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Corporate Business Model Transformation and Inter-Organizational Cognition: The Case of Nokia

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This article distinguishes between a firm's corporate business model and business models of its various business units. Our aim is to provide new insights into how executives' cognitive processes can influence corporate business model transformation decisions. We focus especially on top managers' recognition of inter-organizational cognitions, that is, such cognitions about the firm and its businesses that are shared by the top managers and stakeholders of the firm in the industries and communities where it operates. We support our theoretical work with an historical case study of Nokia's corporate business model transformation between 1990 and 1996, which proved highly successful. We find that its transformation involved using the current reputational rankings of Nokia's businesses as selection criteria for which businesses to retain and which ones to divest – as well as the elimination of businesses which embodied business model elements which were attributed as factors in past business failures.

Introduction

Increasingly, both strategy scholars and practitioners are using the term 'business model' to describe the logic of a firm, the way it does business, and how it creates value for its stakeholders. Much literature has been devoted to describing certain (case) firms' business models, as well as to developing general conceptualizations of what business models are (Morris et al., 2005; Siggelkow 2002; Amit and Zott, 2001; Zott and Amit, 2010; Teece, 2010); the recent special issue of *LRP* being a case in point (Long Range Planning, 2010). However, while conceptual studies into the nature of the business model construct, empirical snapshots of particular firms' business models, and prescriptive accounts of 'how to' innovate novel business models have proliferated (Chesbrough, 2010; McGrath, 2010), much less attention has been paid to firms' business model *transformations* over time. The present article addresses this research gap by examining corporate transformation with respect to its business model – or business model*s*, as a large corporation may be running several at any one time (Prahalad and Bettis, 1986).

Our first purpose is to outline both the distinction and the links between what we call the 'corporate business model' on one hand and the business models of the corporation's businesses (or business units) on the other. While earlier research has noted that firms may run multiple business models simultaneously (van der Meer, 2007; Chesbrough, 2006; Linder and Cantrell, 2001; Smith et al., 2010), the linking of corporate level concerns to individual business units and their business models has so far been sparse. Especially, extant literature lacks understanding of how corporate business models evolve and transform in multi-business unit organizations – an arena where we wish to contribute. Second, along with our focus on an individual corporation's transformation, we focus on a specific area that is particularly under-researched: the cognitive processes that influence corporate business model transformations. There is, of course, a wide extant literature dealing with the varied roles that managerial cognition can play in corporate strategizing in general (e.g. Walsh, 1995; Porac and Thomas, 2002; Schwenk, 2002), and some research has also pointed to the role of managerial cognition in firms' business model evolution in particular (Tripsas and Gavetti, 2000; Tikkanen et al., 2005; Chesbrough, 2010). Yet the cognitive drivers of the strategic transformation of corporate level business models have not so far received much attention. This is especially true when it comes to *inter-organizational* cognitions, which we see as those understandings about the role of the corporation and its businesses that are shared by the corporation's managers and by its stakeholders in the communities where it operates. Our case company analysis shows that they can have considerable influence on the transformation of a corporation's business model.

From an evolutionary perspective, the competitive success of an individual firm depends ultimately on its ability to transform the elements of its business model in rhythm with, and towards a 'fit' with (i.e., success in) its external business

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environment (Siggelkow, 2002; Tripsas and Gavetti, 2000). As to our empirical research, hence, we study a most instructive case – from which much can be learnt about corporate business model transformation in a dynamic environment, and how it is driven by cognitions. That is the case of a multi-unit corporation whose corporate business model transformation has led to considerable global success: Nokia Corporation, the Finnish mobile communications giant. Nokia's story is an illuminating example of how a traditional diversified conglomerate managed to transform its corporate business model rapidly (during 1990–1996) into one with fewer businesses, exclusively related to mobile communications, and consequently (1996–2007) achieved unprecedented, decade-long global success in the telecommunications industry. Even though Nokia has recently (2008–2011) experienced problems in its industry (which are beyond the scope of the present study), we believe that an historical study of Nokia Corporation's original 1990s transformation is highly instrumental for developing theoretical ideas about business models, strategic transformation/change and managerial cognition, as well as in providing practical lessons for managers facing similar situations.

