

# **UNBUNDLING HACKATHON ORCHESTRATION MECHANISMS: RELATIONAL BROKERING, CONTEXTUAL CONFIGURING, AND LEGITIMACY BUILDING**

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## **Unbundling hackathon orchestration mechanisms: Relational brokering, contextual configuring, and legitimacy building**

### **SUMMARY**

This study explores the orchestration of hackathons aimed at the creation of new ideas and innovation in general. We employed a qualitative case study approach with data collected from hackathon organizers, partners, and solvers across multiple events organized by Ultrahack, a Finnish hackathon organizer. We initially conceptualize hackathon orchestration as a form of coordination that requires brokering in social networks. Building on this background, our findings identify three types of orchestration mechanisms—orchestration as relational brokering, orchestration as contextual configuring, and orchestration as legitimacy building. We analyze how these mechanisms contribute to the benefits perceived by hackathon solvers and partners. Our study contributes to the academic discourse on orchestration mechanisms in hackathons and offers insights for practitioners managing hackathons and innovation contests, especially from the point of view of third-party orchestrators.

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## 1. INTRODUCTION

Hackathons are ideation and innovation contests that rely on the collective efforts of diverse stakeholders and typically last for a predetermined and relatively short period of time (Heller et al., 2023; Lifshitz-Assaf et al., 2021; Rys, 2023). Prior research on hackathons has investigated them as innovation competitions (Pihlajamaa & Merisalo, 2021), platforms for learning (Lara & Lockwood, 2016), forms of crowdsourcing (Beretta et al., 2022), temporary gatherings (Kamariotou & Kitsios, 2022), and transdigital spaces (Endrissat & Islam, 2022). Managing and coordinating hackathons is complex (Beretta et al. 2022) and requires strong collaboration, communication and transparency (Flores et al., 2018).

Hackathons involve multiple stakeholders, including sponsors or partners who provide the problems and challenges and the participants, or solvers, who work on those challenges. This presents a highly complex context for orchestrating different views, aspirations, and goals (for a review, see Heller et al., 2023). The core outcomes of hackathons rely on the often voluntary participation of and ideation by their participants. Prior studies have found that formal coordination works poorly in such contexts (Lifshitz-Assaf et al., 2021); instead, hackathons require coordination styles that facilitate affect, engagement, and voluntary action toward collaborative ideation and innovation (Endrissat & Islam, 2022). However, it has recently been pointed out that the existing literature remains ambiguous about the coordination mechanisms that help achieve the creativity and innovation goals of hackathons (Beretta et al., 2022; Lifshitz-Assaf et al., 2021), and that hackathons remain “a relatively undiscovered and unexplained method” for developing new ideas and inventions (Rys, 2023, p. 501).

To address the research gaps noted above and drawing on the insight that hierarchical forms of coordination do not work well in hackathons, we employ the concept and metaphor of *orchestration*, which is a form of coordination suitable for loosely coupled contexts in which actors are both independent and interdependent (Dharanaj & Parkhe, 2006; Ritala et al., 2023). In our study, we view hackathons as both social networks (Endrissat & Islam, 2022; Halevy et al., 2019; Lara & Lockwood, 2016; Paquin & Howard-Grenville, 2013) and loosely coupled systems (Orton & Weick, 1990). Furthermore, we recognize the needs of hackathon orchestrators to consider the interests and goals of multiple stakeholders. Our particular focus is on the partners of hackathons who contribute problems and themes and the participants who contribute effort and solutions (Heller et al., 2023). Hence, this study asks *what are the key hackathon orchestration mechanisms and how they contribute to partner and solver benefits?*

To investigate hackathon orchestration mechanisms, we partnered with Ultrahack, one of the leading and largest organizers of hackathons in Europe (Ultrahack.org). One of the authors spent three months observing and working alongside Ultrahack experts specialized in hackathon organizing. This allowed us to build our insights via participant observation and gave us rich access to conduct interviews with organizers, partners, and solvers. For the present study, we collected data on five hackathon events organized by Ultrahack, using interviews and observations to uncover orchestration mechanisms and how they are perceived as useful by the different actors in hackathons.

Using an abductive research design, we build on the literature on brokerage and brokering (Halevy et al., 2019; Ritala et al., 2023) to examine orchestration mechanisms. Aligned with prior brokering literature, we argue that hackathon orchestrators not only intermediate interactions but also (re)configure the relational context. We also contribute to research on orchestration by introducing legitimacy building as an important mechanism by which an

orchestrator can attract attention and resources for the network of actors involved. Overall, we delineate three orchestration mechanisms: orchestration as relational brokering, orchestration as contextual configuring, and orchestration as legitimacy building. These results also add to the literature on orchestration by extending our knowledge of orchestration activities in the social context of hackathons. Furthermore, we provide practical insights for organizations that take a “third-party orchestrator” role (Pinnington et al., 2021) in hackathon organizing.

## **2. CONCEPTUAL BACKGROUND**

### **2.1 Using hackathons as a coordinated effort to stimulate ideation and innovation**

The idea of innovation contests and the phenomenon of organizing hackathons had already emerged in the early 1990s (Attalah et al., 2023). While there are no industry statistics, hundreds of companies around the world have specialized in organizing innovation contests and staged thousands of hackathons for other organizations (for a review, see Heller et al., 2023). While hackathons originally gained popularity as information technology contexts (Lara & Lockwood, 2016; Rys, 2023), they are now employed by both private sector innovators and governmental organizations such as NASA, the European Union, and World Bank, which have used hackathons to expand their innovation capabilities and find solutions to challenges.

Concretely, hackathons are intensive two- or three-day innovation events where new solutions, products, and/or services are conceptualized and developed (Lifshitz-Assaf et al., 2021). They have been described as “idea competitions on specific topics in the form of a time-limited event” (Attalah et al., 2023, p. 2) or competitive events where “participants work in small teams over a short period of time to ideate, design, rapidly prototype and test their ideas with a user-centric approach to solve a determined challenge” (Flores et al., 2019, p. 1). Hackathons bring together a diverse group of solvers, both expert and non-expert, to conceptualize, prototype, and develop new products and services in a short space of time (Lodato & DiSalvo, 2016).

