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Growing their popularity amongst entrepreneurial individuals as well as larger organisations, hackathons provide a means to accelerate innovation. Hackathons are a scouting-ground for new talent, a test-bed for 'crazy' ideas, a place for cross-functional and cross-cultural collaboration, a means for identifying and promoting entrepreneurs, and an opportunity to create new businesses and business opportunities. This paper explores how hackathons can contribute to and enrich the innovation process and help to identify new talent and create a unique competitive advantage in a corporate setting. The methodology for the organisation of corporate hackathons proposed in this paper provides a three-stage, step-by-step guide covering planning, execution and post-hackathon activities. It enables companies to prepare an event that delivers value, it helps change the innovation landscape and it empowers participants and employees to act on the resulting ideas.

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Abstract

In recent years, the way corporates innovate has changed significantly. Going from ‘behind closed doors’ innovation to open innovation where collaboration with outsiders is encouraged, companies are in the pursuit of more effective ways to accelerate their innovation outcomes. As a result, many companies are investing to create more entrepreneurial environments, which not only empower employees to proactively propose and test new ideas, but also reach beyond company walls to involve many others to co-create new solutions. In this paper, we present a methodology for organizing hackathons, ie. competition-based 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. This paper also explores how hackathons can contribute to and enrich the innovation process, help identify new talent and create a unique competitive advantage in a corporate setting.

Keywords: Co-creation, Hackathon, Innovation, Open Innovation, Design Thinking.

1 Introduction

Not long ago, industrial leaders believed that the greatest opportunity to leave the competition behind was to invest heavily in internal R&D. The idea was to have vast R&D resources, leading talent and strong, top-level support carry out all innovation activities behind closed doors, until new products - the seeds of the innovation process - were mature enough and ready to be launched to the market (Figure 1: Closed Innovation). It was believed that only those companies would be able to keep up with the pace of change and innovation (Tucci, Afuah & Viscusi, 2018).

Fast forward 30 years or so, the situation in most industries is quite different. Companies around the world have moved, or are moving, from inward-focused, ‘closed’ innovation to open innovation as proposed in Figure 1. Opening up the innovation processes and making its walls permeable, decisively encourages the use and exchange of external ideas, technologies, knowledge, talent, resources and more (Chesbrough, 2006). In part, this can be achieved through the organization of co-creation events that are often referred to as hackathons, ideathons or innovation days. Once industry-specific coding sprints, they recently overtook the world of entrepreneurs, startups and, lately, large corporations (Cobham et al., 2017; Spaulding & Caimi, 2016; Di Fiore, 2013; Altringer, 2013). The word *hackathon* is composed of 2 parts: *hack* and *marathon*. The word *hack* refers to the creative problem-solving, designing, prototyping and tackling of the challenge, while the word *marathon* indicates the intensity of the event.

In a nutshell, a hackathon is an event with an element of competition, where participants work in teams over a set and short period of time to ideate, collaborate, design, rapidly prototype, test,

iterate and pitch their solutions to a determined challenge. And since hackathons are time-limited events, they best fit the earliest stages of the lean innovation process, where the market is unknown or not yet well-defined, and many ideas are welcome to be tested using user-centric and Lean Startup concepts.

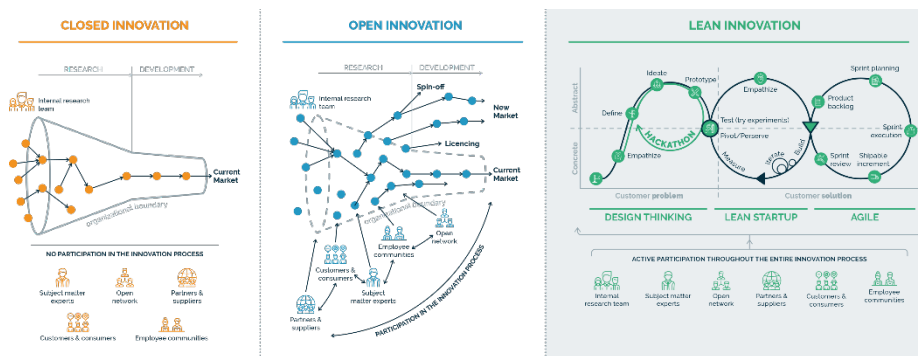


Fig. 1. Comparing Closed Innovation, Open Innovation and Lean Innovation processes (adapted from Chesbrough, 2006; Optimus BT, 2010; and Gartner, 2016).

