15.369 Term Paper
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Hackathons as a Source of Entrepreneurship in Corporations

Introduction

In recent years, hackathons have emerged as a method for organizations and corporations to tap into volunteer entrepreneurial efforts of hackathon attendees, or hackers, for new ideas, technology platforms, or products. At a hackathon, hackers are matched up into small groups and given space and resources to generate new ideas, software, hardware or product plans over the course of 1-2 days of hacking.

Companies that host and participate in hackathons are opening themselves to outside innovation by inviting hackers to work on solving a problem or generate ideas on behalf of their organization. Attendees receive experience from attending the hackathon and the company is able to take ideas and projects generated from the hackathon to use for future projects and ventures. This method of generating innovation in a corporation by reaching outside to the public through open-source hacking can be seen as a form of corporate entrepreneurship through "emergence of new ideas from various levels in the organization" taken even one-step farther by reaching outside the organization[1].

Importance of Entrepreneurship in Big Business

Hackathons can have different goals. For example, while educational institute or social institutes sponsored hackathons are generally focused on civic aspects like inspiring solutions to important social problems, company sponsored hackathons on the other hand general organized to not only spark new approaches to business problems but also to create memorable experience and community building. [2]

[1] ("Corporate Entrepreneurship - Paul Burns - Palgrave Macmillan," n.d.)
[2] http://blog.devpost.com/post/111955484938/the-five-most-common-types-of-hackathons

An example of a civic-centered hackathon would be the Hacking Medicine Initiative at the Massachusetts Institute of Technology (MIT). This event at MIT "uses an innovative 'healthcare hackathon' approach to bring diverse teams together to rapidly validate clinical needs and develop solutions."[3] They differ from company-sponsored hackathons in that ideas and solutions generated from public hackathons can be used publically to start new companies or generate intellectual property (IP) to be used by hackathon participants to introduce into the market place.

Company-sponsored hackathons, on the other hand, can be seen as a form of corporate entrepreneurship because hackathons are used to generate new products and ideas outside the company's internal development capabilities. Ideas generated from hackathon events can then pursued entrepreneurially by the company.

However, generating new ideas via hackers and actually acting entrepreneurially on those ideas are two different things and the latter can be difficult for companies to pull off. This is because big, established businesses are less likely to tolerate repeat failures that can often happen in entrepreneurial ventures. Hackathons are then one method of generating entrepreneurial ideas and allowing for many failures at the event. Good ideas will gravitate toward the top performance end of the competition and the company will feel less exposed to the risk of failure that would be present if they had pursued all entrepreneurial ideas internally.[4]

The best ideas lie outside the box

While traditional methods for managing innovation focus on improving the mean, competitions maximize the variance. Although on average normal participants tend to perform worse than the industry experts, competitors introduce much more variance, creating "outside the box" solutions that outperform the average industry.

[3] ("Less noise, more hacking: how to deploy principles from MIT's hacking medic...: BartonPlus," n.d.)
[4] (Bernstein, 2013)

Why hackathons can be effective:

- Diverse motivations: Participants engage in hackathons for a variety of reasons, usually unrelated to financial gain. Participants usually spend much more time to develop a solution than the relative value of the prize.
- Diverse participants with different backgrounds thinking about the same problem: Multidisciplinary teams provide different approaches to the same problem.
- Diverse solutions: Different motivations and different participants lead to very different solutions

How to do it: "The five P's"[5]

- Frame the PROBLEM: narrow the problem's scope to have the competitors focus on a specific area or, by contrary, encourage the teams to think as broadly as possible to get important breakthroughs to major problems. Depending on the nature of the problem, one or the other framework work better.
- Establish the PRIZE: financial benefit is not always the main driver. Sometimes the opportunity to advertise one's skills or achievements may be more important.
- Select the PARTICIPANTS: While the power of diversity tells us to open the competitor pool to the public, sometime companies perform a pre-selection of participants in order to avoid spending too much time in evaluating the submissions.
- Define the PROCESS: Collaboration creates value and, in these types of contests, competitors tend to be more open in helping and soliciting help than in their normal roles as employees.
- Build the PLATFORM, i.e. the infrastructure to host the hackathon. Not only the prize requires an investment, but also investments are need in information technology, staff, judges and marketing.

