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LONDON'S DIGITAL ECONOMY

Hackathons: Why Co-location?

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Executive Summary

In this position paper we outline and discuss co-location as a significant catalyst to knowledge exchange between participants for innovation at hackathon events. We draw on surveys and empirical evidence from participation in such events to conclude that the main incentives for participants are peer-to-peer learning and meaningful networking. We then consider why co-location provides an appropriate framework for these processes to occur, and emphasize the needs for future research in this area.

1 Introduction

We continue to explore new models for knowledge exchange between arts and humanities research and the digital creative industries, including the potential of Culture Hacks. Culture Hacks are hackathons focused on arts and culture for the creation of innovative digital prototypes by creating new collaborations across the arts, technology and the creative industries. Hackathons' participants are typically computer programmers and others involved in software development, including interface and interaction designers, graphic designers, service designers, project managers, academic and non-academic arts practitioners.

Exploring the principles that underpin the format of Hackathons [Briscoe 2014b], we have observed a preference for co-location over remote hackathons. For example, in the UK Hackathons and Jams group (<http://www.meetup.com/UK-Hackathons-and-Jams/#past>) only 4 of 247 past events included remote participation. Furthermore, only 2 of the 4 remote hackathons half were remote-only. Half events had co-located and remote participants, with arrangements in place for groups of participants to meet locally for the duration of the event. Therefore, less than 2% of events of the UK Hackathons and Jams *meetup* group were remote or included remote participation. Drawing on these statistics, we seek to examine whether the potential and value of hackathons arises from co-location and the perceived benefits it offers to the participants.

The next section will introduce the Hackathon phenomenon. Following this, we will discuss the importance of co-location and face-to-face interactions from the perspective of cultural geography and move on to discuss why these are important in hackathons.

2 Hackathons

Innovation with digital technologies continues to emerge, but increasingly there are efforts to help *nurture* such innovation through hackathons. A hackathon has been described as a problem-focused computer programming event [Topi 2014], as well as *a contest to pitch, program, and present* instances of prototype digital innovation (e.g. a prototype mobile application) [Leckart 2012]. They bring together programmers and others to collaborate intensively over a short period of time on software prototypes, increasingly to compete for funding and other forms of support (e.g. travel to attend events) for further development [Topi 2014].

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The *phenomenon* of hackathons has arisen from their growing global occurrence, having developed from their impromptu pizza parties origins to professionally organised corporate sponsored bespoke events [Briscoe 2014b]. Hackathons typically start with one or more presentations about the event, including the challenge prizes if available. Aims or challenges can be gathered beforehand, or they can be generated at the event, or the event may be focused around a specific task. Then the main work of the hackathon begins, which can last anywhere from several hours to several days. However, they typically last between a day and a week in length. 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. Sometimes sleeping is informal as well, with participants sleeping on-site with sleeping bags, or in provided tents at larger events. At the end of hackathons, there is usually a series of demonstrations in which each group presents their results.

Hackathons have become an activity for many software companies, as well as cultural organisations and government agencies as an approach to encourage digital innovation with their assets and resources. This has led to hackathons making a significant impact on the culture of digital innovation [Topi 2014]. Given this importance of hackathons to cultures of the digital economy, and considering their potential as catalysts for knowledge exchange between arts and humanities research and the digital creative industries, it is essential to understand the significance of participant co-location within them.

3 Importance of Co-location

Co-location, with respect to innovation, means being physically located in the same place/space [Storper 2004]. The economic geography literature shows that specialist knowledge conducive to innovation is often tacit and difficult to *codify* [Bathelt 2004]. So, for this knowledge to be communicated and transferred efficiently requires trust. This trust develops more easily through face-to-face (F2F) interactions [Chapain 2010, Iammarino 2006]. The consensus in much of the literature currently is that F2F contact is an essential feature of most innovation behaviour. This is for the following reasons: (1) it acts as an efficient communication technology; (2) it facilitates trust and incentives in relationships; (3) it motivates people; and (4) it facilitates screening and socialising [Storper 2004]. We will consider these aspects and their importance for innovation behaviour.

