Reinventing the Platform Core Through Acquisition: A Case Study

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Abstract

Digital platform leaders need to continuously innovate the platform core to drive the technological trajectory of the overall architecture and business system, of which the platform is a core element. This papers analyses the potential of and challenges to completing this task through the acquisition and integration of companies presenting innovative technologies of relevance to the platform core. Using a revelatory case study of Cisco Systems, we develop the explanatory notion of 'coring acquisition'. In this type of acquisition value is created through the acquisition of companies that provide products external to the acquirer that can be assimilated into the platform core. This creates value through the transformational process that we term 'coring'. We also analyze how the benefits of coring acquisitions are contingent on challenges concerning the integration of acquisitions offering and operations.

1 Introduction

Digital platforms [1-4] are taking increasingly prominent positions in the economy. Platform markets comprise a large and growing share of the global economy [2]. Ranked by market value, 60 of the world's 100 largest corporations earn at least half of their revenue from platform markets [5]. Typically, these companies have obtained roles of platform leaders in their respective platform-based ecosystems. Platform leaders are the "companies that drive industry wide innovation for an evolving system of separately developed pieces of technology" [6, p.52].

Platform leadership is derived from the control of a platform 'core' (that can be a technology, a product or a service, c.f. [7]) on which other ecosystem members develop platform complements. Platform leaders are generally able to capture a comparatively large part of the combined value created by the ecosystem and therefore extract profits above industry average. However, to ensure the long-term sustainability of the platform, platform leaders also need provide value creation opportunities for the ecosystem participants [8]. To do so, platform leaders need to "drive the technological trajectory of the overall technological and business system of which the platform is a core element, as well as [...] to ensure the overall long-term technical integrity of its evolving technology platform." [7]. Hence, platform leaders need to constantly innovate in the platform core to enable new complements and valuable platform derivatives. This can lead to competitive dynamics between platforms, which can be seen, for example, in the innovation arms race between the iOS and Android smartphone operating systems, where Apple and Google continuously innovate their respective platform cores, to attract communities of complement developers. This is borne out by major updates to their operating systems each year [14].

One option for platform core innovation is through internal innovation. Much attention has been directed to high performing innovation practices of prominent platform leaders (e.g. Apple) [4, 9]. However, in a recent interview, Cisco System's CIO John Chambers admitted that despite spending about 15% of revenues on R&D, the company's ability to keep up with technological transformation through internal innovation was limited to cases where they could catch the transition very early on [10]. Frequently, internal innovation efforts have to be complemented with acquisitions of companies providing innovative technologies and capabilities. This is because internal technology innovation activities are subject to path dependency [11] and time compression diseconomies [12] that limits innovation possibilities.

Previous literature has noticed that platform leaders rely on acquisitions as essential tools for innovating the platform core and to retain platform leadership [6], but the value creating potential of and challenges to such acquisitions remains unexplored in the academic literature. Addressing this void in the literature, we seek to explore a previously unstudied phenomenon of significant importance. Our research objective, then, is to *develop an empirically based understanding of how platform leaders manage innovation of the platform core through acquisitions*. With this objective in mind, we hope to (1) identify value-creating mechanisms that drive these acquisitions, and (2) unearth the integration challenges that has to be overcome to assimilate the acquired company with the acquirer to fully conceive value creation.

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We attempt to accomplish our research objective through an in-depth case study of Cisco Systems, Inc., a US-based firm with business in network equipment and services. Cisco, originally portrayed as a typical digital platform leader by Cusumano and Gawer [6] have undertaken 178 acquisitions over the last three decades. Here, we report on the empirical data from 26 interviews with Cisco managers and staff, in an empirically grounded nomothetic analysis of Cisco and its acquisitions. Specifically, we focus on a sub-stream of Cisco's acquisitions that aim to re-invent Cisco's platform core from hardware-based to software-based.

Interpreting the collected data we draw on Gawer and Cusumano's [13] concept of product coring as the strategy to transform a product into a platform to develop the notion of '*coring acquisition*'. In this type of acquisition value is created through the acquisition of companies that provide products in the external of the company, products than can be assimilated with the platform core controlled by Cisco and thereby make the value creating transformation of 'coring' [13].