Hackathons have also been described as “accelerated innovation processes that bring together individuals to voluntarily develop new products to solve specific and ambitious challenges in an extremely limited and ad hoc time frame” (Lifshitz-Assaf et al., 2021, p. 684). They represent distinct forms of organizing and participation that fall outside the classic intra-organizational ideation and innovation processes. In this regard, hackathons bring together many of the ideas of open innovation by exchanging reciprocal knowledge and creating synergies via knowledge flows and knowledge creation (West & Bogers, 2014). For instance, the initiator (i.e., the sponsor) of a hackathon often strategically shares information and makes use of the benefits of outbound open innovation (Attalah et al., 2023) while also benefiting from inbound knowledge flows coming from hackathon participants.

While hackathons appear to work well with relatively light coordination (Lifshitz-Assaf et al., 2021), they are not easy to organize effectively. However, the basic building blocks of hackathon organizing for the pre-, mid-, and post-event phases have been identified by Heller et al. (2023). Essentially, the orchestrator of the hackathon has a major role in designing mechanisms to engage, involve, and incentivize actors in different roles, since the motivations of participants, sponsors, and the organizer can and likely will vary (e.g., Garcia, 2022; Heller et al., 2023; Pe-Than et al., 2022).

In this study, we are particularly interested in hackathons not only as a form of open innovation

but also as social networks where participants share and create knowledge. To orchestrate such networks, the role of the network orchestrator has been highlighted in the literature (Hurmelinna-Laukkanen & Nätti, 2018; Ritala et al., 2023). In the next section, we discuss hackathons from the point of view of orchestrated social networks.

## 2.2. Hackathons as orchestrated social networks

Scholars originally used the orchestration concept to describe the coordination of a networked context where actors are loosely coupled (Dhanaraj & Parkhe, 2006; Ritala et al., 2009), which means that they are independent in terms of what they do but interdependent in creating value together. This notion of loose coupling fits well with the hackathon context. However, in this study, we adopt an even more distinctive lens on orchestration, examining it as a process of brokering in social networks (Halevy et al., 2019; Ritala et al., 2023).

From the brokering perspective, the orchestrating entity (whether an individual or an organization) intermediates and coordinates other actors in the social network to interact with one another (Hurmelinna-Laukkanen & Nätti, 2018). The orchestrator works toward their own goals and the goals of others (Ritala et al., 2023). The brokering activities conducted by the orchestrating entity have most often been viewed as *intermediation* (Halevy et al., 2019), in which actor A helps actors B and C to connect and interact—a phenomenon also known as bridging a structural hole (Burt, 2004). However, Halevy and colleagues (2019) note that the brokering by an actor A can also *modify* the interaction context between B and C. In these cases, B and C might already be connected to each other, but A would intervene and change the interaction by providing additional resources or other input that contribute to and thus modify that interaction context. In hackathon orchestration, both of these brokering mechanisms are likely to be in play, given the central role of the orchestrator not only in bringing actors together but also in designing how the interaction, ideation, and overall activities play out during the event.

Interactions in hackathons happen between various partners, organizations, and existing economic and social networks. Successful orchestration of social networks therefore needs to consider the interests and goals of partners and solvers, which represents the “alter-orientation” (Ritala et al., 2023) or “facilitator-orchestrator” (Hurmelinna-Laukkanen & Nätti, 2018) approach to orchestration. However, the hackathon literature has yet to open up such brokering processes and how they affect participant and partner benefits. We examine these issues empirically in the sections below.

## 3. METHODOLOGY

### 3.1 Empirical context and data collection

We employed a qualitative case study method (Yin, 2014) focusing on one empirical context to which we had exclusive access for a prolonged period of time. The aim of this approach is reaching a level of “thick description” that helps provide context-dependent insights (Geertz, 1973; Guba & Lincoln, 1994), based on which we can draw inferences that help answer the research question. Our empirical context involves hackathons organized by Ultrahack, a Finland-based company that specializes in orchestrating different types of hackathon events. Typically, a hackathon organized by Ultrahack is a “collaboration and co-creation process,

including intense development sprint (usually 48h)” where teams with different competencies and backgrounds address real-life challenges formulated by companies or public organizations (Ultrahack, 2021, p. 6). Ultrahack’s concept includes inviting teams to bring fresh ideas and to encourage out-of-the-box and even radically innovative thinking rather than incremental development. Ultrahack supports teams by providing mentoring through experts from different fields. The teams pitch solutions at the end of the event, with the best teams awarded a prize. Evaluation criteria used by the organizer typically include five main elements: innovativeness, user benefits, team or individual talent, technical solution aspects, and challenge fit.

We collected qualitative data during a three-month field visit at Ultrahack from September to December 2022 by the first author. This enabled collecting data on hackathon organizing and execution from all involved parties (organizers, partners, and participants). We focused on three onsite hackathons and two hybrid events, in which part of the hackathon setting was onsite and another part online. Onsite settings offer more direct observations of and interactions with the various actors. All the observed events were thematically software- and technology-focused hackathons (see Heller et al., 2023), where the aim was to develop ideas and solutions to the problems put forward by hackathon partner companies.

The analysis is based on qualitative individual and group interviews ( $n = 23$ ), informal conversations with the actors involved, field notes, and observations during active participation (see Table I).