In this paper, we present a methodology for organizing hackathons and explore how these can contribute to and enrich innovation processes in large organizations.

2 Lean Innovation Model and its enablers for hackathons

Chesbrough (2006) described open innovation as a concept where valuable ideas can come from both inside as well as outside the company, and can, similarly, be pushed to the market from inside as well as outside the company. Open innovation assigns the same priority or level of importance to external ideas and routes to the market as to internal ones. This hybrid concept provides an environment where innovative ideas and new products are underpinned solely by innate creativity and knowledge from within the four walls of the company’s R&D. This open environment actively seeks for collaborations reaching far outside the company’s R&D in order to co-create with partners, suppliers and even customers (Chao, 2012). However, making such a paradigmatic shift in the way a company operates its innovation ecosystem is not easy and requires unwavering leadership support and a structured approach.

The LAA’s Lean Innovation Model (Figure 2) relies on years of research, where different models proposed by well-known authors and practitioners, as well as cases of successful implementations of lean innovation practices in leading companies were studied and analyzed. The resulting Lean Innovation Model consists of 12 enablers structured in 4 key building blocks, and serves as a reference to support organizations in the creation of their lean innovation roadmaps (Flores et al., 2017).



Fig. 2. Lean Innovation Model with highlighted enablers for organizing hackathons.

The aim of the Lean Innovation Model is to provide a framework to help practitioners discover the various innovation practices, which could be methodologies, tools or techniques, such as open innovation, co-creation and others. In particular, the organization of co-creation events falls under the 4 enablers, as highlighted in Figure 2:

Strategy & leadership commitment: For co-creation events to be successful, they require: 1) to be aligned with the company vision to determine strategic challenges for the event, 2) support from the leadership to communicate the seriousness of the intent to potential participants, and 3) to ensure the results have the potential to grow and become real projects.

Cross-functional collaboration: Experts from the same domain can only come up with ideas situated around their area of expertise. Therefore, a wide diversity of participants is encouraged to ensure that out-of-the-box ideas emerge. It is key that employees interact with external participants during the co-creation events.

Sustainable innovation process: To run a successful co-creation event, a simple, yet impactful innovation process is required. Commonly used methodologies for such events are: Design Thinking, Lean Startup, Scrum, or a combination of these.

Internal and external partnerships: Forming partnerships to organize co-creation events makes a big difference in whether the event will be a success or just another mediocre workshop. Partners include anyone from venue providers, support teams and photographers, to facilitators, subject matter experts, speakers and judges.

Using the Lean Innovation Model as a framework, together with findings from the literature, and our experience in organizing corporate and student hackathons (LAA, 2018), a step-by-step methodology for the preparation and execution of co-creation workshops has been developed.

3 Methodology for organizing corporate hackathons

As described in the introduction of this paper, hackathons are co-creation events purposefully designed to utilize diverse mindsets, tackle complex challenges and create new business

opportunities. However, to provide such an environment, any hackathon needs to be carefully planned, executed and wrapped up. From selecting the venue and the room layout (Rattner, 2017; Dam & Siang, 2018) to appointing the facilitator, determining the program (Amabile & Khaire, 2008) and selecting the awards (Bays et al., 2009), every detail influences the creativity and innovation potential of the participants.

A literature review highlighted some of the core areas of organizing co-creation events, covering mainly generic hackathons and not corporate ones (Cisco, 2015; Rissola et al., 2017; Tauberer, 2016; InfoSupport, 2017). Although most steps are transversal, the reasons, the planning and the alignment approach tend to differ. In addition, most of the literature still focuses on industry-specific events, largely on software development and digital technologies.