We also analyze the integration challenges to Cisco's coring acquisitions. The leveraging of value creation in coring acquisitions requires offering and operational integration challenges, contingent on the maturity of the acquired company.

2 Related literature

This section presents our conceptual understanding in two steps. First we briefly review the related literature in the acquisition domain. In particular, the stream of research on technology acquisitions that studies the acquisition of innovative technologies. We argue that this literature does not provide the conceptual means to explain how platform leaders create value through acquisitions. Following on from this, and in the second step, we introduce the digital platform perspective as a complementary view to explore value creating mechanisms and integration challenges of acquisitions by digital platform leaders. Drawing on the digital platform perspective, we derive our underpinning assumptions of acquisitions by digital platform owners as re-arrangement of ownership of technologies and associated capabilities ownership that generates innovative benefits for the platform consumer, which is accomplished by integration of technologies and associated capabilities.

2.1 Related acquisition research

A stream within the acquisition literature focus specifically on the acquisition of innovative technologies and related capabilities, referred to as technology acquisitions. Technology acquisitions are most prominent in digital industries, but are also notable in, for example, materials, pharmaceutical and bio-technology [14]. Typically, technology acquisitions target small, entrepreneurial start ups, but may also involve larger companies [15].

The literature on technology acquisition reports three benefits motivating these acquisitions. *First*, technology acquisitions allow acquirers to avoid the time-consuming, path-dependent, and uncertain processes of internally innovating technologies [11, 16, 17]. *Second*, of equal or possibly superior importance are the associated capabilities that allow the acquired unit to exploit and compete on the innovations [15]. *Third*, technology acquisitions may also provide acquirers with an opportunity to acquire an organizational unit that is capable of producing further innovations. The acquired unit then functions effectively as a bundle of individual and organizational capabilities that generates further innovations [18], and exploit the fruits of the acquired firms' inventive efforts [19]. Commonly, these three benefits are generated by *complementarity* (in contrast to *supplementarity*, c.f. [20]) between the acquirers existing resources and new resources introduced from the acquisition.

The management of technology acquisitions is, however, far from simple. Frequently, the combinatory benefits are eroded by problems of integration, and they are prone to high failure rates [21, 22]. Research shows that acquisition frequently damage targets, both in terms of the targets' financial performance compared to non-acquired peers [23, 24]. This negative effect of integration is a facet of most acquisitions, but may be particularly salient in technology acquisitions [25, 26] that require a high degree of post-deal integration in order to realize an acquisition's potential value [18, 23].

A line of research has introduced the thought that the appropriate integration processes are contingent on absolute and acquirer-acquisition relative pre-conditions, including the relationship between the acquirers and acquisitions technological bases. Within this literature, technological relatedness is defined as the degree to which acquirer and target share similar technological fields [27, 28]. In practice, this is commonly operationalized by investigating the technological classification codes of the patents filed by the acquirer and target. The degree of technological relatedness is defined as a function of the match between the acquirer's and the target's patents. Some research suggest that high technological relatedness, equating high knowledge relatedness, is most beneficial for the acquirer, as it leads to effects of economies of scale and scope of R&D [22]. Others suggest that acquisitions of firms based on different technologies, are most beneficial to the acquirer, as they allow for greater possibilities for knowledge combination [27]. Yet others suggest that the relation between technologic

relatedness and innovation performance is U-shaped [29].

We argue that there are two important facets of acquisitions by digital platform leaders that are not captured by the research on technology acquisitions. The first limitation is that there is a gap in research that explain how acquisitions by Apple, Google, Facebook and the like create value for the acquirer. Implicitly, if not explicitly, the literature on value creation through technology acquisition is based on a view of the acquirer and the market place are organized in value chain or value shop configurations [30]. In contrast, digital industries are typically organized in a value network, the third elementary type of value configuration as identified by Stabel and Fjeldstad [30]. Because the value creation logic of chain, shop and value networks differ, the mechanisms for acquisition value creation can also be expected to be different.

