

Introduction to the Keynote on Software Ecosystem Governance

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In 2009 we took the initiative to organize the first Workshop on Software Ecosystems. Since then the workshop has grown to an independent event that has been colocated with several conferences, such as the International Conference on Software Reuse (ICSR), the International Conference on Software Business (ICSOB), and the International Conference on Information Systems (ICIS). This selection of conferences indicates how multi-disciplinary the domain actually is, and this is well reflected by the many papers that have been submitted to the workshops throughout the years.

What is particularly striking is that many of the authors from 2009 are still active in the domain and plan to remain so. The field is obviously not a fad and still has significant potential. The field has evolved somewhat, but there are still major challenges open. In particular, it is time for deeper analysis and consolidation of many of the findings that were presented in the last years. This can be reached through better integration with other communities, such as the platform ecosystems community, the digital ecosystems community, and the open source repository mining communities.

In this keynote I address, after an introduction to the topic of software ecosystems, three topics: the role of architecture for the creation of software ecosystems, the role of knowledge about the performance of the actors in an ecosystem, and the role of knowledge about how software ecosystems can be governed.

In the introduction, the topic of what constitutes an ecosystem is discussed. We find that, although there are intuitive concepts (actors, networks, etc.) that outline these innovation networks, there exists a significant challenge in defining the boundaries of an ecosystem. Furthermore, we address the platforms underlying ecosystems (API platforms, Plug-in platforms, App platforms, etc.) and the concept of an ecosystem of ecosystems is further cultivated.

Concerning architecture, I posit that the architecture can have a positive or hampering role on the ecosystem's development and health. Furthermore, we find that the architecture of a platform can be aligned with the business needs. An example of this is, for instance, Microsoft's extendable CRM platform, that is not fully functional for customers out of the box, but requires implementation partner involvement for the creation of a custom solution for customers. As Microsoft heavily relies on a partner network, the CRM platform fits this situation appropriately. This is different from for instance Salesforce, which relies heavily on a network of solution partners, i.e., partners that build extensions to the API based Salesforce platform.

Concerning the performance of actors in an ecosystem, we address again the concept of ecosystem health and present the different models available for assessing actor and

network health of both closed and open source ecosystems. The concepts of ecosystem health are becoming better defined, but there still exists a strong need for empirical evaluation and validation of these concepts.

Finally, concerning ecosystem governance, we present the Software Ecosystem Governance Maturity Model. Increasingly, software companies are realizing that they can no longer compete through product excellence alone. The ecosystems that surround platforms, such as operating systems, enterprise applications, and even social networks are undeniably responsible for a large part of a platforms' success. With this realization, IT companies need to devise tools and strategies to improve their ecosystems and reinvent tools that others have invented many times before. The software ecosystem governance maturity model (SEG-M2) is presented, which has been designed along the principles of a focus area maturity model. The SEG-M2 has been designed for IT companies to assess their ecosystem governance practices, set a goal for improvement, and execute an improvement plan. The model is extensively described and illustrated using six examples and six evaluating case studies.

Clearly, the software ecosystems domain remains challenging, from both an academic and an industry point of view. My hopes for the following decades come from three directions. First, I hope that we see an increase in artifacts, tools, and models that measure ecosystem health in a reliable, effective, and relevant manner for actors who wish to influence an ecosystem's health. Secondly, I hope to see an increase in modeling methods that support decision makers in taking action to adjust their strategies and partnerships in ecosystems. Finally, I hope to see further evaluation of the practices that are proposed by myself and other scientists in practice, to ensure that these practices are in fact positive contributors to the health of an ecosystem and its constituents.