1st Workshop on Software Engineering Economics (SENGEC)

Marios Fokaefs, *Department of EECS, York University*, fokaefs@yorku.ca
Wejdene Haouari, *Department of EECS, York University*, wejdene@yorku.ca
Michael Harrison, *IBM Toronto Lab, IBM Canada Ltd.*, michael.jr.harrison@ibm.com
Eugene Kharlamov, *IBM Toronto Lab, IBM Canada Ltd.*, eugenek@ca.ibm.com

Abstract

With the transition of economy towards the fourth and fifth industrial revolutions, software has acquired an even more important role in the economy. From a business enabler and an economic driver, software has become the actual product. Many traditional sectors, like banking or manufacturing, have transformed from mere software users to software producers and providers. In this sense, software carries increasing economic and business value for various critical businesses and sectors. Unlike traditional products and services, software does not follow the normal product cycle (production-usage-decay) in the same way. Through continuous evolution, software has the ability to be updated and upgraded without necessarily decaying or being replaced. One challenge in looking at the economic aspect of software is the inability to translate its technical properties into business or financial values at the various development phases of the software product. It is not always only about production cost, but also about operational reliability, perceived quality, marketability, profitability, and maintainability of the software. The goal of this workshop is to bring together experts from the different relevant disciplines (economics, business and marketing, and software engineering) and discuss the challenges and strategies of creating sustainable and successful software products. Through invited talks and expert panels, the audience of the workshop will have the opportunity to explore how to transform an idea for a software application to marketable product, what the challenges are around a sustainable and profitable software product and how to model the economics of software from its technical parameters.

Theme, goals and relevance

The general theme of the workshop is software engineering economics. It encourages participants to adopt a multidisciplinary mind towards software as a product and a tool and explore besides its technical aspects, its economic and business side as well. The participants of the workshop will have the chance to discuss and explore the following topics:

- Cost models and cost estimation of software development and operations.
- Marketing, pricing, profitability and revenue generation of software products and services.
- Risk and cost of software reliability, minimization of revenue loss.
- Client/user satisfaction, perceived quality and its economic value for a business.
- Pricing and billing, communication of software product economics to clients.
- Cost of bugs, prioritization of issue resolution based on economic criteria.
- Sustainability and growth of software products as business ventures.
- Alignment of technical goals with business strategic goals.

The primary goal of the workshop is to raise awareness of the importance of the economics and business side of software, especially in the context of entrepreneurial ventures. Next, the participants will have the opportunity to learn about methods and tools that quantify these aspects, integrate them in the software development (and operation) lifecycle, adapt them alongside the technical dimensions to ensure the sustainability, profitability and reliability of the system, and generally help develop a dual mindset between the economic and technical sides of software. Finally, participants will receive insights from experts and experienced engineers and entrepreneurs about the challenges of creating a software company and how to overcome them to build a successful and sustainable business.

CASCON has traditionally been a conference that attracts practitioners and people with significant industrial and business experience. On the other hand, its academic community is not unfamiliar with entrepreneurship as many have attempted business ventures or have supported companies in related efforts. However, the CASCON community is largely a technical one. To this end, we believe that a workshop like ours that combines both the technical and the business sides of software engineering would be of exceptional importance and interest for the entire CASCON community. Our commitment is towards guaranteeing top-level speakers that would cover frequently faced challenges in software businesses (how do I price my software service? how do I minimize my reliability-related costs? how do I monetize the quality and functional features of my software application?). In roundtable-like discussions, participants could pose their own questions or even contribute with their own experience and share their solutions with others. We hope to create a community around software-related business and slowly expand towards specific domains of software applications, like AI, IoT, smart transportations and manufacturing, and others. The main key performance indicator of our workshop would be the number of attendees. In the first iteration, we aim to attract 20-30 attendees in total (average 15 throughout the entire duration of the workshop). We will also assess the success of the workshop based on the number of accepted invitations for speakers and in the future by the number of publications or other dissemination that was motivated by our workshop.

Structure

The workshop will be primarily structured around invited talks. We will specifically target experts with experience in developing and marketing software products to demonstrate challenges of both technical and entrepreneurial nature. For the first iteration of the workshop, we will host a half-day session with a typical length of two hours. We will host 3-5 invited talks each with an allotted time of 20-30 minutes (including discussion). In the end, we will also organize a roundtable discussion with all speakers, where the audience will have a chance to ask questions and bring together all the topics discussed during the entire session. With respect to invited speakers, our goal is to attract experts and professionals with experience or responsibilities of particular interest to the workshop audience. These can include people that have experience with software companies, people who have attempted startups with a significant software component, people who are involved with software entrepreneurship from a conciliatory capacity (accelerators, government agencies etc.), and software professionals who in their day job have to deal with the economic aspect of their product. To this end, we have already approached David Kwok (Director of Entrepreneurship and Innovation at YSpace, York University), Paul Messinger (Department Chair and Professor of Marketing, Alberta School of Business), Marc Altshuller (CEO, Varicent), Patrick Arlia (co-founder, Repliers), Hassan Jaferi (co-director, UTEST@TIAP), Priya Pitchappa (IBM Senior Project

Manager, Virtual Private Cloud). We will also invite academics with entrepreneurial experience or ones that contact research on software engineering economics or related disciplines.

The purpose of the invited talks is first and foremost to guarantee the highest quality of presentation. We believe that our attendees will have the chance to hear from experts that "have been through this" before. They will learn about the pitfalls and challenges, how to get over them and eventually how to succeed in the software business. The workshop will serve as a gathering of "past wisdom" compacted in two hours. In the end, we intend to gather all this knowledge and experience, summarize it, and, with the permission of our speakers and attendees, submitted for publication in a venue like the IEEE Software magazine. Our goal is for every year to define a new theme, which will result in unique outcomes and eventually create a community that will benefit from this knowledge. We will further foster this sense of community through the roundtable discussions. Our intention is to bring our audience to the same level as our speakers, allow them to interact with each other, form new ideas and hopefully new collaborations.

Technical details

Format: Speakers

Duration: half day (2 or 3 hours)

Additional requests: A/V, connectivity (for potential Zoom presentations, although they will not be preferred).