Second, despite the literature investigating the acquisition of innovative technologies and associated capabilities referring to itself as technology acquisition, the actual technological dimension has only been given superficial attention. How the acquirer and the target of acquisition are related, in technological terms, is typically reduced to the number of patents in common areas [27, 28]. In the rest, the 'digital-dimension' of technology acquisitions in digital industries remains unexplored territory. There is another stream of research within the acquisition literature that focuses on the IT integration challenge in acquisition [See 31, 32, 33]. However, this literature has this far only investigated technological integration in traditional industries, such as manufacturing and finance [34]. As Toppenberg and Henningsson [34] point out, this has resulted in a research stream of post-acquisition IT that has focused on acquisitions driven by economies of scale and scope, and not on acquisitions motivated by access to innovative technologies and capabilities. Integration challenges associated with acquisitions driven by other acquisition benefits (such as access to innovative technologies) and acquisitions within digital industries remain unexplored.

From research on the dynamics of digital industries [35] we suspect that the technological relation between two firms in digital industries goes well beyond what is captured by the technological classification codes of the firms' patents. However, because of the lack of research in this area it is unclear in what regard the technological relationship between the acquirer and the target produces integration challenges to be overcome in the realization of acquisition value.

2.2 A platform view

Following the discussion of related research above, to understand value creation in acquisitions in digital industries it is necessary to (a) take heed of theoretical developments explaining competitive dynamic and structures in the value networks of digital industries, and (b) appreciate the inseparable fusion between business and technology strategies in digital industries to guide the search for integration challenges that may inhibit acquisition value creation. The platform perspective provides a conceptual foundation that fits with these requirements.

In their broadest sense platforms can be conceptualized as "evolving organisations or meta organisations that: (1) federate and coordinate constitutive agents who can innovate and compete; (2) create value by generating and harnessing economies of scope in supply and/or demand; and (3) entail a modular technology composed of a core and a periphery" [3].

Numerous attempts have been made to characterize platforms from an industry economics perspective, from an engineering design perspective and from the perspective of software [5, 36, 37]. Whilst these perspectives are helpful, they fail to take a broader view of their constitutive elements, for example focusing too much on economics [2] at the expense of architecture [38]. A more comprehensive view is put forward by Gawer [3] who attempts to balance the two dominant views of industrial economics and engineering design.

In this perspective platforms share a structural commonality [38]: that of a modular technological architecture, that is not only modular but also structured around a core and a periphery. In this view, "a platform architecture partitions a system into stable core components and variable peripheral components" [39, p. 24]. The core architectural component contains "accessible innovative capabilities" [3] that can potentially be drawn through "interfaces" and that are in turn governed by "design rules" [39].

Finally, platforms are governed by coordination mechanisms that vary according to the type of platform. In this article the focus is on industry platforms, which depend upon ecosystem governance. In this configuration platforms mediate transactions across customer groups, in which network effects fuel platform competition [3]. Ideal platform exchanges follow a triangular pattern. Users interact with each other, and simultaneously with platform providers. For example, video game networks have two distinct groups of users: players and developers. Developers sell games to players. Developers must also interact with the platform's provider (e.g., Nintendo) for permission to publish games. Finally, players must procure a console from the platform provider.

Users' interactions are subject to network effects, which are demand-side economies of scale: the value of platform affiliation for a user depends upon the number of other users with whom they can interact [40]. When

platforms serve two distinct groups of users with mutual attraction, as with video game players and developers, they are said to be two-sided and present indirect network effects [41, 42]. Following Gawer [3], indirect network effects give rise to economies of scope in innovation. Figure 1 presents a view of platform interactions, and the technical composition of platforms.

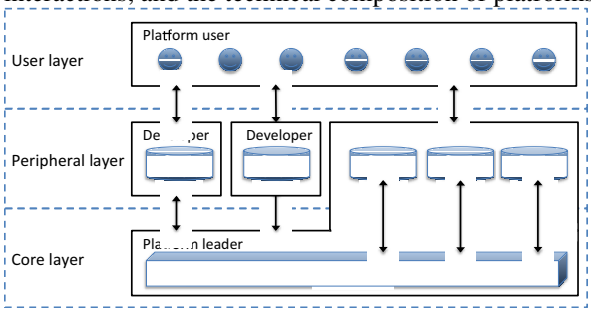

Figure 1. Platform interactions and the composition of platforms.

The platform core, created and maintained by one or more intermediaries, encompasses components and rules that define how users interact [43, 44]. In the video game example, the platform core would be the video game console (and the console's operating system). On top of the core, developers build peripheral components, such as video games. From a consumer perspective, the core and the component are consumed together as a whole.

