in terms of hackathon activities, especially in pre-hackathon and hackathon event phases, as well as the support the mentors require for innovation leadership in intra-organizational hackathons in the municipal context. Particularly the aim is to look into mentor training and support as an innovation leadership practice that impacts the mentors in their inspiring and enabling endeavours during a hackathon. Moreover, the impact of mentorship as a practice is evaluated in terms of both hacker and mentor perceptions of positive experiences and challenges in mentoring in hackathon events.

Thus, our research question is:

“How is mentorship designed and implemented in hackathons as an innovation leadership practice to inspire and enable creativity in hacker teams?”

The chapter is composed as follows: First, in the introduction, we give background regarding our research problem and present the research question. Second, we briefly describe innovation leadership, the aspects of coaching and mentoring, hackathons as innovation contests, as well as coaching and mentoring in hackathon studies. Third, we portray the methodological choices of our study. Fourth, we illustrate our research results and fifth we present the conclusions and practical implications together with further research suggestions.

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2. INNOVATION LEADERSHIP AND MENTORING IN HACKATHON LITERATURE

Innovation leadership

From innovation leadership theory viewpoints, Van de Ven et al. (2000) claimed two decades ago that it is “*an emerging general process theory of innovation*” (Van de Ven, Angle, & Poole, 2000 p. 611). Alsolami, et al. (2016) regard Innovation Leadership as one of the five main theories of leadership besides Leader-Member Exchange Theory (LMX), Transactional Leadership, Charismatic Leadership, and Transformational Leadership. The role and impact of innovation leaders are considered broad in a variety of functions or positions in their organization, ranging from executives, senior leaders, and innovation program leaders to leaders responsible for new initiatives, projects, programs, products, and services impacting spontaneous innovation investigating, sponsoring and steering tasks (Deschamps, 2003). The literature emphasizes the central role of leaders and leadership in innovation: leaders are one of the primary driving forces in increasing innovative output (Hunter & Cushenbery, 2011), and leadership is a consistent and significant factor that correlates with innovation effectiveness across different innovation types and stages (Manz, Bastien, Hostager, & Shapiro, 2000). Alblooshi, Shamsuzzaman, and Haridy (2020) stress the impact of a supportive leadership style that encourages learning, open communication, and innovation resources for individuals on organizational innovation. The construction of the creativity-enabling organizational environment is considered one of the two main leadership tasks for innovation, the other being the management of strategic innovation goals and activities i.e. innovation strategy formulation and implementation (Denti & Hemlin, 2012). These two main tasks are accentuated also by Carmeli et al. (2010) regarding innovation leadership as a specific type of leadership that “*cultivates the kind of climate and orientation the management team pursues and develops*” (Carmeli et al., 2010 p. 339). Similarly, Alsolami, et al. (2016) consider the role of a leader important especially in influencing creativity and innovation, however, underline that innovation leadership is the process of leading the company’s innovation portfolio strategically, too. The emphasis on climate cultivation is highlighted as the level of the group participants feel encouraged to innovative behaviour by innovation leaders (Van de Ven & Chu, 2000), particularly in the context of innovation group leadership. The perceived participants’ innovation effectiveness depends on the strength of leadership. The broadest description of innovation leadership incorporates both climate

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cultivation and strategic views across various levels, thus is “*a practice to inspire and enable people, teams, organizations and networks to create and innovate, from concept to market. It involves the full innovation cycle with attention to exploration and exploitations for a sustainable innovation process with a long-term view to deliver value for a global and digitally connected environment.*” (Innovation Leadership ISPIM SIG, 2022).

The main proposition of innovation leadership is that leaders play a multitude of roles when facilitating innovation in organizations, especially roles that influence creativity and innovation (Alsolami, et al., 2016; Hunter & Cushenbery, 2011). As a multi-leadership phenomenon, innovation leadership can be put into practice with many leadership styles (Alsolami, et al., 2016), and leadership perspectives depending on the influence directions, such as rhetorical/visionary leadership with top-down, participative leadership with bottom-up, and transactional leadership with reciprocal influence direction. (Manz, et al., 2000) However, Manz, et al. (2000), emphasize that there is no one unparalleled leadership approach or combination to facilitate effective innovation, although situationally some leadership perspectives might prevail over others. Yet, achieving real successful innovation requires appropriate leadership and not only single things, but a system of interrelated processes of activities, actions, and behaviours in multiple levels of individuals, teams, and organizations. Thus, innovation facilitation as leader’s tasks is complex. Therefore, in innovation facilitation Hunter and Cushenbery (2011) emphasize the comprehension of the nonlinear pre-production processes with reciprocating, collateral, circular and overlapping innovation activities occurring in multiple levels of an organisation, that have an iterative and dynamic impacts on each other. Furthermore, a dual-role tension, i.e. “the generator/evaluator paradox” may cause conflict for leaders. That is, in the early stage the leader’s role is encouraging and indirect to “*provide the materials and environment that permit original thinking and novel idea exchange among teammates.*” (Hunter & Cushenbery, 2011, p. 260), which later shifts to a more direct and critical evaluator of the potential of the ideas by providing or denying the support. Due to the generator/evaluator paradox, the leaders should examine the stage of innovation and adapt their role accordingly (Hunter & Cushenbery, 2011).

Mentoring and coaching in innovation leadership

As a practice to inspire and enable people to create and innovate, innovation leadership may take many forms. One is including developmental interactions, methods or relationships, such

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as coaching, mentoring, tutoring, and sponsorship to the innovation process since they are important approaches for development and organizational learning (D'Abate et al., 2003; Mullen & Klimaitis, 2021; Rock & Garavan, 2006). According to Rock and Garavan (2006), due to the emergent state of literature, there is a lack of clarity and thus confusion about the concepts of developmental interactions, developmental relationships, mentoring, and coaching. Often the terms are used synonymously and interchangeably (Rock & Garavan, 2006). Developmental interactions “*involve exchanges between two or more people with the goal of personal or professional development*” (D'Abate, et al., 2003, p. 364) Developmental relationships are defined as “*either formal or informal relationships where an individual takes an active interest in and initiates actions to advance the development of another.*” (Rock & Garavan, 2006, p. 330). Yet there is a range of possible types, experiences, and outcomes of developmental relationships (Rock & Garavan, 2006). McCauley and Douglas (2004) emphasize that all developmental relationships provide elements of assessment, challenge, and support.

