

From Hierarchies to Markets: Transformation of Corporate Innovation at Ericsson

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Abstract

This multi-year, in-depth qualitative case study examines an incumbent's response to digital disruptions characterized by uncertain technologies and emergent business models, a relatively underexplored topic in Information Systems and Strategic Management literatures. In particular, the study documents Ericsson's journey of transformation of corporate innovation in response to a wave of disruptive innovations, including cloud computing, Internet of Things, and the 5th Generation technologies coupled with changing customer requirements, increasing competition, and evolving industry landscape. The findings demonstrate how organizations can transform their corporate innovation strategy by employing a "long-tail" strategy as an openness imperative, thereby integrating a market of innovations within the traditional hierarchy of corporate R&D. This evolving hybrid model helps firms leverage the uncertainty during the period of digital disruption to their advantage.

Keywords

Digital disruption, open innovation, long-tail strategy, R&D, technological change

Introduction

In an era characterized as digital age (Grover 2019), established incumbent organizations increasingly need to compete in fast-paced and highly volatile digital business environments (Henfridsson and Yoo 2014). This phenomenon has given birth to a concept of digital disruption that augments the idea of disruptive innovation (Christensen and Bower 1996) with digitization. Digital disruption is often framed as a technological change characterized by environmental turbulence coupled with digital innovations that leads to the breaking down of industry boundaries, creating new technological and market opportunities and destroying dominant business models (Karimi and Walter 2015; Weill and Woerner 2015). Such digital disruptions makes it imperative for imperative firms to embrace digital innovations, and studies explaining how incumbents manage the competing concerns of managing digital innovation are limited in the Information Systems (henceforth IS) literature (see Svahn et al. 2017 for an exception).

In the Strategic Management (henceforth SM) literature, the incumbents' response to technological changes has for long been a key topic and yet the existing research has to some extent remained phenomenon driven and theoretically fragmented (Eggers and Park 2017). The literature has conceptualized change with distinct classifications including, radical and incremental (Abernathy and Utterback 1978), disruptive (Christensen and Bower 1996), architectural (Henderson and Clark 1990), examined why incumbent firms struggle with change (Burgelman 2002) and explained firm-level heterogeneity in response (Rothaermel 2001). A common thread among these studies is the focus on the more mature technologies and established business models that pose the question to the incumbents on whether and when to adapt. "The theoretical insights are premised on the assumption that the existing model [and underlying technology] is successfully displaced by the new model [and underlying technology], and that the challenges of incumbency stem from the obsolescence of incumbents' competencies and the organizational inertia associated with the old model" (Eklund & Kapoor, 2019, p. 1). Hence, "what is typically absent is engagement with the era of ferment, defined as the period after the new technology emerges, but before standardization and commercialization" (Eggers, 2016, p. 1578).

An environment characterized by digital disruptions in the nascent period of change ensues a great deal of uncertainties for the incumbent firms in managing their corporate innovation. The front end of innovation

processes is generally fuzzy (Reinertsen 1999) and the digital disruptions characterized by digital innovations makes it even more uncertain and complex. The digital innovations are known to be readily editable (Kallinikos et al. 2013), re-programmable (Yoo 2010), intentionally incomplete and perpetually in the making (Garud et al. 2008). Such an ambivalent nature of digital innovations (Kallinikos et al. 2013) poses potential challenges for the firms intending to adopt as well as develop such innovations and at the same time facing challenges of disrupted business models, increasing competition and blurring industry boundaries. In fact in embracing the digital innovation to respond to digital disruptions, firms need a new organizing logic and researchers need to adopt new strategic frameworks in examining such a phenomenon (Yoo et al. 2010). Accordingly, this study examines *how firms reinvent their corporate innovation strategy in navigating the environment of digital disruption?*

To explore this question, we conduct a multiyear, in-depth qualitative case study of Ericsson AB (henceforth Ericsson), which is facing a wave of digital disruption. Building on the IS and SM literatures, and drawing on the interview and extensive archival data gathered at the firm, this study demonstrates how organizations can transform their innovation strategy by employing a “long-tail” strategy (Su et al. 2016), thereby integrating a market of innovation within the traditional hierarchy of corporate R&D. Through this evolving, hybrid model, firms can leverage the uncertainty during the period of digital disruption to their advantage by utilizing their capabilities and technologies. The study contributes to the literatures on innovation management (Chesbrough 2003; Eggers and Park 2017; Nambisan et al. 2017; Yoo et al. 2012), especially the research on incumbents' strategies during rapid technology and market changes.