Platform markets are typically dominated by the company that controls the core of the platforms, the "platform leader" [3, 5, 44] or "keystone firm" [6], such as Google, Apple, or Facebook. Controlling the core, each of these firms plays a orchestrating role within a network of firms and individual innovator–developers that have come to be collectively referred to as the platform's "innovation ecosystem" [8].

Industry platforms are characterized by having industry leaders at their core who are responsible for managing and evolving the core architecture [39] as well as governing the broader ecosystem of developers. Companies have strategies which enable them to attain and retain platform leadership [6, 13]. Amongst these include strategies for establishing and extending new platform capabilities when none existed before, known as coring [13], and strategies for building market momentum in order to build up an dominant installed base of complementors, complements and users in a winner takes all market, otherwise known as tipping [13]. There are a number of means of effecting coring and tipping strategies ranging from platform leaders using their own resources to acquiring external resources in order to do this.

One approach that Cusumano and Gawer [1] identify to innovate platform core is for platform leaders to acquire third parties who provide platform complements or who possibly extend the functionality of the core. This approach to acquisition is generally more focused on extending the platform leader core and peripheral capabilities rather than to eradicate a potential competitive threat.

When reflecting this perspective on the information systems literature on platform innovation, the impact of acquisitions is yet to be addressed. To date the major information systems literature concerning platform innovation has focused on the interplay of architectural design, governance and environmental dynamics of ecosystems [6]. Whilst these issues are of concern in information systems acquisitions the information systems platform literature has tended to focus on the relationship of platform leader and complementor as individual and separate.

3 Research method

3.1 Case setting

The case in this study, Cisco, is a multinational corporation headquartered in the US, with business primarily in networking equipment and related services. Two criteria made Cisco an appropriate setting to learn about digital platform acquisitions. First, Cisco operates as platform leader supporting a broad ecosystem of third party providers of networking hardware and software products in a broad industry platform [6]. In architectural terms the platform core that Cisco provides is made up of both hardware and software elements. But perhaps the key module of this core platform is Cisco's Internetworking Operating System (IOS) which interconnects and orchestrates networking hardware and software components, provided by both Cisco and third parties. At one level, the platform enables equipment, provided by Cisco and its partners, to allow its customers to build out networking infrastructure. At another level, the platform facilitates services that run on top of network, for example Cisco and third party suppliers offers solutions for building services such as streaming video, teleconferencing, and physical security.

Second, the company's extensive acquisition experiences consisted ample basis from which to learn about acquisitions directed to innovate the platform core Previous research [6] identified that a key component of Cisco's strategy concerning its platform leadership were the acquisitions to retain the edge of the platform. However, this research did not explore challenges concerning value creation and integration that accompany this strategy, and which are addressed in this research.

Founded in 1984, much of Cisco's growth from a small router manufacturer to a global network business has been achieved through acquisitions. Only a few years after its inception, Cisco made its first acquisition. During the following two years another ten firms were added to the organization. By early 2015, the company had completed more than 175 acquisitions, currently acquiring at a pace of 5-10 acquisitions per year. Some of these acquisitions have been directed towards relatively small companies with highly innovative technologies that can be integrated and exploited within existing offerings. Other acquisitions have targeted larger companies in multi-billion dollar deals.

We specifically focus on a stream of acquisitions in the time 2010-2014 with the target to support a transition in Cisco's platform core from hardware-based to software-based. This stream of acquisitions includes several minor acquisitions, but also some of Cisco's major acquisitions, including the multi-billion dollar acquisitions of Insieme, Sourcefire and Meraki.

3.2 Case study design and data collection

Our case study approach may be characterized as "revelatory". Recognizing the lack of in-depth field studies on acquisitions in digital industries our strategy was to study one relatively unexplored case in depth. Based on the recommendations of methodologists [45], we sought to identify an organization that could potentially be a unique and exemplary source of insights on this topic.

