**Hacking Away at Solutions**

Motivation & Brand Strategy: Reasons for Hackathon Participation

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## Abstract

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The concept of hackathons is still relatively novel to both the empirical and practical communities of The Netherlands. With the first hackathon arising in 2014, the 24-hour, competitive prototyping events have started to gain momentum. With hackathons being very intensive – most participants tend to stay up the entire 24-hours – it leaves many to wonder what motivates them to participate in hackathon anyways. Are hackathon goers motivated by extrinsic reasons (such as winning the prize) or by intrinsic reasons (to come and learn)? Furthermore, the researcher seeks to understand if hackathons can also be used as an effective brand strategy. Are hackathons merely just a hype, or can they further develop one's brand? The study made use of qualitative methods of in-depth interviews, in which the researcher spoke to ten Dutch hackathon experts. The experts were mostly young and male, and tended to have their own small companies or start-ups. Furthermore, the researcher also noticed that the current community that participates in hackathons is rather niche and tightly interconnected; many interviewees knew the other research participants as well and see them frequently at hackathon events. The study proposes two conceptual models, the first which aims to look at different types of hackathons, extrinsic and intrinsic motivation, opportunity, and exposure; these variable, in turn, could lead to efficient brand strategy. Once the thematic analysis had been establish, the second, revised conceptual model introduced new concepts such as network and networking, learning, organizing hackathons, and reasons to organize hackathons. The respondents indicated that hackathons are all about fun for them, they want to learn more from each other, and learn new skills. They see hackathons as the ideal playground for them to play with different programming languages and to experiment with other disciplines. Hence, this must be kept in mind when one opts for organizing a hackathon. Lastly, although the hackathon teams are very multi-disciplinary there still seems to be a continuous issue of diversity – both gender and racial diversity.

**Keywords**: Hackathon, hackathons, motivation, effective brand strategy, start-ups, tech, innovation, prototyping, new ways of working.

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## 1. Introduction

Throughout history, competition has spurred athletes, engineers, scientists, and artists to strive for new heights (MacCormack et al., 2013). While there may have been plenty of informal hackathons in the 1990s, the first two that garnered wide attention took place in 1999: OpenBSD in Calgary and Sun Microsystem JavaOne Conference in San Francisco (Phipps, 2014).  The word *hackathon* is combined from the words "hack" and "marathon", where hack is used in the sense exploratory and investigative programing (not as a reference to committing a cybercrime) (Briscoe & Mulligan, 2014, p.2). A hackathon is defined as an event in which computer programmers and others involved in software development, including graphic designers, interface designers and project managers, collaborate intensively on software projects, usually in teams (Leckart, 2012). Since the informal hackathons in the 1990s, the trend was born. Computer programmers, developers, visionaries, and marketers come together to compete and create prototypes that innovate on a theme or improve upon an existing project (Briscoe & Mulligan, 2014). It has become the norm in tech hubs such as Silicon Valley; companies such as Nintendo have teamed up with Facebook for a "Mario Maker hackathon" (Kamen, 2015).

Simultaneously, even the most successful corporations and companies have trouble developing breakthroughs from time to time. In response, companies are searching for better ways to identify and exploit novel solutions (MacCormack et al., 2013). In companies such as Phillips, 'collaborative innovation' (the company's own name for hackathons) has become synonymous with the "Phillips way of working" (Bell, 2014). Ranging from PayPal to up-and-coming tech start-ups; everyone is seeing the potential of hackathons. Hackathons are becoming increasingly more popular, not just amongst the 'tech crowd' and small start-ups, but also amongst corporates. Companies have embraced hackathons in order to promote innovation, creative ideas, and bringing together people from similar – and yet different – backgrounds. This partly also due to the fact that over the last couple of years a new entrepreneurial and corporate player has joined the field: startups. The way people work has evolved; *exponential organizations* are on the rise, which tend to incorporate Ries' (2011) model *The Lean Startup* (which favors experimentation over elaborate planning) and 'agile ways of working' (Blank, 2013; Ismail, 2014). These all revolve around constant collaboration and change. In the agile approach, work is coordinated by a self-managing team, in which the team itself decides how work is coordinated; the turnout is: more satisfied employees, lower turnover, lower absenteeism, and a prerequisite for the success of innovative projects (Moe et al., 2009).

Hackathons are more often than not, associated with "innovation contests". Although they have similar properties, the two do in fact differ (Lampel et al., 2012). Briefly summarized, "in an innovation contest, a firm (the seeker) facing an innovation-related problem (e.g., a technical R&D problem) posts this problem to a population of independent agents (the solvers) and then provides an award to the agent that generated the best solution" (Terweisch & Xu, 2008, p. 1529). Even though research and development (R&D) are of essence to companies, they do not always have to be "tech" related. This is where hackathons come in. Hackathons, which can be hosted both on- and offline, are events where people with technical backgrounds come together, form teams around a problem, idea or theme, and collaboratively code a unique solution from scratch – these generally take shape in the form of mobile apps, websites, and robots (Fontenot, 2013). On top of that, hackathon competitions typically last between 24 to 48 hours – this is where the "marathon" part jumps in (Aune, 2012). Thus, at a hackathon competitors come together and use technology to transform innovative ideas into reality.

Hackathons, to a certain extent, have achieved a mainstream status; and have even been featured on the big screen (Glazer, 2011; Leckart, 2012; Briscoe & Mulligan, 2014). The notorious true-to-life scene from *The Social Network*, Mark Zuckerberg (the founder of Facebook) stages a 10-minute hack-off in a Harvard dorm; the winner becomes his first intern (Leckart, 2012). Today, approximately every two months, many of Facebook's 700-plus engineers gather together for a 24-hour competition at the company's offices, where many of the social media's hallmark features – including the Like button and Timeline – started as hackathon projects (ibid). Grand prizes can range from trophies and belts, to significant cash rewards; at a Salesforce.com hackathon the winning team was awarded a $1 million prize (Phipps, 2014). However, the rewards may be even greater than that. Venture capitalists are looking into hackathons as a new way to spot fresh faces worth of recruiting and good ideas worth funding (Leckart, 2012).

Despite a growing societal interest in hackathons (Elias, 2014; Evans, 2014; Fontenot, 2013; Kamen, 2015; Ravisankar, 2015), there is still a lack of empirical research on their potential as a tool for developing and implementing innovative ideas in organizations (Armisen & Majchrzak, 2015; Lampel et al., 2011). Particularly, the elements that have been addressed in the research questions in the section above. Apart from ad hoc contests, firms have begun to set up contest platforms as an ongoing business model (Boudreau & Hagiu, 2009). With regards to hackathons one would think that 'opening' the contest to outsiders would contradict mainstream economic theory,

however it has remained prevalent in practice (Boudreau et al., 2011). Why is this? As organizations grasp the potential of "open innovation models" and "agile teams" – target-setting events that offer monetary awards and other benefits to contestants (for example, hackathons) – are regaining popularity as an innovation tool (Lampel et al., 2012).

Furthermore, research on hackathons has been lagged behind differences in terminology. For example, some researchers have observed, "design competitions" (Lampel et al., 2012), while others have taken a closer look at "innovations contests" (Bourdreau et al., 2011), "technology contests" (Cohen et al., 2008), "innovation tournaments" (Terweisch & Xu, 2008), and "tournaments for ideas" (Morgan & Wang, 2010). Nevertheless, the popularity of hackathons (and similar competitions) is very visible in the organizational landscape. In 2011 alone, more than 400 hackathons were reported to have been held worldwide (Leckart, 2012). However, as hackathons increase in number and importance, we need a more comprehensive analysis that integrates relevant insights from research in psychology, economics, strategy, organization theory, and innovation studies in order to create an understanding of how hackathons work in practice.

Moreover, there is also practical relevance to conducting research about hackathons. Nowadays, hackathons possess a much broader appeal. In fact, they provide one of the most direct forms of exposure to the startup scene and the technical talent in it; no longer are they niche events that are only relevant for a university computer science department (Tao, 2012). In other words, they are ideal for businesses to experiment with. Hackathons, with their come-one-come-all ethos, have emerged as the new forum for networking, learning, and beta-testing new apps and ventures (Leckart, 2012). If organized well, hackathons can spring new talent, ideas, concepts, solutions, and products for businesses – in only 24-hours. Likewise, they can potentially be seen as a new way of working for large organizations and start-ups alike. This will be further investigated in this research paper.

Despite the increasing business attention *hackathons* have reached, there is very limited research on hackathons in the academic literature and how it relates to effective branding for start ups. Therefore, this thesis aims to address the following research questions:

> *RQ1: What is the motivation for tech start-ups to participate in hackathons?*
> *RQ2: To what extent is participating in a hackathon an effective brand strategy for tech start-ups?*

By firstly investigating the motivation and reasoning as to why participants choose to compete in hackathons, the researcher can get a better understanding of the types of people that partake in hackathons. Concurrently, the first research question could possibly be a segue towards the second research question; frequent participants could shed light as to how hackathons can be seen as a brand strategy tool. As a matter of fact, their reasoning and motivation to participate in a hackathon could perhaps be for branding purposes. The researcher expects the research questions to be answerable through the conduction and analysis of in-depth interviews.

This thesis is structured as follows. It will begin with a literature review of the most recent literature regarding hackathons and other themes that are related to of have stemmed from the concept of a hackathon. Due to the fact that the term "hackathon" is to a certain extent somewhat broad, specific variables will be selected and thus, thoroughly explained. After a comprehensive section of conceptualization, a conceptual model will be presented which is related to the variables presented and the proposed research questions. Next, an in-depth description will be given on the qualitative research methods used to gather the data of this study.  The results of the data gathered will be presented, followed by a discussion of said results. Lastly, it will be quintessential to provide a discussion and a conclusion, in which the author explains how hackathon participants are motivated and to what extent hackathons are an effective brand strategy for companies. The paper will also give suggestions on how hackathons should be organized, in order for companies to get the most out of them.


## 2. Theoretical Framework

This section will review relevant literature on the factors that influence the motivation to attend hackathons, brand strategies, and other relevant literary and academic concepts that are related to hackathons. Due to the fact that there is limited research on hackathons, this section will derive its theories from research on innovation contests, motivation and incentives, and literature on brand strategies, which will correspond with the larger context in which hackathons reside. At the end of this section, a conceptual model is presented that integrates these theoretical insights, and visually illustrates the relationships between the variables.

**2.1 Conceptual Background: Open Innovation, Crowdsourcing, and Hackathon Format**

In order to grasp a better understanding of hackathons, this section will offer more context on hackathons and how they are interrelated to the concepts of open innovation, and crowdsourcing. In dynamic and technology-based industries, innovation are rarely generated and commercialized is isolated, even by major players (Frey et al., 2011). Thus, maintaining relationships with different types of external contributors seems to be imperative with regards to staying ahead of the competition (ibid). Although they have a long pedigree, it is only in the past two decades that a shift towards open innovation, crowdsourcing and hackathons – in combination with the Internet – has allowed organizations to not only apply this approach across a broad range of problems, but also to use the resulting experience to experiment with this form of innovation (Lampel et al., 2012). The following sections shed light on concepts that are the building blocks of hackathons, as well as the format and structure of the hackathon competitions themselves.