Mullen and Klimaitis (2021) describe that mentoring is considered a type of developmental relationship, which definitions have proliferated across the academic disciplines of education, psychology, and management, without any straightforward definition. However, there is a distinction between e.g. coaching, induction, training, passive undertaking, therapy, and one-time intervention to fix a problem. Coaching has spread to many societal contexts from business to sports. However, mentoring is interchanged with coaching, particularly in the coaching literature (Mullen & Klimaitis, 2021). Clutterbuck (2008) suggests that the potential generic difference between coaching and mentoring is in their scope of perspective. Coaching focuses on performance from some standpoint of an individual's work or life; while mentoring is incorporated with more extensive, holistic development and career progress (Clutterbuck, 2008). The official definition of the European Mentoring Centre for mentoring is “*as offline help by one person to another in making significant transitions in knowledge, work, or thinking*” (The EMC, 2022.). The essence of developmental mentoring is a mutuality of learning and enabling self-direction the mentees (Clutterbuck, 2008). Both developmental coaching and developmental mentoring “*work on the quality of the learner's thinking – giving advice and helping the learner network are secondary activities.*” (Clutterbuck, 2008, p. 8) The literature on formal mentoring relationships is extensive (Rock & Garavan, 2006). Yet, there is informal mentoring and coaching as well. Coaching is normally informal and defined as a “*management technique that is based on knowledge about*

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how and under what conditions employees improve and grow on specific skills that managers need to practice, develop and incorporate into their management style” (Orth, Wilkinson, & Benfari, 1987, p. 74). In leadership development, there is a whole variety of different approaches to coaching, such as business coaching, executive coaching, corporate coaching, and personal coaching to life coaching, with variations and permutations in between, in addition to concepts like virtual coaching and e-coaching (Schutte & Steyn, 2015). Rock and Garavan (2006) stress that the diversity and intensity of developmental relationships differ substantially. The research results indicate that diversity of developmental relationships is beneficial for an individual, thus one should aim for their multiplicity with different types of networks and various developmental outcomes (Rock & Garavan, 2006).

Hackathon as an innovation contest

Hackathon has been defined as *“one type of organized, goal-driven innovation contest, a short time-bounded event with a challenge to be solved creatively in cooperation and collocation of teams, whose results are presented and recognized in a ceremony at the end of the event.”* (Halvari et al., 2020, p. 13). Hackathon as an innovation management method has spread from its origins within the Information Technology industry to other sectors (Leckart, 2012; Zudin & Papadantonakis, 2017). Besides its root domain, i.e. Information Technology, hackathons have been used in multiple domains and other uses besides prototype coding, e.g. education, Smart City development, corporate development etc. e.g. (Jussila, Raitanen, Suominen, & Järvenpää, 2020; Medina Angarita & Nolte, 2020; Pe-Than et al., 2020; Suominen, Halvari, & Jussila, 2019). Hackathons as one type of innovation contest have been studied to some extent (Medina Angarita & Nolte, 2020). Hackathons have three phases: pre-hackathon, hackathon event and post-hackathon (Pe-Than & Herbsleb, 2019; Pe-Than et al., 2019). The event itself includes the creation process and the celebration process. And hackathons are arranged in three types of collocations: radical, virtual and hybrid (Halvari et al., 2020). Radical collocation signifies a situation where the team members are located in the same physical space for the duration of the project (Pe-Than & Herbsleb, 2019; Pe-Than et al., 2019; Teasley, Covi, Krishnan, & Olson, 2000). In virtual collocation, the integration between the members and teams is usually carried out via information and communication technology (Jussila et al., 2020). Hybrid collocation signifies the combination of radical and virtual collocations. The hackathon design elements include, for example, the duration, goal or theme, team formation, and specialized participant tools (Medina Angarita & Nolte, 2020).

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Furthermore, the hackathon has multiple stakeholders, which roles need to be considered while designing the three phases of the hackathon process (Pe-Than & Herbsleb, 2019; Pe-Than et al., 2019). At its core, hackathon as an innovation contest is a mechanism of innovation leadership as it aims to inspire and enable people to create and innovate, especially in the exploration or the idea generation phase of the innovation process (Salerno, Gomes, Silva, Bagno, & Freitas, 2014), i.e. the Fuzzy Front End of Innovation (FFEI) (Koen et al., 2001).

In their literature review of 91 journal and conference papers on hackathons, Medina Angarita and Nolte (2020) discovered that although the importance of mentors in hackathons has been recognized, their role has not been extensively studied yet. The focus of studies of Birbeck, Lawson, Morrissey, Rapley, and Olivier (2017) and Lara and Lockwood (2016) has been the expertise of mentors providing team support and Safarova, Ledesma, Luhan, Caffey, and Giusti (2015) the different approaches utilized by different mentors in hackathons. Unresearched territories are their goals, earlier hackathon experiences, background, and the potential effects of these on the mentoring approach and hackathon outcomes. Mentors are regarded as hackathon design elements, as well as the hackathon stakeholders besides participants, jury and organizers. As a stakeholder, mentors may have an active, involved role in their presence during the event (Medina Angarita & Nolte, 2020).

Both terms 'mentor' and 'coach' are utilized in the hackathon context, however, mentor is more commonly. The term 'mentoring' is used in studies of Angelidis, Berman, Casas-Perez, Celi, Dafoulas, Dagan, et al. (2016), Birbeck, et al. (2017), Soltani, Pessi, Ahlin and Wernered (2014), term 'mentor' is utilized in studies of Avalos, Larios, Salazar and Maciel (2017), Byrne, O'Sullivan and Sullivan (2017), Byrne and Sullivan (2018), Chandrasekaran et al. (2018), Day, Humphrey and Cockcroft (2017); Gama (2017a, 2017b), Gama, Alencar, Calegario, Neves and Alessio (2018), Lara and Lockwood (2016), Lara, Lockwood and Tao (2015), Mantzavinou, Ranger, Gudapakkam, Broad Hutchins, Bailey, Olson, et al. (2018), Nakazawa (2018), Pathanasethpong, Soomlek, Morley, Polpinit, Dagan, Weis, et al. (2017), Ramatowski, Lee, Mantzavino, Ribas, Guerra, Preston, et al. (2017), Richard, Kafai, Adleberg and Telhan (2015), Ruiz-Garcia, Subirats and Freire (2016), Silver, Binder, Zubcevik and Zafonte (2016). The term 'mentoring approach' has been utilized by Safarova et al. (2015). Besides mentors, also the term 'coach' is utilized in the hackathon context by Alkema, Levitt and Chen (2017); Bell, Murray and Davies (2019), and Cobham, Gowen,