The Cisco case appears to be suited to our study's objective in that the company utilizes acquisitions as a mean to retain the innovated edge, the key phenomenon of interest here. Moreover, as mentioned earlier, Cisco has in previous studies been used to showcase the role of a digital platform leader. We see the Cisco case as exemplary because Cisco is among the most successful digital platform leaders globally, where its success, in part, can be attributed to its reputed ability to create value through its acquisitions[1]. Because the public exposure of Cisco and its reliance of acquisitions to retain a platform edge, we were able to recognize the fact that Cisco and its acquisitions presented a fascinating context where the topic of interest could be investigated in depth.

Access to the case company was achieved through one of the authors of the papers that work in an IT management position within the firm. The author's extensive personal insight into the company was used as background information in the study. In addition, before entering the company and starting the interview process the researchers took part of publicly available documentation describing the acquisition intensions and internal documentation describing integration strategies. Subsequently, additional acquisition specific insights were gathered through semi-structured interviews with consenting key informants. A total of 21 informants were interviewed (26 interviews). Interviews lasted between 60 and 90 minutes. Interviews were recorded and transcribed. The first interviews were conducted face to face at the informants' location. Subsequent interviews expanded to the utilization of online collaboration tools (e.g. Skype) making it easier for participants who were geographically distant from the authors or were unable to attend in-person due to other work commitments.

3.3 Data analysis

Our methodological stance may be seen as "interpretive" in that it uses texts reflecting the subjects' experiences with value creating mechanisms and integration challenges to develop a second-order theoretical understanding of the phenomenon [e.g. 46]. Overall, the methodological guidelines summarized in Sarker and Sarker [47, p. 445-446] were utilized.

We examined and made sense of our data, guided by the logic of constant comparative analysis to identify initial concepts, to link this evolving set of concepts to higher- level categories, and then to identify potential linkages between the categories as appropriate. Implicitly, the constant comparative process involved data triangulation across respondents, types of organizations, and organizational roles of respondents, and the like (e.g., [46]). This process led to the discovery of the value creating mechanism.

In understanding the integration challenges threatening the realization of acquisition value, we first examined data from relevant interviews to identify the challenges that respondents mentioned. Next, we organized the identified challenges according to the emergent distinction between process and product integration challenges and attempted to discern correlational tendencies [48] between the value creating mechanism and the integration challenges. Once empirical patterns started to emerge, we placed them in the context of the existing literature, as advised by Bryant and Charmaz [49]. To integrate findings, we developed rich case stories supported by quotes and document references to ensure empirical support for the emerging stories. The rich cases were shared with employees of Cisco to get feedback on representativeness of findings. Based on empirically induced findings and supportive theoretical arguments, explanatory concepts were derrived.

4 Interpretation and results

[1] http://finance.yahoo.com/news/ciscos-john-chambers-look-buy-192300112.html

Acquisitions have been part of Cisco' corporate strategy since its inception. Historically, Cisco has primarily targeted large enterprise acquisition opportunities for the purpose of acquiring an existing business unit that would complement its current core functionality. The goal has been to, through economies of scale, to realize operational efficiencies while building a new market position in an adjacent market. These acquisition benefits of scale and scope associate with Cisco's origin as a network equipment manufacturer. Since 2010, however, Cisco has increasingly made acquisitions that resonate with Cisco's increasing self-image as a platform leader in an industry that competes on innovation and transient advantages. In this period, Cisco's acquisitions have increasingly focused on smaller emerging enterprises that are seen as providing highly innovative technologies that complements the technology and capabilities already in place.

Interpreting the collected data on Cisco's acquisitions from a digital platform perspective, we here develop the notion of 'coring acquisition' after Gawer and Cusumano's [13] concept of product coring as the strategy to transform a product into a platform. In this type of acquisition value is created through the acquisition of companies that provide products in the external of the company, products than can be assimilated with the platform core controlled by Cisco and thereby make the value creating transformation of 'coring' [13].

Our interpretation of Cisco's acquisitions also point to two different categories of integration challenges: offering integration and operational integration. Within the acquisition literature, operational integration is a frequently cited cause for acquisition failure. Offering integration, is not previously documented as an integration challenge. Here, offering integration is an element of Cisco competing in a digital industry where offerings are not universally compatible. To realize the potential value of coring acquisitions, Cisco had to overcome both offering and operational integration.