**2.1.1. Open innovation**

As organizations realize the potential of "open innovation" models, target-setting competitions are regaining popularity as a tool for innovation (Lampel et al., 2012). From holding a large number of events, the "hackathon phenomenon" has emerged as an effective approach to encouraging innovation with digital technologies in a larger range of different spaces, such as open data (Briscoe & Mulligan, 2014).

According to Zheng et al. (2011, p.58) open innovation means that firms use external ideas and resources to advance their technology, innovation, and capabilities. Firms that operate according to the open innovation paradigm manage their research and development as open systems with permeable boundaries (Chesbrough et al., 2006). There are two different types of openness that can be observed: outbound openness and inbound openness (Frey et al., 2011). The first, *outbound openness*, involves inside-out process by which firms reveal information or sell technology to the external environment, while *inbound openness*, in contrast, refers to the use of external sources for the creation of innovation by drawing on ideas and concepts origination from outside the firm's own innovation labs and R&D facilities (Frey et al., 2011; Dahlander & Gann, 2010). The big advantage of an open network is its potential to attract an extremely large number of problem solvers and, consequently, a vast number of ideas (Pisano & Verganti, 2008). In the pursuit of this external idea search strategy, firms may decide to scan existing information and solutions already available in the

external environment and to internalize them if they consider them valuable (Frey et al., 2011; Dahlander & Gann, 2010). However, companies may also opt for outsourcing their innovation work by inviting external contributors to cultivate ideas or solutions to precise problems (Verona et al., 2006). Hackathons are an excellent forum to build collaboratively on various open-source software projects (Cardona & Tomancak, 2012).

### 2.1.2. Crowdsourcing

Next to open innovation, external collaboration networks take a wide variety of forms, and differ in terms of how "open" they are to everyone (Pisano & Verganti, 2008). These are also known as restricted sourcing approaches. According to Frey et al. (2011), they control information flows by opening the firms' boundaries only to a known group of external contributors in specific domains: most R&D groups fall into a "controlled inbound openness" category. Nevertheless, 'crowdsourcing' is a less restricted, open innovation approach (Frey et al., 2011). Jeff Howe and Mark Robinson introduced the term "crowdsourcing" in a *Wired Magazine* article in June 2006 (Whitla, 2009). The 'official' definition of the term was coined by Howe who has outlined crowdsourcing as "the act of a company or institution taking a function once perfomed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call" (Whitla. 2009; Howe, 2006). These "crowds" usually form around particular projects, and thus have common objectives (Frey et al., 2011). Some can say this element is quite similar as to that of hackathon participators, whom attend events in order to collaborate communally on tech-related projects. "Crowdsourcing has attracted increased attention in recent years because the Internet and new ICTs have dramatically reduced the costs of accessing large numbers of potential problem solvers" (Frey et al., 2011, p. 399). On top of that, empirical studies have suggested that innovations developed by a crowd of external users may possibly be more advantageous than those developed by in-house R&D departments (e.g. Baldwin & von Hippel, 2009; Bogers et al., 2010; Henkel & Hippel, 2005). Organizations using strategies such as hackathons are therefore best served by collaborative communities, which encourage cumulative development (Boudreau & Lakhani, 2009; via Almirall et al., 2014).

### 2.1.3. Hackathon Format

What is unique about the format of hackathons is that they differ in structure and format in retrospect to crowdsourcing, crowdsourcing competitions, innovation contests, and open innovation networks. It remains important to keep this structure and format in mind, in comparison to other empirical research and academic literature.

Hackathons tend to start with one or more presentations about the event, including the prizes if available (Briscoe & Mulligan, 2014). Once the goal and constraints of the "hack" have been explained by the organizers, the individual participants form small groups; each team develops its own take on the challenge and aims to present it 24 to 48 hours later (Newton, 2015). It is possible for aims or challenges to be gathered beforehand, and they can be shared or kept secret depending entirely on the format of the event; alternatively, they can be generated at the event, or the event may be focused simply around one specific task (Briscoe & Mulligan, 2014). In order to sustain results, an ecosystem is put in place where all participants and developers are stakeholders, and regular incentives are rewarded to bring hacks to the finish line (Elias, 2014). "For hackathons that last 24 hours or longer, especially competitive ones, eating is often informal, for which there are stereotypes of subsisting on fast food such as pizza and energy drinks" (Briscoe & Mulligan, 2014, p. 4). Sleeping is to a certain extent also informal, and scattered across the events one can find participants sleeping on-site with sleeping bags, or even in tents provided at larger events (ibid). At many hackathons, the judges are made up of a panel consisting of the organizers and sponsors of the event. Prizes that are awarded tend to be monetary ones, however many hackathon participants also enjoy the "social aspect" of the competitions. Some of the organized hackathons are simply intended for educational or social purposes (ibid). A common misconception is that coders and developers prefer solitude, yet hackathons can be highly social events that allow participants to learn from and build with like-minded peers (Ravisankar, 2015).

*Internal and External Hackathons*

There are two different types of hackathon competitions: internal and external. *Internal hackathons* are held within organizations, whereas *external hackathons* are open to all participants regardless of their work background. Hackathons famously gained traction in the 2000s due to companies such as Google and Facebook, where internal hackathons were – and still are – held regularly; since then the hackathon popularity has skyrocketed  (Calco & Veeck, 2015). By introducing the concept of a hackathon into a business, rather than simply hosing one externally, organizations can tap into the ideas, innovation and entrepreneurial culture that is sitting right within their own workforce (Priestley, 2016). Meanwhile, external hackathons give a company's programming staff the opportunity to try out new ideas and collaborate with other coders in a fun and managed environment; it is an ideal situation to not only meet new people but to also get together to brainstorm ideas and solutions (Belicove, 2012).

**2.2. Motivations for Participants**

The following sections aim to take a closer look at what the possible motivations and incentives one may have in order to willingly participate in hackathon events. This will be done so by reviewing literature, which contains theories from the field of phycology regarding personal motivation, and the desire for (organizational) exposure. Some scholars vie that back-and-forth replies foster innovation because they encourage participants to continuously contrast their perspectives with those of others; this in turn creates a *motivation* to resolve the differences, which then creates more innovative ideas (Armisen & Majchrzak, 2015).

**2.2.1. Extrinsic Motivation and Intrinsic Motivation**

In order to be motivated, one has to be *moved* by something (Ryan & Deci, 1999). There are two different types of motivation in the realm of psychology: extrinsic and intrinsic motivation. "The most basic distinction between *intrinsic motivation*, which refers to doing something because it is inherently interesting or enjoyable, and *extrinsic motivation*, which refers to doing something because it leads to a separable outcome" (Ryan & Deci, 1999, p. 55). Studies from a variety of disciplines have suggested that both extrinsic motivation and intrinsic motivation significantly influences people's behavior (Zheng et al., 2011). Zheng et al.'s (2011) study, however, found two types of extrinsic motivations with regards to participating in crowdsourcing contests: motivation to gain monetary reward and motivation to reputation or recognition. Participating in a contest is, after all, an opportunity to draw the attention of the hosts of the event, venture capitalists, and possible job recruiters. Hackathons give employees a chance to think outside of the box and outside of their traditional corporate structure; companies are creating some friendly competition among themselves (Elias, 2014). However, it is not only about the 'money and fame' for hackathon participators. Intrinsic motivations are simultaneously present as well. Participants of crowdsourcing contests enjoy the process of solving the tasks and are willing to experience the challenge (Zheng et al., 2011). People may choose to work for their own purposes without purely considering external rewards (Ryan & Deci, 1999).

**2.3. Motivation to Attend**

This section places particular emphasis on the reasons as to why one wants to participate in a hackathon. In a study conducted by Briscoe and Mulligan (2014), when participants were asked why they attended hackathons the two top reasons were

*learning* (86%) and *networking* (82%). There are two potential reasons as to why these findings occurred. The first reason is to be expected, given that the nature of software development has strong ties to lie-long learning, which have risen from the chronic emergence of new technologies (which have in turn risen from pre-existing technologies, etcetera) (Briscoe & Mulligan, 2014). The second reason suggests that our proposed interpretation of *hackathon circuits* offers an itinerary of events for networking within "the community" (e.g. the tech start-up scene) (ibid). The next highest reasons were *changing the world* (38%) and *winning prizes* (28%) (ibid). While it appears that commercial involvement to support hackathons (e.g. monetary prizes) has helped the rise of the rise of hackathons itself, it has not yet come to dominate as an extrinsic motivation to participate in hackathons. Hackathon contests tend to attract developers with more diverse motivations, especially those interested in entrepreneurship and the profits/rewards of winning the contest rather than pure civic engagement (Almirall et al., 2014).

Furthermore, many opportunities also arise when participating in a hackathon. The fact that you are helping other brands get what they want (a solution to the problem they are proposing in their hackathons) will also create relationships for participants that allow long-term leverage opportunities. On top of learning and networking, hackathons are also breeding grounds for recruitment. The finished projects can bolster resumes and thus, make participants more competitive job applicants (Yang, 2015). Hackathons also provide opportunities to connect with and impress potential employers, since corporate sponsors get the chance to work with participants one-on-one (ibid).

**2.4. Branding Strategies and Exposure**

One of the main reasons for companies opting for hackathons, is that seek to spur innovative solutions to their problems. Most managers have the assumption that only company employees can make good choices about which ideas are the best; yet opening the *idea-selection* process to outsiders can also generate significant value (King & Lakhani, 2013). The utmost value and potential of hackathons is in providing an opportunity for people to meet and collaborate to create new links in the medium to long term, rather than the short term focus of the event (Briscoe & Mulligan, 2014). On top of that, hackathons can be used to identify individuals with exceptional skills and talents; this is particularly important in areas of innovation where rapid progress often depends on identifying and supporting talent (Lampel et al., 2012). During hackathons developers are not the only ones who benefit from the event – the whole hosting

organization can get a moral and material boost. The previous section indicated that most participants partake in hackathons for personal development and to network (Briscoe & Mulligan, 2014). Nonetheless, start-ups can also make use of hackathons in order to breathe life into their products, to stimulate novel product ideas, or to find new uses for an existing API (Application Programming Interface) (ironSource, 2013).

According to Haller et al. (2011), in relation to promotion, innovation contests – with the strategic scope of corporate challenges – are frequently used as communication tools to support marketing, and to influence the establishment of corporation's image. This principle can be applied to the concept of hackathons as well. From a participant's perspective, these types of competitions can provide them opportunities for working with large or small organizations to increase exposure and working experiences (Zhao & Zhu, 2012). Moreover, organizers (of hackathons) draw on extensive brand exposure which participants have while active in the contest to stimulate marketing and word of mouth (Haller et al., 2011).