Conceptual framework

Corporate business model

It is not the purpose of this article to engage widely in the conceptual debate as to what the components of a business model are, or should be (Morris et al., 2005; Tikkanen et al., 2005): rather, we are concerned with distinguishing business models at the corporate and business unit levels, and, in particular, with corporate business model transformation.

Our basic assumption is that any firm can possess multiple businesses (commonly called strategic business units), which can all have their own business models. Such a structure is reflected already in classical strategy literature (Ansoff, 1965; Chandler, 1977; Porter, 1980), which distinguishes between the firm's corporate (-level) strategy and individual business strategies at the level of its strategic business units. However, the differences between the notions of 'corporate business model' and 'corporate strategy' are clear. To start with, corporate strategy is most commonly concerned with which markets the corporation serves, and thus what businesses it is currently in, or intends to be in the future (i.e., its market and business portfolio choices), and whether or not these businesses are related (i.e., related or unrelated diversification) (Rumelt, 1974; Ansoff, 1957). In contrast, the concept of a corporate business model does not only specify these simple issues – what the corporation's businesses are and whether they are linked – but also the logic of *how* the businesses are related to each other, at a given point in time, to create value for the corporation and its stakeholders (Amit and Zott, 2001; Chesbrough and Rosenbloom, 2002). Moreover, in our definition, the *corporate business model* resides primarily in the minds of the corporation's top managers or top management team (TMT) members – essentially, it is *the corporate top managers' perceived logic of how value is created by the corporation, especially regarding the value-creating links between the corporation's portfolio of businesses*. As such, the 'corporate business model' can be considered a conceptual 'classifying device' (Baden-Fuller and Morgan, 2010) that managers can use in analyzing their current business portfolios, and identifying and constructing future possible business portfolios in terms of individual businesses and their (inter)linkages.

In general, our assumption that corporate business model is about managerial cognition (or frame of beliefs/logic) as well as about the 'how' question (instead of mere 'which/what/whether' concerns), is consistent with the assumptions of many authors (e.g., Barabba et al., 2002; Osterwalder, 2004; Bossidy and Charan, 2004; Chesbrough and Rosenbloom, 2002; Casadesus-Masanell and Ricart, 2007; Tikkanen et al., 2005) – albeit that they do not focus particularly on corporate level business models. Yet indeed, it is possible to view the corporate business model as an integrative, classifying concept or tool that allows for the concise examination of the main aspects of interlinkedness and value creation logics between a firm's businesses over time. In practice, these logics can stem from, for instance, the business units' mutual relatedness in terms of shared product technology, end customers, distribution channels, supply chains, or market knowledge (see Pehrsson, 2006); elements of common governance or performance measurement across the business units; or capital supply between the units (Kolehmainen, 2010). They may also relate to the role of certain business units in enhancing the firm's reputation and attractiveness in the eyes of labor markets, governments, or investor communities – as we will find in Nokia's case.

As distinct from this notion of a corporate business model, we view the *business unit-level* business model as the *business unit managers' perceived logic of how the unit in question functions and creates value, in connection with both its market environment, and within the corporation* (i.e., with its other business units). An analogy for understanding business (unit)-level business model is to consider a business (unit) to be a machine in the market and corporate environment and the business model to specify how the machine works (Casadesus-Masanell and Ricart, 2007), to produce revenues and/or costs to the corporation or to other business units (i.e., the revenue/earnings logic) (Chesbrough, 2010; Itami and Nishino, 2010). Since our primary focus is on corporate business model transformation; our study only attends to the business unit-level business models insofar as they play a part in corporate business model transformation.

Corporate business model transformation and research questions

Given the above definition of corporate business model, defining its transformation is straightforward: it is *a change in the perceived logic of how value is created by the corporation, when it comes to the value-creating links among the corporation's portfolio of businesses, from one point of time to another.* From this definition, and its implications in terms of managerial cognition, we can further derive our research questions as outlined below.

