Task-setting strategies for hackathon goal achievement in industrial intra-organizational innovation

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Abstract: This paper addresses the hackathon as an innovation contest method in the IT industry, beyond the coding context. Specifically, it focuses on hackathon task-setting strategies, i.e. drawing boundaries to specify the problem to be solved. Although task setting plays an integral part in hackathon goal achievement, i.e. whether the hackathon is perceived as successful or not, task setting has not yet been the focus of hackathon research. Therefore, this paper presents a case study of an IT company with four subsidiaries operating in four countries in the Baltic region, carrying out 17 intra- or intra-inter-organizational hackathons in six iterations. As a result, the paper reveals hackathon task-setting strategies in terms of the employee maturity level regarding the corporate context of the subsidiaries. Presenting conclusions for both academics and industry, the paper contributes to the literature on hackathon task-setting strategies particularly in organizations in the IT sector, with varying maturity levels.

Keywords: hackathon; innovation contest; innovation management; task-setting strategy; goal achievement; employee context maturity; organization maturity; IT industry; case study.

1 Introduction

Hackathons, which emerged in the IT community, have spread to other sectors, e.g. the corporate sector, as an innovation exploration method for idea generation, selection and prototyping (Granados and Pareja-Eastaway 2019; Pe-Than *et al.* 2019). Hackathons as one type of innovation contests provide promising, yet not thoroughly researched methodology for organizational innovation management. As a concept, "A hackathon is one type of innovation contest, a short time-bounded event with a challenge to be solved creatively in coopetition and with the radical collocation of teams, whose output is recognized in a ceremony at the end of the event."(Halvari *et al.* 2019, 12). In addition to the necessary and sufficient attributes (Podsakoff et al. 2016) of the concept of hackathon, hackathons have design elements that are defined in the pre-hackathon phase (Komssi et al. 2015; Porras et al. 2018; Granados and Pareja-Eastaway 2019; Pe-Than et al. 2019). These design elements incorporate, for example, the goal of the event, which is then formulated into one or several tasks or task areas to be solved during the event. Task setting plays an integral part in achieving the goal of the hackathon. Hackathon goal achievement signifies whether the hackathon is perceived as successful or not. According to Pe-Than et al. (2019), so far research has not compared hackathons across different design elements to evaluate their effectiveness with respect to the intended goals of the events. Therefore, neither has hackathon task setting previously been the focus of hackathon research.

This paper studies hackathon task setting, i.e. drawing the boundaries to specify the problem area to be solved. We aim to clarify the strategies of task setting in relation to the employee maturity of the organization. The study describes a case of an organization in the IT industry that carried out 17 hackathons within its four subsidiaries operating in four countries in the Baltic region. The hackathons were used mainly as an intra-organizational innovation management method for idea generation, but not exclusively coding. In our study, we focus on the effects of organizations' employee maturity in the corporate context in relation to the task-setting strategy, in order to achieve the hackathon goals. The organizations' employee maturity regarding the company/business context we determine with the employment length together with proximity to customer, products and services. The achievement of the hackathon goal achievement we evaluate in terms of the goals set for the hackathon events, i.e. the usefulness of the innovation output to the company's business.

Our research questions are:
What are the strategies of task setting that drive the goal achievement of the hackathon in intra-organizational events?
How do the task-setting strategies affect hackathon goal achievement?

In the pursuit of our research aims, the paper is structured as follows: in the introduction, we first acknowledge the need to study hackathon task setting for innovation goal achievement. In the second section, the literature regarding innovation contests, especially hackathons is discussed, particularly task setting, goal achievement and employee maturity. The method and case description involve the presentation of, as well as grounds for, an empirical case study, utilized in a mainly intra-organizational multi-subsidiary innovation context. In the results, we describe the 17 hackathons and their innovation outputs in terms of hackathon goal achievement, together with the task-setting strategies regarding the organization's employee maturity regarding their company/business context. In the discussion and further research sections, we contemplate

the hackathon task-setting strategies and their impact on intra-organizational innovation management with hackathon methodology.