## 2.5. Agile Ways of Working and Scrum

As (information) technologies continue to evolve, companies are implementing new methodologies to foster and manage innovation. One of these new ways of working are agile methodologies. Agile methodologies, according to Rigby et al. (2016), involve new values, principles, practices, and benefits and are a radical alternative to command-and-control style management; in fact, they are spreading across a broad range of industries and functions. According to Collier (2012, p. 121) it can be defined as, "a set of principles for software development in which requirements and solutions evolve through collaboration between self-organizing, cross-functional teams". Furthermore, it also promotes continuous improvement, adaptive planning, and flexible response to change (Agile Alliance, 2013). Particularly in the realm of computer sciences and programming where it is also known as agile software development. Agile is an efficient system of development from the point of view of the developers; it allows them to stay focused on creating features and technical designs (Ries, 2011). Similarly to a hackathon, software development depends significantly on team performance – as does any process that involves human interaction (Moe et al., 2010). Thus, an agile team is a cross-functional group of people that have everything, and everyone, necessary to produce a working, tested increment of product; these people are dedicated to the team, and as a rule do not move between or across teams as demand ebbs and flows (Cottmeyer, 2015).

Agile, thus, can be seen as a 'new' way of working within organizations. According to Rigby et al. (2016), agile has brought levels of improvement to the IT industry; companies that create an environment in which agile can flourish find that teams can churn out innovations faster. What makes agile processes so distinctive, is that they are designed to capitalize on each individual *and* each team's unique strengths; therefore, agile project teams can focus on increasing *both* individual competencies and collaboration levels (Cockburn & Highsmith, 2001). Hence, Agile companies practice leadership-collaboration rather than command-control management; they set goals and constraints providing boundaries within which innovation can flourish; they are macro-managers rather than micro-managers; they understand that who makes decisions is not as important as collaboration on information to make informed decisions; and they also understand that agility depends on trusting individuals to apply their competency in effective ways (ibid). According to a quantitative study conducted by Bazigos et al. (2015), both role clarity and operational discipline are highly ranked practices among agile organizations, this is powerful evidence that part of what makes agile companies special is their ability to balance fast action and rapid change, on the one hand, with organizational clarity, stability, and structure, on the other.

*Scrum*

Scrum is one of the most popular frameworks for implementing agile; so popular, in fact, many people think scrum and agile are the same thing – they are not (Radigan, 2016). Scrum is more of a management methodology that encapsulates the daily practice of software engineers into a project structure; a scrum project tends to be divided into iterations called "sprints", lasting about four weeks (Tessem & Maurer, 2007). A properly implemented scrum was designed to increase speed of development, align individual and organizational objectives, create a culture driven by performance, support shareholder value creation, achieve stable and consistent communication of performance on all levels, and enhance individual development (Sutherland et al., 2007). The quintessential element of a scrum framework that makes it different from the rest remains the sprints. A sprint produces a visible, usable, deliverable product that implements one or more user interactions with the system; the ley idea behind each sprint is to deliver valuable functionality (Rising & Janoff, 2000). The goal for scum teams is to complete tasks by the sprint's delivery date; a sprint is a time-boxed development, meaning that the end date for a sprint does not change (ibid). Moreover, once executives begin to understand how agile and scrum can manage the extraordinary complexities of software development, they will realize they can use the *same*

management expertise to manage the mounting complexity of the rest of their business (Denning, 2015). Although there is no competitive edge in agile and scrum teams, one can clearly see the similarities between the two and hackathon teams: multidisciplinary teams collaborating in a short amount of time to produce software-like products.

**2.6. Hackathon Efficiency**

If done and organized correctly, hackathons can be incredibly productive. As corporations start to embrace the idea of a software-first future, they are simultaneously taking a page out of the tech book by adopting hackathons for everything from R&D to talent retention; using hackathons to reap ROI that includes talent retention, product roadmap and prototyping (Elias, 2014). However, the question remains: do hackathons actually improve productivity? The short answer is: yes, they do. According to Pride (2015), hackathons can help improve productivity in a number of ways, from building relationships within the team to allowing employees unhampered focus on a single task. It can be argued that the greatest potential and value of hackathons is in providing an opportunity for people to meet and collaborate to create new links in the medium to long term, rather than the short-term focus of the event (Briscoe & Mulligan, 2014). Within 24-hours participants have not only built an entirely novel prototype or product, but they have also managed to exercise working in a diverse team under quite a bit of pressure.

Nonetheless, hackathons are also a playground for innovation. They stimulate the creative juices of participants and foster problem-solving and risk-taking in an informal and casual environment; similarly, the diversity of participants can guarantee a multitude of perspectives and the time limit on hackathons creates a uniquely productive atmosphere that enables participants to distil their visionary concepts down to working solutions (Hackworks, 2016). As mentioned in the previous section, there are many similarities between agile and scrum teams, and hackathon teams. Scrum teams provide guidance for efficient management of projects in way that allows for high flexibility and adaptability (Sutherland et al., 2007). Similarly, hackathon teams foster more connections and allows for others to work together far more productively due to the fact that communication between teams is not better as team members are now aware of the roles others play, and roughly how long it takes them to complete tasks, allowing more seamless collaboration between departments (Pride, 2015).

## 2.7. Conceptual Model

Following the previous theoretical literature, this thesis proposes this first version of the conceptual model. This model aims to connect previously mentioned concepts, and demonstrates how hackathons can possibly lead to an effective brand strategy (see Figure 2). The model illustrates how the research could offer an in-depth perspective on hackathons as strategy for branding for tech start-ups. The conceptual model elucidates how the theory is presented, and how it can possibly provide answers for the research questions. Additionally, the model also demonstrates the relationships between different factors that could influence the effective brand strategy. This study does not provide evidence upon these relationships, but instead aims to provide an in-depth understanding of how hackathon participant motivation, opportunity, and exposure can lead to an effective brand strategy.
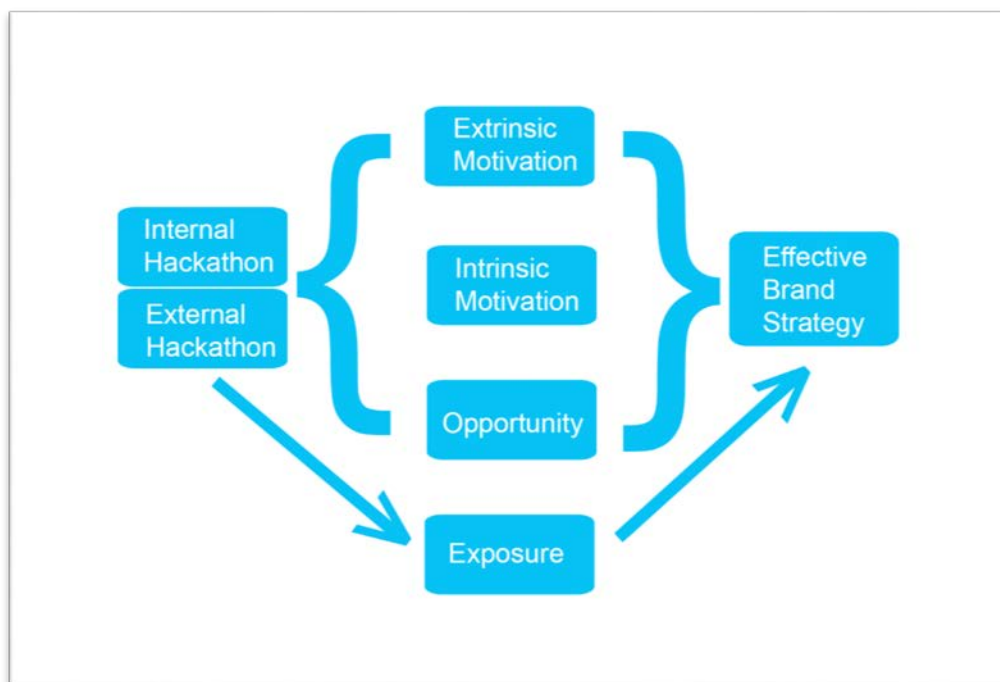
**Figure 2:** Conceptual Model

As visualized in the conceptual model, both internal and external hackathons could lead to an effective brand strategy for tech start-ups. When considering attending and participating in a hackathon, participants tend to be motivated both extrinsically (winning and receiving prizes) and intrinsically (meeting new people and learning new skills). Moreover, whilst at the hackathon, participants are also subjected to

opportunities they might not have stumbled upon otherwise. These include meeting new people, job prospects, and being able to take a closer look inside what is happening within a company (that is hosting the hackathon), particularly when it comes to data and API's. These three elements can occur at *both* internal and external hackathons. However, with regards to external hackathons, exposure seemingly plays an important role. Participants are now not only interested in the company that is hosting the hackathon, but also in branding themselves as individuals – seeing as through quantitative data collected previously by Dr. Sarah van der Land indicates most hackathon participants tend to have their own businesses or freelance. Thus, broadcasting to others their specific skill set might lead them and their companies to new ventures. As for the company hosting the hackathon, exposure can be seen as branding technique here due to the fact that it can put them on the map for being a "modern", "creative" and "innovative" company; hackathons might be able to unleash the creative beast within a company and tap into unutilized talent, allowing one to harness and encourage internal innovation (Pride, 2015).

Given the qualitative nature of this study, the researcher will not verify the aforementioned relationships, but will provide an in-depth understand of behavioral outcomes instead. To proceed with further investigation, interviews with Dutch hackathon experts will be conducted. These interviews will allow the researcher to focus on the two types of motivations, opportunity, and exposure to see if they contribute to an effective brand strategy for tech start-ups, and to answer the two research questions:

*RQ1: What is the motivation for tech start-ups to participate in hackathons?*
*RQ2: To what extent is participating in a hackathon an effective brand strategy for tech start-ups?*

## 3. Method

In order to answer the research questions, ten in-depth interviews were conducted amongst Dutch hackathon experts. This chapter provides the rationale for the chosen method, and describes conducting the interview process. Furthermore, this chapter aims to present the arguments for the sample and research design, elaborates on the procedure, and operationalization and data analysis. The chapter ends on a final note arguing for the validity and reliability of this particular research paper.

### 3.1. Sample

The research was conducted with various participants who have *at least* participated in one in hackathon. Most of the participants have been part of numerous hackathons over the past years; this in essence makes them "experts" in this field. One participant hosts his own "mini-hackathons" on a regular basis, which make him a viable expert too since he regularly makes use of "hackathon practices" for his own business, but also for the purposes of fun and entertainment – as it will come to show that all hackathon participants thoroughly enjoy partaking in hackathons. Roughly four participants were selected via a pre-sampling method. This method included going through previously obtained survey data by Dr. Sarah van der Land; based on the answers respondents had given to the questionnaire, they were contacted on whether they were willing to participate in the in-depth interviews. Characteristics that were important to the researcher were: hackathon expertise, whether participants had their own businesses, and gender – as gender inclusivity has been addressed in previous research (Briscoe & Mulligan, 2014).

On top of that, as the data will later indicate, the current group of hackathon attendees in The Netherlands is a very niche and finely networked group of people; they are all interconnected with each other one way or another. Hackathons have started to gain popularity in The Netherlands as of roughly 2014, with the World Hackathon Day being the event that has launched the current chain-effect of Dutch hackathons. Notable Dutch hackathon events mentioned by the interviewees are the World Hackathon Day, Young Creators Hackathon, Fuse Hack, Tempo Team Hackathon, and the Randstad Hackathon. To summarize, in total 10 participants were interviews. The mean age of the participants is 19.1 years old. Participants have roughly 2 years of hackathon experience. It is also noteworthy to mention that all participants were male and are of Dutch nationality.

