

Startups and business accelerators as Human-Centred Software Engineering venues

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Abstract. Interactive software produced in startups is of an intriguing nature from an HCI and Software Engineering perspectives. Due to the very spirit of startups, such software is meant to create new needs, or to address existing needs in new ways. In order to attract many customers, such interactive applications need to have a high usability. In order to scale to many customers such software needs to be engineered efficiently. While in traditional companies marketing, interaction design, software engineering, and usability evaluation constitute possibly separate departments, in thousands of startups such concerns are taken care of in agile iterations by a handful of people. Our questions are thus: what can HCI (Human Computer Interaction) and HCSE (Human-Centred Software Engineering) learn from startups? What can HCI and HCSE do for startups to achieve even leaner prototyping and engineering cycles? How can the startup rapid development be assimilated with and learn from evolutionary prototyping? How can app-creating startups benefit from HCI expertise for discount usability evaluation? The peculiar nature of startup technology production can pose many other questions, hence there is a need for a forum where researchers, startup practitioners, and business accelerator representatives can debate.

HCI researchers have only just begun to look at the wave of startup communities [1,2]. The software startups and their members' often nomadic working culture, small teams with an open mind-set, the risk-taking nature, unique and innovative business models result in new practices that larger organizations look into for inspiration. In addition to understanding the trends, HCI has the chance to influence the practices of early-stage startups, which are typically more willing to try out different approaches than established businesses, by providing novel methods and tools for designing and building interactive systems.

A number of factors play an important role in this new, post dot-com boom, startup trends. On the business and marketing side, social networks and marketing platforms enable faster engagement with customers while lean startup methods provide techniques for validation and learning resulting in fast iteration over the product and the business model [4].

On the technological side, cloud computing and software-as-a-service provide cheap, accessible and scalable infrastructure, while the abundance of modern development frameworks reduces the time needed for building mobile and web applications. A startup no longer needs its own machines for providing its services, and it no longer needs to pay licenses to professional companies for its software tools and frameworks. As a plethora of frameworks and APIs are available openly, startups can appropriate and influence these frameworks for their own needs.

Open frameworks are also available on the hardware side: smaller, more powerful and yet cheaper electronics (i.e. Arduino, Raspberry Pi, etc.) along with 3D printing provide opportunities for accelerated hardware innovation. Not only can startups build a computer in a garage, they can also rapidly prototype new interactive artifacts.

But modern startups do not work only in garages, they are naturally attracted to other startups. Inspired by the pioneering success of Silicon Valley, there is a trend of establishing startup communities (accelerators, co-working spaces, meetups) that provide various resources (workspace, internet connections, meeting spaces) and know-how to the entrepreneurs as well as strong value of openness and sharing [2]. HCI researchers who want to engage with startups will probably need to study the social and technical dynamics, as well as to engage in action research at these locations.

Our objective is to inspire HCI researchers to regard startup team members as HCI practitioners since their business ideas are most often delivered to customers through interactive application. Also we would like HCI researchers to explore how can we regard the rapid and iterative startup processes as Human-Centred Software Engineering processes, and how do they compare to agile processes already studied e.g. [3]. Furthermore, HCI research should be encouraged to support startups and startup communities to better include HCI theory and method in their practices, which are currently dominated by business and engineering aspects.

References

- [1] Cervantes, R., Nardi, B.: Building a Mexican Startup Culture over the Weekends. In: Proceedings of the 4th International Conference on Intercultural Collaboration – ICIC '12, ACM, N.Y., 2012. pp. 11-20

- [2] Haines, J.K.: Emerging Innovation: The Global Expansion of Seed Accelerators. In: Proceedings of the Companion Publication of the 17th ACM Conference on Computer Supported Cooperative Work.. CSCW Companion '14, ACM, N.Y., 2014. pp. 57-60
- [3] Lárusdóttir, M., Cajander, A.s., Simader, M.: Continuous Improvement in Agile Development Practice. In: Human-Centered Software Engineering, Lecture Notes in Computer Science, vol. 8742, Springer Berlin Heidelberg, 2014. pp. 57-72
- [4] Ries, E.: The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses. The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses, Crown Business, 2011.