2 Hackathon as an innovation management method

Hackathon as an innovation contest

Hackathons have their roots in programming in the 1960s, which 30 years later developed in open source software conferences into hands-on group coding sessions, without prizes, pitches or non-technical participants (Leckart 2012; Zukin and Papadantonakis 2017; Pe-Than and Herbsleb 2019). Today, organizations in different fields are changing their ways to innovate. The hackathon approach is a relatively novel one (Pe-Than *et al.* 2019), which focuses on the rapid and iterative development of small but scalable projects. It is considered a bottom-up approach, contrary to the top-down initiatives that require capital and investment, aiming for completed versions. (Chowdhury 2018). Various types of events go under different names according to their industry, e.g. 'datathon' for data analysis and 'markathon' for marketing. (Calco and Veeck 2015; Aboab *et al.* 2016; Kienzler and Fontanesi 2017)

Hackathons are regarded as innovation contests (Hartmann *et al.* 2019a), competitions (Hartmann *et al.* 2019b) or ideation contests (Cooper and Edgett 2008; Mohajer Soltani *et al.* 2014). Contests have been used to stimulate innovation for a long time due to their ability to solve severe problems and their applicability in diverse fields. The concepts of innovation contests (Bullinger *et al.* 2010; Adamczyk *et al.* 2012; Terwiesch 2017) or competition are used disparately, such as 'idea contest' (Piller and Walcher 2006), 'ideas competition' (Leimeister *et al.* 2009), which have been used in research, too. Moreover, hackathons are regarded as innovation practices, which contribute to innovation in two ways: by promoting exploration activities, such as new external solutions, and by enhancing some preconditions of innovation, e.g. attracting talent or building a community of experts (Granados and Pareja-Eastaway 2019). Besides competition, an inherent characteristic of hackathons is collaboration (Leckart 2012; Almirall *et al.* 2014; Briscoe and Mulligan 2014; Rosell *et al.* 2014; Kienzler and Fontanesi 2017; Granados and Pareja-Eastaway 2019; Hartmann *et al.* 2019a, 2019b; Pe-Than *et al.* 2019). Thus, hackathons are regarded as one of the most widespread collaborative practices (Granados and Pareja-Eastaway 2019). Simultaneous competition and collaboration is considered to be coopetition, which can exist on the organizational level as well as the individual, team or network level (Bouncken *et al.* 2015). Furthermore, a defining attribute of hackathons is radical collocation, a situation where team members are together in a physical space for the duration of the project (Teasley *et al.* 2000; Pe-Than and Herbsleb 2019; Pe-Than *et al.* 2019). Thus, the concept of radical collocation also incorporates cooperation in teams, as cooperation teams are the essence of hackathons (Kienzler and Fontanesi 2017). The duration of a hackathon is a short-term, time-bound event, thus they are described as intense (Lodato and DiSalvo 2015; Kienzler and Fontanesi 2017; Chowdhury 2018; Pe-Than and Herbsleb 2019; Pe-Than *et al.* 2019). The hackathon event as an innovation contest starts with creation phase, followed by a ceremony phase (Halvari et al 2019). The celebration incorporates the presentation of the output with a pitch, as well as recognition of the results, sometimes including rewards ranging from non-monetary to monetary (Kienzler and Fontanesi 2017; Pe-Than *et al.* 2019).