**TABLE I**

Overview of hackathon events and empirical data.

| <b>Data source</b>      | <b>Amount of data</b>                                                                                                                                                            | <b>Role in the analysis</b>                    |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| Orchestrator interviews | 11 interviews with hackathon organizers                                                                                                                                          | Inductive analysis of orchestration mechanisms |
| Partner interviews      | 8 interviews with partners                                                                                                                                                       | Analysis of partner benefits                   |
| Participant interviews  | 4 group interviews with:<br>1) Team of 3 solvers<br>2) Team of 2 solvers<br>3) Team of 2 solvers<br>4) Team of 2 solvers<br>1 informal interview / audio note, individual solver | Analysis of participant benefits               |
| Field notes             | Field notes from 5 hackathons (3 audio notes, 23 pages of written notes)                                                                                                         | Triangulation, Onsite observation              |

### **3.2 Data analysis**

The study was conducted using abductive analysis of qualitative data, field notes, and observations that provide an understanding of the organizing process and the related orchestration. The unit of analysis is a hackathon event. The data analysis focused on capturing the different micro-level orchestration activities. First, open coding was used, and all the instances from the data that pointed to orchestration activities were inductively coded. In the second stage, we structured first order codes into emerging themes focused on the orchestrator’s activities. Third, through abductive reasoning between brokering theory and empirics, three core theoretical themes emerged that we call relational brokering, contextual configuring, and legitimacy building. Fourth, we triangulated evidence on the benefits of the

three orchestration mechanisms based on the interview data, field notes, and observations. Finally, we triangulated these understandings with representatives from Ultrahack, who confirmed that our interpretation was a reasonable reflection of the events, pointing to a sufficient level of face validity.

Various actors participate in hackathons and can thus be referred to as participants or participating actors. In the following, we refer to individuals and teams present in the hackathon event and engaged in solving the challenge(s) as *solvers* to differentiate them from other actors participating in the events. However, we note that the interviewees often refer to solvers as “participants” in the quotes below. Organizations collaborating with the organizer are referred to as *partners*; again, in some interviews partners are referred to as “clients.” Finally, the hackathon organizer (organization, and the team representing the organization) is responsible for facilitating and leading the event and is referred to as the *orchestrator*.

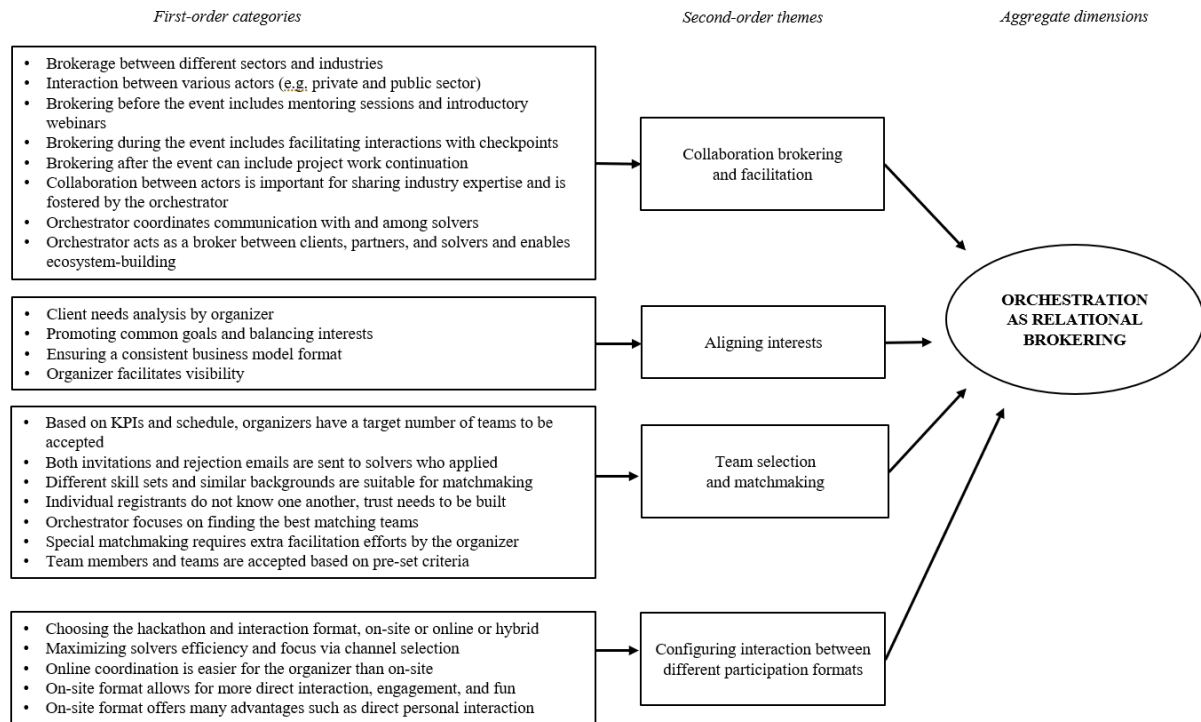
## 4. FINDINGS

We identified three orchestration mechanisms—relational brokering, contextual configuring, and legitimacy building—that serve distinct purposes and accommodate different target outcomes and benefits. The organizers’ time is mainly spent on brokering, but significant effort is also expended on contextual configuring and legitimacy building.

### 4.1 Orchestration as relational brokering

Orchestrators mobilize and bring together actors in a hackathon to interact and create value. Given this intent, we view orchestration as constituting brokering activities, particularly pro-social behaviors of orchestrators that can influence a social network by accommodating partners’ needs and aspirations (Ritala et al., 2023). Brokers (here: hackathon orchestrators) are individuals who build and form relationships with other individuals in a social network.

Brokering in hackathons has multiple layers. Hackathons start with a partner that sets the problem for the event, so the first layer of brokering starts before the event and continues after it concludes, aiming to build the set-up for the hackathon (collaboration brokering and facilitation). Second, the broker needs to ensure that the interests of the actors (especially partners and solvers) are aligned. The third and fourth elements of brokering operate at a more practical level to ensure that effective solver teams are formed, and that the interaction works across different hackathon settings (online, hybrid, or onsite). At the end of the section, we also highlight the benefits of brokering activities for different participants.