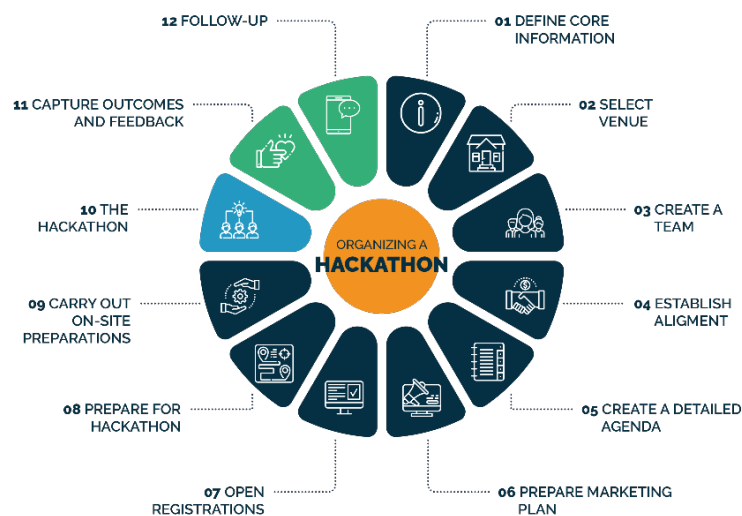


Fig. 3. Methodology for organizing co-creation workshops in a corporate setting (LAA, 2018).

To ensure co-creation events deliver benefits for the host-company as well as the participants attending, the LAA team defined a three-stage methodology that covers in detail: 1) the pre-hackathon planning, 2) the execution, and the 3) post-hackathon stage. The steps of the proposed methodology are represented in Figure 3.

3.1 Pre-hackathon stage (planning)

The planning stage is the first and most critical stage when organizing a hackathon. It consists of 9 steps (as observed in Figure 3), starting from (1) defining the core information such as the aim and objectives, the expected outcomes, the theme or topic, the challenge, the date and duration, the target group (participants), the location and the budget. Having pinned these details down, a suitable (2) venue needs to be identified and a (3) team must be formed. As mentioned above, the venue needs to ‘scream innovation and creativity’ in order to maximize the diversity and originality of ideas and prototypes the participants will develop. Another important aspect of selecting a venue is the catering service; the continuous supply of food and drinks for such events is a must in order to keep the energy level high. However, the selection of the venue is only one part of the success, the other being the team that will help organize and execute the hackathon. While smaller hackathons need less time and people to organize, larger hackathons (100+ participants) require a dedicated, or “core” team (Cisco, 2015). Hackathons do require an extended team, including

facilitators, subject matter experts, presenters and workshop leaders, judges and technical and support teams. Each individual plays a specific role before and, especially, during the event. For example, facilitators will be involved in planning the program in the pre-hackathon stage and will be leading teams of participants through the design and problem-solving process during the execution stage. Presenters and workshop leaders might also be involved in the planning stage, but will play a crucial role in setting the scene and equipping participants with the needed knowledge at specific times during the hackathon. The core team will co-determine the evaluation criteria and protocol for the awards ceremony, identifying judges who, during the hackathon, will be carefully observing and evaluating how teams work and the ideas they develop. For more specific challenges, subject matter experts are needed in order to advise teams during the hackathon, help them with specific questions or dilemmas, and provide insights, knowledge and experiences, thus enabling teams to develop better prototypes (InfoSupport, 2017). To ensure such a diverse group of people works together smoothly and delivers value, (4) team alignment must be achieved (including alignment with the sponsoring company¹).

Hackathons also require a process to ensure the expected results are obtained in such a short time. Coding and software development hackathons typically consider the Scrum process to ‘walk through’ a design cycle. On the other hand, business and corporate hackathons usually follow a design thinking methodology to guide the teams through the day(s). Design thinking works extremely well in the business hackathon setting, because it starts by deep-diving into the problem (challenge) through user interviews, observation and research. This provides strong foundations, rooted in real, human needs, to build ideas and prototypes on.

Design Thinking is a human-centered approach used to creatively and holistically solve complex problems in an iterative and collaborative manner (Brown, 2008). The design thinking process created by Stanford Design School (d.school, 2013) is structured into five-phases: Empathize, Define, Ideate, Prototype, and Test.

Using design thinking as the process to follow during the execution of hackathons, ultimately sets the back spine of the (5) co-creation program. While the program depends on the duration of the hackathon, the challenge, the expected outcomes, the facilitators, as well as the targeted audience, the core elements remain the same across the events. The typical structure of the hackathon program includes opening speeches and icebreakers, followed by the stages of the design processes (with lunch and coffee breaks, as well as occasional energizing activities), and concludes with the submission and presentation of prototypes to the judges and audience. The final act of the hackathon is the awards ceremony where winners are announced and awards handed to the best team(s) or idea(s).