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Hargrave, Jacques, Laurel and Ringham (2017). According to Soltani et al. (2014) mentor attendance and their communication with hackers are regarded as the factors for potentially successful hackathon events. The mentors are considered experts of hackathon theme related issues. Their task in the event is to give feedback to the hacker participants by answering questions and providing guidance. The mentors can, for example, speed up the start of the idea generation within the team, yet they have to be able to communicate and especially communicate their expertise to the hackers in an informative and inspirational way. Furthermore, an understanding of the hackathon field is necessary for guidance and inspiration to manifest in hackathon output. (Soltani et al., 2014)

3. METHODOLOGY

As the role of mentors in hackathons is under-researched, the nature of this research is exploratory (Saunders, Lewis, & Thornhill, 2008). The aim of this study is to further clarify the mentors as hackathon design elements as well as their role in supporting the innovation output of hackathons, thus philosophical program of this study is pragmatism (Morgan, 2014). The research strategy of the study draws from a combination of an intensive case study approach and action research (Eriksson & Kovalainen, 2008). The study is carried out in the case organization (Siggelkow, 2007). The research data collection has been conducted with the participatory action research method with both physical and virtual participation including post-hackathon interviews with both hackers and mentors.

The case organization under research is a municipal organization in Sweden, Knivsta. Knivsta is a middle-sized municipality in the Uppsala region with 20 000 inhabitants, yet it has been the second-fastest-growing municipality in Sweden, since the 2010s (Sveriges Radio, 2019), and the growth rate will persist for the foreseeable future. In Sweden municipalities are multi-disciplinary organizations with law-required services provided for e.g., urban planning, social services, elderly and childcare, and education in pre-, primary and secondary schools. With its 1200 employees, Knivsta pursues to meet the challenges of growth with, for example, innovation management; thus had a longitudinal three-year project 'Mosaic' 2020–2022 that aimed to develop the organization's innovation culture by adopting a hackathon methodology. Therefore, Knivsta has been selected as a case due to its idiosyncrasy (van Maanen, Sørensen, & Mitchell, 2007). Mosaic-project arranged three intra-organizational hackathon events for employees of multiple municipal departments in

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February 2020, November 2020 and October 2021. The reason for the different collocation types was the pandemic during March 2020–2021 and the types were chosen according to the authority instructions of convening, thus the hackathons were not responses to the pandemic per se. The hackathon themes of the first and second hackathon and the contest criteria of all three hackathons were determined by the Knivsta Municipal directors' management group (MDMG) according to the municipality's strategic vision that included digitalization and IT environment, the upcoming agenda for 2030 of civil society for social sustainability, and future visions for challenges and opportunities. All events, one in radical, one in virtual and one in hybrid collocation, have included mentors as part of hackathon design and stakeholders. Under the case study and reported in this chapter is the mentorship in all three hackathons. To improve the validity of this research, the multidisciplinary research group entailed both innovation management and subject matter experts from the public sector. Moreover, the case study data collection and analysis have been carried out in researcher triangulation. That is that all five contributing people were present in all three hackathons in different roles in the pre-, hackathon event and post-hackathon phases. During the post-hackathon interviews, multiple people, varying from 2–5 were present either physically or virtually taking notes that were cross-checked after the interviews. Moreover, the different sets of data were analysed by the same 2–5 people on multiple occasions. In addition, all results of this chapter were reviewed and discussed amongst the group.

4. RESULTS

The three hackathons of case organization were designed, and each arranged in different collocations of radical, virtual, and hybrid with multiple main hackathon roles of hackers, coaches or mentors, and jury participants (Table 1). In the first two hackathons, the term 'coach' was utilized ('coach' in Swedish), and as the coaches in the second hackathon felt their role more as 'mentors', for the third hackathon it was contemplated against the hackathon literature, and renamed 'mentor' ('mentor' in Swedish). Therefore, the term mentor and mentorship is utilized in this chapter. All three hackathons were designed with similar pre-hackathon, hackathon events and post-hackathon activities, with overall similar mentor involvement with both mandatory and voluntary activities (see Table 1).

:INSERT TABLE 1 AROUND HERE:

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The recruitment of mentors in case organization

In the three hackathons, the recruitment and approach to the mentors were quite different, which also affected the perceived involvement and engagement of the mentors in the hackathon process and thus innovation output. Recruitment of mentors for the three hackathons was done by a mix of head-hunting of individuals and partly open calls in the organization who were considered to have appropriate qualities. As the municipal organization has also partners, such as IT companies, one or two of their IT experts were also involved as mentors. In addition, the Mosaic project group members had various expertise, thus they performed as mentors during the hackathon process, too. Furthermore, the hackers were provided with a list of the special areas of expertise of the mentors to seek a special expert to assist with problem-solving if needed.

Pre-hackathon phase activities

Prior to the hackathon event, all the mentors were trained, and which content and process varied. In the first hackathon, the mentor training was similar to hackers with no specific orientation to the mentor role, thus the role-specific onboarding was minimal. In the second, the training of the mentors was carried out in a virtual format in combination of Zoom for communication and MS Teams for collaboration for a specific mentor group. The training also involved a specific part of digital competence building to ensure that mentors could interact within the virtual hackathon. However, there was no particular role-specific onboarding to their tasks at the hackathon. In the third hackathon, the mentor training included digital competence building and orientation to specific mentoring questions in their hacker support.

After training, each of the hackathons included two Team and ideation workshops (TIWS) that were voluntary for mentors yet most of them participated. In the first hackathon, the mentors did not have any specific role in TIWS. However, one of the mentors did pitch his idea to the participants. In the second and third hackathons, the mentors had a specific task to facilitate the idea discussions with the hacker participants.