**FIGURE 1**  
Orchestration as relational brokering: Data structure.

*Collaboration brokering and facilitation* is established by the orchestrator, who acts as a broker between partners and solvers and enables social network-building before, during, and after the event. Collaboration brokerage in hackathons happens when the orchestrator facilitates interactions between various actors and actor groups such as the private and public sectors and different industries. Facilitation for this collaboration is important because it enables the sharing of industry expertise. Additionally, the orchestrator facilitates communication with and among solvers. Before a hackathon event takes place, brokering activities can include introductory webinars and mentoring sessions, while during the event they may include interaction facilitation through community meetups. After an event, brokering may continue and include a continuation of projects:

We're almost like a broker in between, where we are matching the objectives of our customers with participants and their objectives. We offer them a platform to connect and a process through which they can build collaboration. [...] We offer a structure and a model that we feel [can make] both successful. (Organizer 2)

Another important aspect is *aligning interests* between actors. The orchestrator needs to know what each key partner aims for and wants:

The partners have different roles. Some have a strong brand, they can provide mentoring and marketing support, but they don't bring any financial support. Others don't have that much marketing support [to give], but they can support financially. So, we need to [bring] that together to create a feasible package. (Organizer 1)

By balancing the interests of the various partners, the orchestrator ensures that the event will appeal to the target audience, as Organizer 1 put it: "It's also balancing how to make it interesting for the right audience"; this facilitates common goals for the hackathon event and supports collaboration.

Third, a practical aspect of brokering relates to the *selection and matchmaking* of teams participating in a hackathon: “[As to] team selection, usually we do [it] one, two, three days after the registration deadline, depending on the objective of the client” (Organizer 5). For matchmaking to work well, different skill sets but similar backgrounds are suitable: “Single registrants [...] you guys have similar backgrounds both in terms of education, skills, but also location. People are rather sensitive to the location and cultural aspects” (Organizer 5). As the individual registrants do not know one another, trust must be built first. Rather than forced matchmaking, the organizer offers options: “They decide, but we sort of say, ‘Here are your options.’ This skill set might match this skill set. It’s like speed dating” (Organizer 4). To encourage newly formed teams of strangers to communicate with one another, the orchestrator typically uses icebreaking activities to facilitate conversations.

Finally, another practical aspect of brokering is the *interaction between different participation formats* of onsite, hybrid, and online settings. While online hackathons may be less effort for the orchestrator and easier for solvers to participate in than onsite formats, there is a downside in terms of networking opportunities, getting to know people, and feeling the atmosphere. For many solvers, reasons to participate in hackathons include networking opportunities, getting to know new people, and generally experiencing the event. In an onsite setting, teams are in the same location, which makes knowledge sharing and exchanging ideas with other teams and mentors occur more naturally: “Onsite [...] was much more impactful. [...] I liked that format. That was more fun for me” (Partner 7). The best experience comes from onsite events because they allow for personal interactions. As Organizer 4 put it, participants are “interested in each other’s projects. [...] People like to talk to each other, and they like to meet each other, and that’s one of the things that we frequently hear in feedback is that that’s one of the coolest parts.”

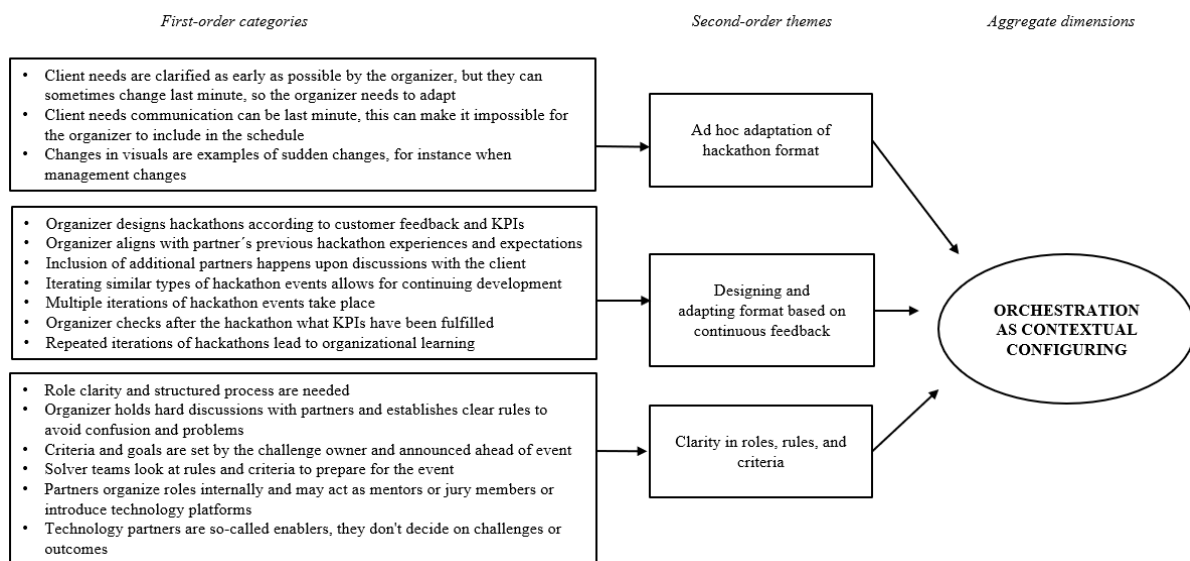
Essentially, the orchestrator’s brokering behaviors benefit solvers by offering them opportunities to expand their networks with peers, mentors, industry experts, and potential employers. Getting in contact with companies and industry brings future career opportunities for solvers. Making connections with people from industry is advantageous, and solvers often consciously decide which hackathons they choose to participate in: “It depends on how the hackathon is managed. You have to take that into consideration [as a solver]: what you want from the hackathon” (Team 3, Solver 7). Solvers also benefit from matchmaking targeted at team formation. Bringing together individuals from different backgrounds builds on the idea of creative problem solving but can also foster experiences with diverse teams: “The most frustrating thing ever is when you implement something technically ambitious, and then you lose to someone who has a beautiful slideshow [...] but no technical implementation” (Team 1, Solver 1). Being matched with previously unknown people can lead to unexpected meetings and the formation of new network ties during a hackathon: “Matchmaking is nice because you might meet a talented person that you would be able to work with. You never know. It might [provide] more networking opportunities” (Team 2, Solver 5). On occasion, new connections may also lead to mentorships and even friendships.