The following two steps of the hackathon organization methodology focus on (6) the promotion and marketing of the hackathon, and (7) handling the registrations. Whether the hackathon is being organized for an internal (in-company), external (open to the public) or mixed audience, getting the right participants will have an impact on the quality of the outcomes. Both activities need to be planned well ahead of the actual date of the event in order to ensure the news reach the largest audience possible and allow enough time to apply (InfoSupport, 2017). Both the

¹ A company for which the hackathon is being organized. They are part of the core team who defines the hackathon theme, sets the challenge, appoints the judges and provides the main awards.

promotion and registration processes are the first touchpoints the potential participants will have with the hackathon experience. While the promotion messages should be aligned with challenge of the hackathon, the registration process should be set up in a user-friendly and simple way.

The last two steps of the pre-hackathon stage occur after registration is closed, but before the hackathon day. During the final (8) preparation, the team will ensure that all presentations and speeches are ready, prototyping material is available, templates and visual guides are printed, the pre-work for participants is selected and distributed, the promotional material (such as T-Shirts, hats, mugs, pens, notepads, power banks, etc.) is ordered in the right quantities, and the venue and other suppliers (photographers, cameramen, doodlers and scribblers) have all the information needed. A day or two before the actual event, (9) on-site preparations are required. These include audio-visual checks, setting up the room layouts and workshop spaces, setting up the registration and welcome desk, printing the participants’ badges, putting together welcome kits for participants, doing a trial run of presentations and speeches, and more.

3.2 The hackathon stage (execution)

After the official welcome and the initial presentation of the hackathon challenge, teams start working on the Empathize phase, where participants conduct a preliminary research on the topic and engage with end-users and other stakeholders through interviews. Moving to the second phase, teams try to make sense of what they just learned through the interviews and research, by defining the problem they are going to address. While the hackathon provides the challenge, the underlying problem is identified through the analysis of data collected in the Empathize phase. With a clear problem statement, teams enter the third phase where they start brainstorming about potential ideas that could solve that problem and continue by ranking these ideas. The important notion at this stage is that ideation is not so much about the quality, but rather about the quantity of ideas. This is where teams should explore anything from conventional to entirely blue-sky options. What follows is a series of iterations, where teams start by developing a prototype for the selected idea, before testing it with the stakeholders. In a two-day hackathon, this is where day one typically ends. In the morning of the second day, teams undergo at least one more iteration, modifying their prototypes based on the feedback they received the previous day. With the updated prototype, teams will test it again with the end-users and apply final modifications before presenting it to the judges, as shown in the following figure.

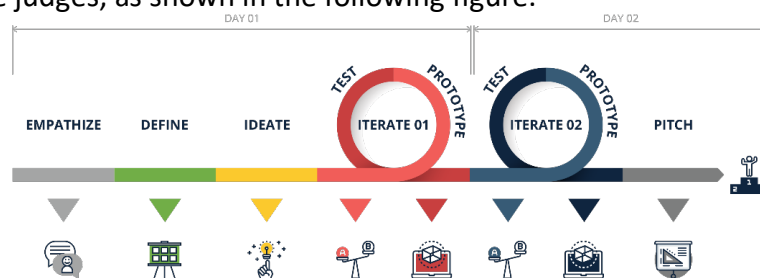


Fig. 4. Design thinking processes proposed for a two-day hackathon event (LAA, 2018).

3.3 Post-hackathon stage (reflection)

Hackathons are high-energy events, which is the reason why the post-hackathon work is often neglected. However, it is strongly recommended to also invest time in this last phase, where the

organizing team organizes lessons learned sessions to analyze ideas, patterns and prototypes, and set in motion the wheels for establishing a project or projects based on the winning solutions. The organizing team also collects, structures and stores the outcomes of the event, prepares follow-up work, and gets ready for post-hackathon promotion activities. It is important to highlight that leadership support is essential, if the seeds of ideas from the hackathon are to sprout into full-grown projects.