To begin with, despite the notion that corporate business models reside primarily as logics in the minds of top managers, neither they – nor their transformations – are idiosyncratic to those managers' thoughts; quite the contrary. Objectively seen, a firm's businesses models (especially their current versions), generally work pretty much in the way its top managers perceive. Thus if, in actuality, the logic of value creation between two of the firm's businesses at a certain point of time stems, for instance, from them sharing a customer or a technological base, this will usually be what its corporate managers perceive. In other words, at any given time, the materially existing core elements of the corporation's various businesses (Siggelkow, 2002), and their value-creating links with each other, are likely to correspond to a fairly high degree to top managers' perceptions of those core elements and their current links. So studying and comparing the perceived managerial logics involved in corporate business models at two points of time gives a good starting point for studying corporate business model transformation between those points, and the drivers of that change.

To an extent, as a static situation, this is obvious – perception and actuality run parallel – but the issue becomes much more interesting when we think about business model *transformation*. This is because managers have much less accurate information and perceptions about the firm's intended (or possible) future businesses, or about the design or realizability of their value-creating links, than they have about the firm's current businesses. Indeed, while the portfolio of current businesses and their links are singular – they are what they currently are – the array of possible future businesses and their perceived value-creating links may be innumerable. Even more importantly, when executives intend to change their corporate business model, they are likely to retain or exploit some businesses (and their perceived value-creating interlinkages) from their current corporate business model, and only establish some new businesses or new links between businesses – rather than clear out their existing portfolio and replace it wholesale. Previous research has shown, for instance, that, in their strategic transformation actions, managers often try to retain such business model elements which they perceive as having contributed to their corporation's past business successes (Tripsas and Gavetti, 2000; Miller and Friesen, 1980; Prahalad and Bettis, 1986); in contrast, total business model 'revamps' happen extremely rarely, if ever. Such cognitive dynamics between the elements of a firm's current/existing and new/transformed business models give rise to a broad research question in the context of Nokia's corporate business model transformation: Which existing corporate business model elements did top managers decide to retain and which did they opt to renew– and what were the cognitive drivers behind these transformation decisions?

Another reason why the firm's corporate business model is not totally idiosyncratic to its top managers' thoughts (despite partly residing as a logic in their minds) is that their beliefs about the firm's businesses and their value-creating links are often shared by other actors or stakeholders in the industries/communities in which the firm operates. For instance, if two of a corporation's businesses serve the same customers and provide them with mutually complementary offerings, managers' perceptions of this situation are likely to be shared (to a great extent) by both the corporation's customers and its competitors. This reflects the commonplace notion in management research and related disciplines that a firm's internal corporate or organizational identity (i.e., the managers' and employees' perceptions of the corporation and its businesses) usually corresponds (or should correspond) to the firm's external organizational image or reputation (see reviews by e.g., Cornelissen et al., 2007); Gioia et al., 2000; Brown et al., 2006). In other words, there are shared – 'inter-organizational' –cognitions about the corporation's businesses which are held by the firm's managers and its stakeholders, and which may also play special roles in managers' decisions about corporate business model transformation. This is why our present study focuses especially on the role of these inter-organizational cognitions in a firm's corporate business model transformation.

Three specific types of inter-organizational cognitions warrant particular attention. First, there is the issue of the overall legitimacy of the whole corporate business model. For instance (and in light of the general research question above) corporate managers are concerned about the legitimacy of their current corporate business model – relative to that of any potential new corporate business models – in the eyes of their various stakeholders. In practice, the current/existing model may be perceived as legitimate by some stakeholders (e.g., internally among employees or middle managers), while a possible new model configuration might be seen as commanding more support from others (e.g., investors or governmental actors). Thus, corporate managers face the task of balancing such dynamics in choosing (or not) to transform their corporate business model. Prior research on inter-organizational cognitions has studied a similar issue under the label of 'industry recipes' (Spender, 1990; Porac et al., 2002; Porac and Thomas, 2002), a concept that refers to the overall business logics – ways of operating and competing – that are considered legitimate and appropriate ('right') in any given industry (i.e., by its participants and stakeholders). But while this line of research has mostly focused on industry-specific recipes, we extend our focus to legitimate recipes for corporate business models in general, a distinct focus which pertains to the legitimate working logic of a whole corporation. These corporation-level recipes may be independent of or additional to the working logics of corporate business units in their particular industries. Therefore, we refer to 'corporate recipes' (also called 'group recipes'; see Grinyer and Spender, 1979) rather than to 'industry recipes'.

