SWEDSOFT

THE IMPORTANCE OF SOFTWARE IN THE IMPLEMENTATION OF HORIZON EUROPE

The preparation of Horizon Europe, also known as Framework Programme 9 (FP9), as part of the next Multiannual Financial Framework of the EU from 2021 to 2027 is progressing. Based on the experience of stakeholders in former EU research programs, including FP7, Horizon 2020, ITEA, ECSEL, CELTIC this document is summarising recommendations on the implementation of research in Horizon Europe from the perspective of the Swedsoft members. With the technical developments in the last decades, software has become essential in every part of every day life and this needs to be visible in Horizon Europe. This document is targeted to the EU Commission, the EU Parliament and national administrations.

Introduction

Software and software systems development is increasingly important for companies today. Across all industry segments, software transforms products, organizations, manufacturing and business models. We are experiencing an ever fiercer global competition especially from young and developing economies on other continents. In order to keep at pace with the world, Europe needs to step up and make software competence a core priority throughout all industry segments. For example in the case of transport systems, the technology shift from mechanical to software and data-driven functionality necessitate the integration of high capacity, networked, heterogeneous and dependable technologies to produce software-defined intelligent systems in modular and scalable architectures.

While software is part of every aspect of life and thereby will be an essential part of any research project under the programme, it is also necessary to have directed research on software technologies and software engineering methods. When formulating the domain calls within Horizon Europe, it is important to secure that the software aspects are properly addressed and prioritized in the calls, especially to stress its cross-cutting concerns jointly between several industry domains. We would like to point out important research challenges in software technologies to be addressed in Horizon Europe in order to secure and strengthen the European innovation capabilities in a digital world. This next generation of software technologies is essential to feed and sustain the innovation and solution for digital products, services and business models.

Statistical Facts

During 2017 the first ever statistical survey, performed by Statistics Sweden (SCB) was done. It investigated the importance of software development for all Swedish industry segments, and all company sizes from four employees and up. An excerpt of the results was:

- 35% of all companies develop software in house.
- 45% off all companies are hindered in growth because they cannot hire software developers.
  (this could indicate that more companies would develop software in-house if they could hire competence).
- 100% state a dependence of software for their business model.

Software-supported automation is expected to double in three years, covering all aspects of business such as: strategy, decision making, data analysis, logistics, purchasing, marketing, sales, support, verification and product optimization. Market competition is fierce.

It is likely that similar results apply throughout Europe. This statistically reliable data proves that software competence is a key enabler throughout all industry segments, and often is a necessity for commercial survival. The ability to meet the increasing competence need, and adopt knowledge of how software development affects organizations and business models, are vital aspects even for short to mid-term competitiveness.

Digital Enablers and Research Focus

Research is required to deliver the next generation of software technologies that exploit digital enablers like Artificial Intelligence, Hyper Scalability, Ubiquitous Connectivity, Human-centricity, Safety and Security.

By using theses enablers and conducting research in partnerships between academia and industry the next generation of software technologies will meet the fundamental needs of digitalisation in Europe. The enablers will affect all parts of life, automation of processes and systems will increase productivity and result in new business models, the use of more adaptive and cognitive services will better meet customer demands, increase customer satisfaction and the adopttion of digital services.

Recommendations

- Introduce a dedicated budget and a program, within Horizon Europe, for initiatives focused on development of software and software intensive systems.
- Introduce a dedicated budget and a program, within Horizon Europe, for research on domain-independent software and ICT technologies.
- Introduce a partnership program between academia and industry, within Horizon Europe, for initiatives to create knowledge in industry of how to use software as an enabler for new business models.
- Increase close collaborations with other EU Programmes like Digital Europe in order to meet challenges ahead.

ABOUT SWEDSOFT

Swedsoft is an independent, non-profit organization working to increase Swedish software's competitiveness. We welcome companies, academia and the public sector, who are interested in software development, as members. Our goal is to make Sweden a centre for innovation of software intensive systems and through this, contributing to increased welfare and increased competitiveness.

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