Context, Data and Methods

Site Description

This study is situated in context of the mobile telecommunication industry, and we chose Ericsson, a Swedish multinational networking and telecommunications company headquartered in Stockholm, as the research site. This particular industry has traditionally been populated by a few infrastructure providers that enable mobile service providers in different countries and regions to provide telecommunication services to individuals and enterprises. For many years, the technological development was primarily more gradual and incremental in nature, in the form of increased bandwidth and speed of telecommunication, and introduction of multimedia services based on these advancements. The recent technological changes characterized by digital innovations, however, are expected to disrupt the existing business models and technologies in the sector by commoditizing connectivity and its underlying technologies. To adapt to these changes, Ericsson itself is in the midst of its transformational journey. The context provides a fertile ground for empirical investigation of incumbents' strategies.

Data and Analysis

This study employs a qualitative case study methodology in line with the tenets of grounded theory (Strauss and Corbin 1990; Su 2017) for the period of 2014 to 2018. The study uses several sources of data including, Ericsson's internal archives, in-depth interviews with senior managers as well as researchers and publicly available records. First, the internal archives include minutes of meetings and monthly reports of the R&D teams (including external participants), weekly addresses by CEO, responses by employees to internal surveys and videos of internal addresses by senior management teams. Second, we conducted 10 semi-structured interviews with the R&D team members involved in formulating and implementing process of innovation management (lasting from 40 minutes to 1.5 hours). Third, we also collected data from publicly available sources including annual reports, blogs and press releases to triangulate the data collected from the first two sources.

Overview: The Era of Digital Disruption

Ericsson is one of the leading providers of networking and telecommunications equipment and services catering mainly to service providers (B2B), with about 40% of the world's mobile traffic carried through its networks. The company's core competency had been its technical superiority and its capacity to sell reliable, high-quality equipment to major customers around the world. This competency engendered Ericsson to be recognized as a technology leader in the market for several decades. However, this position had been shaken with decline in performance that became most apparent around 2015. Among several reasons of this decline, some of the key challenges facing Ericsson included a wave of disruptive innovations, including cloud computing, Internet of Things (IoT), and the 5th Generation (5G) technologies, changing customer requirements, increasing competition, and evolving industry landscape. Together, these challenges resulted in a period of digital disruption for Ericsson as well as other incumbents in the market alike. The same is reflected in CEO'S words:

... as a technology company, disruption and competition has always been there and will always be there ... this time we are impacted by aggressive competitors, disrupted by the cloud and changing customers... We just have to manage it better than the others ... (CEO)

The emergence of the cloud rendered the core downstream resources (e.g., hardware products, equipment) of Ericsson obsolete leading to customer's declining willingness to invest in new hardware technologies. In addition, most of its downstream business customers were also impacted by the disruptive forces of digital innovations and hence undertook initiatives of their own digital transformation.

Our customers trust that we will be there to fix problems; they trust that we will be their partner for the long haul, and they trust that we have their interests at heart. But how cutting edge are we? Are we first out of the blocks with new business models, helping them to generate untapped revenue streams? (CEO)

The advent of other digital technologies fuelled additional uncertainty in the market. Ericsson had been trying to regain the leadership position in the market through its capabilities in the 5G. However, due to the complexities around infrastructure and feasibility, 5G was still considered more of a buzzword than a reality. Parallely, IoT was emerging as another digital technology that was considered to be best supported by 5G platforms. In addition to technological uncertainties, IoT also has application side uncertainties due to its potential to redefine the existing market as well as open up several new segments as potential markets. IoT based offerings represent a form of general-purpose technology, which can be applied to a vast variety of industries as well as several business models. These changes disrupted the existing business model of Ericsson; however, new business model was yet to emerge.