In the following two sections we discuss the value creating mechanisms and integration challenges of coring acquisitions. We illustrate the discussion through the specific acquisition of Meraki for $1.2 billion in 2012. Cisco's acquisition of Meraki enabled it to access a set of network virtualisation capabilities often known under the term Software Defined Network (SDN). According to the Open Networking Foundation (ONF), SDN is a network architecture that decouples the control and data planes, moving the control plane (network intelligence and policy making) to an application called a controller. [2]

[2] https://www.opennetworking.org/sdn-resources/sdn-definition

What this often entails in practice, and in the case of Meraki, is that the locus for making routing decisions for data packets is transferred from the networking device (such as router or switch) to a centralised controller, which is typically resident in the cloud. This has a number of implications. The first is that the logic which determines the routing of data packets is simultaneously virtualised and centralised. The second, following on from the first, is that it becomes simpler for network managers to configure and manage network deployments.

In addition to simplifying the configuration and management of networks, the architecture of SDNs such as Meraki have the additional benefit of simplifying the management of fault tolerance, monitoring, alerting, device troubleshooting, security, ongoing configuration management and software upgrades.

We consider the Meraki acquisition to be typical for how Cisco has created value through coring acquisitions.

4.1 Value mechanisms in coring acquisitions

Cisco's coring acquisitions have been motivated by the opportunity to get a head-start on competitors and other emerging companies in the eco-system. The acquisition complemented and expanded Cisco's intent to move away from primarily hardware-centered offerings towards more software-centric solutions to simplify network management, help customers empower mobile workforces, and generate new revenue opportunities for its partners. The last five years, most of the coring acquisitions have been related to an ongoing transformation of network management from hardware-based to software-based and in technologies that improves the security features of the platform core. Both of these streams of acquisitions targets the very hart of the platform core under Cisco's control.

The Meraki acquisition illustrates how Cisco has created value through coring acquisitions. Meraki was before the acquisition a company that provided products for of large-scale, distributed wired and wireless networks with the innovate feature that their equipment could be easily managed from the cloud. Meraki became an acquisition candidate for Cisco as the company noted that many of Cisco's existing customers used Meraki 's network solutions to complement their Cisco networks.

> "Meraki's solution was built from the ground up optimized for cloud, with tremendous scale, and is already in use by thousands of customers to manage hundreds of thousands of devices." Senior vice president, Cisco Enterprise Networking Group.

Meraki's appeal was that customers did not need IT workers to troubleshoot problems. Issues that previously had been resolved by technicians traveling to the

physical locations of network equipment were for clients of Meraki resolved via the cloud. This possibility had a great appeal to companies with branch offices, retail locations and large campuses. For existing Cisco customers, Meraki's offering held the potential to simplify network management.

> "Meraki built a unique cloud-based business from the ground up that addresses the broader networking shift towards cloud, not just within wireless. Meraki created a massively scalable architecture that offers easy to deploy, secure, and manage networks." Senior vice president, Cisco Enterprise Networking Group.

Meraki's cloud based management software was the crown jewel of the deal from Cisco's perspective. It could be used to "cloudify" multiple products within Cisco's enterprise portfolio. As stated,

> "This is not just a product technology or talent acquisition, we are bringing Meraki in as a new platform Component in Cisco for cloud managed networks," Senior vice president, Cisco Enterprise Networking Group.

The Meraki case illustrates the value creating mechanism that we label coring, drawing on Gawer and Cusumano's [13] notion of product coring. Coring "is the set of activities a company can use to identify or design an element (a technology, a product or a service) and make this element fundamental to a technological system as well as to a market." Companies seek to "turn their products into industry platforms" to become platform leaders that can benefit from a unique position within the innovation ecosystem.

Meraki provided pre-acquisition an independent product. Post-acquisition, Meraki's offerings were bundled with Cisco's platform core to provide an extended platform core on which both Cisco and third party developers could build complements. For example, Cisco's own complements in the Voice over IP (VoIP) and online collaboration areas integrates and builds on the extend functionality provided by former Meraki products. Examples of third party developers that have started to build additional services based on Meraki products include the group of partners focusing on network security. In the Cisco Security Technical Alliance program Cisco has assembled an ecosystem of complementary technologies to help customers gain better security and faster resolution of critical events. Partners in this program have developed complements that integrates with the Cisco product portfolio's open and proprietary APIs. For these companies, the features for remote network management created new opportunities to provide services to complementing the Meraki offerings.