Hackathon partners benefit from meeting solvers, attracting top talent, and building strategic partnerships with other organizations that facilitate the sharing of knowledge and ideas, potentially leading to learning and innovation. This requires a commitment to building trust on the part of different actors: “One thing that affected the level of trust was that every partner who organized the hackathon was very committed to making it happen” (Partner 7). Learning and innovation benefits occur when partners obtain ideas for and even solutions to their challenges from the solvers’ suggestions. Orchestration mechanisms assist in knowledge

exchanges and encourage participation from various stakeholders, leading them to create their own communities of innovation.

## 4.2 Orchestration as contextual configuring

Orchestration means not only brokering people and organizational relationships through intermediation but also configuring the structures, settings, and roles of the participating actors (Halevy et al. 2019). This contextual configuring is related to three distinct activities: adaptations of format, responding to feedback, and clarity in roles, rules, and criteria. Together, these activities lead to consistent and improving structures, providing a reliable setting for hackathon orchestration.



**FIGURE 2**  
Orchestration as contextual configuring: Data structure.

Hackathons are fast-paced events and typically involve a lot of *ad hoc adaptation* and sudden changes in the event program, leading to configuring the hackathon context to fit the needs that appear in the moment. Examples of such changes include altering visuals and last-minute communication. Such changes are difficult if not impossible for an organizer to foresee but are usually necessary for successful hackathons. For instance, in partner companies' management, leaders may change, or project responsibilities may be transferred to other managers. This can lead to sudden changes on the partners' side, which may prompt them to ask the organizers for ad hoc changes. Such changes often refer to communication issues, such as visual communication:

Big updates [...] (happen for example when) people change their minds. Management changes, so they (partners) have to adapt to their new management. That happens all the time. [...] It usually deals with communication like, oh, they don't like the visual anymore. That's a very common one (Organizer 5).

The organizer tries to clarify the partner's needs well ahead of the event, to ensure a clear schedule. Requests for ad hoc changes might come in too late to be integrated into the organizer's schedule. "Sometimes a bit last minute. (Such as) oh, we wanted to review the code of the participants to make sure it's fresh. Yeah, we (the organizers) have one hour for

evaluation, we don't have time to sit behind the computer for half an hour for each team. It's not possible anymore in the schedule" (Organizer 5).

Another form of contextual adaptation is based on *continuous feedback* from previously arranged, similar events allowing the improvement of hackathon designs based on solver and partner feedback, and partner-specific key performance indicators, particularly when dealing with repeated iterations of hackathons with the same partner. The organizer designs the format in collaboration with the partners, according to their needs and feasibility. In discussions with the partners, the organizer clarifies the design of the hackathon format and suitable participants. The format is adapted also to match the solvers' expectations based on their feedback. Consistent feedback mechanisms help the organizer gain knowledge of partners' preferences and important aspects for them: "[We are] going through those KPIs, what they (client and partners) expect to happen after" (Organizer 1). Repeated iterations of hackathons provide the chance to gain continued feedback, leading to organizational learning. The organizers can prove their expertise, well-established processes, and consulting skills, by demonstrating them to their partners. "In the beginning, first year (preparation time with the client) maybe it was two months, then [...] three months, and now, for next time, we've already discussed that we should start (one year ahead). [...] Since it has been done three times, we can demonstrate that this is how it looks, these are our results, everybody has been happy, both partners and participants" (Organizer 1). Multiple iterations, and repeated feedback lead to learning for the partners, too: "Third time. We were developing it all the time, and we're going to continue next year" (Partner 5). Such continuous improvement also influences the partners' decision to continue the collaboration.

*Clarity in roles, rules, and criteria* helps enable trust-based work relationships (Curnin et al., 2015); as our results show, it forms part of the orchestration process in terms of context. Organizer 5 put it as follows: "Designing the schedule and making sure there is room for everything that we plan for the schedule [...] managing these different stakeholders [...] needed for an event to happen." Orchestrators manage those stakeholders and act as the main point of contact. Organizer 5 noted that "as part of the job here, I host the event. I'm the main point of contact. [...] I'm that reliable person; I'm the host [...] making sure everything runs smoothly, but also the face and point of contact between the different stakeholders." The inclusion of additional partners is established in discussions between the organizer and the main partner(s). "...there's a first discussion between the challenge owner so that there are not too many" (Organizer 1). To establish clear and fair rules the organizer holds hard discussions with partners early on and establishes clear rules to avoid confusion and problems later.

We write what are the KPIs. So then, (it) cannot be that it's only beneficial for some of them. It needs to support all of them. That's one of the skills that we've learned, to have these difficult discussions very early and to agree on things. Then, we don't have to have these uncomfortable discussions later. (Organizer 1).

Evaluation criteria and rules are usually announced before the event and solvers look at them for guidance. Equal access to mentoring, coaching, and learning supports reliability and helps establish credibility: "In the previous [...] hackathon, I remembered when having the brainstorming with the team, like the week before [...], we were looking at the rules and saying, okay, so we can only look at what data we can download, whether there is a library that can do that because open source that was allowed" (Individual solver 1). Using the organizer's knowledge and experience, and combining it with the partners' and solvers' needs, credible roles, rules, and a clear process are set up, and a reliable, trustworthy context is established.