Long-Tail Strategy of Corporate Innovation

In response to the digital disruption, Ericsson launched a focused business strategy that involved zoning the whole organization into four distinct horizons (Moore 2015). This strategy facilitated separation of incubation and transformation zones for the management of disruptive innovations. In turn, it ensued a long-tail of innovation projects at different stages of experimentation as a way to deal with uncertainty of the era of ferment. Terming this as a long-tail strategy, we highlight the key implications of this strategy in facilitating transformation at Ericsson.

The long-tail strategy was initially cultivated as autonomous strategy in form of *Ericsson Garage* that was eventually formalized, and hence represent a hybrid form of autonomous and induced strategy process (Burgelman 1983). The first Garage was founded at the company headquarters (Kista), which was then followed through opening of 12 another Garages (total 13) across the globe over a period of four years.

... we realized that many such initiatives came out of Ericsson Research which we never managed to commercialize. Some of them were picked up by other companies, like iPad, TCP proxy, etc. ... when we came up with the ideas that fit well within existing Ericsson structure, it was very easy to incubate and internalize, but when the ideas did not fit into the structure, there is no clear receiver within Ericsson, it was very difficult. ... if we take an idea to a prototype stage [through Ericsson Garage]... , the likelihood of success is much higher than presenting merely an idea... (Head of Ericsson Research)

Ericsson Garage characterizes a form of lean-start up approach (Levinthal and Contigiani 2018), an open innovation (Chesbrough and Brunswicker 2014) that helped Ericsson create a long-tail of innovations and there by resolving uncertainty by cocreating with external stakeholders, creating a market within its hierarchy, separating the structure to let a long-tail of innovations flourish.

Cocreation with External Stakeholders Globally

Initially, the strategy focused on internal venturing where the ideas were primarily sourced from the employees. Eventually, as more Garages were founded, external stakeholders - customers, start-ups, and academic researchers - were invited to join the teams with their own ideas and projects in addition to the contribution from internal stakeholders. Each stakeholder group represents a track within Ericsson Garage and together the four tracks helped make the Ericsson Garage a platform for open innovation. Ericsson started positioning itself as an innovation partner instead of innovation leader. Cocreating with these stakeholders engendered the knowledge flow from the external environment, experiment in the new market segments, and understand the customer needs more closely than before.

This is about encouraging bottom-up approach ... we are focusing on the pain points ...of the customers, partners, and start-ups and pain points of their own customers. 5G & IoT are use case driven. We need to understand how these technologies are going to be used... Very important experimentation, very important for learning. Many interdisciplinary things with other industries. (Founder of Ericsson Garage)

In other words, Garage worked as a sensemaking device to resolve and potentially internalize the ambiguities of the market during the nascent period of digital disruptions.

... it is very important to work close to the customers, but for us, it is also important to work with the end users, who are customer's customers ...[Garage] works as a feedback loop. It does not mean that we will invest in everything or be part of everything, but we learn a lot in the process...[it] helps the Start-ups give it a try, experiment/ explore. Until you try it is difficult to know what works and what does not... (CEO)

Structural Separation

Simultaneously maintaining internal R&D and cocreating with external stakeholders was made possible with structural separation. Distinct from traditional ambidexterity literature, this separation signifies a shift of locus of innovation from closed-hierarchical approach to more open-market oriented approach (Benner and Tushman 2015). Historically, Ericsson has always been an ambidextrous organization and retained the leadership position in technology market for several decades by balancing their exploration and exploitation. However, what Ericsson Garage changed is the long-tail strategy of letting external stakeholders bring their ideas, jointly experiment with them, fail fast, and in learn in the process by maintaining a separate structure from the parent organization.