A second type of inter-organizational cognition of interest in our context relates to the 'reputational rankings' of the firm's current and potential new businesses. Reputational rankings essentially refer to how firms' reputations, or performance statuses, are evaluated in inter-organizational communities vis-à-vis competition – in simple terms, how well a firm is perceived to be performing in its community of competitors (Grinyer and Spender, 1979). Each industry in which a firm operates will usually have its own reputational ranking orders, so a multi-business firm may have different ranks in the various industries in which it operates. Thus a firm does not just hold one identity that is similar in all the industries where it operates, but rather has multiple co-existing identities (Pratt and Foreman, 2000; Balmer and Greyser, 2002), and differing reputational rankings in each. A firm can also have non-industry-specific reputational rankings in such broader communities as society at large, or financial markets in general. The questions of which specific reputational rankings corporate managers aim to exploit and/or improve by their corporate business model transformation – and how – are of considerable managerial concern as well. Notably, while there is wide extant research on the antecedents and sources of organizational reputations, as well as their performance effects (see reviews by e.g., Rhee and Valdez, 2009; Chun, 2005; Fombrun, 1996), research on the role reputational rankings play in corporations' strategic transformation decisions is sparse.

The third type of inter-organizational cognition of interest concerns 'boundary beliefs'. While reputational rankings indicate the reputation of a firm or its business unit(s) in organizational communities, boundary beliefs can be thought of as those elements that allow a firm or a business to be seen as a legitimate member of those communities in the first place (Porac et al., 2002). Most often, the firm's (or its unit's) products and customers are the de facto boundary elements that determine its identity as belonging to a particular industry community (e.g., as a consumer electronics company). For a multi-unit corporation like Nokia, we consider that both the corporation and its businesses may have multiple boundary elements that can be both shared and distinct, making the corporation or its businesses belong to multiple industries or communities in the minds of its top managers and stakeholders. So, when it comes to business model transformation, an essential question is also, which boundary elements do corporate managers want to retain, and which to renew? Retaining some elements and renewing others allows management to 'redraw the contours' of the corporation and its businesses. Following the earlier notion, seeking to retain business model elements identified with past corporate successes, while at the same time renewing the composition of the business itself, can be an example of such contour adjustment. In sum, and in the light of this discussion of the role of inter-organizational cognitions in corporate business model transformation, our broad research question becomes, more specifically:

During Nokia's 1990–96 corporate business model transformation, which existing corporate business model elements did top managers seek to retain or to renew – and what were the cognitive drivers of these changes, especially in terms of (a) corporate recipes, (b) reputational rankings, and (c) boundary beliefs?

Against the backdrop of earlier research, the main contribution of our investigation is its focus on the role of inter-organizational cognitions in the strategic (business model) transformation of a corporation. Most extant research on managerial cognition has focused on the exclusively firm-internal cognitions of executives, such as heuristics and biases (e.g., Schwenk, 1986; Schwenk and Thomas, 1983; Schwenk, 2002; Barnes, 1984); 'mental models' (e.g., Daft and Weick, 1984; Fahey and Narayanan, 1989); 'cognitive maps' (e.g. Dutton et al., 1983; Dutton and Jackson, 1987; Barr et al., 1992); or 'world views' (e.g. Stubbart, 1989; Walsh, 1995; Huff, 1982; Ginsberg, 1989; Prahalad and Bettis, 1986). In contrast, we take a new focus – on the inter-organizational cognitions (e.g., Porac and Thomas, 2002; Porac et al., 2002) that exist in the industry fields where the firm operates. In so doing, our study is actually the first to deal with executives' *(re)cognitions about inter-organizational cognitions,* and the effects of such cognitions on the strategic transformation of the firm. Figure 1 depicts a simple framework of our research focus.