The sample population was taken from various hackathon participants that all reside in The Netherlands using convenience, snowball, and quota sampling techniques. The sample was primarily recruited via two procedures. First, a small sample was administered via data from a previously conducted quantitative survey. The survey, overseen by professor Dr. Sarah van der Land, collected data from hackathon participants who attended the World Hackathon Day in 2014. The World Hackathon Day is a 24-hour hackathon organized the Global Young Innovators community, in which hackathon teams can choose from six tracks (Future, Travel, Music, Finance, Charity, and Health) and collaborate with corporate companies (Global Young Innovators, 2014). These survey participants could indicate whether or not they would like to be part of further research, and if so, they would fill-in their contact information. Based on the data

of this particular survey, the researcher initially contacted 12 participants, of which three were available for in-depth interviews. Nevertheless, those three participants informed the researcher of other active hackathon contestants and how to contact them via Facebook groups, events, and profiles. Thus, the second recruitment procedure involved contacting interviewees via social media. This was the most dominant recruitment procedure, in which the remaining seven participants were enlisted. Consequently, convenience, snowball, and quota sampling techniques were implemented to recruit interviewees. All participants recruited were relevant and representative of the studied phenomena. The first batch of three participants were directly contacted via a survey they had filled out a hackathon event (the World Hackathon Day), thus being the target audience the researcher was looking for. Although the second batch was contacted via social media platforms, they were 'recommended' by previous interviewees who had met them or collaborated with them in other hackathons. Thus, they were also reliable participants due to the fact that they stood

The researcher wanted to conduct in-depth interviews with "hackathon experts", and in order for the research to be valid and reliable, a certain amount of interviews have to be met. As per the Methodological Guidelines Thesis Research, a total of between 10 to 12 participants will be part of 45-minute in-depth interviews (Janssen & Verboord, 2015). Finally, snowball sampling was used in order to identify hard-to-reach populations for which there is no sampling frame, but the members of which are somewhat interconnected (i.e. at least some members of the population know each other) (Chambliss & Schutt, 2012). This is a method of sampling in which sample elements are selected as they are identified by successive interviewees (Chambliss & Schutt, 2012).

As, the network of hackathon participants in The Netherlands is a very tight-knit community; many of the interviewees were able to recommend the research other hackathon participants to contact for the in-depth interview. When undergoing qualitative research, it is indispensible to find a sample not solely based on the size of the population, but more so on the social aspects of that population (Neuman, 2011). On top of that, Neuman (2011) explains that qualitative research should aim to "deepen the understanding about larger processes, relationships, or social scenes" (p. 241). In this case, the researcher attempted to get a deeper understanding on the motivation to participate in hackathons, and how hackathons can be an effective brand strategy, so the sample needed to be an adequate representation of the actual population. Due to the fact that hackathon participants are part of a rather small population, and also come in all shapes and sizes, the researcher had to rely predominately on who her other

interviewees could bring her into contact with. Hence, the unit of analysis is therefore these ten individuals. A number of issues can affect sample size in qualitative research; however, the guiding principle should be the concept of saturation (Mason, 2010). Aims of the study are the ultimate driver of the project design, and therefore, the sample size; a small study with "modest claims" might achieve saturation quicker than a study that is aiming to describe a process that spans disciplines (Charmaz, 2006, p. 114). Thus, data saturation is reached when there is enough information to replicate the study, and when the ability to obtain additional new information has been attained (Fusch & Ness, 2015). Ultimately, qualitative samples are dawn to reflect the purpose, and the aims of the given study. Moreover, the skills of the interviewer clearly has an effect on the quality of data collected, and this will have a subsequent effect in achieving saturation – this is because the sample size will become irrelevant as the quality of the data is the measurement of its value (Mason, 2010). This is as a result of an interaction between the interviewer and the participant (ibid).

### 3.2. Research Design

As hackathons are a relatively new phenomenon, a qualitative research design was chosen, as it would prompt more meaningful and in-depth responses on the topic (Neuman, 2011). The main research questions were aimed to find out what motivates one to participate in a hackathon, and how participating in hackathons can be a form of effective brand strategy. Hence, qualitative research would possibly provide more insightful results. Consequently, concepts of motivation, opportunity, and exposure are all social processes; these could best be analyzed via qualitative research methods (Neuman, 2011). More specifically, by conducting in-depth interviews, the information obtained is more likely to be detailed and unambiguous. Qualitative researchers generally tend to rely on face-to-face interviewing when conducting semi-structured and in-depth interviews (Sturges & Hanrahan, 2004). Similarly, face-to-face interviewing allows for the researcher to get first-hand experience with the subjects (Sturges & Hanrahan, 2004). Moreover, the use of in-depth interviews could in turn offer in-depth descriptions rather than surface observations (Gall et al., 1996). This implies that the researcher was able to go into more in-depth and personal questions, rather than planned and structured ones, which is the case for quantitative surveys, for example. In other words, the researcher and subsequently the interviewer, is able to ask more questions if she/he came to the realization that there was more information to uncover (Minter, 2003). Furthermore, if participants did not understand or grasp certain questions, the interviewer is able to aid them via clarification in order to

increase the accuracy of the data collected (Minter, 2003). Another advantage of conducting qualitative in-depth interviews is that once the subjects have confirmed their participation, the researcher has a confirmed and controlled sample size. This is not always the case for quantitative research, where the researcher has to heavily rely on a large number of respondents, and thus can be unsure of whether or not they will respond to her/his survey. Lastly, an interviewer is more assured that the responses are coming from the person intended, as well as having the opportunity to probe verbal or non-verbal prompts to encourage more complete, better-explained responses (Minter, 2003).

### 3.3. Procedure

In order to conduct the research, private meetings were set up with each of the respondents. The interviews were conducted in variety of places, usually a classroom or a quiet café, using face-to-face communication. The in-depth interviews lasted between 45 minutes and an hour. The participants were told beforehand that any and all information stated during the interview, would be used solely for the purpose of this research. On top of that, the researcher also informed participants that all their answers to the questions are entirely voluntarily, and if they wish to not answer any questions they did not have to, as well as asking them for permission to record the interviews and use their names for research purposes. Each interview was recorded and transcribed in order to conduct the analysis. The researcher and interviewer should aim to stick to the question list as much as possible, in order to produce reliable results. It is of quintessential essence for an interview to remain as unbiased as possible, and this particular element lies in the hands of the interviewers. According to Neuman (2011), it is essential to train before interview subjects in order to practice asking each question using precision in one's wording. The interviews for this particular research paper were conducted in a conversational interview style. In conversational style interviews, the interviewer aims to be less static and tries to make the interviewee feel comfortable and at ease. By doing this, the interviewer hopes that the interviewee does not only understand grasp the questions properly, but also that they feel more inclined to answer the questions in a open manner. The interviewers thereby attempt to cultivate good responses, and thusly also interesting results (Neuman, 2011). According to, Pannucci and Wilkins (2010), interviewer bias refers to a systematic difference between how information is solicited, recorded, or interpreted. Nevertheless, it can be minimized or eliminated if the interviewer is blinded to the outcome of interest or if the outcome of interest has not yet occurred (ibid). Thus, it also important for the interviewer to

remember to be as open-minded as possible to all the responses; giving away that a certain response from an interviewee is 'unusual' might lead to the interviewee holding back with further questions or change their answers. This could, in turn, increase interviewer bias.

The questions for the hackathon participants were divided based the elements of the conceptual model presented in the theoretical framework. The interview started off with general questions about the participant, for example who they are and whether or not they have their own company and/or start-up. These were followed up by questions regarding their experience with hackathons, and how acquainted they are with them. The interviewer was also asked for the amount of hackathons they participated in, and the names of those hackathon events. This placed emphasis on the fact that many of the interviewees knew each other from participating in similar previous events. Moreover, respondents were asked to describe – with as much detail as possible – their last hackathon experience. This question was implemented in order to gauge how the respondent behaves at hackathons, and what her/his motivations might be (i.e. extrinsic or intrinsic). Second, the interviewer asked the respondents whether or not they were familiar with the two different types of hackathons: internal and external. This was followed by a question probing on whether or not they have participated in both types, or solely in just one.

Next, participants were asked to state their reasons for participating in hackathons. As established previously, hackathons are very intense events often leaving participates working behind their computers for 24-hours. This question was implemented in order to get the respondent thinking about why they enjoying coming to hackathons. Once answered, the interviewee wanted to respondents to clearly (re)state what elements they enjoy the most regarding participating in hackathons, followed by what elements they perhaps dislike. Once having established the uniqueness of a hackathon experience, the interviewer wanted the interviewees to think about opportunities they may have bumped into, that they probably would not have if they did not participate in the hackathon. If the interviewee needed more elaboration, the interviewer would give examples a long the lines of: getting projects for your start-up, getting a job, and meeting new people. This section of questions is ended by reiterating what goals one has when participating in hackathons. The interviewer clearly wants to know whether or not the interviewee's motivations are extrinsic (to win the prizes at hackathons) or intrinsic (to meet new people).

Finally, the remaining section of questions focused on exposure and effective brand strategy. These questions aimed to find out whether or not hackathons have given

the interviewees more exposure for themselves and their start-ups, as well the interviewee's opinion on whether or not hackathons are an effective form of brand strategy, for both the event organizers as well as the individuals participating in them. On a final note, the interviewer asked the respondents how they see the future of hackathons and what they expect to happen in the coming years. This was done to end on a light and concluding note, but also to see what the interviewee's final opinion is of how hackathons, in The Netherlands, have perhaps shifted over the years.

### 3.4. Operationalization and Data Analysis

The interview questions were structured regarding the following sections: (1) general information, (2) types of hackathons and hackathon experience, (3) reasons to participate in hackathons, (4) exposure, and (5) effective brand strategy In order to analyze the participant's responses, specific steps need to be taken. Braun and Clarke (2006) propose five steps for thematic analysis; these were implemented as guidelines to analyzing the data. Thus, the main variables related to the research design are 1) types of hackathon 2) motivation, 3) opportunity, 4) exposure, and 5) effective brand strategy. Thus, it is essential for the researcher to operationalize these variables. In order to do this, the researcher creates codes to find patterns in the transcribed interviews. First, *types of hackathon* is operationalized in terms of how there is a current distinction between external and internal hackathons; participating in one type can lead to different outcomes, than if one were to participate in the other. Second, *Motivation*, *opportunity* and *exposure*, on the other hand, are measured using more specific codes relating to extrinsic and intrinsic types of motivation (i.e. winning, goals, prizes, learning), networking and meeting new people, and prospective jobs. Finally, *effective brand strategy* was measured by analyzing how hackathon participants see hackathon events as efficient self-branding (for themselves and their own companies), but also as brand management (i.e. the corporates that host hackathon events). These questions aim to explore what exactly motivates respondents to participate in hackathons, and how perhaps hosting a hackathon can serve as an effective brand strategy. The results were analyzed in order to find mutual patterns amongst respondent's answers. These patterns would then, in turn, be compared with the relevant literature on hackathons. The last question of the interview was an opened-ended on, which asked the respondents how they see the future of hackathons. It is believed to be important to understand how they see how hackathons have evolved, and whether they are concerned with the current organizational direction they are heading in. The full interview question scheme can be found in Appendix A.