... within Ericsson Garage we have a separate operating system, which is different from Ericsson operating system. The Ericsson Garage is built on an environment like a lean start-up (Head of Ericsson Research)

Market within Hierarchy

The structural separation often comes with the challenges of integrating innovations from distinct units, which was done by creating a market within the hierarchy. Ericsson Garage follows a 5i process of innovation where each potential project passes through five stages – initiation, ideation, incubation, ignition, and incorporation. At any point in time there are several projects parallelly being conceived at each of the five stages. Each stage works as a gatekeeper, and hence filters out the less-developed or less-promising ideas through the funnel.

The 5 i stages vary in terms of risks and time frames. The earlier you are in a stage, the shorter the time frame, The further you go, the higher the stakes. That's why the number of ideas that are carried further reduce. When something enters the ignition phase, then it has to prove itself. Each i is a tall-gate. The further a project goes, it has to pass through stringent requirements. (Senior Manager, Research Team)

The model constitutes a hybrid form of structure and strategy-making processes. On the one hand the model creates enough variations in the types of ideas in a bottom-up approach (autonomous strategy-making process) and resembles a market organization by facilitating flow of ideas from external stakeholders. In so doing, Ericsson Garage serves as a fertile ground for innovation that can move in an autonomous direction decided by the market forces. On the other hand, the model has elements of induced strategy-making process represented by the top-down focus on 5G and IoT and hierarchical structure exemplified by the process of selection of ideas. For any idea to join the innovation process through Garage, the idea will need to pass the initial screening test conducted by Internal Review Board. Subsequently, at each stage of the funnel the idea has to pass the screening imposed by the parent organization.

Concluding Remarks

This study examines an incumbent's response to the nascent stage of digital disruption that is characterized by digital innovations, changing customer needs and market segments, increasing competition and disrupted business model, where the new technologies are still ambiguous and new dominant business model is yet to emerge. Grounded in the case of Ericsson, the study seeks to make several contributions. First, the study highlights the importance of transforming corporate innovation towards openness (Schlagwein et al. 2017) imperative in the era of digital disruption. Second, drawing on the SM and IS literatures (Su et al. 2016), the study identifies and

elaborates the “long-tail” strategy which enables incumbents’ transformation of corporate innovation. Third, the study demonstrates an evolving hybrid of markets and hierarchies as an effective mechanism for governing corporate innovation. In doing so, it extends the extant literature on technological change and incumbent adaptation (Eggers and Park 2017).