Hackathon event activities and support

During the three hackathon events the approach to mentoring varied due to the hackathon collocation types of radical, virtual and hybrid, yet also regarding other issues (Table 2). First, the materials in the first hackathon were identical to hacker materials. With the second and especially the third hackathons the handout materials were more tailored for mentor

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activities. Second, the approach to mentor space varied. In the first radical collocation hackathon, the mentors did not have any dedicated space for communication or collaboration. In the second hackathon, there was a dedicated virtual space and in the third, the mentors had a dedicated hybrid space. Third, the tasks for mentors differed. In general, central to hackathons due to their short time-bound nature is staying on the schedule. Therefore, having a progress mentor who checks the hacker teams during the day is essential, so that the iterative creation process flows smoothly with output, i.e., the pitch of the innovation concept is ready in time for the celebration phase of the hackathon. Another essence of hackathons is the pitch, i.e. an oral presentation of the innovation concept in the celebration phase of the hackathon, therefore the teams need presentation mentoring to be able to deliver a descriptive 180-second pitch at the celebration phase of the hackathon. In the first hackathon, the mentors scheduled progress mentoring tasks and feedback discussions, and the presentation mentoring was carried out by the Mosaic group. In their spare time, the mentors decorated the municipal house's great room for the hackathon's celebration part without any specific mentor-related chores. In the second virtual hackathon the mentors participated similarly to the progress mentoring, while the Mosaic project group took over of the presentation mentoring. The mentors had a voluntary extra chore to list and categorize ideas from TIWS to an excel sheet. In the third hybrid hackathon, the mentors had structured feedback discussions led by a 'mentor-mentor' after progress mentoring rounds, and voluntary mentors acted also as presentation mentors. Additionally, the mentors were called by the hacker teams to assist their problem-solving as experts according to their individual competences. In other words, there are four different mentoring roles of progress, presentation, expert mentor and mentor-mentor roles, which can be carried out by the same people, yet portray a different set of tasks and require a different sets of competences, or at least approaches from an individual innovation leader.

:INSERT TABLE 2 AROUND HERE:

Mentor and hacker perceptions of mentorship in pre-hackathon and hackathon event phases

There was the difference in the training and involvement in TIWSs by the mentors in the three hackathons, which impacted mentors' perceptions of the received training. Mentors value general theory on innovation, yet they want to know what the expected tasks from them in the event are and perceive beneficial to practice mentoring prior to the event. Additionally, building digital competences in training for virtual events was perceived beneficial. In general, unclarity of tasks and lack of practical training to build an experience was perceived

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as a challenge, since it caused insecurities in mentors prior to the event. Although participation in TIWS was voluntary, mentors appreciate tasks in workshops too, since otherwise, the feeling of inactivity raises.

In the post-hackathon feedback from both hackers and mentors, most of the positive experiences as well as challenges were almost identical regardless of the hackathon collocation type. For hackers, the availability of mentors and level of mentorship was perceived generally good, even excellent, as well as timely, upon request received mentor support was perceived positively regardless of the collocation type. Similarly, mentors perceived the discussions and listening to the hackers' ideas as enjoyable. Yet, constructive feedback amongst hackers was perceived in opposite ways. On one hand, even critical questions were perceived as giving good advice, a new focus that allowed progress, and delimiting the problem and solution when asked with pedagogic questions. On other hand, the questioning raised hesitant, uncertain, confusion, and even scared, negative feelings for some hackers. Moreover, a supportive environment was perceived as enabling idea generation and team flow, yet overly critical commentary was perceived as killing team energy and creative process.

Timing in a short time-bound event, such as a hackathon, affects naturally the mentoring, too. Hackers perceived, that mentoring supports the idea creation progress when got timely and most preferred on call, yet some hackers perceived mentoring as intruding when untimely since it disturbs the progress of idea discussions. Furthermore, time pressure affects people differently, and some people long for calmer moments, e.g. for presentation preparation. Also, the different mentor roles in various hackathon creation phases required diverse actions. The progress mentors encouraged the teams to consider their ideas from another perspective, by empowering and energizing them. Whereas the presentation mentors gave viewpoints on finetuning the pitch and provided opportunities to practice for the test audience.

In virtual and hybrid hackathons, the technology is a two-edged sword, since it enables collaboration and communication at a distance, yet working online poses a challenge for mentoring with lacking the energy boost of a face-to-face meetings.

Mentors reflected their own role-specific identity as mentor group as a positive experience and enjoyed the discussions with peers in their own specific space. Particularly beneficial was the mentor-mentor role in the last hybrid hackathon to lead the collective discussions and feedback with mentors.

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Altogether, the conflicting experiences of mentor approaches, as well as the versatile competence requiring varying mentor roles revealed the dual-role tension of creator and evaluator roles of mentors in creation phase of hackathons. The virtual environment can potentially increase the dual-role tension by diluting the energy boost provided by creator-type of mentoring in hackathon creation phase.

To sum up the learnings from the perceptions of hackers and mentors, we present four key practices that benefit mentorship in the hackathon design process. 1) Plan the required quantity of mentors according to their mentoring roles of e.g., expert, progress and presentation. 2) Have support and community for mentors, i.e., experienced mentor-mentor and dedicated physical or digital space. 3) Design and describe the hackathon event process, also from mentor and mentorship viewpoint in a clear manner. And last, but not least: 4) In the pre-hackathon phase, provide mentor-specific training and materials that explain the different roles, especially mentor roles, and expectations of mentorship in terms of encouraging attitudes and skills to provide enabling constructive criticism and alleviate the dual-role tension of mentors, especially in the hackathon creation phase. In virtual or hybrid collocation hackathons this might require additional efforts of digital competence building for mentors.

5. CONCLUSIONS AND DISCUSSION

The chapter contributes to the literature on innovation leadership (Innovation Leadership ISPIM SIG, 2022) and more specifically one of its two main tasks, i.e. the creativity enabling climate cultivation at the team level (Alsolami et al., 2016; Carmeli et al., 2010; Denti & Hemlin, 2012). The contribution is brought about in the context of innovation contests, especially in coaching and mentoring in hackathons. More precisely, by responding to the call by Medina Angarita and Nolte (2020) to study mentors as hackathon contributing stakeholders in more detail, this chapter contributes by adding to the previous studies of mentors during hackathons e.g. (Birbeck, et al., 2017; Lara & Lockwood, 2016; Safarova, et al., 2013; Soltani et al., 2014). By answering our research question *“How is mentorship designed and implemented in hackathons as an innovation leadership practice to inspire and enable creativity in hacker teams?”*, we describe the design choices, which aimed at innovation leadership by inspiring and enabling hackers in intra-organizational hackathons, in terms of different mentor roles, task setting, support such as training, and their perceived positive experiences and challenges for both mentors and hackers.