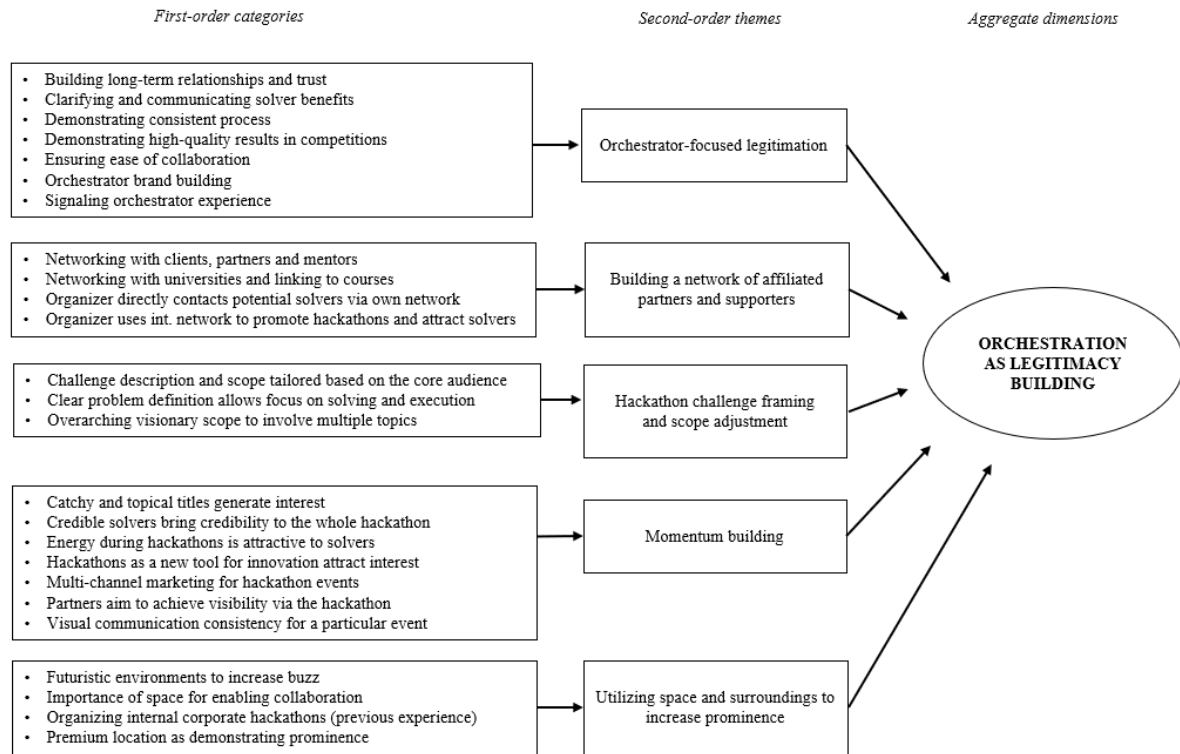
Successful contextual configuration ensures that solvers have the necessary resources, tools, and datasets to develop their solutions effectively, while also building a creative, enjoyable atmosphere. Solvers are often passionate about exploring new technologies: “The coolest hackathons are usually ones where you get to explore some new technology” (Team 1, Solver 1). Solvers see hackathons as catalysts for new ideas, opportunities to extend their networks and socializing. They also appreciate the diversity of participants, having fun, laughing, being on a good team, experiencing a positive atmosphere, and learning. Teaming up with other creative individuals in a stimulating environment that spurs ideation is motivating, which is often not found in their normal work lives. A structured environment with well-organized schedules and clear objectives helps participants manage their time and efforts.

For partners, effective contextual configuration ensures that the solutions developed are relevant, valuable, and aligned with the goals they have set for the event. Structure brings clarity and efficient use of resources, while criteria and guidelines ensure that solutions meet the standards for quality and relevance. Ad hoc adaptations facilitate a seamless event experience, minimizing disruptions and ensuring that key performance indicators are met.

For both solvers and partners, the most important benefit stemming from contextual configuration is the creation of an event that assures knowledge sharing, learning, and the development of new ideas. For example, “they were able to evolve the idea further. [...] So, it was very fruitful” (Partner 7). Solvers perceived the benefits of competing: “It’s cool to compete with some of the teams when you realize they have the same abilities. So, it’s interesting to compete, and it also pushes you to work harder and come up with better ideas” (Team 3, Solver 6). Similarly, solvers enjoyed the learning experience—“I had never used (the program) and here I got [...] to make some stuff that for a beginner I was proud of. So, I think it’s cool, and I walk away from here now knowing this” (Team 1, Solver 3)—and especially learning from others’ solutions: “I liked seeing others’ solutions because ours failed, so it was nice to see what others did in the [allotted] time” (Team 2, solver 4).

#### ***4.3 Orchestration as legitimacy building***

Legitimacy is about the appropriateness of actions within a socially constructed system of norms (Suchman, 1995). Building legitimacy, or legitimating, is an interactive process in which a change agent performs purposive efforts to negotiate, construct, and maintain legitimacy (Suddaby et al. 2017). In hackathon orchestration practice, this relates to orchestrator-focused legitimation, building a network of partners and supporters, framing hackathons, building momentum, and deliberate use of space. In essence, the orchestrator confronts a multifaceted challenge: one needs to legitimate not only the orchestration actions, but also the hackathon event itself, its arrangements, and the partner organizations’ objectives for the hackathon.



**FIGURE 3**  
Orchestration as legitimacy building: Data structure.

Building *orchestrator-focused legitimation* is key to guiding solvers and partners to follow orchestrating actions without a formal hierarchy, and building trust and long-term relationships is a key aspect in this regard. To establish trust with partners, a strong relationship is needed: the orchestrator “is seen as a good partner to run hackathons with. [...] trust in their abilities to perform. There are [other] clients, there’s a history behind the company” (Partner 6). By clarifying and communicating the benefits, the orchestrator builds legitimacy to act: the individual working with partners on behalf of the organizer “does know a lot of people and is able to explain the benefits of using a hackathon to advance business [...] and gain advantages” (Organizer 4).