A field study of Nokia Corporation

The case firm: Nokia Corporation

The Finnish telecommunications giant Nokia is an illuminating example of a corporation that made a successful business model transformation – or turnaround – that rescued the firm from near bankruptcy and set it on the path to becoming one of the world's great corporate success stories of the 1990s and 2000s. Nokia's radical divestment of most of its traditional

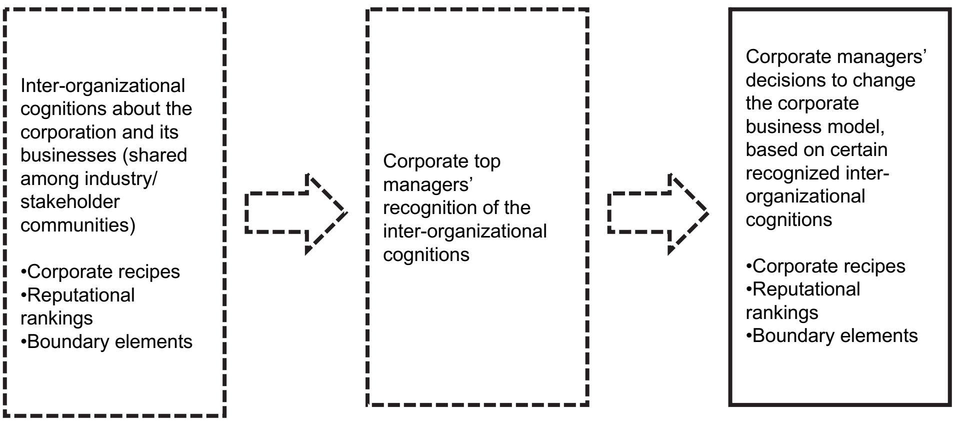

Figure 1. Research framework

business areas in the early 1990s, and it subsequent focus on just a few telecom businesses, demands special attention from the business model change point of view.

Nokia's roots lie in traditional Finnish industry and stretch back over 160 years, during which time it has been through many changes; but the most notable of these occurred during our 1990–96 research period. By 1990 (*t1*), the corporation's market had expanded from its original focus on the paper, rubber and cable industries into the consumer electronics and telecommunications fields. This particular point (1990) marks an interesting starting point for analysis, as Nokia had arrived at a situation where its corporate profitability had been ruined and looming bankruptcy threatened its very existence. As our case analysis elaborates, the main causes were Nokia's failed acquisitions of large European television and computer manufacturers in the late 1980s, combined with a sudden drop in revenues due to the abrupt ending of its traditionally lucrative sales to the Soviet Union in 1991. Figure 2 illustrates its sales and profits, clearly showing losses mounting from 1990.

But already by 1996 (*t2*) Nokia had refocused itself from a multi-business conglomerate almost exclusively into two mobile telecommunications businesses – mobile telephones and mobile telecommunication networks (Häikiö, 2001a, b; Kuisma, 1996) – with swift and positive results, as the figure illustrates. The changes in the patterns of corporate action were just as dramatic; for instance, the frantic M&A activity that continued until 1990 was replaced by a strategy based exclusively on organic growth. And, most importantly, in 1996 Nokia was on its way to becoming the world's largest mobile phone company in terms of volume, sales, market share, and profits (Doz and Kosonen, 2008); the decisiveness of this corporate turnaround is clearly visible in Figures 2 and 3.

Method and data

Our empirical interest is in the business model transformation in Nokia between 1990 and 1996, and we employ an historical stance, following the logic of micro-historians who are interested in solving specific problems or mysteries by collecting 'clues' which create an understanding of process, mechanisms and outcomes (Ginzburg, 1989). As is typical in historical research, our aim is to facilitate theorizing through a careful examination of relevant data collected from multiple sources, validated both by extant theories and via ongoing re-inspection of data.

Our data collection began by seeking information about the social, economic and industrial history of Finland in the 1980s and the 1990s, including published studies and magazine articles, and also statistical data on the country's demographic and social development. Second, we collected a variety of qualitative and quantitative materials focusing on the history of Nokia – altogether 59 academic publications including the firm's official corporate history (Häikiö, 2001a, b; Häikiö, 2002), studies by former Nokia managers, and a number of other pieces of academic research, as well as the company's annual reports and Nokia-related articles in professional magazines. Finally, we extended our data collection with an extensive search in Nokia's corporate archives. The archives had previously been restricted to the company's internal use only: ours is the first academic management research project that was systematically able to investigate this unique archival material.

In the final analysis, we employed two main data sources. Firstly, we utilized 14 semi-structured retrospective interviews with Nokia's former TMT and board members and former key business-unit level executives. Secondly, and more importantly, we utilized the extensive and detailed archival material covering the decision making processes during our research period, including minutes of board meetings, industry analyses, correspondence, and discussion documents from the study period. As material generated in-situ, this data is free of the retrospective bias of the interview data, and was central in reconstructing the decision-making criteria underpinning Nokia's business model transformation.

