ITEA 3

Project Results

SCALARE

Systematic guidance to decision makers for scaling scenarios

EXECUTIVE SUMMARY

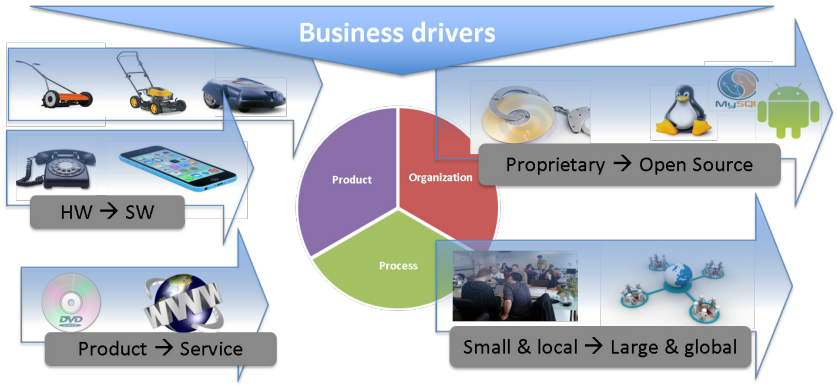
SCALARE is a scaling management framework that provides on-demand and context-specific knowledge transfer to industry. It enables companies to cope with the transformation challenge of scaling their software capability as software becomes a primary factor in delivering innovation and competitive products or services.

PROJECT ORIGINS

Most product innovations today are enabled through software components, so it is no surprise that software is the primary means of competitive differentiation. Scaling software in a controlled and efficient way is therefore crucial, and represents a major challenge for organisations. The required transformations are often driven by the technological evolution of products, systems or services as well as by how the business and the company are organised. In many instances, existing processes must be reshaped and new best practices and tools incorporated. The challenge taken up by the ITEA 2 project SCALARE, a joint effort of industry and academia from five countries, was how to support and enable organisations in scaling their software capability in a systematic, pro-active approach.

TECHNOLOGY APPLIED

The SCALARE approach is unique in that it provides a holistic vision for scaling in three dimensions: business, organisation, product and process in the same model. A key innovation is the SMF, or scaling management framework, that aims at capturing scaling scenarios in three domains (business & organisation, products & services, processes & methods). Contrary to existing models, the SMF focuses on the transition and is not limited to one domain, but looks at cross-domain relationships. The SMF Canvas tool



was developed to organise the analysis of a scaling project, based on a whiteboard and post-it notes. The canvas is a representation of the SMF Model where the software model has been divided into the three domains as well as time: present (current) and future (wanted). How does it work? First, top management identifies the business drivers and, second, the software develop-ment abilities by observing the software development as a “black box”. The third step is to find the root causes of the current inabilities within all three domains. Finally, the desired domain characteristics that enable the desired abilities – in all three domains – are identified and the gaps represent the transformations the company needs to carry out. The collection of case studies and scenarios in the canvas represents a reference knowledge base that can be connected to different business drivers to provide a useful guideline for future users of the SCALARE results.

MAKING THE DIFFERENCE

Apart from the Scaling Management Framework (SMF), the SMF Canvas and Case-study knowledge database cited above, other project results include a prototype of the open source pattern tool, a web-based documented case study with searchable metadata to easily identify solutions for common scenarios developed by Lero, the Irish Software Research Centre at Limerick University, and available under an open source BSD licence. This helps managers identify key practices when faced with scaling scenarios. Furthermore, the Continuous Delivery (CD) assessment model was developed by Softhouse Consulting, and the OSS Maturity model and scenarios was developed by Sony Mobile Communications. Continuous Delivery is a collective term for a range of methods that make it possible to deploy and provision new software product versions automatically. It defines different maturity levels for various disciplines within

the software development lifecycle necessary to deliver software fast with good quality. The CD maturity model has been validated and refined in a number of different set-ups like small software product companies, large IT-departments and web-based SaaS (Software as a Service) companies. Softhouse also developed the Scaling Agile Model for companies that want to start working with agile on a larger scale. The OSS Maturity model is primarily a management communication tool being used at Sony Mobile to enable product value to be extracted from Open Source communities and guide the development of an orchestrated eco-system which allows alternative revenue streams to be extracted.

An illustrative case of the SCALARE impact is Husqvarna, a Swedish global manufacturer of lawn and garden equipment. The company is undergoing a shift from mechanical products to also connected products with a service offering (electronics and software) but until 2016 the products had virtually no connectivity. With customers becoming more and more demanding, the company is challenged to adjust to those high standards and implement customer centricity. Customer service has become a competitive trump card. Services are difficult to imitate and can thus be a competitor lock-out. SCALARE has enabled Husqvarna make this transition, with its team of 4-5 software developers expanding to more than 40 people.

Last, but not least, a SCALARE book (on scaling a software business) will present the SMF Canvas as a tool for companies to outline their scaling strategy along with numerous case studies. The purpose of the book is to help companies that are about to undergo a digital transformation journey. It is written for the manager with little software knowledge or little knowledge on how to organise a digital transformation.

With an estimated 4,000 people having been reached via organised events, tutorials and keynotes, and a further 10,000 or more unique visitors having visited their website, the project partners are helping to 'arm' a big group for the digital transformation!

MAJOR PROJECT OUTCOMES

Dissemination

- 26 papers and conference publications: Industry-targeted publications (Practitioner magazines, books and newsletters); Top-tier scientific outlets (IEEE Transactions on Software Engineering, International Conference on Software Engineering, IEEE Software, Software Quality Journal, International Conference on Information Systems)
- 36 events, workshops and presentations by SCALARE partners (e.g. Tutorial on Open Source Maturity Model, Offshore communication best practices, Crowdsourcing in Software Engineering, Inner source, DevOps, Continuous Software Evolution & Delivery, ...)
- 9 MSc theses covering research topics related to SCALARE
- 1 ITEA Digital Transformation Masterclass

Exploitation (so far)

- Consultancy services to support scaling needs driven by the digital transformation required by software products and services (awareness sessions, scaling assessment, scaling focus and transformation support)
- Continuous delivery assessment model as a tool to improve the maturity in the applied practices supporting the delivery in the Software Development Lifecycle (SDLC) of software products and services
- Open Source Software (OSS) maturity model and scenarios for accelerating the maturity of and organisation at engineering level (e.g. how we deal with OSS software assets in our products and services) and business level (e.g. what is from a business point of view the best strategy to follow when interacting with OSS communities)

Standardisation

- Promotion of the Scaling Management Framework (SMF) and SMF canvas tool as a de-facto standard way for representing transformation towards the digitalisation journey
- 1 experiences book compiling 19 real case studies from industry, 5 business drivers and 8 scenarios for the 3 scaling domains: "Scaling a software business: The digitalization journey" published by Springer and with Open access from Vinnova

ITEA is a transnational and industry-driven R&D&I programme in the domain of software innovation. ITEA is a EUREKA Cluster programme, enabling a global and knowledgeable community of large industry, SMEs, start-ups, academia and customer organisations, to collaborate in funded projects that turn innovative ideas into new businesses, jobs, economic growth and benefits for society.

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SCALARE

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