In addition to learning and creating new social connections, hackathons have the potential to foster innovation. Features that, when combined, foster innovation in hackathons include: diverse expertise and experience of participants; interruption-free and focused work hours; processes, goals and management which occur outside the usual constraints; opportunity to run a project, assess its feasibility and uncover potential pitfalls with minimal risk to daily operations; and a change for participants to work on something they are passionate about. (Pe-Than *et al.* 2019)

Hackathon goals and task-setting

Essentially as innovation contests, hackathons aim to reach one or multiple objectives. However, the concept usage for the objective or objectives varies. The objectives are called goals (Briscoe and Mulligan 2014; Chowdhury 2018; Pe-Than *et al.* 2019), aims (Briscoe and Mulligan 2014) or problems (Briscoe and Mulligan 2014; Granados and Pareja-Eastaway 2019). We prefer the term goal as the ultimate objective of planning and organizing hackathons. Many publications of hackathons in information technology view the goal of hackathons to be prototyping by rapid creation, with low labour costs, for new business opportunities with novel features, demo versions etc. (Raatikainen *et al.* 2013; Briscoe and Mulligan 2014; Komssi *et al.* 2015; Zukin and Papadantonakis 2017). However, as hackathons can be used in various industries and other domains e.g., education and civic engagement, the goal of hackathons can also be seen in a broader sense, such as social and educational, enriching social networks, facilitating collaborative learning, and workforce development (Chowdhury 2018; Pe-Than *et al.* 2019). Chowdhury (2018) illustrates, that hackathons have both short-term and long-term goals. The short-term goal may be to develop working software that can immediately improve the domain by solving known, bite-sized problems, for instance. Yet, the long-term goal may be, more importantly, to nurture ongoing collaborative partnerships between technology innovators and domain experts. Pe-Than *et al.* (2019) state that hackathons have various goals at different levels: individual and corporate. The individual personal goals of the participants may include having fun, learning, winning prizes, expanding personal networks, fostering their career, getting the necessary work done, as well as a common challenge (Gama *et al.* 2018; Pe-Than *et al.* 2019). Whereas, organizational**,** particularly corporate hackathon organizer's goals may include enriching intracompany networks and reducing stove piping, changing the culture within the company, workforce development, and boosting the external image. Furthermore, building a mission may be a hackathon goal (Zukin and Papadantonakis 2017) or achieving social betterment through software development (Briscoe and Mulligan 2014). In educational hacks, the goal is to learn, rather than to create a fully functional solution to a problem. However, it is not forbidden to do both. (Porras *et al.* 2018) Pe-Than *et al.* (2019) highlights the fact that there are several goals for hackathons that vary from one company to another and from hackathon to hackathon. Furthermore, (Pe-Than and Herbsleb 2019) argue that corporate hackathons can be organized around goals. When designed carefully, hackathons can achieve multiple goals (Pe-Than *et al.* 2019). Pe-Than *et al.* (2019) point out the effect of the differing goals of hackathon organizers and participants, which may result in difficulty in recruiting or leveraging the fullest potential of the participants, as well as participant dissatisfaction and outcome quality. According to Pe-Than and Herbsleb (2019), the hackathon design includes the identification of a suitable mixture of attendee skills, the selection of processes for projects and teams, and the decision whether the event is competitive or collaborative.

The goal or goals of the hackathon event is one of the various, yet focal hackathon design elements (Pe-Than *et al.* 2019) to be defined in the pre-hackathon phase. The goal is then formulated into a challenge or task, terms also used interchangeably, for the participants to solve (cf. Briscoe and Mulligan 2014). According to (Pe-Than *et al.* 2019), so far research has not compared hackathons across different design elements to evaluate their effectiveness with respect to the intended goals of the events. Therefore, hackathon task setting has not been the focus of hackathon research either.