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By drawing data from three intra-organizational hackathons in three different collocation types in a Swedish municipality we identified and discovered the dual-role tension of innovation leadership (Hunter & Cushenbery, 2011) in mentorship, that affects the practice to inspire and enable teams to create and innovate in hackathons (Figure 1). The generator role of mentors enables and encourages the creation of innovative ideas without suffocating the creative thinking in the funnel with overly critical attitude and questioning. Therefore, the “generator/evaluator” -roles of mentors should be balanced with timely constructive feedback to hackers, which at the beginning of idea generation phase provides more “generator” type of support in the progress mentoring. The “evaluator” mode should be practiced carefully during hackathon, since it might affect counterproductively especially when used with less competent mentor. Thus, the mentor specific pre-hackathon training is essential, and it should emphasize the “generation”, i.e. enabling and encouraging innovation leadership in creation phase of hackathon event. In addition to the generator attitude or approach, the training should provide clear description of the different mentor roles, the hackathon event process, and relevance of timely mentoring on demand. In case of virtual or hybrid hackathon, the digital competence building is also focal for smooth online-mentoring experience.

:INSERT FIGURE 1 AROUND HERE:

In hackathon environment design, physical and/or virtual as well as mental aspects should be considered, so that the interconnectedness of mentors to the hackers and other mentors is enabled. Own mentor space with meaningful mentoring tasks of expert, progress, presentation, and mentor-mentors during the event creates a sense of shared mentorship that enables the involvement and perceived contentment in their role as contributing innovation leaders that inspire and enable hackers in the idea generation and concept development central in hackathons. Mentoring in hackathons may not be described as developmental relationships per se, but at least as developmental interactions. Therefore, from an innovation leadership viewpoint, mentoring in hackathons have the potential to affect the organization beyond the events by enforcing creativity enabling climate cultivation at the team level, which can then further impact the organization’s innovation culture. Furthermore, we believe that building mentoring competence in organizations exceeds hackathons with long-term value. We want to emphasize these assumptions and call for further research on the topic.

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Thus we want to conclude that mentoring is an innovation leadership enforcing element in hackathons, which benefits organizations beyond the event, thus should be carefully considered from multiple viewpoints, such as recruitment, training, tasks, roles, and environment, as part of the innovation contest design process. As practical implications, we want to emphasize the importance of tailored training and onboarding of mentors, as well as active support during the hackathon event. Leaving the mentors, especially in overly evaluator mode to their own devices is not a wise move. Investing in the mentorship pays off as a better perceived hackathon, as well as in the long run within the organization.

There are limitations to this study. We studied and presented results of mentorship only in the pre- and hackathon event phases, thus not revealed the post-hackathon results of the teams. Therefore, the ideas that were accepted and implemented in the organization are not revealed. Thus, the mentors could have contributed to a longer-term innovation leadership value in the organization, which should be researched further. Moreover, this study did not cover the learnings of the hackers during the hackathon, which mentors most likely impacted. Yet, mentors were not the only element contributing to the hacker learning, since the hackers also received training in the pre-hackathon phase. However, the learning provided by mentors should be further studied.

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REFERENCES

- Alblooshi, M., Shamsuzzaman, M., & Haridy, S. (2021). The relationship between leadership styles and organisational innovation: A systematic literature review and narrative synthesis. *European Journal of Innovation Management*, 24(2), 338-370. doi: 10.1108/EJIM-11-2019-0339
- Alkema, P. J., Levitt, S. P., & Chen, J. Y. J. (2017). Agile and hackathons: a case study of emergent practices at the FNB codefest. *Proceedings of the South African Institute of*

Innovation Leadership with Mentors for Team Performance in Municipal Hackathon

Computer Scientists and Information Technologists (pp. 1-10). doi: 10.1145/3129416.3129430

Alsolami, H. A., Cheng, K. T. G., & Twalh, A. A. M. I. (2016). Revisiting innovation leadership. *Open Journal of Leadership*, 5(2), 31-38. doi: 10.4236/ojl.2016.52004

Angelidis, P., Berman, L., Casas-Perez, M. D. L. L., Celi, L. A., Dafoulas, G. E., Dagan, A., ... & Winkler, E. (2016). The hackathon model to spur innovation around global mHealth. *Journal of medical engineering & technology*, 40(7-8), 392-399. doi: 10.1080/03091902.2016.1213903

Avalos, M., Larios, V. M., Salazar, P., & Maciel, R. (2017, September). Hackathons, semesterathons, and summerathons as vehicles to develop smart city local talent that via their innovations promote synergy between industry, academia, government and citizens. 2017 International Smart Cities Conference (ISC2) (pp. 1-6). IEEE. doi: 10.1109/ISC2.2017.8090838

Bell, J. S., Murray, F. E., & Davies, E. L. (2019). An investigation of the features facilitating effective collaboration between public health experts and data scientists at a hackathon. *Public Health*, 173, 120-125. doi: 10.1016/j.puhe.2019.05.007

Birbeck, N., Lawson, S., Morrissey, K., Rapley, T., & Olivier, P. (2017, May). Self Harmony: rethinking hackathons to design and critique digital technologies for those affected by self-harm. In *proceedings of the 2017 CHI Conference on Human Factors in Computing Systems* (pp. 146-157). doi: 10.1145/3025453.3025931

Byrne, J. R., O'Sullivan, K., & Sullivan, K. (2016). An IoT and wearable technology hackathon for promoting careers in computer science. *IEEE Transactions on Education*, 60(1), 50-58. doi: 10.1109/TE.2016.2626252

Byrne, J. R., Sullivan, K., & O'Sullivan, K. (2018, August). Active learning of computer science using a Hackathon-like pedagogical model. In *Proc. Constructionism Vilnius Lithuania Res. Council Lithuania* (pp. 138-150).

Carmeli, A., Gelbard, R., & Gefen, D. (2010). The importance of innovation leadership in cultivating strategic fit and enhancing firm performance. *The Leadership Quarterly*, 21(3), 339-349. doi: 10.1016/j.leaqua.2010.03.001

Chandrasekaran, S., Juckeland, G., Lin, M., Otten, M., Pleiter, D., Stone, J., ... & Foertter, F. (2017). The OLCF GPU Hackathon Series: The Story Behind Advancing Scientific Applications with a Sustained Impact. In *EduHPC-17: Workshop on Education for High-Performance Computing [Internet]*. 20(July), 95-106.