The legitimacy of the orchestration is linked with and depends on the quality of the *network of affiliated partners and supporters*. Building that network requires time and experience in organizing multiple hackathons, which in turn enables the facilitation of productive interactions between the different actors involved in the hackathon (partners, mentors, and solvers):

We had a lot of discussions with the mentors. So, not just the teams, and it was fruitful, and [...] it was nice to discuss with them. So, it was also information sharing between companies and cities and that kind of thing and making the network there. (Partner 1)

The solvers also need to be diverse, requiring broad networks and heterogeneous pools from which they can be recruited. This wide reach allows partners to “have broader connections with the actual operators of the field outside the university” (Partner 3).

Beyond legitimacy in the eyes of partners, the hackathon event itself needs to be legitimated in the eyes of the solvers. Hence, the *hackathon challenge and scope* are framed and tailored to each event and need to be well-defined so that solvers and mentors can work efficiently and effectively toward a shared goal. As one partner put it, “The problem was defined very well on

day zero. Everyone participating seemed like we understood the problem that we were attempting to solve in the context that was given” (Partner 6). A clear problem definition allows the actors to focus on solving the problem and executing the idea for solution development: “There was no back and forth on how should we do it, what should we do. It [...] was a surprisingly clear focus on execution over communication” (Partner 6).

There is also an aspect of *building momentum* through various activities before and during the event. Multiple aspects, from a catchy title and marketing visuals to credible partners, help build the legitimacy of an event:

I remember I went to see their web pages, and there was a list of hackathons that they had organized before, and there were big brands, such as [company] and other cities, universities, and big companies so that also raised their credibility for me. (Partner 7)

A well-orchestrated event leads to solvers assessing their participation as time well spent: “Even if you lose, it wouldn’t have been a waste of time. You got some knowledge out of it” (Team 3, Solver 7). During the hackathon, orchestrating an engaging atmosphere for innovation is vital. A good “energy” is attractive for solvers and was described as “infectious” by drawing in solvers and sparking curiosity: “It was nice to see that it’s proceeding, and also this innovation work around it, it’s very [...] vivid maybe, or very active” (Partner 1). Getting professional feedback promoted solvers’ perceptions of being supported: “You know that you’re going to get feedback [...] you get one-on-one mentoring, you have good support, so that’s good” (Team 3, Solver 7).

Finally, *space and surroundings* are used to increase prominence in hackathons. Locations are chosen or adapted to convey and intensify a technology-oriented, futuristic atmosphere. For instance, contrasts such as darkness and bright lights are employed to make a powerful visual impression: “The environment was well set up and it was [...] futuristic, with lasers going in the ceiling and stuff like that: kind of, start-up buzz stuff” (Partner 8).

For the solvers, these legitimating behaviors provide recognition of their efforts and achievements. Participation adds credibility to their profile in their CVs. It also allows them to showcase their abilities to a broad audience. If the rewards for participation are well designed, they motivate participants to perform their best because they know their efforts will be appropriately recognized. It is seen as a privilege to be among the first to develop something novel, and a professional evaluation of solvers’ technological skills is an additional benefit, so having their solutions receive an in-depth look by the judges is attractive. At the same time, solvers see that partner companies also benefit from hackathons: “It’s a good deal for the companies, to get something out of this” (Team 2, Solver 4). Yet, the use of hackathons as an alternative to R&D development work in organizations is met with skepticism by solvers; to them, providing free labor seems to save costs for organizations, which makes the orchestrator’s negotiating and balancing actions even more important.

For the hackathon partners, a legitimated hackathon enhances their reputation as innovators and supporters of new talent. This also builds trust and reputation among a broad range of stakeholders. While solvers may seek future employers, the clients benefit from having the opportunity to attract future talent among solvers and to find new collaborators among other partners: “To the customer [it’s] the opportunity to recruit new talent. That’s very clearly the case, raising their profile as a key player in the community” (Organizer 4). Should the legitimating efforts of the orchestrator also attract media attention for the hackathon, that will enhance positive reputations and boost visibility for the firm, industry, and the issue for which

the solution is sought. As such, “every client is interested [...] in the ultimate solutions being of quality. They are doing it for communication purposes” (Organizer 5). While challenges are not often explicitly set to use specific technology, partners would naturally like to see solutions that use their own technology, thus promoting it to solvers and users. Seeing future applications of their technology demonstrated may also help build legitimacy for their future products or help decide whether to continue projects with those technologies.

#### ***4.4. Synthesis of the results: Three hackathon orchestration mechanisms***

Table II summarizes the three identified orchestration mechanisms, how they create value for hackathon organizers and stakeholders, and how different hackathon participants perceive the benefits of those three mechanisms.

Relational brokering provides both access to and bridging in the social networks formed within and around hackathon events. For solvers, this is demonstrated by an expansion of professional networks and experiencing diverse and sometimes unexpected new connections. For partners, the benefits of relational brokering are demonstrated via connections to new talent (primarily by identifying solvers that might be promising recruits) and building partnerships with the broader community around their business or technology challenges.

Contextual configuring helps create favorable environments for learning, experimenting, and other experiences. For solvers, this means creative atmospheres, structured settings, access to relevant resources, and being entertained, all factors that are relevant to keeping solvers engaged in a hackathon. For partners, contextual configuring helps ensure successful knowledge sharing, aligns the event with their goals, and bolsters the quality and relevance of hackathon outputs.

Finally, legitimacy building mechanisms help attract acceptance, resources, and attention from different stakeholders to the hackathon’s main theme(s) and technology and to the event itself. Solvers benefit from legitimacy building by getting involved in reputable events in which different kinds of recognition, rewards, and publicity reinforce the value they obtain from their participation. For partners, legitimacy building improves their own brand image, stakeholder trust, talent acquisition, and potential media coverage.

