What Are Hackathons For?

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In hackathons, small teams produce working software prototypes in a short time period. Hackathons are good for collaboration, experimentation, and learning but require that additional mechanisms are in place to commercialize their key results.

Many companies face the challenge of developing new products to maintain a competitive advantage, respond to competitors’ offerings, and exploit emerging business opportunities. Product life cycles are becoming increasingly shorter, and a swift execution from idea to market has become a key competitive advantage, considering how quickly and easily ideas can be commoditized. Consumer behavior is changing rapidly, and new, daring business models such as the freemium model are shaping markets. In addition, the emergence of software-as-a-service and cloud computing has changed the whole environment of digital products and services.

Incremental development is needed to keep software products fresh and useful for longer. This includes implementing new features for existing products in response to evolving markets. Nowadays, many software companies combine agile and lean methods to respond to incremental-development needs. However, even these methods focus on efficiency and “just enough” requirements that might cause software companies to overlook creativity techniques and thinking. Generally, software companies still face challenges in strategic product planning. In practice, product roadmaps and backlogs are full, and the planning lacks holistic customer orientation. So, novel ideas fail to get attention soon enough, if at all. Instead of streamlining incremental development, we need revolutionary methods to rapidly explore new business initiatives.

One approach above and beyond any kind of routine development is the hackathon, an intensive development event that has been trialed to combat these challenges. You can view hackathons as an engineering solution to the fundamental business problem of how to make revenue from an idea, spanning the phases from creating the idea to producing a software prototype. Hackathons are also useful as social and educational events. Here, we discuss hackathons in light of the experiences of F-Secure (www.f-secure.com), a medium-sized software company.

What’s a Hackathon?

“Hackathon” combines the terms “hacking” and “marathon” and implies an intense, uninterrupted, period of programming. More specifically, a hackathon is a highly engaging, continuous event in which people in small groups produce a working software prototype in a limited amount of time. Hackathons vary wildly in their purpose and execution but generally have a common structure and characteristics.

Key Characteristics

Most hackathons center on a common theme or technology, such as health and fitness or Android development. Many hackathons targeted at third-party developers use the technology’s APIs as a basis for development. The motivation for participating could be prizes for the
winning teams or simply the opportunity to meet new people while learning and experimenting with technologies.

A hackathon can be an internal or external event. For instance, Facebook has become known for its hackathon culture and constantly organizes internal hackathons. In contrast, hackathons related to mobile-phone ecosystems, such as Windows Phone, engage external developers. Hackathons can target a variety of internal or external groups, for different purposes. Many hackathons go beyond the basic goal of simply creating prototypes. For example, Microsoft’s International Women’s Hackathon encourages more women to pursue wild ideas in software engineering.

A hackathon begins with ideation and team building (see Figure 1). These activities can be organized online or in person, before the hackathon or when it begins. Collecting and developing ideas beforehand will leave more time for coding. Participants organize themselves, or are organized, into small teams based on the ideas or technologies that interest them.

Hackathons have a set starting and stopping time, between which teams focus solely on creating a demo-able version of their idea. Organizers aim to provide everything the teams need so that they can code without interruption. A stable Internet connection and appropriate APIs are necessary, but hackathons also provide food, coffee, energy drinks, candy, and sometimes even a place to sleep. Active, onsite technical support also helps teams resolve technical issues faster.

After many hours of coding and not much sleep, the teams have a few minutes to demo their (hopefully working) prototype in front of an audience, explaining what it is and why they developed it. Most demos show only a small number of working features; the aim is to demonstrate the concept and its value. The most successful demos are easy to understand and demonstrate the key aspects of a novel idea.

After the adrenaline rush and post-hackathon celebrations, a decision must be made: is the idea worth continuing, or should it be abandoned? In some cases, promising ideas might receive funding for further development. Indeed, the team’s performance under pressure and the resulting prototype provide vital clues as to the idea’s viability and the team’s suitability. If a decision isn’t explicitly made regarding the future of the hackathon results, all the prototypes will likely become abandonware.

An often understated by-product of hackathons is the participants’ personal development and sense of achievement from working with new technologies, meeting and collaborating with people they otherwise wouldn’t, and generally having a lot of fun. These benefits might even...
constitute the primary reason for the hackathon, owing to the event’s potential for building strong communities and cultures.

Variants
The definition of a hackathon is far from generally agreed on. Even some noncoding events are promoted as hackathons. For instance, British Airways put 100 innovators on a transatlantic flight for an 11-hour event to develop new concepts. British Airways called the event Un-Grounded, but several magazines and blogs called it a hackathon.

Likewise, F-Secure organized Crash Me if You Can, an internal two-day event to find and test vulnerabilities in the company’s technologies. Some F-Secure employees promoted it as a hackathon. Instead of hackathon, the more appropriate term might have been “bug bash.”