4 Conclusions

Growing their popularity amongst entrepreneurial individuals as well as larger organizations, hackathons provide a means to accelerate innovation. The regular organization internal and mixed-audience hackathons is more than just a 24-hour or 48-hour workshop; it is a change initiative with a great ROI that reaches beyond R&D. Hackathons are a scouting-ground for new talent, a test-bed for 'crazy' ideas, a place for cross-functional and cross-cultural collaboration, a means for identifying and promoting intrapreneurs, and an opportunity to create new businesses and business opportunities.

The methodology for the organization of corporate hackathons provides a three-stage, step-by-step guide covering planning, execution and post-hackathon activities. It enables companies to prepare an event that delivers value, it helps change the innovation landscape and it empowers participants and employees to act on the resulting ideas.

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References

- Altringer, B. 2013. A New Model for Innovation in Big Companies. HBR. Available at: hbr.org/2013/11/a-new-model-for-innovation-in-big-companies [Accessed 04-Apr-2018].
- Amabile, T. & Khaire, M. 2008. Creativity & Role of the Leader. HBR. 86(10):100-9, 142.
- Bays, J., Goland, T. & Newsum, J. 2009. Using prizes to spur innovation. Available at: <https://goo.gl/Hg5GnQ> [Accessed 04-Apr-2018].
- Brown, T. 2008. Design Thinking. Harvard Business Review. June 2008:84-92.
- Chao, R. 2012. The Ins and Outs of Open Innovation. 1. Available at: www.forbes.com/sites/darden/2012/05/06/the-ins-and-outs-of-open-innovation-3 [Accessed 04-Apr-2018].
- Chesbrough, H. W. 2006. Open Innovation: The New Imperative for Creating And Profiting from Technology. Harvard Business School Press, Massachusetts, USA.

- Cisco. 2015. IoE Student Hackathon Playbook. Available at: honim.typepad.com/files/1.0-ioe-student-hackathon-playbook.pdf [Accessed 04-Apr-2018].
- Cobham, D., Gowen, C., Jacques, K. Laurel, J. & Ringham, S. 2017. From appfest to entrepreneurs. INTED2017 Proceedings, Valencia, SPain. PP 522-529.
- d.school. 2013. Available on: dschool.stanford.edu/resources [Accessed 05/04/2018].
- Dam, R. & Siang, T. 2018. Create Some Space – for Ideation Sessions and Design Thinking. Available at: <https://goo.gl/VsZL5R> [Accessed on 04-Apr-2018]
- Di Fiore, A. 2013. Make Your Next Innovation Jam Work. Harvard Business Reivew. Available at: hbr.org/2013/01/learning-how-to-jam [Accessed 04-Apr-2018].
- Flores, M., Golob, M., Maklin, D., Tucci, C. L. & Flores, K. 2017. Lean Product Development Best Practices: Ten industrial success stories. LAA, Switzerland.
- Gartner. 2016. Enterprise Architecture and Technology Innovation Leadership Vision for 2017. Available at: <https://goo.gl/NyjosJ> [Accessed on 06/04/2018]
- InfoSupport. 2017. Hackathon Playbook. Available at: www.infosupport.com/wp-content/uploads/Playbook-Hackathon.pdf [Accessed 04-Apr-2018].
- LAA. 2018. The CEMEX Hackathon. Available at: lean-analytics.org/the-cemex-hackaton [Accessed on 06-Apr-2018]
- Optimus BT. 2010. Fostering open innovation & knowledge communities. Presentation.
- Rattner, D. M. 2017. How to Use the Psychology of Space to Boost Your Creativity. Available at: <https://goo.gl/ydUZFd> [Accessed on 04-Apr-2018]
- Rissola, G., Kune, H. & Martinez, P. 2017. Innovation Camp Methodology Handbook. Available at: <https://goo.gl/SXzT7z> [Accessed 04-Apr-2018].
- Spaulding, E. & Caimi, G. 2016. Hackathons Aren't Just for Coders. HBR. Available at: hbr.org/2016/04/hackathons-arent-just-for-coders [Accessed 04-Apr-2018].
- Tauberer, J. 2016. How to run a successful hackathon: A step-by-step guide. Available at: <https://hackathon.guide> [Accessed 04-Apr-2018].
- Tucci, C. L., Afuah, A. & Viscusi, G. 2018. Creating and Capturing Value through Crowdsourcing. Oxford University Press, New York, USA.