Hackathons have their benefits, but they have had their share of criticism, too. Hackathons are a fun way to work and, as by-products, they aid personal development and a sense of achievement, as well as networking (Komssi *et al.* 2015). Hackathons yield a rich mix of ideas (Rosell *et al.* 2014) and are a valuable resource for learning (Kayastha 2017). The criticism has been due to the potential suffering from a lack of institutional memory (Briscoe and Mulligan 2014), but especially a lack of goal achievement. The output of prototypes are considered, if not useless but secondary, as the more interesting products of civic hackathons for example are so many versions of 'civic imaginary' (DiSalvo *et al.* 2014). Furthermore, also the ideas that hackathons generate are regarded as rarely effective or adopted in addressing the problems that inspired the hackathons. Participants have also experienced frustration resulting from expectations of the results of the hackathon. (Granados and Pareja-Eastaway 2019) Furthermore, the lack of commercialized results led (Komssi *et al.* 2015) to conclude that there is still something missing from the hackathon method, which they regard as rather a simple process from the viewpoint of software development, which is commercializing the key results. However, they recognize the potential discrepancy between the winning idea and the company's business strategy, as well as the satisfaction of the hackathon event felt by both the organizers and participants. Nevertheless, reasons for criticism have been pinpointed as a misunderstanding of the hackathon process as a whole and the outcomes of various sub-processes, such as the relevance of the post-hackathon phase (Lodato and DiSalvo 2015; Granados and Pareja-Eastaway 2019). Furthermore, criticism refers to either ignorance of the importance of the design elements of hackathons throughout the process, e.g. incompetence to define the goals of a short time-bound event and draw up the event tasks accordingly (Granados and Pareja-Eastaway 2019). Even so, it has been highlighted, that with careful hackathon design, for example, the multi-disciplinary team-building may assist in breaking down the barriers between technical experts and practitioners and bridging language and cultural gaps (Chowdhury 2018).

Employee context maturity

According to (App *et al.* 2018), the ideal development of an employee has four phases: introduction, growth, maturity and decline. The phases will increase by age and work experience and the duration of each phase depends on each employee's characteristics. However, the phases can be influenced by HRM practices (Schein 1978). In order to grow an understanding of the customer, products and services, and have a work experience of the area, the employee should be exposed to these subjects in their work tasks. One concept that provides the potential to be exposed to the subject or person is proximity (Schamp *et al.* 2004). However, proximity may be professional, i.e. referring to a common language and shared norms; organizational or relational, originating from the knowledge and acceptance of the rules, routines and conventions of the firm; personal, due to personal acquaintance; and geographical, which refers to local co-presence.

3 Method and case description

We chose a case study approach (e.g. Siggelkow 2007) to study the hackathon task-setting strategies in terms of goal achievement in industry. In our case study (Table 1), the theory of hackathons and innovation contests, particularly their goals and task setting, were identified via literature. Then, the case study of 17 hackathons was carried out in 2014–2017 with action research methodology in the real-life context of an international technology firm in the IT industry operating in the Baltic region, with four national subsidiaries and a total of 800 employees as participants. The participants were from various backgrounds in terms of their business context understanding and the hackathons differed in terms of task-setting boundaries. The research material consists of field notes taken before, during, and after the hackathon, interview notes from meeting the individual teams, event survey results, evaluations of the teams and their respective output, and follow-up of the output. The hackathons were observed by the intra-organizational hackathon organizers. The purpose of the empirical research was to study with multiple hackathons within the same organization, how the task setting affects hackathon goal achievement in practice in an industrial context and what alternative strategies the task setting could take when the comprehension of the business context among the participants differs between high and low employee context maturity. The hackathons concerned the development needs of the company, including product and service variety as well as renewal of business models, as well as employee engagement in terms of additional workplace freedom, getting to know colleagues better, and development of skills. The case was chosen due to its idiosyncrasy: there are only a few reports on the research of a series of multiple hackathons within the same organization, especially hackathons that include teams without any coding in an IT environment. Nevertheless, in our case, there were also teams that coded as their hackathon task. Therefore, for hackathon type of innovation contest theory building to enhance innovation management within organizations, this case is interesting.