Clutterbuck, D. (2008). What's happening in coaching and mentoring? And what is the difference between them?. *Development and Learning in Organizations: An International Journal*, 22(4), 8-10. doi: 10.1108/14777280810886364

Cobham, D., Gowen, C., Hargrave, B., Jacques, K., Laurel, J., & Ringham, S. (2017). From Hackathon To Student Enterprise: An Evaluation of Creating Successful and Sustainable Student Entrepreneurial Activity Initiated By a University Hackathon. *EDULEARN17 Proceedings*, 1, 789-796. doi: 10.21125/edulearn.2017.1172

Innovation Leadership with Mentors for Team Performance in Municipal Hackathon

D'Abate, C. P., Eddy, E. R., & Tannenbaum, S. I. (2003). What's in a Name? A Literature-Based Approach to Understanding Mentoring, Coaching, and Other Constructs That Describe Developmental Interactions. *Human Resource Development Review*, 2(4), 360–384. doi: 10.1177/1534484303255033

Day, K., Humphrey, G., & Cockcroft, S. (2017). How do the design features of health hackathons contribute to participatory medicine? *Australasian Journal of Information Systems*, 21, 1–20. doi: 10.3127/ajis.v21i0.1383

Denti, L., & Hemlin, S. (2012). Leadership and innovation in organizations: A systematic review of factors that mediate or moderate the relationship. *International Journal of Innovation Management*, 16(03), 1240007. <https://doi.org/10.1142/S1363919612400075>

Deschamps, J. P. (2003). Innovation and Leadership. In L. V. Shavinina (Ed.), *The international handbook on innovation* (pp. 815–831). Elsevier.

Eriksson, P., & Kovalainen, A. (2008). *Qualitative Methods in Business Research*. Thousand Oaks, CA: Oxford University Press.

Gama, K. (2017a). Preliminary Findings on Software Engineering Practices in Civic Hackathons. *Proceedings - 2017 IEEE/ACM 4th International Workshop on CrowdSourcing in Software Engineering, CSI-SE 2017*, 14–20. IEEE. doi: 10.1109/CSI-SE.2017.5

Gama, K. (2017b). Preliminary findings on Software Engineering Practices in Civic Hackathons. *IEEE 4th International Workshop on CrowdSourcing in Software Engineering (CSI-SE)*, 14–20.

Gama, K., Alencar, B., Calegario, F., Neves, A., & Alessio, P. (2018). Hackathon methodology for undergraduate. *IEEE Frontiers in Education Conference (FIE)*, 1–9.

Halvari, S., Suominen, A. H., Jussila, J., Jonsson, V., & Bäckman, J. (2020). Conceptualization refinement of hackathon for innovation management. *The ISPIM Innovation Conference – Innovating in Times of Crisis*, 7-10 June 2020. LUT Scientific and Expertise Publications. doi: ISBN: 978-952-335-466-1

Hunter, S. T., & Cushenbery, L. (2011). Leading for innovation: Direct and indirect influences. *Advances in Developing Human Resources*, 13(3), 248–265. doi: 10.1177/1523422311424263

Innovation Leadership ISPIM SIG. (2022). Innovation Leadership ISPIM (International Society for Professional Innovation Management) Special Interest Group SIG. Retrieved from <https://www.linkedin.com/groups/8942160/>

Jussila, J., Raitanen, J., Suominen, A., & Järvenpää, A.-M. (2020). Virtual hackathons – a novel approach for university-industry collaboration. *Springer Proceedings in Complexity*.

Koen, P., Ajamian, G., Burkart, R., Clamen, A., Davidson, J., D'Amore, R., ... Wagner, K. (2001). Providing Clarity and a Common Language to the 'Fuzzy Front End.' *Research Technology Management*, 44(2), 46.

Lara, M., & Lockwood, K. (2016). Hackathons as Community-Based Learning: A Case Study. *TechTrends*, 60, 486–495. doi: 10.1007/s11528-016-0101-0

Innovation Leadership with Mentors for Team Performance in Municipal Hackathon

- Lara, M., Lockwood, K., & Tao, E. (2015). Peer-Led Hackathon: An Intense Learning Experience. 38th Annual Proceedings The Practice of Educational Communications and Technology Vol 2. In The Annual Convention of the Association for Educational Communications and Technology: Indianapolis, 255–259.
- Leckart, S. (2012). The Hackathon Is On: Pitching and Programming the Next Killer App | WIRED. Retrieved 3 May 2018, from Wired website: https://www.wired.com/2012/02/ff_hackathons/
- Mantzavinou, A., Ranger, B. J., Gudapakkam, S., Broach Hutchins, K. G., Bailey, E., & Olson, K. R. (2018). Health Hackathons Drive Affordable Medical Technology Innovation Through Community Engagement. *Technologies for Development*, 87–95. doi: 10.1007/978-3-319-91068-0_8
- Manz, C. C., Bastien, D. T., Hostager, T. J., & Shapiro, G. L. (2000). Leadership and innovation: A longitudinal process view. In A. H. Van de Ven, H. L. Angle, & M. S. Poole (Eds.), *Research on the Management of Innovation: The Minnesota Studies* (pp. 613–636).
- McCauley, C. D., & Douglas, C. A. (2004). Developmental relationships. In C. D. McCauley & E. Van Velsor (Eds.), *Handbook of Leadership Development* (pp. 85–115). San Francisco: Jossey-Bass.
- Medina Angarita, M. A., & Nolte, A. (2020). What Do We Know About Hackathon Outcomes and How to Support Them? – A Systematic Literature Review. In I. T. Nolte A., Alvarez C., Hishiyama R., Chounta IA., Rodríguez-Triana M. (Ed.), *Collaboration Technologies and Social Computing. CollabTech 2020. Lecture Notes in Computer Science* (Vol. 12324, pp. 50–64). Springer, Cham. doi: 10.1007/978-3-030-58157-2_4
- Morgan, D. L. (2014). Pragmatism as a paradigm for social research. *Qualitative Inquiry*, 20(8), 1045–1053. doi: 10.1177/1077800413513733
- Mullen, C. A., & Klimaitis, C. C. (2021). Defining mentoring: A literature review of issues, types, and applications. *Annals of the New York Academy of Sciences*, 1483(1), 19–35. doi: 10.1111/nyas.14176
- Nakazawa, M. (2018). KIT Hackathon that Facilitate Innovation at Regional Area. 2018. 14th International CDIO Conference in Japan.
- Orth, C. D., Wilkinson, H. E., & Benfari, R. C. (1987). The manager's role as coach and mentor [Article]. *Organizational Dynamics*, 15(4), 66. doi: 10.1016/0090-2616(87)90045-3
- Pathanasetpong, A., Soomlek, C., Morley, K., Morley, M., Polpinit, P., Dagan, A., ... Celi, L. A. (2017). Tackling regional public health issues using mobile health technology: Event report of an mhealth hackathon in Thailand. *JMIR MHealth and UHealth*, 5(10), 1–6. doi: 10.2196/mhealth.8259
- Pe-Than, E. P. P., & Herbsleb, J. D. (2019). Understanding Hackathons for Science: Collaboration, Affordances, and Outcomes. In N. G. Taylor, C. Christian-Lamb, M. H. Martin, & B. Nardi (Eds.), *Information in Contemporary Society, Proceedings of 14th International Conference, iConference* (pp. 27–37). Washington, DC, USA: Springer. doi: 10.1007/978-3-030-15742-5_3