Braun and Clarke (2006) state that the five steps for thematic analysis are as follows: (1) familiarizing with the data, (2) creating codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming the themes, and lastly (6) reporting the results. (p. 16-22) (see: Figure 3). The first requires for the researcher to transcribe and analyze the data. Once the researcher is familiar with her/his data, she/he needs to code the results based on the variables that have been previously mentioned, as well as any new codes that may arise along the process. The third step asks for the researcher to look at the 'bigger picture' in order to establish general themes regarding the results. Next, during the fourth step, the researcher reevaluates all of themes to decide which themes are more dominant and significant than others. Following, the researcher is required to name the most quintessential themes derived from the results, which subsequently also leads to the final step in which the researcher reports her/his results (Braun & Clarke, 2006).

In order to conduct the thematic analysis, a thematic overview was created based on the results from Braun and Clarke's (2006) *Six-Phases Thematic Analysis* model (see: Appendix […]). The question scheme in Appendix […] shows the exact questions that were asked per variable and during the interviews. The thematic overview in Appendix […] illustrates how the themes were extracted from the interview transcripts, or in other words, the respondent's answers. Thus, it includes a list of quotes that where derived from the coding process. Lastly, the overview also provides the number of times in which there was a reference to the theme. In the end, only themes with a significant number of mentions were selected. The thematic analysis codebook can be found in Appendix B.

| Phase | Description of the process |
|---|---|
| 1. Familiarizing with the data: | Transcribing data, reading and re-reading data, looking for patterns, and generating the initial ideas. |
| 2. Generating initial codes: | Identifying interesting aspects and features, (open) coding. |
| 3. Searching for themes: | Categorizing codes into potential themes, collecting codes. |
| 4. Reviewing themes: | Reviewing and improving themes (2 levels), and generating a "thematic map". |
| 5. Defining and naming themes: | Refining the specifics of each theme, determining "sub-themes", and generating clear definitions for each theme. |
| 6. Producing the report: | Selecting extracted examples, providing the final analysis, relating results to the research question, and writing a report. |

**Figure 3:** Six-Phase Thematic Analysis Model (Braun & Clarke, 2006)

**3.5. Reliability**

Reliability demonstrates the quality of a study (Kirk & Miller, 1986). The authors proclaim that reliability deals with replicability; in other words, the possibility of other researchers repeating this study in order to come up with the same results and conclusions (ibid). Additionally, reliability also ensures the independence of a study, and thus aims to avoid accidental circumstances that might influence the study's findings. However, one must keep in mind that there is a difference in reliability when it comes to qualitative and quantitative studies. The concept of reliability is rarely applied in qualitative studies due to its subjective nature and interpretations (Daymon and Holloway, 2010). More precisely, even if a study were to be repeated by other scientists in similar conditions and circumstance, the results would likely differ from each other due to the fact that the researcher herself or himself is a 'research tool' in the field of qualitative studies (ibid). Daymon and Holloway (2010) specify that the personal characteristics and background of a researcher could potentially influence the results, interpretations, and conclusions. Nevertheless, there are a couple of steps one can take in order to ensure a certain extent of reliability in qualitative research. Moisander and Valtonen (2006) claim that that in order to ensure the transparency of a research process, researchers need to describe the research strategy and data analysis methods in a detailed manner. Secondly, the authors also advise to provide an explicit theoretical stance from which the interpretations arrive in the research (ibid).

For this particular research, numerous measures were adopted in order to meet the reliability criteria in qualitative research.

First and foremost, all interviews were recoded on two different digital voice recorders, whilst the researcher also took notes during each one of the interviews in order to avoid missing any relevant information. Additionally, all data from the interviews were transcribed using traditional methods of listening to the audio, and typing out the responses. These steps were taken in order to ensure that all the concepts were expressed and interpreted accordingly to the what the respondents had stated.

Secondly, in order to avoid distractions, – predominately the presence of loud noises and/or music – and to make the respondents feel comfortable, the interviews took place in their place of preference; which were usually quiet classrooms or cafés. The interviewer wanted to demonstrate flexibility and thoughtfulness to, at a certain extent, thank the respondents for taking out time of their days to participate in the

interviews. Additionally, Wimmer and Dominick (2014) stated that a convenient place (for the interviewee) could contribute to more in-depth and accurate results.

Thirdly, some questions in the interview were planned prior to the sit-down in order to cover all the aspects that have a significant value for the research. This implies that to a certain extent, interview questions were standardized. This step was implemented in order to ensure that all interviews were conducted in a similar format, and that all of the respondents were able to answer the questions related to the research. This was done via an interview question scheme, which can be found in Appendix A.

Lastly, the majority of the interview questions were open-ended. This method was applied in order to give the interviewees the freedom to express themselves in any shape or form. Subsequently, the six-phase thematic analysis (Braun & Clarke, 2006) was applied to the data in order to obtain thematic meanings and detailed insights. This last step aided in the prevention of preconceptions and simultaneously ensured that other researchers would be able to comprehend the analysis too.

## 3.6. Validity

According to Daymon and Holloway (2010) the concept of validity differs between qualitative and quantitative research. The authors claim that validity in quantitative research is dedicated to verify if a research accurately assess the proposed phenomena, whereas in qualitative research validity does not touch upon the measurements and should, thus be understood differently (ibid).

Regardless, Daymon and Holloway (2010) also state that validity could be divided into two main sections: external validity and internal validity. External validity places emphasis on the concept of generalizability; the main aim of external validity is to demonstrate that the obtained findings and conclusions are applicable to other contexts, settings, or to a larger population (ibid). Internal validity, in term, aims to convince a reader that the social world of participants and the investigated phenomena are appropriately reflected in the research and its findings. Nonetheless, the authors do note that external validity tends to be more difficult to achieve due to the fact that qualitative research embraces specificity and uniqueness. Nonetheless, Morse (1994) claims that theoretical concepts within a qualitative study can be transferred to other conditions, only if they are grounded in previous research or literature; these types of generalizations is described by the author as theory-based generalization. Regarding this thesis, it is worth noting that the findings are related to the theoretical framework, which is based on academic sources and theories. Consequently, regarding Morse's

(1994) statement, one can presume that theoretical ideas from the current research can be transferred to other conditions using both qualitative and quantitative methods. This can be demonstrated through the quantitative questionnaire designed and distributed by Dr. Sarah van der Land during her field research at the 2014 World Hackathon Day.

Nonetheless, other measures were employed to properly meet the validity criteria. Firstly, all of the interview participants were not limited to give static answers, and were asked to provide feedback to the interviewee after the interviewing process was over. This created a pleasant form of dialogue between the researcher and respondent, which contributed to a better understanding of motivations to attend hackathons, and how hackathons can be seen as an effective brand strategy for tech startups. Secondly, due to the open-ended format of the interviews, the researcher asked follow-up questions when necessary; in order to be sure she covered all aspects of the observed entities, and to also achieve an accurate reflection of the research phenomenon.

## 4. Results

In total, 10 hackathon experts were interviewed. All interviews were transcribed and analyzed by this researcher. In the following chapter, based on the conducted thematic analysis, the results from the conducted interviews will be described and discussed which will lead to the establishment of a new conceptual model

### 4.1. Interview Results

Interviews were conducted all over The Netherlands, ranging from cities as Rotterdam and Amsterdam, to Den Bosch and Arnhem. The youngest respondent interviewed was 15 years old, and the oldest was 24. All but one respondent had their own company and/or start-up; the remaining respondent was working full-time at a company, on the other hand. Only one interviewee had participated in just one hackathon, the remaining nine have attended an average of four to five hackathons. This, thus, is a reflection of how well known the participants are with the concept of hackathons, and their participation mirror their levels of expertise. "How well am I acquinted with hackathons? Well, I think I've attended roughly four or five (…) wait, I'm pretty sure I've attended at least five (Respondent 7, transcript). Some participants even need a minute to recollect their thoughts and track the amount of hackathons they've been to; "good question! Gimme sec, I'm counting the hackathons in my head…" (Respondent 3, transcript).  Most participants stated that their main motivation to attend hackathons was the "fun" aspect. "[The best part of a hackathon is] how fun it is

to get together with each other and to brainstorm ideas that get us thinking, "Wow, this is cool!" (Respondent 5, transcript).

What remains striking is that all respondents were male; it was rather difficult to find female hackathon participants, let alone one who wanted to partake in the interviews. "Diversity is still kind of a thing, though. It's, for example, pretty impressive if we can find some women who want to participate in hackathons" (Respondent 8, transcript). Similarly, other respondents agreed acknowledging that there's a bit of a stigma and stereotype that is assumed of hackathon participants: geeky programmers who sit behind their computers, and eat pizza and drink energy drinks all night; this is not always the case. "When people think of hackathons they think often of pizza, sausages, and energy drinks; [that is not the case]. (…) There is a stigma" (Respondent 4, transcript).

**4.2. Thematic Analysis**

After conducting the thematic analysis on the ten conducted interviews, a number of themes arose from the variables (see Figure 4.1). Since all interview respondents participated in external hackathons, the thematic analysis will only be focusing on that variable. Nevertheless, all interview respondents were very well aware of the differences between internal and external, which sometimes even played a role in the type of hackathon they will continue to participate in. The theme for extrinsic motivation solely focuses on the elements of prizes and winning. Although this theme speaks for itself, as the transcripts show extrinsic motivations were not the main priority for participating in hackathons amongst most interview respondents. However, as noted the variables intrinsic motivation, opportunity, and exposure all share a common theme: network and networking. There is some overlap, but clear distinctions will be made with regards to how the theme can be applied to each variable. Intrinsic motivation and opportunity also share another theme: learning. Variables exposure and effective brand strategy also share a theme: organization of hackathons. And lastly, the variable effective brand strategy will also look at the theme reasons for organizing hackathons.
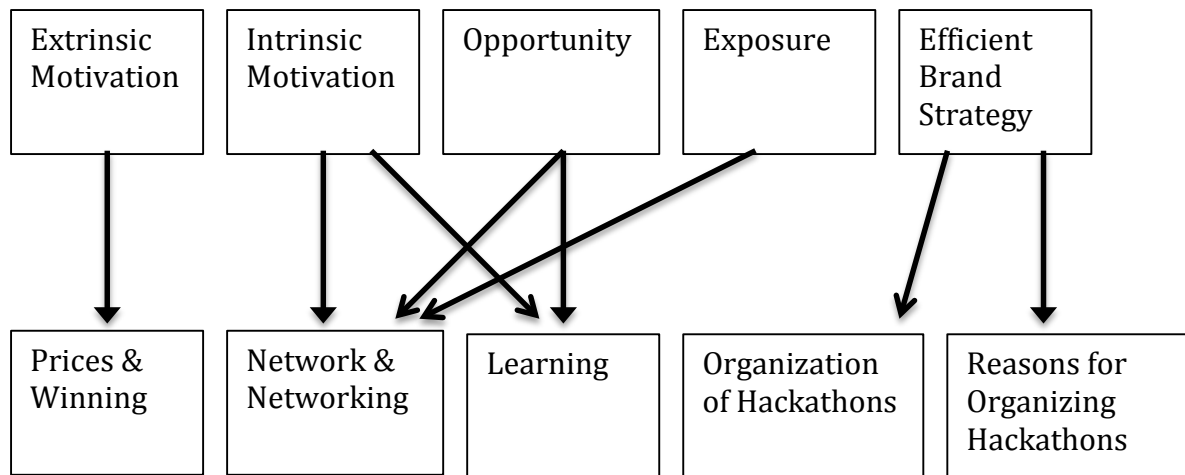
**Figure 4.1:** Thematic Overview

### 4.3. Motivation to Attend Hackathons

As noted in the literature review chapter, this research paper will be focusing on two types of motivation: extrinsic and intrinsic. This section aims to unravel how the different types of motivations encourage respondents to attend hackathon events. Firstly, extrinsic motivations will be addressed particularly, the aspects of winning and prizes. Prizes are what give hackathons their competitive edge, and can sometimes be quite staggering; for example, Respondent 4 won an all-inclusive, fully paid trip to Silicon Valley with his team (Respondent 4, transcript). Next, intrinsic motivations will be discussed, predominantly focusing on the aspects of network and networking (i.e. meeting new people) and learning new skills.