In this way the Meraki acquisition created value as way for Cisco to "drive the technological trajectory of the overall technological and business system of which the platform is a core element, as well as […] to ensure the overall long-term technical integrity of its evolving technology platform." [50]

The resulting value creation Meraki is indicated by that Meraki made significant contributions to Cisco's revenues after just three quarters. In Cisco's earnings presentation following the Meraki acquisition, management estimated the revenue growth for the firm of four to six percent in the 2013. In Cisco's annual report 2014, Cisco indicates that Meraki is meeting these targets, now growing faster in Cisco than as a stand-alone company. Sales of Meraki's offering also increased, post acquisition. However, Cisco representatives estimated that the most important value provided by Meraki was the indirect growth revenue attributed to the Meraki acquisition enabled Cisco and third party developers to build on an extended platform core.

4.2 Integration challenges in coring acquisitions

In the integration of its acquisitions, Cisco works towards three general measures of success: Retain 100 percent of the employees who transition from the acquired company, sustain the acquired company's current product and service revenues (as well as current levels of service and support) during and after the transition to Cisco and launch new products based on the acquired products and technologies. To achieve these integration targets, Cisco has developed and refined a formalized acquisition approach that on a high level is similarly structured in each acquisition integration:

- Formalized and centralized integration management through a designated team in the Business Development group.
- Cross-functional teams that plan, manage, and monitor integration activities across Cisco.
- Standard metrics, tools, methods, and processes that can be repeatedly applied to new integration efforts, yet are adaptable to the unique issues and parameters of each deal. These standards are defined both at the corporate level and within the many Cisco departments involved in acquisition integration.

Principles for aligning the acquisition integration work to other major change events, such as divisional consolidations, divestitures, or acquisitions by Cisco divisions.

The Meraki acquisition illustrates how Cisco integrates coring acquisitions. The acquisition of Meraki was initiated in late 2012 and reached a stable state of integration 12 months later. At the point of the acquisition Meraki was a leader in cloud networking, with offerings for midmarket customers in the networking areas of 'easy-to-deploy' and 'on premise'

networking solutions. In terms of operational integration, Cisco was interested in the way that the acquired company ran their business, specifically the way they built their products, the way that they designed its service to customers and did product updates was a big change in a way Cisco was conducting its business at the time. One specific area of challenge for Cisco was the time it took a customer to order the product after the acquisition was completed, at times up to 10x the time it had previously taken. The order process was elongated due to the integration of Meraki into Cisco and the impact was felt by the customers.

For the above reasons the challenges in the offering area were mitigated by leaving Meraki mostly alone as a stand-alone acquisition at that level. It was important for Cisco to protect the acquisition until it could further learn from its new acquisition and determine which of its offering capabilities it wanted to realize synergies through by adopting Cisco standards and which capabilities it wanted to reverse integrate. With respect to the offering integration, the main challenge was in the sales and supply chain areas. Along with the areas above on orderability the technical integration faced challenges in the process of integrating the systems that supported sales compensation and the manufacturing of the networking equipment along with the software element of the offering. The IT team was faced with several challenges in both areas, the impact of which was the inability for Cisco sales teams to fully offer the new offerings to its customers and for the customers to receive their orders.

Based on Cisco' experience from the acquisition and integration of coring acquisitions we propose that in the case of coring acquisitions Cisco focuses on the operation integration heavily, ensuring that the needed enterprise capabilities are put in place to support the continued scaling of the acquisition. This is because the acquired product is will be an essential component of the platform core.

5 Discussion and conclusions

Our research develops an understanding of value creation mechanisms and integration challenges in acquisitions by digital platform leaders to innovate the platform core by using a revelatory case study of Cisco and informed by a digital platform perspective. In coring acquisitions value is created through the acquisition of companies that provide products external to the company. Through the acquisition these products are then assimilated into the platform core controlled by the platform leader in a value creating transformation termed 'coring' [13].

