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Published in:
Proceedings of the 53rd Hawaii International Conference on System Sciences

Published: 01/01/2020

Document Version
Publisher's PDF, also known as Version of record

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Please cite the original version:
Smolander, K., Rossi, M., & Pekkola, S. (2020). Integration to digital platforms and infrastructures. In *Proceedings of the 53rd Hawaii International Conference on System Sciences* (pp. 5533-5534). Hawaii International Conference on System Sciences. <https://hdl.handle.net/10125/64422>

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Integration to Digital Platforms and Infrastructures

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The success of businesses and public sector organizations is dependent on their ability to harness new technology and its social capacities. These digital capabilities are afforded by different, evolving digital platforms and infrastructures, such as the smart grid, Google services, cloud platforms, Amazon, Facebook, e-health, Internet of Things platforms, etc., all being deeply intertwined to the everyday lives of people. The platforms are often global, remote, and even invisible, and thus they cannot be controlled by people utilizing them. In addition, digital infrastructures may change or evolve, and include unknown security risks and strategic threats. Managing these changes, risks and opportunities is challenging for any local developer, or user, of different kinds of digital products and services. At the same time, readily available global platforms (e.g. Amazon AWS, Google apps, Facebook APIs to name a few) offer enormous power for even the smallest developer and user organizations, a local actor.

Local actors do not own or are not able to establish their own infrastructures or platforms. They can be referred to as non-focal actors [3]. A non-focal actor is at the periphery of a digital platform (Ibid.). The platform is not dependent on a single non-focal actor and, in principle, a non-focal actor may choose to which platforms it connects. However, to survive and succeed in their business, non-focal actors need to integrate to platforms owned and managed by others. Often there are no alternatives, as global platforms have a tendency to form monopolies because of the winner-takes-it-all economics [1], such as is the case with Amazon, Google and Facebook.

As a concrete example of the level of complexity and risks and opportunities, we take a closer look at electric autonomous vehicle development. This is currently dominated by Tesla Motors. However, both Apple and Google, and traditional car manufacturers have made enormous investments into developing their own vehicles. Despite positive publicity for autonomous vehicle testing by Google and general belief in Apple as the potential maker of the next generation smart car, it seems unlikely that even these giants can expand to a new field and become the focal player (or disrupt) a complex industry – as proposed by the advocates of digital disruption.

Most businesses are non-focal from the viewpoint of digital platforms. Most platforms constitute of webs of services that connect together and are developed by the networks of service providers. All this causes several

changes to conventional practices and perspectives, for example to the principles of IT development and management, and to the role of IT in business. Development processes will become continuous because infrastructures and business requirements are in constant flux. The infrastructures cannot be controlled by non-focal actors, but they often belong to global internet or e-commerce giants. From the non-focal perspective, the process of development and integration is changed into a reactive mode where most development is done against the changes in the capabilities of the infrastructure, or to provide a match between the infrastructure and the business need [2].

Platforms have been mostly studied from purely technical, societal or business viewpoints. There is very little research that concentrates on the interplay between these areas, especially from the service, systems or software construction viewpoints. This calls for studies that combine software engineering, information systems and business management to understand the creation of novel solutions for non-focal actors that must be able to identify the risks and opportunities related to digital infrastructures and prepare for technology and business changes in the future.

This minitrack presents three papers that contribute to different viewpoints related to the integration to digital platforms and infrastructures: IS benefits and value: strategic alignment of processes and IS for value creation; the impact of the supplier's activities for the buyer's benefits and measuring intangible benefits of digital information.

- Li, Shao and Goul study two-sided networks, and claim the inadequacy of current frameworks in explaining real life settings. They thus propose an extended model and demonstrate its practical applicability.
- Rodriguez and Piccoli study restaurants joining a digital delivery platform, and investigate how they differentiate or gain competitive advantages even everybody shares the same platform resources.
- Pekkola, Rossi and Smolander focus on different incident that imply strategic decisions on utilizing and developing common infrastructures. They show through an in-depth case study how the collaboration mode should be changed.

References

[1] Eisenmann, Thomas, Parker, Geoffrey, & Van Alstyne, Marshall W. (2006). Strategies for two-sided markets. *Harvard Business Review*, 84(10), 92.

[2] Henfridsson, Ola, & Bygstad, Bendik. (2013). The generative mechanisms of digital infrastructure evolution. *MIS quarterly*, 37(3), 907-931.

[3] Selander, Lisen, Henfridsson, Ola, & Svahn, Fredrik. (2013). Capability search and redeem across digital ecosystems. *Journal of Information Technology*, 28(3), 183-197.