Innovation Leadership with Mentors for Team Performance in Municipal Hackathon

- Pe-Than, E. P. P., Nolte, A., Filippova, A., Bird, C., Scallen, S., & Herbsleb, J. (2020). Corporate hackathons, how and why? A multiple case study of motivation, projects proposal and selection, goal setting, coordination, and outcomes. *Human-Computer Interaction*, 00(00), 1–33. doi: 10.1080/07370024.2020.1760869
- Pe-Than, E. P. P., Nolte, A., Filippova, A., Bird, C., Scallen, S., & Herbsleb, J. D. (2019). Designing Corporate Hackathons With a Purpose. *IEEE Software*, (January), 15–22. doi: 10.1109/MS.2018.290110547
- Ramatowski, J. W., Lee, C. X., Mantzavino, A., Ribas, J., Guerra, W., Preston, N. D., ... Lassmann, B. (2017). Planning an innovation marathon at an infectious disease conference with results from the International Meeting on Emerging Diseases and Surveillance 2016 Hackathon. *International Journal of Infectious Diseases*, 65, 93–97. doi: 10.1016/j.ijid.2017.09.025
- Richard, G. T., Kafai, Y. B., Adleberg, B., & Telhan, O. (2015). StitchFest: Diversifying a college Hackathon to Broaden participation and perceptions in computing. *SIGCSE 2015 - Proceedings of the 46th ACM Technical Symposium on Computer Science Education*, 114–119. doi: 10.1145/2676723.2677310
- Rock, A. D., & Garavan, T. N. (2006). Developmental Relationships. 5(3). doi: 10.1177/1534484306290227
- Ruiz-Garcia, A., Subirats, L., & Freire, A. (2016). Lessons Learned in Promoting New Technologies and Engineering in Girls Through a Girls Hackathon and Mentoring. *EDULEARN16 Proceedings*, 1, 248–256. doi: 10.21125/edulearn.2016.1042
- Safarova, B., Ledesma, E., Luhan, G., Caffey, S., & Giusti, C. (2015). Learning from Collaborative Integration The Hackathon as Design Charrette. *Proceedings of the International Conference on Education and Research in Computer Aided Architectural Design in Europe, Vienna Austria*, 2, 233–240. doi: 10.52842/conf.ecaade.2015.2.233
- Salerno, M. S., Gomes, L. A. D. V., Silva, D. O. D., Bagno, R. B., & Freitas, S. L. T. U. (2014). Innovation processes: Which process for which project? *Technovation*, 35, 59–70. doi: 10.1016/j.technovation.2014.07.012
- Saunders, M., Lewis, P., & Thornhill, A. (2008). *Research Methods for Business Students* 5th Ed. In *Research methods for business students*. doi: 10.1007/s13398-014-0173-7.2
- Schutte, F., & Steyn, R. (2015). The scientific building blocks for business coaching: A literature review. *SA Journal of Human Resource Management*, 13(1), 1–11. doi: 10.4102/sajhrm.v13i1.657
- Siggelkow, N. (2007). Persuasion with Case Studies. *Academy of Management Journal*, 50(1), 20–24. doi: 10.5465/AMJ.2007.24160882
- Silver, J. K., Binder, D. S., Zubcevik, N., & Zafonte, R. D. (2016). Healthcare Hackathons Provide Educational and Innovation Opportunities: A Case Study and Best Practice Recommendations. *Journal of Medical Systems*, 40(7). doi: 10.1007/s10916-016-0532-3

Innovation Leadership with Mentors for Team Performance in Municipal Hackathon

Soltani, P. M., Pessi, K., Ahlin, K., & Wernerer, I. (2014). Hackathon – a method for Digital Innovative Success: A Comparative Descriptive Study. In Proceedings of the 8th European Conference on IS Management and Evaluation., (September), 367–373.

Suominen, A. H., Halvari, S., & Jussila, J. (2019). World Heritage meets Smart City in an Urban-Educational Hackathon in Rauma. *Technology Innovation Management Review*, 9(9), 44–53. doi: 10.22215/timreview/1268

Sveriges Radio (2019). Knivsta växte näst mest i landet under 2010-talet. Sveriges Radio.

Teasley, S., Covi, L., Krishnan, M. S., & Olson, J. S. (2000). How does radical collocation help a team succeed? AMC Conference on CSCW 2000, 339–346. Philadelphia, PA, USA. doi: 10.1145/358916.359005

The EMC (2022). European Mentoring Centre. Retrieved from 2022 website: <https://www.trainingzone.co.uk/deliver/coaching/european-mentoring-centre>

Van de Ven, A. H., Angle, H. L., & Poole, M. S. (2000). Research on the management of innovation: The Minnesota studies (A. H. Van de Ven, H. L. Angle, & M. S. Poole, Eds.). Oxford University Press.

Van de Ven, A. H., & Chu, Y. (2000). A Psychometrical Assessment of The Minnesota Innovation Survey. In A. H. Van de Ven, H. L. Angle, & M. S. Poole (Eds.), *Research on the Management of Innovation The Minnesota Studies* (pp. 55–103). Oxford University Press.

van Maanen, J., Sørensen, J. B., & Mitchell, T. R. (2007). Introduction to Special Topic Forum: The Interplay Between Theory and Method. *The Academy of Management Review*, 32(4), 1145–1154.

