

Digital Innovation: The Hackathon Phenomenon

Dr Gerard Briscoe

Research Associate, Queen Mary University, London

Innovation with digital technologies continues to emerge, but increasingly there are efforts to help 'nurture' such innovation. Large structured project approaches are increasingly giving way to short prototyping activities called hackathons. These hackathons are more encouraging of creativity and are often challenge orientated. Hackathons and its variants are increasingly emerging in the available literature, both as reported sources of innovation and as the topic of field reports. A hackathon (also known as a hackfest or hack day) is an event in which computer programmers and others involved in software development (interface designers, graphic designers, project managers, etc) collaborate intensively over a short period of time (anything from 24 hours to 7 days) on software projects. From holding large numbers of these events, the 'hackathon phenomenon' has emerged as an effective approach to innovation with digital technologies in a large range of different spaces (music, open data, fashion, academia, and more).

The word hackathon is combined from the words hack and marathon, where hack is used in the sense of exploratory programming (and not as a reference to cybercrime). The term appeared in 1999, seemingly

arising independently from OpenBSD developers and Sun marketers. As the hackathon phenomenon has grown, so to has the participation of non-technical expertise, such as marketers, business developers, designers, etc. The phenomenon of hackathons has arisen from their growing global occurrence, having developed from their origins as impromptu 'pizza parties' to professionally organised, corporate sponsored events. The effectiveness of the hackathon phenomenon for digital innovation stems from invested participation and sustainable innovation. Changing participation from volunteerism to invested participation is generally achieved by focusing on issues of significance to the hackathon (e.g. social issues of concern in open government, or specific issues relevant to the community of the hackathon); and/or the provision of an award or prize which adds a competitive element to encourage individual investment for personal gain. The provision of a prize (often sponsorship for further development) potentially achieves the application of more resources to a challenge than the prize could fund directly. While the relaxed organisational structure encourages participants to innovate, it also creates an environment that can manage the failure necessary for innovation to emerge.

The relative ease of hosting such hackathons has allowed for many events to be held, and therefore for a

range of expertise, experience and skills to be applied to a range of different spaces. There is an average of one hackathon a week in London, with hosts ranging from government departments (e.g. Hack the Government) to businesses (e.g. Cadbury), as well as cultural institutions (e.g. Hack the Barbican) and research networks (e.g. RCUK). The rise of the hackathon phenomenon is not yet fully understood, but may arise in part from it being an effective form of innovation under austerity. This would also help to explain the even greater growth of hackathons in parts of the developing world (e.g. Brazil, India, etc).

Structure

Hackathons typically start with one or more presentations about the event, including the challenge prizes if available. This is sometimes followed by suggestions or requirements for the size and participant types for the teams. Then participants suggest ideas and form teams, based on individual interests and skills. Sometimes they will pitch their ideas to recruit additional team members, because without sufficient technologists paper prototypes have to be utilised. Then the main work of the hackathon begins, which can last anywhere from several hours to several days. For hackathons that last 24 hours or longer, especially competitive ones, eating is often informal, with participants often subsisting on fast food

like pizza and energy drinks. Sometimes sleeping is informal as well, with participants sleeping on-site with sleeping bags. At the end of hackathons, there is usually a series of demonstrations in which each group presents their results. There is sometimes a contest element as well, in which a panel of judges select the winning teams, and prizes are given. At many hackathons, the judges are made up of organisers as well as the sponsors.

Types

Some hackathons have no restrictions on the focus or participants, being aimed at rapidly generating interesting software applications. However, the range of hackathons can be loosely grouped as being either tech-centric or focus-centric.

Focus-centric hackathons target software development to address or contribute to a social issue or a business objective. Socially-oriented hackathons aim to address or contribute to an issue of social concern, such as public services or crisis management. Examples of hackathons aimed at improving public services has included improving education, improving city transit systems and improving government. For the later, many have been specifically aimed at supporting open government. Demographic specific hackathons are intended for programmers from specific demographic groups, such as

women, students or teenagers. Their motivation stems from addressing perceived or recognised disparity in the inclusivity of the programming profession (e.g. gender imbalances), or the desire to encourage and support the next generation of programmers. Also, some companies hold internal hackathons to encourage new product innovation by their engineering staff.

Tech-centric hackathons focus on software development with a specific technology or of a specific application. Single application hackathons, sometimes known as ‘(code) sprints’, are focused on improving a single application. Such hackathons are popular for open source software (OSS) projects and rarely include a competitive element. Example applications would include a content management system, operating system and even the development of a new programming language. An annual meeting to work on the development of the OpenBSD operating system was a pioneering hackathon where the term may have originated. Application type specific hackathons focus on a particular platform (genre) such as mobile apps, video game development, or web development. Hackathons for video game development are sometimes called ‘game jams’, adopting a construct of the term ‘jams’, which are short collaborative events for designers/creatives. Another example of this type of hackathon is the Music Hack Day, which is for music-

related software and hardware applications. Language, framework or application programming interface (API) specific hackathons focus on creating applications that use a specific language or framework. So, for example, focusing on applications that make use of the API from a single company or data source.

UP London

UP London was a focus-centric hackathon focused on innovation and digital technology in urban spaces, including hardware hacking (e.g. Arduino) as well as software hacking. It started with introductory presentations, followed by information on the challenge spaces and prizes. Prizes included an all-expenses paid opportunity to present at the Mobile Expo Asia in Shanghai, as well as sponsorship prizes by the GSM Association and Intel. It was a weekend hackathon, with participants given 48 hours from Friday evening, with no conditions or suggestions placed on the size or constitution of their teams. The organisers provided snack food items and soft drinks, while participants were free to make their own sleeping arrangements. The size and constitution of teams varied, ranging from teams consisting a single technologist to large teams of technologists (over 10 participants) engaging in software hacking. There were also mixed teams of designers and

technologists engaging in hardware hacking, as well as small teams of designers engaged in paper prototyping.

At the end of hackathon participants were invited to present and demonstrate their efforts. Notable contributions included an emergency contact app developed by a technologist working alone, a paper prototype for a website to share food developed by a team of two designers, and a system that identifies crowds over google maps via twitter contributions developed by a large team of technologists. The judging panel then retired to consider the winning teams, with one of the organisers commenting that they were taking their time as they debated who would fund which team as they were so impressed with the contributions.