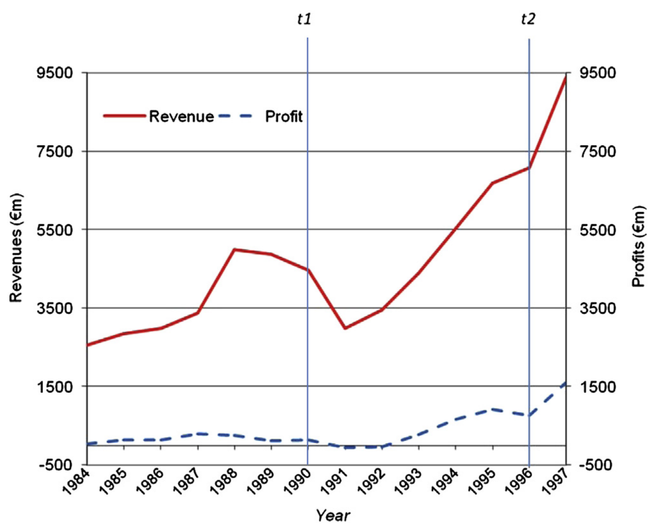

Figure 2. Total corporate revenues and profits of all Nokia businesses, 1984–1997

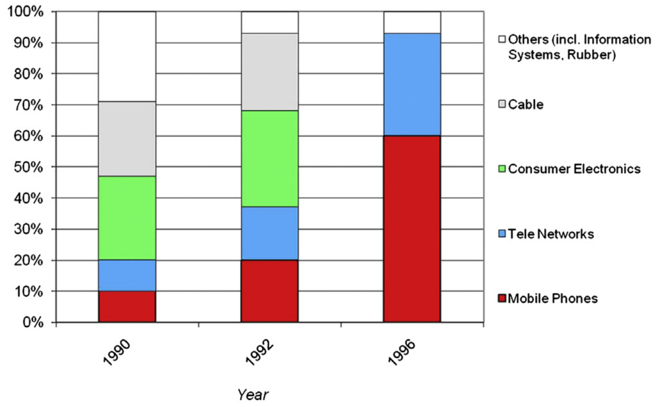

Figure 3. Nokia's sales in 1990–1996 by business unit

Nokia's corporate business model transformation 1990–96

A starting point for analyzing transformational change in a firm's corporate business model is to identify its various businesses, and to describe how they related to each other at significant points of time (e.g., *t1* and *t2*). This basic description, regarding the Nokia's case, is provided in the sections below, respectively for *t1* (1990) and *t2* (1996). The descriptions provided in these sections are founded on the broad, general facts as identified from our study of the archive materials and the retrospective interviews – with both sources corroborated by other historical studies on Nokia. The more detailed analysis of the actual strategic transformation processes involved in the shift *from t1* to *t2*, which will follow in a later section, is additionally annotated with references to the supporting pieces of archival or interview data.

Corporate business model in 1990

Nokia's main identifiable businesses *at t1* (1990) included:

- Rubber products;
- Communications and power cables;
- Information Systems (computing and data processing products and software);
- Consumer Electronics (mostly televisions);
- Mobile Phones (auto and business phones, mainly sold under the trademark Mobira);
- Tele-networks (fixed and mobile telecom network systems, under the Telenokia brand);
- 'Others' (power production, chemical production, power transmission components, capacitors, aluminum, wholesale electrical equipment, bathroom equipment etc.)

It is worth emphasizing that the number of Nokia's businesses in 1990 – six major businesses and some smaller 'others'– was rather high, although this number had not represented any fundamental problem for Nokia's top executives: the level of diversification was rather perceived as an asset, as supporting the image of Nokia as a large and international industrial company.