Table 1 Case corporation A with four geographical business segments

Country segments	No. of employees	Local business and tech employees	Of which group business & tech employees
Sweden	1500	1000	500
Latvia	600	120	480
Estonia	120	120	
Lithuania	120	120	

4 Results from the empirical study

Organizational maturity

Case corporation A had four country organizations (Table 2), which differed not only in size, but also in their employee maturity. The employee context maturity of the hackathon participants was evaluated concerning two issues. Firstly, the length of employment of the participant group, i.e. the longer the participants had been employed by the company, the more likely they were to have matured as employees. Secondly, the participants' proximity to the end customer, i.e. the greater the relational or personal proximity the work task of the employee had to the customer, the more experience of the customer, products, processes or value creation the employee was more likely to have had, which also contributes to the employee maturity. Thus three of the country organizations were evaluated high in maturity due to their employees, which had both long-term employment together with close proximity to customer operations. One of the country subsidiaries was evaluated as low in maturity, as the employees were young, freshly recruited and their work tasks were far from the end customer, as they were working with central IT- and administrative-support systems.

Table 2   Employee context maturity according to Case corporation A's country segments

Country segments	No. of employees	Local business and tech employees	Of which group business & tech employees	Business content maturity
Sweden	1500	1000	500 *)	High
Latvia	600	120	480**)	Low
Estonia	120	120		High
Lithuania	120	120		High

*) Experienced, previously worked with systems close to customer-oriented production
**) Young, freshly recruited, far from end customer product. Working with central IT- and administrative-support systems

Hackathon event success: employee maturity and task-setting strategies

In case corporation A, there were altogether seventeen hackathon events carried out in six iteration rounds in four countries (Table 3). The number of participants ranged from 14 to 100. Most of the events were targeted at the total country organization. Ten of the events were intra-organizational; six of them involved other organizations, such as vendors, social entrepreneurs, and universities. Two strategies were identified as task-setting strategies. The first one was *'Freedom'*, in which the task did not have any strict boundaries. The other one was *'Strategic focus'*, where the task was formulated with boundaries. The overall success of the events was calculated by the quantity or percentage of useful output, i.e. innovations. 13 of the events were evaluated as successful, in other words most of the output was considered useful for the company based on its fit with company strategy. However, four of the events were regarded as unsuccessful, due to the low percentage of useful innovation output. All of the unsuccessful events were carried out in a low maturity

organization with the *'Freedom'* task-setting strategy. However, the organization with low employee maturity was also successful when the *'Strategic focus'* task-setting strategy was applied.

Table 3   17 Hackathon events in six iterations

Year	Event	Iteration	Country	Targeted organization	Task-setting strategy	Intra = I Intra+Inter = I+I	Overall event success	Useful output quota as of 2017	No. of participants/ First-time hackers
2014	1	1	Sweden	P[1]	F[4]	I	Yes	83 %	17/17
	2	2	Sweden	S[2]	F	I	Yes	90 %	40/28
	3		Latvia*)	S	F	I	No	20 %	40/40
2015	4	3	Sweden	E[3]	F	I+I	Yes	89 %	73/45
	5		Latvia*)	E	F	I+I	No	13 %	55/35
	6	4	Sweden	E	F	I+I	Yes	89 %	89/65
	7		Latvia*)	E	F	I+I	No	46 %	48/20
	8		Estonia	E	F	I	Yes	100 %	14/14
	9		Lithuania	E	F+ SF[5]	I	Yes	100 %	17/17
2016	10	5	Sweden	E	F+SF	I+I	Yes	96 %	100/50
	11		Latvia*)	E	F	I	No	40 %	40/20
	12		Estonia	E	SF	I+I	Yes	100 %	30/20
	13		Lithuania	E	SF	I	Yes	100 %	20/10
2017	14	6	Latvia*)	E	SF	I	Yes	71 %	60/30
	15		Sweden	E	F+SF	I+I	Yes	100 %	100/55
	16		Estonia	E	SF	I	Yes	80 %	40/15
	17		Lithuania	E	SF	I	Yes	100 %	30/20