*Extrinsic motivation: Prices and Winning*

During the interviews, all respondents discussed the concept of prices and winning with regards to their participation in hackathons. Questions were asked in order to gauge whether or not extrinsic motivations – such as winning a €5000 prize – were a key reason to participate in hackathons. As it turned out, most participants were not motivated by prices and winning. Funnily enough, one respondent claimed that, "sometimes big prizes motivate me even less, then I immediately think 'oh, I'll probably have a smaller chance [of actually winning]'" (Respondent 9, transcript). This is not to say that the prizes are not quintessential to the layout and concept of hackathons; interview respondents were very aware of the presence of the prizes. "The prizes are gigantic, but [hackathons are] a lot less competitive than expected" (Respondent 6, transcript). Moreover, one respondent in particular believed that if a prize and winning start dominating a hackathon, it will demolish 'the power of hackathons' themselves. "Prices are of course very nice, but at the moment that prices start playing too much of an important role in hackathons, than the power of a hackathon in combination with the

whole open atmosphere can quickly become very toxic. You can notice very quickly that a hackathon where there are big cash prizes that teams no longer work together, do not let other teams see what they are working on; and that is what makes an hackathon so powerful" (Respondent 4, transcript). However, out of the 10 interviewees there was one respondent who did not mind being extrinsically motivated by winning, although not necessarily the prizes. "The prizes tend to always be nice (…) they're never small, for example you wouldn't get a €20 gift card, but a €300 one instead. (…) However, usually you always see [your friends] walking during a hackathon, and then there's a little extra push that's like 'I want to win from my friends; they shouldn't be [number one], that should be me instead'" (Respondent 7, transcript). "Funnily enough developers always want to win, I don't know what it is"; (Respondent 5, transcript) both Respondent 5 and 7 are developers. Nevertheless, these respondents' answer is relatively isolated in terms of the general consensus about winning, and extrinsic motivation; if there is a competitive edge at hackathons it usually tends to be a friendly one.

*Intrinsic Motivation: Network and Networking*

Whilst interviewing the respondents, the researcher quickly noticed how all of them were addressing each other as "friends". "Previous hackathon teammates and I actually are very active in a Facebook group [called] Young Creators [that] we're in; we share a lot of stuff with each other regularly, [like friends] (Respondent 5, transcript). The concept of a tight-knit network quickly became very apparent, as many of the respondents knew each other – and as mentioned in chapter 3 many suggested other hackathon participants to interview. "I now know a lot of people that attend hackathons; we're not talking about thousands of participants here, it's still a relatively small group of people" (Respondent 4, transcript). Nevertheless, this has developed a network of people. "Once I joined the 'Young Creators Facebook group' it all started for me [with regards to hackathons]. (…) A year after I had participated in one, I downloaded an app that could identify different types of 'networks' and groups based on one's Facebook friends. Keep in mind, (…) I attended secondary school in Nijmegen (…), you tend to meet quite a lot of people when you're in secondary school. However, the 'network' of people I know from Nijmegen is *a lot* smaller than my group of hackathon friends; [hackathons have been] incredibly useful. (…) During hackathons you basically get to know a lot of interesting people" (Respondent 6, transcript). "At the World Hackathon Day I didn't know anybody (…) I attended and just went with the flow. Eventually I ended up meeting people there that I'm still in-touch with today! We assembled our team, we didn't know each other (…) but we just bounced ideas off each other and

thought 'damn, we make a really good team!'"(Respondent 3, transcript). Also, funnily enough, two participants actually discovered via a hackathon that they were related as second cousins (Respondent 8, transcript).

Respondents often mentioned other interviewees as their friends; "it's important for me to attend the same hackathons [as Matthijs; we're friends]" (Respondent 9, transcript). Moreover, some interviewees mentioned that this network also serves as an indicator for which hackathon events they are wanting to participate in. "You're always on the lookout to see which people are attending a hackathon; I would never go to a hackathon if only one or two friends are attending, we like to go in a group or as a team" (Respondent 7, transcript). Thus, in combination with their hackathon friend network, intrinsic and extrinsic motivation are combined; it is perhaps what can make a hackathon team a strong one.

*Intrinsic Motivation: Learning New Skills*

In relation to the network established through hackathons, interview respondents duly noted that learning is one of the main reasons why they attend hackathons. Particularly learning technical and practical skills from others seemed to be a popular reason for attending hackathons. "The most important thing I take from attending hackathons is that you get inspired, for example learning a new [coding] language that you might've discovered or seen someone else working with" (Respondent 4, transcript). "You learn so much, in such a short period of time. [At hackathons] you're not your own island, if anything you learn so many skills from others. For example, if you want to learn how to design (…) or program, [a hackathon is an ideal place to learn those skills]" (Respondent 1, transcript). Needless to say, respondents appreciate each other's skillset and abilities: "I think that what makes hackathons especially fun is that we understand each other's work – we can't necessarily do each other's work, but we really like learning from each other" (Respondent 5, transcript).

Some see hackathons kind of as a sport, where the aim is train yourself to be able to build something concrete with a team in usually 24-hours. "Towards the end [of a hackathon] is when you start working the hardest (…) the whole concept is insane, actually. You get a kick out of it; it's kind of a sport. (…) Your own skills are constantly being put to the test, your endurance" (Respondent 2, transcript). However, some argue that the element of learning at hackathons is not praised or emphasized enough by its organizers. "So much more can be done with the concept of 'learning'. It's kind of a difficult issue. Not everyone has time for [someone like me] who wants to ask questions

like 'hey, how does this API [Application Program Interface] work?!'" (Respondent 8, transcript). "It is a bit of a pity that at the end [of the hackathon] you're completely done [and tired]. (…) At the World Hackathon Day, we were all sitting there vacantly nodding our heads during the final presentations. (…) Ideally we should listen to the pitches the next day or after some sleep; [I wanna be awake for those]" (Respondent 5, transcript). Perhaps, a suggestion is that hackathons should devote some extra time to letting teams explain their products in-depth to each other. Hackathon goers like to observe what other teams are doing, so they can learn from their competitors too. "[One time] I even attended a hackathon without actually participating in it, I just wanted to go up to other teams and ask them 'so what are you up to? Explain [your idea to me]!'" (Respondent 6, transcript). The only thing preventing the extra time session from possibly happening is that after 24-hours of hard working many participants may not want to stay up longer for such element.

### 4.4. Opportunity

The following section will be placing emphasis on aspects and elements of opportunity. By attending hackathons, participants have stumbled across so-called opportunities that may have otherwise not crossed their paths. The concept of opportunity is inter-related with the themes of network and networking, and learning; however, focusing on different elements. When it comes to network and networking, participants get the opportunity to meet company representatives – due to the fact that companies often host or sponsor hackathon events. Meanwhile, participants also learn elements of team formation, as their friends and peers offer different competitive advantages.

*Network and Networking: Company Representatives*

Many opportunities have risen from hackathon events; participants are well aware of that. What makes hackathons especially interesting to some participants is that they "get to take a look behind the scenes of a company" (Respondent 5, transcript). "It's not everyday that you get to in the control room of a police headquarters!" (Respondent 6, transcript). Whilst being at these big companies, many of the participants have the opportunity to meet they would not necessarily meet otherwise. "Gaining contacts is also something that plays a role at hackathons. (…) At the *Tempo Team Hackathon* the Director and the entire Board of Directors [of Tempo Team] were present at the event (…) this makes it ideal to attend a hackathon hosted by a corporate company" (Respondent 3, transcript). Company representatives are obviously very interested in

what the hackathon participants produce during their event, it simultaneously becomes a great opportunity to recruit or collaborate on projects. "Hackathons are basically great for talent scouting" (Respondent 7, transcript). "There are many companies that hire participants for work or internships. Although you're essential working 'for free', [partaking in a hackathon] can be valuable if participants are looking for internships, for example" (Respondent 8, transcript). "Although we got [third place] at the *Tempo Team Hackathon*, [Tempo Team] has approached us recently that they want to work further on that project; these are the kind of things that arise [from hackathons]" (Respondent 7, transcript). "Although students may not have the time, I do think that many participants landed part-time jobs at companies represented at hackathons; [they're a great place to go if you're looking for a job" (Respondent 4, transcript). It is safe to say that interview respondents are unanimous when it comes to opportunities that have risen from hackathon networks.

*Learning: Team Formation*

As previously stated, hackathons are a platform that offer its participants and organizers alike to learn from each other. This is partly because one manages to put a large group of people in one constrained area, and somewhat 'forces' them to come up with a concept and a product in a controlled time limit. Respondents noticed that other participants come from several of different kinds of backgrounds. "There are so many people, and all those people all have their own stories and [usually] also their own businesses. There are just so many fun, smart people that are capable of so many things; from (…) pitchers to hardcore developers [all at one event] (Respondent 5, transcript). "[Everyone] can always participate at a hackathon. If anything, people are looking for a multi-disciplinary team (…). [People really collaborate together], if a team has a question they'll always go to an opponent for an answer" (Respondent 1, transcript). However, as noted by one interviewee there is a downside to getting to know people. "Firstly, you have to get to know others, you have to know what they're skills are, and what their strengths and weakness are. That usually takes a lot of time. [Once you've set up your team] you can't switch out any people. (…) [This can be an issue] after a couple of hours you can notice that someone actually isn't as good as they claimed to be; then you're basically fucked" (Respondent 2, transcript). Even though there are opportunities to meet and learn from many different people, participants tend to prefer to stick in their own, regular teams in order to come up with the best results. At the end of the day, participants want to be proud of what they've build; "hackathons are kind of a

celebration of the things you've build; at hackathons you just build stuff [that's the main goal]" (Respondent 8, transcript).


## 4.5. Exposure

The following section will address the concept of exposure. Also part of the first conceptual model, exposure in this case places emphasis on network and networking, particularly, the different "types" of hackathon-ers that attend events.