[5] ("Spurring Innovation Through Competitions," n.d.)

Choosing a Winning Hackathon Format

Once a company decides to host a hackathon, the organization should adopt a set of best practices to use as a template to drive innovation around real issues and opportunities related to their business. This template should foster a hackathon environment that allows time for hackers to pull away from the everyday responsibilities and cultivate ideas while solving real business problems. Failure should also be accepted and used as a way to spur high-risk experimentation in the hackathon idea space where similar failures in a normal corporate environment may not be well received.

A typical hackathon can be formatted into 1-2 workdays or even a 24 hr marathon event. Hackers are typically grouped into teams of 2-4 participants with no defined roles. These teams are then given a general, suggested theme by the organizing company based on their known problems or hypothetical future development.

Activities are then split up over the allotted hackathon time. With a pre-hack session allows for introductions and grouping into teams and introduction of the company and its goals for hackathon outcomes. Hacking and development is then spread over a large majority of the timeline with meals provided over the course of the day. The company also typically provides breakout areas and short activities to break up the time and allow for some decompression and social interaction.

At Rapid7, a cyber security software vendor, where one of the author's is employed, organizes multiple Hackathons every year. There are two types of hackathon Rapid7 organizes:

- Bi-Annual Rapid7 Hackathon: Large, cross product, cross-location events. The theme is more around creating memorable experience, long tail platform awareness, community building, and sparking new approaches to business problems.
- Product or Departmental hackathon: These are smaller, more focused hackathons, which primarily try to solve pre-identified customer problems.

Costs vs. benefits

Companies need to evaluate the advantages of having the power of diversity and the costs of capturing the value from that diversity when hosting a hackathon. The main costs are the following:

- Prize infrastructure: something attractive to potential participants.
- Prize administration: administration and operation costs normally exceed the value of the prize.
- Prize adjudication: the evaluation of the solutions submitted is usually an expensive process, in particular when it comes to evaluating designs, chemicals and drugs.
- Disclosure risk: there are important risks in sharing information to describe the problem and provide background needed for the hackers to address the problem.
- Control: Open-source innovation entails a risk of losing the control of the project.

While there are physical costs associated with Hackathons, hosting companies should also think about risks. Specifically, risks stemming from opening up their development space to the public and ownership of any intellectual property (IP) emerging from a company-sponsored hackathon event.

Risks

Despite the multiple benefits that arise from using hackathons as a tool to increase innovation in firms, there are important concerns and associated risks that have not been solved in most of competitions agreements: who owns the intellectual property, can a company prevent an employee to participate in a hackathon?, are the hackathon participants infringing their employer's confidentiality agreements? how the use of open-source material affects the final commercial use of the delivered solution? These are issues that have to be considered by the organizer before organizing the competition and should be reflected in a clear and effective

agreement with the participants. Because engineers and software developers that participate in hackathons are usually unconcern about intellectual property.

Although those types of agreements already exist, they are usually very vague and open in contrast to the legal issues around IP and confidentiality, which are rather sticky. Three main areas of concerns arise around those kind of "participant agreement" in relation to intellectual property:[6]

1. Indemnification

In typical agreements, the hacker participant is liable in relation to the use of unauthorized third party IP. However, if the firm really wants to benefit from the benefits offered by the contest, they should carry on some financial risks in the event of a third party dispute involving a participant's use of unauthorized IP. In any case, the participant will not be able to cover the huge costs of a potential dispute, so it is better to avoid this kind of liability in order not to discourage potential participants from taking part in the competition.

2. Downstream risks

There are downstream risks in using open source material. Some open source material requires adherence to the open source license agreements if a product has been developed using that source or even it does not allow commercial exploitation. It can also prohibit further development work based on it. In order to avoid losing the value of future inventions derived from the hackathon or being involved in future disputes, the participant agreement should establish very clear guidelines around the use of open source code.