[1] P = Part of shared organization, [2] S = Shared organization, [3] E = Entire country organization
[4] F = Freedom, [5] SF = Strategic focus *) Low employee maturity

Hackathon event success: useful and non-useful innovation outputs

Table 4 illustrates the count of useful and non-useful innovation outputs with regard to the task-setting strategy, as well as the employee maturity of the organization in total. With low maturity, most of the innovation output was non-useful when the task-setting strategy was *'Freedom'*. However, also with low maturity too, some of the innovation output was useful with both *'Freedom'* and *'Strategic focus'* task-setting strategies. With high maturity, the output was mostly useful, both with *'Freedom'* and *'Strategic focus'* task-setting strategies.

Table 4   Count of useful outputs for corporation A as of 2017

Usefulness to the company	Context maturity	Task-setting strategies		Total
		Focus	Freedom	
Non-useful		**5 (12%)**	**28 (23%)**	**33 (20%)**
	High maturity	1 (4%)	7 (8%)	8 (7%)
	Low maturity	4 (29%)	21 (68%)	25 (56%)
Useful		**36 (88%)**	**94 (77%)**	**130 (80%)**
	High maturity	26 (96%)	84 (92%)	110 (93%)
	Low maturity	10 (71%)	10 (32%)	20 (44%)
Total		*41*	*122*	*163*

Table 5 lists examples of both useful and non-useful task outputs with both low and high company domain maturity as well as with both task-setting strategies. The quota of each amount within each set of maturity level is also given.

Table 5   Examples of both useful and non-useful task output

Usefulness of task output	Company domain maturity	Task-setting strategy
Non-useful		
Office app prototype	Low maturity	Strategic focus
App idea without development	Low maturity	Freedom
Office ergonomics	Low maturity	Freedom
Presentation hardware & software	High maturity	Freedom
Useful		
Process improvement 10 %	High maturity	Strategic focus
Process improvement 5 %	Low maturity	Strategic focus
Internal communications initiative	Low maturity	Freedom
Machine Learning - loss into revenue	High maturity	Freedom
Process automation	High maturity	Freedom

To sum up the results, the seventeen hackathons carried out in the four country subsidiaries of case corporation A included both successful and non-successful events. One of the four country subsidiaries was evaluated as having low employee maturity. This low employee maturity was due to a short overall employment time as well as work tasks far from the end customer product, working with central IT- and administrative-support systems. Furthermore, two types of hackathon task-setting strategies were identified: *'Freedom'* and *'Strategic focus'*. In the *'Freedom'* task-setting strategy, the task was formulated without boundaries. In contrast, with the *'Strategic focus'* task-setting strategy, the task was

formulated with boundaries relevant to the strategy of the organization. The successfulness of the events, i.e. the goal achievement of the hackathon events, was evaluated in terms of the percentage of useful innovation outputs of the total innovations yielded in the event. Three of the hackathon events were evaluated as non-successful. The non-successful events were carried out in the low employee maturity subsidiary organizations and with the *'Freedom'* task-setting strategy. However, the subsidiary with low employee maturity was able to achieve success with the *'Strategic focus'* task-setting strategy. This can be interpreted as showing that an organization with low employee maturity would benefit from the *'Strategic focus'* task-setting strategy, i.e. having a task formulated with clear boundaries for innovating in hackathon events. Moreover, high employee maturity organizations were able to produce successful events regardless of the task-setting strategies. This can be interpreted as showing that high employee maturity, i.e. long working experience together with an understanding of the customer, products and services, facilitates the generation of innovation output that is useful for the company's business. Thus we conclude that, in organizations with high employee maturity, both task-setting strategies *'Freedom'* and *'Strategic focus'*, can be used to achieve the goals set for the hackathon by the organization. However, with an organization with low employee maturity, formulating the hackathon task more carefully, advisably with boundaries, would benefit the event in terms of its goal achievement.