In addition, F-Secure organized a hackathon that included the Bizton Cup, an intensive two-day business-modeling event. Some people also called that event a hackathon.

Hackathons have a number of variants and names, such as “hackfest” or “code camp.” Also gaining popularity is the conceptually similar event called a “jam.” Unlike hackathons, jams don’t need to involve coding (but they can) and often belong to a certain discipline, such as game development or service design. Jams traditionally have a theme that’s kept secret until the jam begins, to ensure that all the idea generation happens at the jam. Similar methods such as innovation games, challenges, and tournaments offer fast-paced ideation and prototyping with social, fun, and competitive aspects. Like jams, these methods aren’t restricted to software development.

Google Ventures (www.gv.com) has become known for its five-day design sprint for startups, which constitutes the primary reason for the hackathon, owing to the event’s potential for building strong communities and cultures.

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Hackathons at F-Secure
F-Secure has traditionally focused on security products, especially antivirus software. In the past few years, the company has also developed cloud services to help users manage, secure, and back up their personal content from different devices. More recently, F-Secure has entered the consumer lifestyle domain from the angle of security and peace of mind. In addition, F-Secure is searching for viable business options outside its current core businesses. F-Secure employs approximately 1,000 people, and software development occurs primarily in Finland, Malaysia, Russia, and the US.

F-Secure has begun using hackathons for several purposes. Table 1 describes five hackathons that F-Secure organized or was actively involved in. Each had a predefined purpose and a technology or theme, which was usually F-Secure’s own product or ecosystem. The team sizes, types of participants, and their disciplines varied slightly. The implementation ideas came sometimes from the participants themselves and sometimes from the business owners. The hackathons’ starting points varied, depending on the preparations made beforehand, and each hackathon faced challenges. The table’s last column describes the outcome and what happened with the developed prototypes.

The hackathon organizers at F-Secure used lightweight feedback mechanisms to respond to the needs of the self-directed teams and continuously adapt to the different situations. For instance, the organizers gathered the teams periodically for quick status checks to find out how they were doing, what worked well, and what didn’t. To minimize interruptions, these meetings occurred during breakfast and lunch breaks. During and after four of the hackathons, the organizers used short questionnaires to gather feedback. In particular, after the first hackathon, they interviewed each participant. Naturally, the organizers
### Characteristics of five hackathons.

<table>
<thead>
<tr>
<th>Purpose</th>
<th>No. of teams and team size</th>
<th>Participants</th>
<th>Disciplines involved</th>
<th>Origin of ideas</th>
<th>Starting point</th>
<th>Challenges faced</th>
<th>Outcome, results, and actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Validation of a content cloud ecosystem for third parties.</td>
<td>Three teams of four to six people.</td>
<td>Internal (from the Finnish, French, and US offices).</td>
<td>Software engineering.</td>
<td>Business owners and participants.</td>
<td>Most ideas were presented before the hackathon. Teams could study beforehand. One idea was created during the hackathon.</td>
<td>A slow start due to team dynamics and technological barriers.</td>
<td>Four working prototypes, of which one was productized. Demonstrations to existing and potential customers.</td>
</tr>
<tr>
<td>New product and concept development for small and medium business markets.</td>
<td>Four teams of one to five people.</td>
<td>Internal (from the Russian and Finnish offices).</td>
<td>Software engineering.</td>
<td>Most from business owners, some from participants.</td>
<td>All ideas were presented before the hackathon. Teams could study beforehand.</td>
<td>Language issues and some minor technological barriers. Intellectual property rights (IPR) conflicts preventing further development of one prototype.</td>
<td>Four working prototypes, of which two have been scheduled for further development. Demonstrations to existing business partners. Improved collaboration between the sites.</td>
</tr>
<tr>
<td>Collaboration between companies and research organizations.</td>
<td>Six teams of three to five people.</td>
<td>Six companies and six research organizations (from Finland).</td>
<td>User experience (UX) and graphical design. Software engineering. Business development.</td>
<td>The participating organizations.</td>
<td>Collaborative ideation occurred before the hackathon.</td>
<td>Difficulties agreeing on IPR and team formation in a multicompany setup.</td>
<td>Six working prototypes. Continued collaboration between two companies to further develop the hackathon idea.</td>
</tr>
<tr>
<td>Engagement and new concept development using F-Secure’s Web-based technology.</td>
<td>13 teams of one to five people.</td>
<td>Internal and external (from Malaysia).</td>
<td>Software engineering.</td>
<td>The participants.</td>
<td>An introduction to the technology was provided before the event. Ideas were created both before and during the hackathon.</td>
<td>Difficulties in getting up to speed with new technology.</td>
<td>13 working prototypes, of which two were productized Two new recruitments. Good publicity in local media.</td>
</tr>
<tr>
<td>Collaboration between software engineers and graphic designers. Prototype for user studies.</td>
<td>A team of six (three engineers and three designers).</td>
<td>Research project (from Finland).</td>
<td>UX and graphical design. Software engineering.</td>
<td>Concept design resulting from the research project.</td>
<td>The event started with concept design and a database mock-up.</td>
<td>Timing of design and coding. Lack of ownership.</td>
<td>Prototype for research purposes. Open source release for research and educational purposes.</td>
</tr>
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</table>
had several informal discussions with the participants and business owners regarding the hackathons’ results.