Zukin, S., & Papadantonakis, M. (2017). Hackathons as Co-optation Ritual: Socializing Workers and Institutionalizing Innovation in the “New” Economy. *Precarious Work: Research in the Sociology of Work*, 31, 157–181. doi: <http://dx.doi.org/10.1108/VINE-10-2013-0063>

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Table 1. Mentor involvement in all hackathon phases in three case hackathons

| Hackathon collocation type | | <i>Radical</i> | <i>Virtual</i> | <i>Hybrid</i> |
|--|----------------------------|--|--|--|
| Events | | 13.2.2020 | 11.11.2020 | 14.10.2021 |
| Participants in different roles | | 22 hackers in 5 teams 12 mentors 7 jury members Total 42 | 21 hackers in 4 teams 12 mentors 8 jury members Total 41 | 37 hackers in 8 teams 13 mentors 8 jury members Total 58 |
| Hackathon activities | <i>Mentors involvement</i> | | | |
| Pre-hackathon <i>Theme and criteria-workshop with MDMG</i> | - | | | |
| Pre-hackathon <i>Half-day training in small (n=8-10) groups</i> | M | General innovation training together with hackers 4 hrs | Tailored mentor training with digital competence building 6 hrs | Tailored mentor training with digital competence building and special mentoring questions 3 hrs |
| <i>Level of mentor onboarding in training</i> | | Minimal onboarding | Training did not include any opportunity to train mentoring | Opportunity to train mentor role. Tailored mentor onboarding |
| Pre-hackathon <i>2 Team and ideation Workshops: Mentor participation</i> | V | Majority participated | Majority participated | Majority participated |
| <i>Mentor specific task</i> | | Opportunity to pitch ideas (1 mentor pitched) | Facilitate idea discussions online | Facilitate idea discussions on site with hacker participants attending both physically and online |
| Hackathon event 1 day with creation and ceremony processes | M | Progress and presentation mentoring tasks, special expertise on call | Progress and presentation mentoring tasks, special expertise on call | Progress and presentation mentoring tasks, Dedicated mentor-mentor, special expertise on call |

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| | | | | |
|--|-----|--------------------------|--------------------------|--|
| Post-Hackathon Interviews in teams (1h 45 min – 2 h) | V | Majority participated | Majority participated | Majority participated |
| Supported (voluntary) post-hackathon work on R&D- project in teams | -/V | Mosaic team | Mosaic team | Dedicated team sponsors acc. expertise |

MDMG = Municipal director's management group, M = Mandatory, V = Voluntary

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Table 2. Mentor participation and involvement in hackathon events in three different hackathon collocation types

| <i>Collocation type</i> | Radical | Virtual | Hybrid |
|--|--|--|---|
| <i>Mentors</i> | <i>12 mentors</i> | <i>12 mentors</i> | <i>13 mentors</i> |
| Mentor organizations and roles in hackathon event Internal - MDMG* - Experts - Hacker experience - Mentor experience External - IT-expert - Mentor experience Mosaic group | 3 Progress 4 Progress 1 Progress 4 Progress/ 4 Presentation | 1 Progress 3 Progress 2 Progress 1 Progress 5 (3 Progress/ 4 Presentation) | 2 Progress 2 Progress/ 3 Progress 1 Presentation 2 Progress/ 2 Presentation 1 Progress 1 Progress 5 (1 Progress/ 2 Presentation/ 1 Mentor-mentor) |
| Hackathon activity Mentor group facilitation | Ad hoc by project group | Ad hoc by project group | 'Mentor-mentor' with earlier hacker and mentor experience |
| Mentor specific materials prior to hackathon | Printed handout-materials for hackers available during the hackathon | Handout-material available in Teams online during hackathon event | Tailored, Informative handout materials available already pre-hack in Teams online |
| Mentor/team space | No specific mentoring spaces. | Own virtual Teams channel for mentors | Own physical space and virtual Teams channel for mentors |
| Mentor collaboration in creation process with hacker teams Progress mentoring - 1 st hour control - 2 scheduled - On call mentoring Presentation mentoring 2 scheduled Amongst mentors | X X X X (Mosaic) Mentors gathered for feedback discussion after progress rounds Otherwise, ad hoc | X X X X (Mosaic) Feedback discussion for mentors after each round in virtual environment | X X (hybrid) X (hybrid) X (voluntary mentors) 2 scheduled and structured summary discussions with all mentors lead by mentor-mentor in a |

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| | | | |
|---|---|---|--------------|
| | amongst mentoring | Otherwise, ad hoc amongst mentoring | hybrid space |
| Extra tasks for mentors in hackathon event | Small extra task to decorate the physical space for celebration process | Small extra task to list and categorize ideas to excel sheet from Team and Idea workshops | - |

*) *MDMG= Municipal director's management group*

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INNOVATION LEADERS' DUAL-ROLE TENSION IN HACKATHON

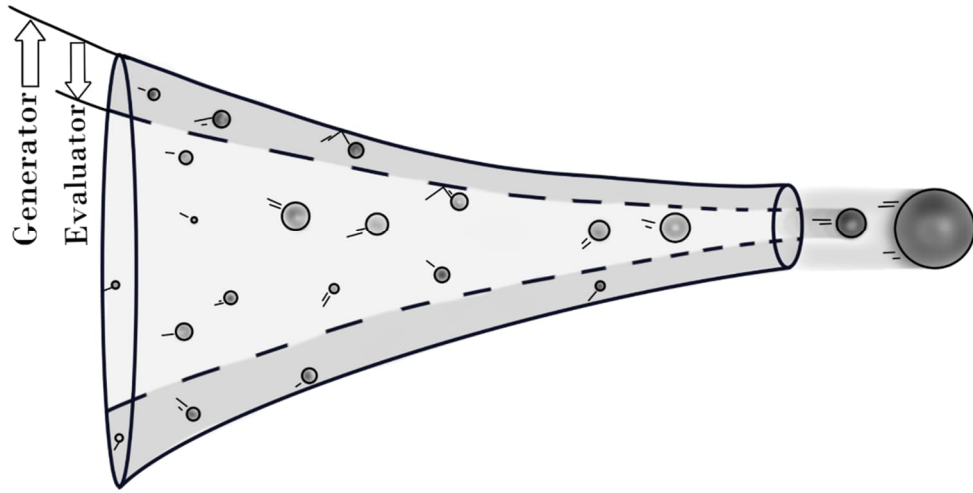


Fig 1. Innovation Leaders' Dual-Role Tension In Hackathons