5 Discussion and further research

This article contributes to the literature of innovation management methods, particularly to the concept and method of the hackathon as an innovation contest. More specifically, this paper contributes to the design elements of hackathons: participants in terms of context maturity, task setting and their effect on hackathon goal achievement. The contribution is achieved by introducing two task-setting strategies: *'Freedom'* and *'Strategic focus'*. Our results showed that, in terms of hackathon goal achievement, these two task-setting strategies are influenced by at least two interrelated hackathon design elements: 1) participant, i.e. employee maturity level regarding understanding of corporate context and 2) task formulation with or without boundaries. Scientific research on hackathons is scarce in general, and particularly the study of the hackathon as a phenomenon lacks a comparison of hackathons across different design elements to evaluate their effectiveness with respect to the intended goals of the events, thus our results respond to the call by Pe-Than *et al.* (2019).

Our hackathon cases were carried out in the context of the IT industry. The hackathon task-setting strategies were studied and identified in seventeen mainly intra-organizational hackathons. Our results represented both successful and unsuccessful cases in terms of goal achievement. The two identified task-setting strategies: *'Freedom'* and '*Strategic focus*', differ in terms of the boundaries set for the task. *'Freedom'* has no or few boundaries, whereas in the *'Strategic focus'* task-setting strategy, the task is bounded by predetermined guidelines. Not only does the dimension of task-setting boundaries explain the perceived success of the hackathon, but also the design element of the participants, i.e. the employee maturity of the organization regarding the understanding of the business context affects the success of the event. Our results showed that, with high employee maturity organizations, both task-setting strategies *'Freedom'* and *'Strategic focus'* yielded successful hackathon events in terms of goal achievement. However, with an organization with low employee

maturity, the results were unsuccessful with the *'Freedom'* task-setting strategy in terms of hackathon goal achievement, yet successful with the *'Strategic focus'* task-setting strategy. Therefore, we would claim that task-setting boundaries, as well as the employee maturity of the organization regarding understanding of the corporate context, are interrelated design elements in terms of hackathon goal achievement. Thus, both should be taken into account when setting the hackathon task. In turn, this means that with high maturity personnel, i.e. employees with a good understanding of the business context, the task boundaries can be free, and the *'Freedom'* task-setting strategy can be applied successfully, meaning it yields the desired goal achievement. However, for an organization with low employee maturity, i.e. personnel that do not have an in-depth comprehension of the business context, formulating the hackathon task more carefully, advisably with boundaries, representing the *'Strategic focus'* –task-setting strategy, is more likely to produce the desired outcome of the hackathon event in terms of goal achievement. Therefore, our results disclose that the task-setting strategies affect the goal achievement, in other words the perceived successfulness of a hackathon, particularly with participants that have low maturity in context understanding. Therefore, the two hackathon design elements: task setting and participants' maturity regarding the context are interrelated, thus both of them should be taken into account while designing a hackathon event. Particularly, the more bounded *'Strategic focus'* task-setting strategy should be considered if the participants' maturity concerning context is low or unknown. For further research, we agree with the proposal of Pe-Than *et al.* (2019) to compare hackathons across different design elements in the future to evaluate their effectiveness with respect to the intended goals of the events.

Practical implications

From an innovation management standpoint, having functioning methods for the innovation and especially idea generation and evaluation is an essential feature of corporate renewal. These findings will benefit academics studying innovation management and idea generation methods, especially in the context of technology companies. In particular, academics focusing on innovation contests or hackathons will benefit from these results. Additionally, practitioners operating in the technology industry, aiming to enhance their intra-organizational innovation processes will gain from this study: it gives vivid examples, which the hackathon organizer and facilitator should pay attention to in task-setting in order for the hackathon event to achieve its goals and be successful. In practice, both task-setting boundaries, as well as the maturity of the organization members regarding understanding the corporate context, should be taken into account when setting the hackathon task.

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