Why Hold a Hackathon?
Hackathons target the collaborative and rapid creation of software prototypes. A concrete prototype provides a proof of concept that increases the level of confidence in technical terms and provides support for decision-making bodies. In particular, the prototype offers a concrete means to assess the concept’s potential for customer value. For instance, some F-Secure hackathon prototypes were shown to the company’s offices in different countries and introduced to some customers and partners. In one case, the customer reacted unexpectedly, becoming highly interested in the one prototype that was “accidentally” created during the hackathon and less so in the “planned” prototypes.

Hackathons enable bottom-up and externally collaborative ideation in a company by letting anyone come up with extraordinary ideas that are then prototyped. This fosters a start-up or intrapreneurial spirit toward new business opportunities. Furthermore, it’s a way to stop smart: in just a few days of development, participants can decide whether it’s worth continuing with the idea. So, hackathons can complement routine development, addressing the need to explore alternatives to existing product roadmaps and backlogs. One hackathon participant stated this strength nicely: “It brings several new ideas and an environment to implement those ideas with a very strong, dedicated team.”

Because the ideas are often converted from scratch to demo-able prototypes, hackathons let developers explore ideas that involve high market and technical uncertainties. For instance, one hackathon team developed a prototype aimed at the mass consumer market in sports. Typically, this kind of idea would never become a candidate for a roadmap item at F-Secure.

Hackathon results include not only entirely new application prototypes but also novel features for existing products. For instance, after one F-Secure hackathon, the company placed two prototypes on product roadmaps and backlogs for future releases. The prototypes proved to product management that the extensions to the existing products were feasible to productize.

Hackathons are also effective social and educational events for a company and its stakeholders. They provide participants a way to learn or try something new. At F-Secure, the hackathon teams consisted of developers who normally didn’t work together. The participants learned both practices and new technologies from each other. They phrased the social and educational benefits as follows:

Excellent opportunity to concentrate on one thing and meet new people.

Learned a lot of new things. It was really eye opening to meet people with a totally different view of how to do things.

It was a lot of fun to work with people I never met before. We worked way more efficiently than what I anticipated.

In addition, Hackathons enable people and organizations to do things differently, even in an uncontrolled, self-directed manner that doesn’t follow the process dictated by routine development. Yet the development in hackathons isn’t necessarily undisciplined. For example, one hackathon team pair-reviewed all code before committing it to the repository. The self-directed, results-oriented nature of hackathons helps nurture beneficial skills and attitudes that participants can transfer to everyday work.

Finally, Hackathons enable building a community of users and strategic networks. F-Secure is increasingly using external collaboration in hackathons. Table 1 shows that F-Secure was a primary organizer of a joint hackathon involving 12 organizations and a close follower of another hackathon to combine two disciplines. F-Secure has also agreed to organize a hackathon with a university of applied science to collaborate with students of business, well-being, and game development. Moreover, the company plans to invite external technology partners to participate in another hackathon. In particular, partners, working closely with users and customers, could provide valuable market information as input.
Challenges

One challenge of hackathons is communication between different disciplines. The third and fifth hackathons in Table 1 combined more than one discipline to develop a concept. In both cases, cooperation between the disciplines was difficult. In one case, the software engineers needed to wait for service design concepts from the graphical designers, which the engineers perceived as inconvenient in the short, time-boxed event. In the other case, the business-planning and software development teams didn’t cooperate well because the developers didn’t tolerate the interruption during the development flow. These examples illustrate that hackathons are intensive events in which developers focus on developing working code. They consider any interruption or delay as a sacrifice and hindrance to fulfilling their goal of producing a working prototype.

According to our experience, however, business support can be beneficial if it’s available on demand, discreetly and informatively. For instance, one hackathon team had already finished a minimum viable prototype during the first day of a three-day hackathon. In this case, they valued the additional development ideas from a product manager on the second day. Likewise, in the fourth hackathon, the external developers also valued the informative role of the product manager. The product manager paid special attention to preserving the hackathon’s natural flow. In the third hackathon, we also learned that an informal dinner the night before the hackathon enabled business teams to conveniently share business and customer information with the development teams.