*Network and Networking: Types of Hackathon-ers*

Though, while the Dutch hackathon community remains somewhat niche interview respondents do notice that there are differences amongst them.
"You've got professional hackonth-ers, you've got beginners; there are definitely different kinds of groups. (…) [There's also a difference in the types of skills people have; soft skills versus hard skills]" (Respondent 4, transcript). This also, as previously mentioned, dictates to what kind of hackathon events participants will attend. For one respondent it's a combination of two things: his friends and the type of company that's organizing the hackathon. "If the [company hosting] the hackathon is cool, then it's most likely going to be an interesting one, for example ING or Philips; (…) you'll also notice that more of your friends will probably attend that one too" (Respondent 7, transcript). Ones friends, usually the same individuals who also form the team, and thus the level of expertise is relatively the same. Someone who is a brilliant programmer will probably not want to attend a hackathon with people who have just started to learn how to code. On top of that, some companies have started to make use of pre-selection applications in order to make sure that everyone is 'up to par' and 'experienced enough' (Respondent 9, transcript). This all relates to what the goals of the hackathon host are; is it to get young people acquainted with this new way of working, or is it to produce high quality ideas and products in a short amount of time? Thus, the different "types" of hackathon-ers – their type being predominately dedicated by their level of skill and experience – dictate which other hackathon goers will attend the same event. Hence, it is quintessential for companies to realize what kind of "type" they want their hackathon to attend. Different types will give different outcomes, if the skill set is low or too mixed (in levels), the hackathon will still be fun but the products might not be of high quality. Inviting a lot of experts, on the other hand, might create more of a competitive atmosphere but will deliver high-end prototypes.

**4.6. Effective Brand Strategy**

Lastly, this section will focus on the concept of effective brand strategy. In order for hackathons to aid in the branding processes of companies and tech start-ups, there are two important elements one must take into consideration: the organization of hackathon, and the reasons as to why one is hosting a hackathon. As the results indicate, if these are followed-through correctly, the hackathon will have higher chances of being a success. It is important for companies and tech start-ups to brand their hackathon events as "successful", as it will have an impact on whether or not participants will attend again in the future.

*Organization of Hackathons*

As a result of hackathons becoming more mainstream in The Netherlands, some participants have delved into consultancy roles. Three out of the 10 interview respondents have their own businesses that relate to consulting companies and organizing hackathon events. Two of those respondents work at the same startup and have helped organize *World Hackathon Day* (2014) and *Fuse Hack* (2015). Nevertheless, it was made very clear that organizing a hackathon is not a walk in the park; there are certain elements that need to be taken into consideration. For example, although it might be more excited to let people form their teams with strangers, this may not always be as efficient. "I've come to notice that teams that have been set up prior to hackathon events, are the teams that come up with the best products" (Respondent 2, transcript). There are also some basics that must not be forgotten; "there should be good wifi, comfortable places to work, an open atmosphere, and good food. (…) I personally don't care about the sleeping arrangements, but I know others do" (Respondent 9, transcript). Although these elements seem somewhat obvious, interview respondents stated that one would be surprised how some hackathons lack in these. The expenses of organizing a hackathon should also not be underestimated. "You need to realize, 'what do I need?' You need food, Internet, electricity and a place for people to sit. (…) You can of course upgrade all of these as much as you want; (…) [hackathons can range from] a couple of thousands [of euros] to hundreds of thousands [of euros]" (Respondent 4, transcript). Nevertheless, unfortunately companies have still managed to poorly organize hackathons; this has not gotten unnoticed by the participants. "[What makes a hackathon a lot less fun] is that many are have a very 'commercial' aspect to them – this can be [an organizer's] biggest pitfall because you notice right away that companies organizing the hackathons aren't doing it for the right reasons" (Respondent 4, transcript). On top of that, hackathon attendees will not quickly forget if a hackathon

was poorly organized; "this is the time of the Internet, make one mistake and than everyone knows about it [especially in this community]; trust me, next time no one will attend [your hackathon]" (Respondent 5, transcript). Companies must keep this cautionary note in mind.

*Reasons for Organizing Hackathons*

Many respondents indicated that they are well aware that hackathons are becoming a bit of a hype in The Netherlands, and are sometimes organized for the sake of just organizing one. "I feel like hackathons are really trendy at the moment (...). Loads of companies are trying this and that, and they see this as an opportunity to hop abroad the 'coolness train' – so to say – in order to speak to 'young tech talent'" (Respondent 4, transcript). This should never be a reason for a company. "It's a cool PR stunt, but at a certain moment there are so many hackathons being organized, you can't take them seriously any more. (...) We keep on seeing more bigger, commercial companies hosting [hackathons], and those companies obviously have their own corporate, commercial interests" (Respondent 3, transcript). Hackathons should be seen as a competitive, yet controlled environment where like-minded individuals can develop working prototypes, and spur innovative concepts and ideas. "At hackathons you learn how to think in opportunities. (...) At hackathons you can flip an idea completely upside-down, and everyone would be okay with that" states Respondent 6, as he talks about the ability to think outside of the box when he's at a hackathon (Respondent 6, transcript).

However, as noted by one respondent, "if you want to create new concepts, new services, [or] new products, than it is super relevant to work with external people [at a hackathon]; (...) these people are indirectly involved [with your company]" (Respondent 1, transcript). Because (tech) start-ups have been born out of hackathons (Respondent 8, transcript), it is an interesting step to take for companies if they are looking for a pioneering way to come up with new products, concepts, and/or ideas. On top of that, it also remains a great way to scout new talent within the industry: "a hackathon is [also] a social gathering, [of course they're recruiting us] the biggest nerds always attend" (Respondent 3, transcript).

## 4.7. Summary and New Conceptual Model

To conclude, the results demonstrated that there are some similarities with the data gathered from Briscoe and Mulligan's (2014) research paper. Although participants like the idea of winning – particularly the "hardcore developers" as they like to call themselves – the prizes are not what motivates them; instead they want to show off

their skills and assets, and win with their end-products. Nevertheless, winning is not the main reason for participants to attend hackathons, rather they really enjoy the aspect of learning. They see hackathons as a sort of playground where they get to play and experiment with different types of programming languages, and get to dip their feet in disciplines they might not be as familiar with. Moreover, they are also motivated by meeting new people who are similar to them, as they see hackathons as a gathering of friends, and as a hobby. Fun plays a quintessential role for hackathon goers – why else would they sacrifice their precious time to stay away for 24-hours? As long as the atmosphere is amicable, and the hackathon is being organized for the right reasons (to solve a real and interesting problem) hackathons will remain popular in The Netherlands.

Based on the results of the conducted interviews, a new conceptual model has been created (see Figure 4.2.). This model illustrates that in order for hackathons to be an effective brand strategy for both tech startups and corporates alike, there needs to emphasis placed on 'effective hackathon organization'. Based on the results described above, it was clear that there was also a unanimous support for the current "hackathon network". Many interview respondents believe that the network has not only been advantageous, but it also plays a big role in the kind of hackathons they will attend (e.g. "I will only go if Person X goes as well"). The network has also allowed them to "learn" more from their hackathon experience, in terms of both hard and soft skills. Hence, certain variables have replaced others due to their significance.

Although prices and winning (i.e. extrinsic motivations) do play a role when it comes to motivating individuals to participate in hackathons, they were not the respondent's main focal point. The prices were particularly seen as a given; excepted to be there as a reward for the intense 24-hour work session that has been put in. Intrinsic motivations, networking and learning, were deemed as more quintessential to the respondents, and are the factors that trigger them the most to participate. Thus, these elements need to be available and stimulated at hackathon events. Finally, in order for brand strategy to be successful, the *way* the hackathon is organized is of essence. As seen in the results, many respondents complained and/or were worried about the quality of (future) hackathons. In order to get a high quality of ideas, products, and/or services the environment in which the hackathon partakes needs to be equally as top-notch.

**Figure 4.2:** New Conceptual Model

## 5. Discussion and Conclusion

This study investigated what motivates people to participate in hackathons and whether or not hackathons are an efficient branding strategy for tech startups. It aimed to answer the following two research questions:

*RQ1: What is the motivation for tech start-ups to participate in hackathons?*

*RQ2: To what extent is participating in a hackathon an effective brand strategy for tech start-ups?*

### 5.1. Discussion

The results of this study indicated that with regards to the research questions and the initial conceptual model of chapter 2, that hackathon participants are primarily motivated by intrinsic motivations; extrinsic motivations play a much smaller role, but should not be left out from the hackathon structure. On top of that, hackathons can only be an efficient branding strategy if they are organized properly and for the correct reasons. Respondents are worried that the quality of hackathons will disintegrate if companies do not spend the right amount of resources on making hackathons enjoyable. Respondents are very adamant on the atmosphere that takes places at hackathons; they would like to be there with their friends, have all the basic necessities met, and have some guidance from mentors or company experts. The presence of mentors is important to them, because many participants feel that they lack help further developing the ideas and products they have created at hackathons. Often they feel like they came up with something "awesome", but the company does not end up doing anything with it. If all of these elements are present, the respondents believe that not only will the hackathon be fun, it will end up creating high quality solutions to problems. Also, the hackathon will 'get a name for itself', encouraging future participants to join because of its supposed good reputation. With a wider selection of participants comes more diversity, and hopefully this will aid in the diversity of ideas and concepts. Respondents were a little

mixed about the prizes that are often presented at hackathons; although they are enticing, they are not the main goal for participation.

The findings of the conducted research support particular elements of the literature discussed in the second chapter of this thesis. The study conducted by Briscoe and Mulligan (2014) illustrated that when participants were asked why the attended hackathons the main reasons were *learning* (86%) and *networking* (82%); winning *prizes* (28%) was put on the backburner. This research demonstrated very similar responses from the interviewees. Because hackathons can be seen as type of pressure cooker, learning from each other and meeting new interesting people are easily priorities when you only have 24-hours to come up with a solution. It would be merely impossible to have a one-person team at a hackathon; it is the teamwork what makes it so unique. On top of that, many respondents indicated that when their team is stuck, they are not afraid to ask their rivals for help, stating that the atmosphere at hackathons should be very open. Openness goes in line with the concepts of open source discussed in the second chapter.

When participating in hackathons, participants are essentially working 'for free' – excluding the costs to organize the event. Although this might seem like a cost-efficient solution for many companies, they should also be aware that external hackathons demand the use of their data. Respondents acknowledged that many companies still have a hard time doing this; some even argue that internal hackathons are pointless, to a certain extent, because sometimes an outsider is needed to locate small mistakes that may have grazed ones eyes. Nonetheless, hackathon participants are completely fine with working for free; they seemingly agree that it is all a conscious choice they know they have signed up for. Moreover, since many of them are seriously talented, and have their own businesses, if they wanted to earn money they would just work as freelancers.

Another issue is that, by outsourcing other – and notably younger – problem solvers, current employees may feel a bit threatened. On top of that, when a third-party hackathon participant creates a lucrative new feature for a corporation, who actually owns it (Popma & Allen, 2013)? Respondents are aware that there are many legal strings attached to IP's (intellectual properties), which may not always be in their advantage. Whilst they do not mind working very hard for 24-hours, if their idea is the 'winning idea', and the company wants to further develop it, they do expect to be compensated after the hackathon. Thus, companies should not expect that hackathon goers are willing to sign a non-disclosure agreement and 'give away their ideas during the hackathon; after the fun and games are over, the participants want to be rewarded accordingly. Many hackathon participants are willing to collaborate on their ideas and

concepts once the event is over. Similarly, they also noted that there is very little guidance post-hackathon; if there is a good idea – perhaps the foundations for a potential new (tech) startup – it all has to come from their own initiative. Since many of the participants are very young, they only have time in the weekends, and as soon as school and other activities start to pop-up many of these great ideas get left behind. Thus, respondents noted that during hackathon events they would like to see more mentors present.