The leveraging of value creation in coring acquisitions requires less focus on offering integration. In these cases the acquisition generally concerns a well-established product that can be integrated over time and with customer input. Instead, the focus is more likely to be upon operational integration. This is more critical as the acquisition is often brought into the company as a newly formed business unit and will need to exist with enterprise grade capabilities to support it. In platform complement acquisitions, by contrast, offering integration becomes more of concern with respect to the leveraging of value creation. This is manifested, for example, in the 'time to orderability' of the new modified product. With respect to operational integration this acquisition type is typically integrated using an absorption integration strategy. This allows for efficiencies to be realized and ensures that the acquired technology is supported by appropriate capabilities as it is brought to scale across the platform.

The current literature states that the main challenges of technological integration can usually be found in the operation side of the company when considering the technological dimension of acquisition by digital platform leader. In contrast, we find that for platform acquirers the main technological challenge is on the offering side. Cisco refers to this as its "go to market-strategy". Not before the target is part of the Cisco's offering can the company start to reap the benefits of the acquisition. If the new unit needs to be run separately, it is simply considered a minor inconvenience that is dealt with by recognizing the integration debt and establishing a road map to close the gap. This is reflected in Cisco having 'Time to orderability', in contrast to 'Time to cost benefits', as the principal criteria for integration evaluation. We speculate that this is because platform organizations compete with one single interface towards its customer. This integrated customer view creates a greater need for process integration in the customer-interfacing areas of the company, while integration in operations are good to have but not necessary.

5.1 Theoretical and practical contributions

Our research contributes to the intersection of two emerging research streams. One of these streams has focused on technology acquisitions. This research has previously addressed integration challenges in industries organized as value chains and value shops. From the viewpoint of this stream of research, digital industries are unexplored with the potential for new knowledge creation about acquisition challenges [7]. The other stream of research has focused on strategic management in industries organized as platform markets. In this stream of research scholars have shown increasing interest in how platforms evolve over time [34] and how companies can enact corporate strategies in platform markets [3]. From this viewpoint, the prospect for and

challenges to acquisitions in platform markets is unexplored ground. So, by examining the intersection of these literatures we analyze the value creating mechanisms and integration challenges for acquisitions by digital platform leaders to innovate the platform core.

This knowledge advancement should be of great value for the many acquiring companies in digital industries. Many of these industries take part in an innovation arms race where technological innovations enable transient advantages that are quickly eroded by new technological innovations. Technological innovation is, however, difficult for mature and rigid companies [2]. On the other hand, acquiring technological innovation and related capabilities is not easy either.

The findings of this research may help prospective acquirers to better analyze the value potential of technology acquisitions and the integration challenges that may inhibit value creation. Our findings related to coring acquisitions originates in the exploration of Cisco but examples of the value mechanisms from other digital platform owners are present in the public domain. The coring acquisition strategy can be compared with Apple's, Google's and Microsoft's frequently employed strategies to acquire innovative technologies in order to strengthening their respective platforms. The coring acquisition answers to one of the enduring challenges of platform owners: to continuously innovate the platform core to drive the trajectory of the overall technological and business system of which the platform is a core element [7].

The findings of this research may also assist companies in avoiding problems. As stated by Wijnhoven et al. [12, 16, 17] "the avoidance of problems is of the greatest value to practice." Research on integration has shown that by preparing the acquirer to be 'ready to acquire', it can avoid many technological process integration problems [32, p.25]. Our research indicates that for acquirers in digital industries, it is of equal importance to prepare the products for acquisition integration in order to avoid product integration problems.

5.2 Validity, limitations and future research

As with all studies, this research comes with limitations. The main validity threat in this analysis is that it is based on a single case. Single case studies allow for inductive generation of new concepts, but do not enable statistical generalizations beyond the case context. With 178 acquisitions, Cisco provided an extensive base of acquisitions to learn from. Yet, all 178 acquisitions were carried out within the context of this single company. Based on this one study, we are unable to state with any certainty the acquisition behaviour of companies beyond Cisco. The findings must therefore be considered as indicative findings that need further investigation in a larger sample and/or by additional research methods. Furthermore, by looking across a number of cases, common mechanisms, for the creation of value in platform acquisitions, may emerge.

The main limitation of this research is that the analysis focuses exclusively on acquisitions by platform leaders to innovate the platform core. Within Cisco, we see several acquisitions that fall outside this logic. Subsequent research should seek to extend the knowledge about acquisitions by platform leaders to other logics and value creation mechanisms.

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