Many studies have corroborated the effectiveness of F2F as an effective communication technology [Andres 2002, Baltes 2004]. For example, in an exploratory study by Hightower [2007] of a web-based asynchronous computer conferencing system it was found that teams using this computer-mediated communication system could not outperform traditional (F2F) teams under otherwise comparable circumstances. This shows that as a communication technology F2F mostly outperforms virtual mechanisms [Warkentin 2007].

The establishment of trust through F2F contact is an important feature of innovation behaviour [Storper 2004]. Asheim [2005] states that trust facilitates the transfer of tacit knowledge, an essential component of innovation behaviour. This is because it allows for a transfer/exchange of tacit knowledge, allowing participants to essentially learn from each other. People are motivated through F2F contact because they *perform* for each other [Storper 2004], and is important because it displays characteristics that are central to the task at hand. Furthermore, F2F also allows people to socialise and screen each other [Storper 2004]. This is an essential element of innovation practice because it allows for the building of networks, which is central to collaborative processes that underpin innovation behaviour.

4. Hackathons and Co-location

Research data on hackathon events, including the significance of co-locating participants, is limited. TokBox, a subsidiary of Telefonica [Lunden 2012], conducted a survey in 2020 of 150 hackathon participants from across the United States (Dallas, Portland, Boulder, Chicago, Las Vegas, Seattle, DC, and Boston, among others) asking their opinion about different aspects of the hackathons they had

attended [Mumm 2012]. The top two reasons for attending a hackathon were learning (86%) and networking (82%). Empirical observation of hackathons [Briscoe 2014a, 2014b] indicates this to be *peer-to-peer* learning and *meaningful* networking.

The opportunity for learning, the top reason given by the survey participants, is unsurprising given the lifelong learning expected of computer programmers (because of the ever-continuing emergence of new technologies that often come to replace existing ones). Empirical observation of hackathons [Briscoe 2014a, 2014b] indicates a preference for peer-based learning over self-learning at events. Peer-based learning is considered to optimise learning outcomes and provides a more holistic, value-added and quality-enhancing education [Gwee 2007]. Peer-based informal learning typically occurs during a hackathon, and so co-location is important in creating a suitable environment for this to occur effectively. Similar findings have been reported for formal learning environments, in which co-location is preferred over distance learning [Vamosi 2004, Tomei 2006, Beard 2004, Ponzurick 2000].

The opportunity for networking, the next top reason given by the survey participants is to be expected given the preference for face-to-face, over emerging digital means, for networking. Similar findings have been reported for business networking by individuals of SMEs, who can often be participants at hackathons; preferring personal contact despite a growing interest in digitally mediated interactions [Rae 2006, Harris 2012, Gray 2009]. Empirical observation of hackathons [Briscoe 2014a, 2014b] suggest that they are often more intensive than dedicated networking events, because they happen through intensive team work. The networking at hackathons provides an opportunity for people to create new links and future collaborations that can last beyond the short term focus of the hackathon. Therefore, they facilitate the establishment of significant, substantial, and meaningful connections, instead of casual contacts with minimal potential for further collaboration. Furthermore, the diverse expertise and industries that can participate at hackathons can support networking outside of existing circles of connections, and so provide access to new markets.

5 Conclusion

We presented our hypothesis that physical co-location at hackathon events is significant in the knowledge exchange between participants for innovation. The main reported reasons for participant co-location have been peer-based learning and meaningful networking which result from F2F interactions and contribute to knowledge exchange for innovation in the short and longer term. Hackathon participants have a strong preference for F2F interactions resulting from co-location. This highlights the importance of researching the activities involved in hackathons that enable effective knowledge exchange, including their wider contribution to empowering the creative digital economy. The data that currently exists, although scarce, confirms our hypothesis. However, we suggest that more in-depth research, both statistical and qualitative, is needed to better understand the importance of co-location at hackathons.

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