

**FROM THE SPECIAL ISSUE EDITORS:
Platforms, Contingencies and New Product Development**

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Introduction

How does a platform-based approach to business differ from a stand-alone approach? What benefits and challenges do platform-based approaches present to managing new product development? And what contextual factors influence platform-based approaches in new product development? These are the questions that this special issue in particular wants to raise and, for its part, also explore.

Platform-based approaches have gained profound popularity in practice, and an increasing number of global markets can be called platform markets (Eisenmann, Parker, and Alstynne, 2011). Platform-based approaches have gained a foothold due to rapid technological evolution and increasing technological complexity in a quest to simplify and rationalize company operations and increase the efficiency and effectiveness of variety management (Mikkola, 2006). Similarly, globalization has increased operative inter-firm complexities that can be tackled with platform-based approaches (Muffatto, 1998). Further, a platform-based approach has also provided the means to reduce complexities faced by end-users with a more standardized and understandable offering (Sawhney, 1998). The popularity of the platform-based approach has moved it beyond being just another fad (Abrahamson, 1991), but pertinent questions such as the ones above still persist.

The concept of a platform had been originally intended to respond to the challenges of providing cost-effective variety (Wheelwright and Clark, 1992; Gupta and Krishnan 1998). Early work on the platform-based approach focused mostly on product platforms (Meyer and Utterback, 1993; Sanderson and Uzumeri, 1995; Ulrich, 1995; Meyer and Lehnerd, 1997), a product platform being a set of common components, modules, or parts from which a stream of derivative products can be created (Nelson, Parkinson, and Papalambros, 2001). Product platforms consider related product offerings as family members that share components, subassemblies, and process steps and phases. From the product platform premises, the platform-based approach has been applied in numerous settings, with applications including, for example, technologies (Kim and Kogut, 1996), services (Meyer and DeTore, 2001), organizational structures (Ciborra, 1996), capabilities (Kogut and Kulatilaka, 1994; Malhotra, Gosain, and El Sawy, 2005), knowledge (Purvis, Sambamurthy, and Zmud, 2001), the approach to research (Selsky and Parker, 2005), and organizational culture (Ravasi and Schultz, 2006). Similarly, the platform-based approach has been extended to include several intra-organizational subjects. For instance, Sawhney (1998) emphasizes the various aspects of platform thinking, ranging from brand to customer platforms, and its benefits in search of high-variety without additional cost or increasing complexity.

The advantages of a platform-based approach are increased cost effectiveness and speed of development (Wheelwright and Clark, 1992; Gupta and Krishnan 1998). In addition, platform design increases desirable variety in offering thereby facilitating efficient segmenting (Meyer and Lehnerd, 1997), shortening lead times (Meyer, 1997), and reducing costs (Nepal, Monplaisir, and Singh, 2005; Johnson and Kirchain, 2009). However, several disadvantages of product platforms

have been identified, such as performance slippage when new components do not fit into the system they were designed for or do not interact through interfaces with other systemic parts (Garud and Kumaraswamy, 1995) and potential losses caused by platform-based rigidities (Roberston and Ulrich 1997; Hauser 1999). Therefore, the platform approach seems to provide more benefits than disadvantages, since both practitioners and researchers have still kept it in their toolboxes. On the one hand, platform-based approaches facilitate improvements in new product development, as long as new product variants fit into the platform and thereby provide additional value to end-users. On the other hand, a platform-based approach may hamper the capability to develop radically new products that would render changes in the platform necessary. If some of the common components, modules, and parts, or the architecture as a whole in which they are combined, has to be changed dramatically, the platform itself may have to be changed, modified, or abandoned altogether.

Therefore, we see that the relationship between platforms and new product development merits additional attention due to the large-scale use of the platform-based approach, its wide-ranging effects on the competitive landscape, and the increasing need to understand opportunities and limitations it creates. First, the ideas about platforms are broadening both in product platforms' increasing scope and also to other types of platforms with significant effects on new product development. Over the last decade, platform approaches were increasingly used resulting in many industries' global markets being built more and more upon shared platforms (Eisenmann, Parker, and Alstyne, 2006) that facilitate transactions of various parties in innovation ecosystems in order to deliver value to the end-user (Adner and Kapoor, 2010). Further, platforms are viewed as devices to shape industry architectures (Cusumano and Gawer, 2002; Iansiti and Levien, 2004) that affect capability development by introducing new feedback mechanisms between firms and their markets (e.g., Jacobides and Billinger, 2006; Tee and Gawer, 2009; Jacobides and Winter, 2012).

Platforms further provide new ways to involve customers and partners in new product development processes. Accompanying these mechanisms are challenges and opportunities for companies, as the end-user is no longer viewed as a passive recipient of value delivered, but is viewed, rather, as an active participant in the business ecosystem, designing, evaluating, and selecting platform-based offerings, thereby rendering platform markets two-sided (Rochet and Tirole, 2003; Zhu and Iansiti, 2012). This two-sidedness (or multi-sidedness; see Evans et al., 2011) of involving platform providers in attracting both developers of complementary offerings and end-users in building successful platform markets is further increasing competitive requirements on platform providers (Rochet and Tirole, 2003).

Subsequently, the variety in platforms and ecosystem partner relationships enable completely different, new product development processes, each of which might fit into a particular context. The platform approaches create several contingencies, with practical implications for managing new product development processes. The usefulness and appropriateness of the platform-based approach depends on, for example, the organizational culture and structure, the scope of innovation, and the design structure of the product that the organization is to develop and commercialize (Cusumano and Gawer, 2002). Specifically, Chai et al. (2012) further find that specific platform competency is required for the efficient and effective use of platforms. They

include in platform competency a formalized development process, knowledge-sharing across platform-based products, continuity of platform-based development teams, and the existence of champions in platform-based product development. However, use of these competencies may lead to increased rigidities in designing, producing, and delivering an offering to end-users, thus creating competitive disadvantages (Leonard-Barton, 1992). A platform approach equally requires a clear and precise understanding of customer needs and market requirements (Halman, Holmen, and van Vuuren, 2003).