On the note of diversity, there seems to be a general issue of getting different types of hackathon participants. Particularly gender and race are not very representative; the average hackathon participant is white and male. This was seemingly obvious in this research, as the sample was only Dutch, white males. Notably, this can partly be related to the current societal issue that not many women and people of color (other than whites and Asians) are encouraged to enroll in computer science programs, or to learn code and program software (Verspoor, 2016; Frier & Burrows, 2014). Respondents were well aware of this diversity, and hope that something will be done about it. One respondent, who also happens to be a hackathon consultant and organizer, says that when he organizes a hackathon he tries his best to contact organizations such as "Girls Can Code" to recruit participants.

There are numerous theoretical implications of this study. The findings of the research conducted contributed to a new conceptual model that will aim to aid in the quality of hackathons. In order for hackathons to be successful, so that a company can get the high quality solutions they are looking for; they have to be well prepared when it comes to organizing a hackathon. This finding was not part of the initial research, and thus gave a new angle. Hackathons can be seen as a 'new way of working' for both corporates and (tech) startups alike. The similarities between agile and scrum teams, and hackathon teams – in terms of producing efficient and innovative work – could be further tested and researched by the academic community. Furthermore, the new proposed conceptual model should be empirically tested via quantitative methods, in order to see if similar results will surface.

Similarly, there are also various practical implications of this study. Firstly, it can serve as advice for future organizers of hackathons. This study can serve as a guideline for how they should be structured (the previously mentioned 'basic necessities' of good food, comfortable sleeping areas, powerful Internet, and electricity), but also for what reasons (innovative solutions to challenges and/or problems). If followed correctly, this guideline cannot only establish – to a certain extent – that the hackathon will be a fun and successful one (as such, will be perceived positively by hackathon goers – the

toughest critics) it will most likely also deliver the highest quality of innovative products and solutions; which is what one is looking for when they host a hackathon. Next, well-organized and fun hackathons can aid as a branding strategy for companies. Since there are so many of them at the moment, hackathon goers have a lot to chose from; however, if they enjoyed yours, word will spread fast in this niche community. Not only does that mean, that one will probably have more attendees next time they also organize a hackathon, it will also demonstrate to these young IT professionals that as a company you understand this. This could lead to more young talent wanting to work for your company. Finally, they could end up being a 'new way of working', and if proven to be more efficient and innovative, the concept of a hackathon (working together in teams to create a prototype in 24-hours) can be branched out to different fields and industries, such as politics, arts and culture, and perhaps even the agricultural sector.

Even though, the study was able to draw copious conclusions, whilst analyzing the data a few 'surprises' did arise. First and foremost, none of the hackathon participants had any experience with nor witnessed any investors and/or venture capitalists present at hackathons. This seems rather odd due to the fact that many new possibilities are born at hackathons, and many of the participants are working on their own ideas and/or start-ups. Venture capitalists and investors are looking to hackathons as a new way to spot fresh faces worth recruiting and good ideas worth funding; some are even calling them "an investor's nirvana" (Leckart, 2012). This is currently occurring in the United States, so perhaps investors in The Netherlands will pick up on it soon as well. Secondly, the researcher found it interesting that companies implement so few ideas and concepts created at hackathons. Respondents suggested the use of mentors, in order to receive more guidance on how they can further develop it themselves, or alongside the company. The researcher believes that that there are two possible reasons as to why this may be occurring. First, the hackathon was not organized for the right reasons; if there is not a legitimate problem to solve companies will be over-flooded with new prototypes they were not necessarily looking for. According to previous research, hackathon participants tend to view the events themselves as prototyping, rather than traditional software development cycle for building a product (Briscoe & Mulligan, 2014); companies have to be aware of this. Second, particularly corporates are worried about the legal strings that may be attached. Respondents indicated that they are not very fond of signing non-disclosure agreements, which will most likely put them off. Companies have to embrace the fact that hackathons are an investment – one that does not necessarily have to be a pricey one – and that the 24-hours that the participants are working "for free" should be rewarded accordingly afterwards. This

also plays in on the fact that, hackathon participants do not really seem to care for the prizes; they want to win because they build the best possible product. These two surprises are in fact quite inter-related to each other, and thus should be further investigated via empirical testing. Lastly, it surprised the researcher that hackathon goers have absolutely no problem helping out other teams regardless of the fact that they are competition. This indicates that although there is some motivation to win, the atmosphere at hackathons is not necessarily a competitive one. This also goes in-line with previous research that one of the main reasons attendees participate in hackathons is to learn more from each other, and different skills (Briscoe & Mulligan, 2014).

As with every study, the chose method had several disadvantages and limitations. First, despite the fact that interviews prompted insightful answers from the respondents, the researcher had a difficulty in finding the right amount of respondents. Because the inner-circle that is the Dutch hackathon scene is very small, it was rather difficult to get in touch with potential interviewees. Many of the hackathon participants are young, busy individuals who are trying to balance school, their own companies, and participating in hackathons at the same time. This had led to the researcher having to use a previously conducted interview from 2014. Unfortunately, this throws off the research question list and the decreases both the validity and reliability of the research. Therefore, although surveys would not have provided the in-depth answers the researcher was looking for, it would have been less time consuming for the respondents and thus the respondent rate could have been significantly higher. Also, if the researcher had a bit more time to conduct the research, they might have been able to attend a couple of hackathons that were taking place in The Netherlands. Towards the end of May *The Campus Party* and *The Next Web Conference* were prominent in the Dutch hackathon scene, and many of the interviewees were attending at least one of the events. Perhaps being at a hackathon could have given the researcher not only more insight and feeling on what it is like to be at one, it might have also aided in the recruitment of interviewees.

## 5.2. Conclusion

This research sought to answer two research questions: *RQ1: What is the motivation for tech start-ups to participate in hackathons?*

And *RQ2: To what extent is participating in a hackathon an effective brand strategy for tech start-ups?*

Based on the results of this study, the answer to these research questions are that learning and networking are great incentives for hackathon participants, and if

organized well, a hackathon can contribute to an effective brand strategy. Needless to say, as more and more companies and (tech) startups start adopting the concept of hackathons it is of essence that they are organized accordingly. Although the current hackathon community in The Netherlands is relatively small, the researcher is expecting a significant amount of growth as the events are starting to become more popular. On that note, if one were to poorly organize a hackathon, word of it will spread fast; many respondents agreed on a couple of hackathons that were not pleasant to attend. This is also something they will keep in mind for further reference; thus, companies and (tech) startups cannot afford to mess up. It is important for them to also encourage mentorship and diversity during hackathon events, as those two elements still remain an issue. And on a final note, a company or a startup should *only* organize a hackathon if they are looking for unique and creative solutions to challenging problems; not because their competitor is organizing one. Hackathons are proving to be grounds for new ideas; they are especially good tools to stimulate the creative and problem-solving juices of young, talented developers in The Netherlands. Perhaps it is the lack of sleep, the "hackathon high" as some call it, however the ideas and prototypes that are created at hackathons all seem have to potential.  I guess it goes without saying, but organize a hackathon; because if your participants do not build it, someone else will.

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## Appendix A. Interview Question Scheme

*General Information*

"Hello and thank for your taking your time to participate in this interview, I really appreciate it. Today, I will be conducting this interview with regards to gathering researching for my master thesis. The main topic of my research is hackathons as an effective brand strategy for tech startups. Before we start the interview I would like to go over the informed consent form with you. All answers are voluntary. If you do not feel comfortable with any of the questions, feel free to refuse to answer them. Furthermore, you will have one week after the interview to send me an email and request to be excluded from this project. Is this clear? Great, let us start with some general questions:

1. Could you please state your name and your age?
2. Do you have your own company and start-up? If so could you tell me a bit more about it?
3. How familiar are you with hackathons?
4. Have you ever participated in any hackathons? How frequently have you participated in them?

*Types of hackathons and hackathon experience*

1. Please describe your last hackathon experience to me.
2. Do you know the difference between 'internal' and 'external' hackathons? Have you participated in one or in both?

*Reasons to participate in hackathons*

1. What is your main reason or reasons to participate in hackathons?
2. What do you like the most about hackathons? What do you like the least?
3. Do think that hackathons have given you opportunities that you wouldn't have gotten otherwise? If so, how?
4. When you participate in hackathons, what are your goals? To win? To get to know others?

*Exposure*

1. At hackathons, do you come together with others to talk about your own business/startup, and the industry?

2. Do you come to hackathons in order to network or find different job opportunities? If so, what are you experiences (e.g. have you gotten a job?)?

3. How important is it to you to be seen by others (e.g. competitors, colleagues, venture capitalists, or headhunters) during hackathons?

*Effective brand strategy*

1. Do you think more companies and/or tech startups should participate in hackathons? If so, why do you think this?

2. Would you say that hackathons are an effective way to brand yourself and your tech startup? If so, why would you say this?

3. How do you see the future of hackathons? Do you think they will become more mainstream?

## Appendix B. Thematic Analysis Codebook

| Concept | Theme | Exemplary Quote | Number of times mentioned in total |
|---|---|---|---|
| Motivation to Attend Hackathons | Extrinsic motivation: prices & winning | *"The prizes are gigantic, but [hackathons are] a lot less competitive than expected"* | 15 |
| | Intrinsic motivation: network & networking | *"I now know a lot of people that attend hackathons; we're not talking about thousands of participants here, it's still a relatively small group of people"* | 10 |
| | Intrinsic motivation: learning new skills | *"You learn so much, in such a short period of time. [At hackathons] you're not your own island, if anything you learn so many skills from others. For example, if you want to learn how to design (…) or program, [a hackathon is an ideal place to learn those skills]"* | 21 |
| Opportunity | Network & networking: company representatives | *"Gaining contacts is also something that plays a role at hackathons. (…) At the Tempo Team Hackathon the Director and the entire Board of Directors [of Tempo Team] were present at the event (…) this makes it ideal to attend a hackathon hosted by a corporate company"* | 8 |
| | Learning: team formation | *"[Everyone] can always participate at a hackathon. If anything, people are looking for a multi-disciplinary team* | 5 |

| | | *(...). [People really collaborate together], if a team has a question they'll always go to an opponent for an answer"* | |
|---|---|---|---|
| Exposure | Network & networking: types of hackathon-ers | *"You've got professional hackonth-ers, you've got beginners; there are definitely different kinds of groups. (...) [There's also a difference in the types of skills people have; soft skills versus hard skills]"* | 5 |
| Efficient Brand Strategy | Organizing hackathons | *"You need to realize, 'what do I need?' You need food, Internet, electricity and a place for people to sit. (...) You can of course upgrade all of these as much as you want; (...) [hackathons can range from] a couple of thousands [of euros] to hundreds of thousands [of euros]"* | 14 |
| | Reaosns for organizing hackathons | *"It's a cool PR stunt, but at a certain moment there are so many hackathons being organized, you can't take them seriously any more. (...) We keep on seeing more bigger, commercial companies hosting [hackathons], and those companies obviously have their own corporate, commercial* | 10 |

| | | *interests"* | |
|---|---|---|---|