References

- Abernathy, W. J., and Utterback, J. M. 1978. “Patterns of Industrial Innovation,” *Technology Review* (80:7), pp. 40–47.
- Benner, M. J., and Tushman, M. L. 2015. “Reflections on the 2013 Decade Award—‘Exploitation, Exploration, and Process Management: The Productivity Dilemma Revisited’ Ten Years Later,” *Academy of Management Review* (40:4), pp. 497–514.
- Burgelman, R. A. 1983. “A Process Model of Internal Corporate Venturing in the Diversified Major Firm,” *Administrative Science Quarterly* (28:2), pp. 223–244.
- Burgelman, R. A. 2002. “Strategy as Vector and the Inertia of Coevolutionary Lock-In,” *Administrative Science Quarterly* (47:2), pp. 325–357.
- Chesbrough, H., and Brunswicker, S. 2014. “A Fad or a Phenomenon?: The Adoption of Open Innovation Practices in Large Firms,” *Research-Technology Management* (57:2), pp. 16–25.
- Chesbrough, H. W. 2003. *Open Innovation*, Harvard Business School Press.
- Christensen, C. M., and Bower, J. L. 1996. “Customer Power, Strategic Investment, and the Failure of Leading Firms,” *Strategic Management Journal* (17:3), pp. 197–218.
- Eggers, J. P. 2016. “Reversing Course: Competing Technologies, Mistakes, and Renewal in Flat Panel Displays,” *Strategic Management Journal* (37:8), pp. 1578–1596.
- Eggers, J. P., and Park, K. F. 2017. “Incumbent Adaptation to Technological Change: The Past, Present, and Future of Research on Heterogeneous Incumbent Response,” *Academy of Management Annals* (12:1), pp. 357–389.
- Eklund, J., and Kapoor, R. 2019. “Pursuing the New While Sustaining the Current: Incumbent Strategies and Firm Value During the Nascent Period of Industry Change,” *Organization Science*.
- Garud, R., Jain, S., and Tuertscher, P. 2008. “Incomplete by Design and Designing for Incompleteness,” *Organization Studies* (29:3), pp. 351–371.
- Grover, V. 2019. “Surviving and Thriving in the Evolving Digital Age: A Peek into the Future of IS Research and Practice,” *SIGMIS Database* (50:1), pp. 25–34.
- Henderson, R. M., and Clark, K. B. 1990. “Architectural Innovation: The Reconfiguration of Existing Product Technologies and the Failure of Established Firms,” *Administrative Science Quarterly* (35:1), pp. 9–30.
- Henfridsson, O., and Yoo, Y. 2014. “The Liminality of Trajectory Shifts in Institutional Entrepreneurship,” *Organization Science* (25:3), pp. 932–950.
- Kallinikos, J., Aaltonen, A., and Marton, A. 2013. “The Ambivalent Ontology of Digital Artifacts,” *MIS Quarterly* (37:2), pp. 357–370.
- Karimi, J., and Walter, Z. 2015. “The Role of Dynamic Capabilities in Responding to Digital Disruption: A Factor-Based Study of the Newspaper Industry,” *Journal of Management Information Systems* (32:1), pp. 39–81.
- Levinthal, D., and Contigiani, A. 2018. “Situating the Construct of Lean Startup: Adjacent ‘Conversations’ and Possible Future Directions,” SSRN Scholarly Paper No. ID 3174799.
- Moore, G. A. 2015. *Zone to Win: Organizing to Compete in an Age of Disruption*, Diversion Books.
- Nambisan, S., Lyytinen, K., Majchrzak, A., and Song, M. 2017. “Digital Innovation Management: Reinventing Innovation Management Research in a Digital World,” *Management Information Systems Quarterly* (41:1), pp. 223–238.
- Reinertsen, D. G. 1999. “Taking the Fuzziness Out of the Fuzzy Front End,” *Research-Technology Management* (42:6), pp. 25–31.
- Rothaermel, F. T. 2001. “Incumbent’s Advantage through Exploiting Complementary Assets via Interfirm Cooperation,” *Strategic Management Journal* (22:6–7), pp. 687–699.
- Schlagwein, D., Conboy, K., Feller, J., Leimeister, J. M., and Morgan, L. 2017. “‘Openness’ with and without Information Technology: A Framework and a Brief History,” *Journal of Information Technology* (32:4), pp. 297–305.
- Strauss, A. L., and Corbin, J. M. 1990. *Basics of Qualitative Research*, Sage Publications.
- Su, N. 2017. “Positivist Qualitative Research,” in *The SAGE Handbook of Qualitative Business and Management Research Methods*, SAGE.
- Su, N., Levina, N., and Ross, J. W. 2016. “The Long-Tail Strategy of IT Outsourcing,” *MIT Sloan Management Review; Cambridge* (57:2), pp. 81–89.
- Svahn, F., Mathiassen, L., and Lindgren, R. 2017. “Embracing Digital Innovation in Incumbent Firms: How Volvo Cars Managed Competing Concerns,” *MIS Quarterly* (41:1), pp. 239–254.
- Weill, P., and Woerner, S. L. 2015. “Thriving in an Increasingly Digital Ecosystem,” *MIT Sloan Management Review* (56:4), pp. 27–34.
- Yoo, Y. 2010. “Computing in Everyday Life: A Call for Research on Experiential Computing,” *MIS Quarterly* (34:2), pp. 213–231.
- Yoo, Y., Boland, R. J., Lyytinen, K., and Majchrzak, A. 2012. “Organizing for Innovation in the Digitized World,” *Organization Science* (23:5), pp. 1398–1408.
- Yoo, Y., Henfridsson, O., and Lyytinen, K. 2010. “Research Commentary—The New Organizing Logic of Digital Innovation: An Agenda for Information Systems Research,” *Information Systems Research* (21:4), pp. 724–735.