The platform-based approach is changing the competitive landscape, leading towards competition between business and innovation ecosystems. Two- or multi-sided markets pose new product development and strategic maneuvering challenges with increasingly complicated sets of alternatives (Cusumano, 2010). The new forms of connecting with the innovation ecosystem at large pose competitive opportunities and challenges, especially to new product development, as the complexity of the development work increases. Concurrently with accounts of the benefits of platform-based product development, recent studies highlight challenges, and difficulties in managing the platform-based approach. Our understanding remains limited as to what contextual factors determine the appropriate use of a platform-based approach and what this platform-based approach consists of. Therefore, we endeavor in this special issue to explore the content of the platform-based approach and what the “it all depends” variables or settings – that is, contingency factors – that differentiate a platform from a non-platform approach are.

In this issue

This special issue focuses on the relationship between the platform-based approach and new product development. The first two papers, Gawer and Cusumano, and Magnusson and Pasche, deal with the definitional grounds of the platform-based approach. Gawer and Cusumano differentiate platforms that are intra-company internal platforms from platforms that are external and industry-wide. The differentiation of the two from one another emerges as an important factor, from both the practicing and research points of view, as they are shown to differ quite substantially from one another. Additionally, Gawer and Cusumano emphasize the imperative need for coherence in decision making as an antecedent to gaining benefits from platform thinking. This challenge of achieving coherence resonates well with the existing literature on cross-functional integration as a success factor for new product development, and extends this from functional to overall operational integration while maintaining the efficiency created by working in intra-company departmental and functional silos. Lastly, in exploring these contingency conditions, Gawer and Cusumano provide a set of practicing guidelines for effective platform management.

Magnusson and Pasche investigate the contingency factors of using modularization and product platform development in reaching high levels of product variety while limiting complexities and costs. They find that the rate of change, in addition to market demand characteristics, poses critical contingencies in determining usage choices between modularization and platforms. They continue the earlier critical discussion on supply-side concentration over the reuse of assets without paying appropriate attention to demand-side conditions that influence supply-side

decisions. Further, they differentiate modularization from the product platform approach by emphasizing the importance of this distinction from the practicing and research perspectives. Magnusson and Pasche also provide practicing guidelines on the appropriate use of modularization and product platform approaches, under the identified contingency conditions.

The following two papers in this special issue explore the demand side of the platform markets. Mäkinen, Kannianen, and Peltola study whether the adoption process of free beta products based on common industry-wide platforms and distributed to gain input for product development differ from stand-alone products. They find that, in comparison to existing evidence on stand-alone products, traditional diffusion models do not seem to be able to capture platform-based adoption dynamics, and therefore, they call for additional research on the adoption process. As these free beta products are adopted faster than stand-alone products, beta launches can be used to gain quick end-user feedback in product development, which is crucial for both platform and complementary-offering developers. These results have important implications for managing and planning product development and for strategic maneuvering in building and maintaining multi-sided business ecosystems. They conclude that the importance of proficient planning as a success factor for new product development is even greater for platform-based innovation ecosystems than earlier literature has recognized.

The second demand-side paper by Frattini, Bianchi, de Massis and Sikimic studies the role of end-users in platform vs. non-platform innovations' diffusion in the marketplace. They contend that in two-sided platform markets, dissemination of information has a key role for early adopters in bolstering the adoption process, while informing of the usage is important for furthering the adoption process of non-platform innovations. Frattini et al. show the challenges of the launch process and launch decisions when introducing platforms into the markets. They especially emphasize the uncertainty of adoption decisions, as the derivative products based on the platform are not known prior to the launch. This poses specific challenges for the platform-developing company in educating early adopters, making the right launch decisions, and targeting appropriate market segments. They conclude by providing specific guidelines for launch decisions in targeting appropriate market segments, depending on the type of innovation.

The third set of two papers in this special issue goes into the development process used in the platform-based approach. In the first paper, Van der Duin, Ortt, and Aarts investigate contingencies in efficient innovation-management processes. They find that contextual factors influencing efficient innovation-management processes are project type, i.e., whether it is a radical or incremental project, and innovation type, i.e., whether it is a market or technological innovation. Van der Duin, Ortt, and Aarts identify a process platform for innovation management that can be altered according to these contextual factors. Contextual factors determine which activities in this process platform need to be emphasized and which activities need to be removed altogether. The results provide many opportunities for future research on designing efficient and effective innovation-management processes.

Basoglu, Daim and Polat investigate the development of mobile services in light of the technology acceptance model and application adaptivity. They find that the adaptivity of an application could be used to decrease the influence of contingency factors in delivering end-user

value. Their conclusions are, among others, that platform-replacement decisions due to technological performance evolution may not be as pertinent when adaptivity induces lock-in dynamics and provides satisfactory end-user performance without the pressing need for replacement. These resulting economies of scale and scope due to adaptivity provide many opportunities for future research.

As a concluding remark for this special issue, we note that all the papers identify significant benefits, but also challenges, from the platform-based approach in new product development. These challenges hint at possible contingency factors between platforms and other types of development projects (following the notions of Wheelwright and Clark, 1992 for instance) calling for additional coordination competency and platform competency (Chai et al., 2012)). Similarly, the papers pose the challenge of managing increasingly complex sets of competitive actions in business ecosystems as the variety of offering and the speed of product development increases. The findings of this special issue provide clues to the contingency aspects that are pertinent between different platform types, as well as between platforms and other types of product development projects.

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