Another challenge concerns how to advance the prototypes after a hackathon. At F-Secure, some prototypes have become candidates on product roadmaps. However, this slows the momentum, and the prototype idea then becomes a part of routine development. “It’s all about cost of delay,” as one hackathon organizer stated. To overcome this challenge, he suggested that the company should have the capability to ramp up the team immediately after the hackathon to start commercializing the most promising prototype. A hackathon participant raised the same issue: “Try to keep the hackathon team [together] to move from prototype to releasable product.” An interesting topic for further research concerns the addition of other disciplines, such as design and business, to the team at this phase.

Intellectual-property-rights issues, such as trademarks, branding, and patents, also seem to cause problems. For example, one hackathon prototype was largely appreciated by the relevant stakeholders, but after a closer assessment, a patent issue caused the cancellation of further development. However, the hackathons themselves should be free of such concerns. On the other hand, if the participants include external developers, rights for ideas and the resulting prototypes must be agreed on before the hackathon, as has been done at F-Secure’s hackathons.

Beyond Hackathons

Despite hackathons’ benefits and popularity, F-Secure’s hackathon organizers admit a paradox. Immediately after each hackathon, the participants and audience, including business leaders, have been very satisfied with the outcome, with it typically exceeding all expectations. However, the results have thus far rarely been exploited commercially. Something is still missing from the “hackathon method.”

For a company, a hackathon is an investment. After a series of hackathons, the return on investment might be increasingly questioned. For instance, as a result of hackathons, F-Secure has released a handful of applications. Two examples are Safe Twiit, which keeps a user’s Twitter account safe, and F-Secure Globe (http://globe.f-secure.com), which gives a geographical visualization of blocked malware. However, the released applications haven’t yet generated new revenue or significant business value. The honeymoon for hackathons is over.

Hackathons are, in one respect, an efficient engineering solution, but they alone don’t initiate new business. They require mechanisms in place to commercialize their key results. Challenges arise because this new approach can confuse the company’s traditional ideation process and new-product-development management. For example, the heads of businesses typically decide which

The honeymoon for hackathons is over.
investments to make. If a hackathon idea doesn’t fit into the business strategy, product roadmap, or other plans, no one will make the investment decision. In other words, hackathons can result in new strategic initiatives that don’t align with those decision makers’ interests. So, the company’s strategy management or new-product portfolio management must accommodate these initiatives.

F-Secure is finding ways to implement active strategy management that would find a better place for such new initiatives. The aim is to promote rapid investment decisions, market validation, and intrapreneurship principles and metrics. For instance, F-Secure has developed an internal service that lets personnel initiate product and service ideas and collaboratively develop them into releasable products, outside existing software projects. Safe Twiit Beta and F-Secure Globe were further developed and released with this service’s help.

To further develop such a service involves several challenges. Although the hackathon prototypes offer an early opportunity to test customer value, including consumers and small and medium businesses in rapid decision making is difficult. Software companies require a new type of competence to engage the market and assess novel ideas that have been prototyped during a hackathon.

Another challenge is to find business owners, investors, and developers for the promising initiatives outside the existing business strategies. One option is to reallocate people and money from the existing business and software development to the new initiatives. Another option is to invest in crowdfunding and crowdsourcing.
Finally, senior management’s new role is to strongly protect those initiatives and closely work with development teams to solve the difficult strategic issues. As Scott Anthony and his colleagues stated, “they [senior managers] need to shield innovation projects as if they were viruses threatened by corporate antibodies.”

Hackathons effectively address the need to transform an idea into something concrete and demonstrable in a very short period of time. In software companies, the existing approaches typically take weeks, if not months, whereas a hackathon takes only a few days at most (not including pre- and post-hackathon activities). So far, the results of every F-Secure hackathon have exceeded the objectives and expectations of both the participants and business owners. Thus, F-Secure will continue to use Hackathons; it has become one method for advancing new product ideas, external cooperation, and collaborative learning.

The hackathon is a straightforward method and is relatively easy to adopt from the software development viewpoint. However, the harder part is to integrate hackathons into the company culture, new product development, and productization. Hackathons’ main challenge concerns how to transform those promising prototypes into finalized products that create revenue and real business value. In fact, the role of hackathons isn’t to produce finalized products. So, hackathons must be supported by a decision-making body such as product owners, product managers, or venture capitalists, either internal or external, who invest in developing prototypes or ideas further. Hackathons also require user studies to investigate true needs.

A further challenge that perhaps inhibits the wider adoption of hackathons by companies relates to how well they can be combined with existing methods and practices and whether they fit in the organizational culture. Our experience indicates that hackathons are well accepted by stakeholders, especially developers. However, the hackathon way isn’t for everyone and everything; it requires enthusiastic people and appropriate ideas in order to be implemented. Being also quite intensive, hackathons must not become a tiring routine but instead must remain just one way to generate and explore ideas. In particular, the process requires company policies to be ready for hackathons, to exploit their results. Hackathons are ultimately a means for guiding organizational culture in a more rapid, responsive, and innovative direction.

References