3. Conflicting agreements

Some hackers might have conflicting agreements with the current employers without being aware of it. Measures should be taken to increase the chances of winning "a battle of the agreements" in the event that participants ignore their obligations to their employers.

[6]("Your Creative, Open Hackathon Is Ripe for Ownership Disputes | WIRED," n.d.)

Additionally to the definition of a clearer and smarter "participant agreement" towards internal hackathons, savvy businesses also need to take a proactive approach to their employees' participation in external hackathons.

The most direct action is simply to prohibit employees from taking part in external hackathons. While this measure could be appropriate for software development companies, it might not be the best one to other type of business because it alienate employees interested in participating in hackathons in their free time. A proactive measure could be to agree with employees how they can participate and what information constitutes a potential risk to the company's IP.

Managing Participation

The paper "Who owns hackathon inventions?" lists some measures that can be taken prior to the employee participation in hackathons and following participation.[7]

Prior to participation:

- Review employment agreements to be sure they include confidentiality and post-employment non-compete provisions that would extend to hackathon participation.
- The employers of participating hackers have a right to know or be informed in advance of participation in any external hackathon.
- Offer or require training by IP counsel concerning the IP risks associated with public disclosure.
- Determine whether the hackathon's focus is likely to be related, possibly related, or unrelated to the firm's business interests, and limit participation to hackathons in the "likely to be unrelated" category.
- Determine if the hackathon organizer and/or sponsor has expressly disavowed any claim to ownership of, and any compulsory license to, inventions made in the course of the hackathon. If not, consider barring participation.

[7] ("Who Owns Hackathon Inventions?," n.d.)

Following participation:

- The company should review whether the new technology is in fact related, possibly related, or unrelated to business interests.
- For new technology that is deemed to be related or possibly related to the company's business interests, IP counsel should record the date, mode, and content of any public disclosure, as well as the identities, affiliations, and intellectual contributions of each of the team members.
- Consider further development and/or filing for patent protection; or consider making formal release to the participant of any IP interests the firm may have in the invention.

A final comment regarding internal vs. external hackathons is that internal hackathons might be an incentive for employees that are not allowed to participate in outside hackathons. In any case, a well-communicated hackathon policy is always a necessary measure to avoid potential risks with intellectual property and employee conflicts.

Conclusions

The authors believe that hackathons can be a useful tool to help corporations act entrepreneurially while also hedging the risk of failure associated with tying regular company development resources to generating many new innovations consecutively. This is because as hackathon sponsors, companies can generate many innovative ideas quickly with the knowledge that not all will work well in their business but still position themselves to act entrepreneurially on event winning ideas. So long as care is taken to protect company interests from legal challenges to hackathon-generated IP and clear participant/employee hackathon conduct guidelines are established, new idea generation can be tied to a fun, cooperative program that develops both the company and hackathon participants.

However, other opinions are more in the line to believe that hackathons very rarely spark real and lasting innovation.[8] Contrary to the slow-moving and constant path that innovation requires, the hackathon format provides rushed solutions for non-contextualized problems. Moreover trying to look for metrics that help us support the goodness of hackathons in providing marketable solutions, we discovered that there's very little evidence of hackathons that lead directly to major market successes. The metrics normally used to evaluate the success of external hackathons (with publicly available information) usually include general aspects like the number of participants, the number of projects presented and the number of project supported[9]. No metrics have been found that measure the impact of the supported projects in the firm's growth.

Internal hackathons (hackathons restricted to company's employees) can deliver more focused and powerful results because their participants most often have the required technical know-how and sufficient notions about the company's priorities and strategy. But even more impactful results could be achieved by grouping employees from different departments/backgrounds into new projects so that the multi-profiles team can work during sufficient time, normally several months, in a well contextualized problem in order to deliver applicable and long-lasting solutions.

[8] http://www.fastcompany.com/3054023/hit-the-ground-running/why-hackathons-are-bad-for-innovation
[9] https://phabricator.wikimedia.org/T88521

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