**TABLE II**

Orchestration mechanisms for the creation of value and solver and partner benefits.

| <b>Orchestration practice</b>        | <b>Key value creation logics</b>                                                      | <b>Solver benefits</b>                                                                                                                                                                                                                                               | <b>Partner benefits</b>                                                                                                                                                                      |
|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i><b>Relational brokering</b></i>   | Providing access to networks, bringing diverse networks together                      | <ul style="list-style-type: none"> <li>- Expanding professional networks</li> <li>- Experiencing diversity</li> <li>- Unexpected encounters</li> </ul>                                                                                                               | <ul style="list-style-type: none"> <li>- Connecting with and finding talent</li> <li>- Building new partnerships</li> <li>- Building communities of innovation</li> </ul>                    |
| <i><b>Contextual configuring</b></i> | Creating a favorable environment for learning, experimenting, and experiences         | <ul style="list-style-type: none"> <li>- Enjoying and having fun during the event</li> <li>- Creative atmosphere for learning and knowledge development</li> <li>- Structured environment for participation</li> <li>- Access to technology and resources</li> </ul> | <ul style="list-style-type: none"> <li>- Sharing knowledge and ideas</li> <li>- Alignment with the goals of the event</li> <li>- Quality and relevance of the developed solutions</li> </ul> |
| <i><b>Legitimacy building</b></i>    | Attracting acceptance, resources, and attention to the issue, technology, or solution | <ul style="list-style-type: none"> <li>- Recognition</li> <li>- Credibility</li> <li>- Publicity</li> <li>- Rewards</li> </ul>                                                                                                                                       | <ul style="list-style-type: none"> <li>- Brand image</li> <li>- Stakeholder trust</li> <li>- Talent acquisition</li> <li>- Media coverage</li> </ul>                                         |

## 5. IMPLICATIONS AND CONCLUSION

We know a great deal about the overall organization of hackathons (for a review, see Heller et al., 2023). However, we lack a more nuanced understanding of what hackathon orchestration constitutes, given the loosely coupled nature and voluntary participation typical of hackathons (Endrissat & Islam, 2022). By virtue of in-depth qualitative data from hackathon organizing, we have identified three distinct orchestration practices for hackathons—relational brokering, contextual configuring, and legitimacy building—and demonstrated how these mechanisms provide different benefits for both solvers and partners in hackathons.

### 5.1 Theoretical implications

First, our study contributes to and extends the literature on hackathons by empirically unbundling the different orchestration mechanisms of hackathon organizers that aim to broker, configure, and legitimize hackathons. We demonstrate how these three distinctly different orchestration mechanisms complement one another in ensuring benefits for hackathon partners

and solvers. We contribute to the literature on hackathon coordination (Heller et al., 2023; Lifshitz-Assaf et al., 2021; Pihlajamaa & Merisalo, 2021) from an orchestration perspective, where we highlight the social network features of hackathons and demonstrate the mechanisms in which the organizer can facilitate, configure, and refine relationships and the network contexts in which hackathon participants interact.

Second, while much research has discussed hackathons as events coordinated by corporate or focal organizations (see, e.g., Heller et al., 2023), our empirical results provide a more nuanced understanding of the role of a separate third-party entity orchestrating hackathons. In the literature, third-party orchestration is suggested to be beneficial due to its ability to provide neutral, facilitative coordination in a variety of collaborative settings (Pinnington et al., 2021; Ritala et al., 2023). We demonstrate how the third-party role of a professional hackathon orchestrator can enable a variety of orchestration practices that help intermediate connections and ideas, configure collaboration settings, and bring legitimacy to the overall activity. In this regard, we follow the literature that has suggested that orchestration constitutes both an individual skill and an organizational capability that are particularly useful in innovative and facilitative settings (Hurmelinna-Laukkanen & Nätti, 2018; Ritala et al., 2009).

Finally, we contribute to the literature that portrays network orchestration as a process of brokering (Ritala et al., 2023). We demonstrate not only how hackathon orchestration resembles the classic notions of network brokering in terms of bridging structural holes (Burt, 2004) but also the important role of modifying the context in which the network of participants interacts, which represents a more recently highlighted notion in the brokering process (Halevy et al., 2019). Brokering practices by the orchestrator to foster social interactions mainly take place informally. Due to that informality, these brokering practices have been called “invisible labor” for coordination and have often been overlooked (Halevy et al., 2019, p. 222). For instance, brokering practices for both bridging ties (i.e., introducing individuals to each other) and altering the context so that individuals can easily interact may be specifically suited to brokering collaborations with new solvers who are unfamiliar with a setting (Lingo & O’Mahony, 2010). Importantly, our study extends these insights by bringing in a third brokering process that we call legitimacy building. While the literature on ecosystems has pointed out the important role of orchestrators in creating and accumulating legitimacy in an ecosystem (Thomas & Ritala, 2022), we demonstrate in our study how legitimacy building becomes important for the brokering process in the context of hackathons. We identify how legitimacy building contributes to better resourcing and status for hackathon events and participants in terms of perceptions of status and opportunity, which are important drivers of hackathon participation.

## **5.2 Practical implications**

While hackathons have been around for several decades, the professional organizing and intentional linking of different networks in these events and their orchestration are still emerging. Hackathons have often been organized by universities or firms as internal innovation contests, and hackathon organizing as a third-party activity is still a nascent sector. It is important to remember that the impacts of well-orchestrated hackathons materialize long after the events themselves. The organizers we interviewed observed that it often takes at least 12–18 months for the solutions developed to be implemented as new ventures or product introductions.

The orchestrator plays a central role in bringing together hackathon participants because orchestration practices significantly influence the quality of a hackathon event, its outcomes, and the engagement and satisfaction of all participants. Defining and communicating the purpose, objectives, and challenges is therefore crucial for the experience of individual solvers. Additionally, the orchestrator needs to effectively mobilize the right resources and manage relationships between solvers and partners on an inter-organizational level. Thus, our identification of three orchestration practices can serve as a helpful starting point for hackathon organizers in designing their approach to future events.

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