In terms of how these businesses related to each other, the main logic in 1990 was that some of the more stable and profitable businesses – such as Rubber and Cable – yielded profits that could be used to fund more aggressive growth (e.g., in Consumer Electronics) and/or temporary unprofitability (e.g., in Consumer Electronics, Information Systems) on other fronts. Corporate stock issues were also used to fund growth, mostly notably funding the aggressive and costly acquisitions that fuelled growth of the Information Systems and Consumer Electronics businesses in the late 1980s. Specifically, Consumer Electronics had recently acquired two major European TV producers (the French company Océanic and the German Standard Elektrik Lorenz, SEL), and Information Systems had acquired the data and computer systems division of the Swedish conglomerate Ericsson. These acquisitions had led to severe profitability problems in the units in question, with both accruing heavy losses in 1990–1992 because of post-acquisition difficulties. In fact, this situation was threatening the existence of the whole corporation, as its other businesses struggled to sustain this unprofitable pair.

Despite these difficulties, strong growth and internationalization remained the key strategic objectives for all of the businesses at the beginning of 1990s. This reflected Nokia's strategic objective to become one of the largest European players in all of its main businesses, as well as served Nokia's overall corporate objective of being one of Europe's biggest industrial corporations in simple size terms. The businesses were also linked together by a shared corporate vision of serving the long-term future world where digital, computer, and communications technologies – as well as automobile electronics and navigation technologies – would converge. Even Rubber had some links to this vision, as automobile tire manufacturing meant the business had a touching point with the future vision, which saw mobile phones and navigation systems as being incorporated to car electronics. The convergence logic would, in essence, make the businesses somewhat synergistic in the long run, being able to learn from and to support each other.

Another relationship between Nokia's various businesses in 1990 was their heavy focus on an enhanced employer image, on human resource development, and on personnel training at the corporate level. These elements had already been established during the 1980s under the then CEO Kari Kairamo, widely acknowledged for his ability to inspire Nokia's personnel. A manifestation was, for instance, an internal 'Nokia University', established to train and educate company personnel regularly, and the active practice of rotating promising employees and managers from one business to another. As a result of these investments in attracting and educating employees and developing their career paths, Nokia enjoyed the image of one of the very favorite employers among talented professionals in Finland.

Corporate business model in 1996

By 1996, the number of Nokia's core businesses had been reduced to just two: (1) the mobile phones business and (2) part of the previous tele-networks business, especially the mobile telecom network systems. Thus, four businesses had been divested since 1991. Some 'other' businesses still remained – mainly some consumer electronics segments, e.g., monitors, loudspeakers – but these, too, were already scheduled for divestment. In terms of how the remaining businesses related to each other, the earlier practice of using the profits of some of the more profitable businesses to fund the more aggressive growth and/or unprofitability of other sectors was now gone and the mobile phone and tele-network businesses now both 'lived on their own', funding their growth from their own operating cash flows. The more general aspect of the earlier corporate business model, where the corporation maintained a portfolio of businesses that were just distantly related had also been left behind: close and tangible links now existed between the remaining businesses. Indeed, both mobile phones and mobile tele-networks were based mostly on Nokia's technological competencies in mobile radio communications – even more than they had been in 1990, when the tele-networks business was still mainly grounded in fixed-line telecommunications technology. Moreover, the products of these two businesses were essentially seen as complementary (mobile phones and mobile telecom networks are both elements of the same mobile communications systems) and thus could be increasingly sold to the same customers (i.e., telecom operators). Moreover, they were clearly mutually supportive of the same medium-term strategic vision – that is, making mobile voice and data communications an everyday consumer product. In contrast, the earlier corporate business model's idea of the Consumer Electronics and Information Systems sectors being part of the same vision had been a less immediate, long-term vision about their potential for technological convergence in a more distant future (in late 1990s or 2000s).

In terms of other logics operating in the transformed corporate business model in 1996, it is especially notable that Nokia maintained its strong focus on the recruitment and development of human resources throughout the crisis of the early 1990s, so both Nokia and its remaining business units could still rely on its corporate image as one of Finland's most attractive employers, helping the companies recruit, train and retain the most competent and talented employees. The choice to retain the mobile phones and tele-network businesses reinforced this attraction, as the corporate focus on the emerging global mobile communications market was seen as attractive by talented young recruits. Moreover, the high-tech and growth nature of the two businesses retained in the new corporate focus was also especially appealing to Finnish authorities and government officials, so the decision to retain these emerging businesses meant that government support - in the form of subsidies and favorable regulations – could be built into the new corporate business model. Finally, there was an overall change in logic in terms of the kinds of businesses Nokia included in its transformed portfolio, as mobile phones and tele-networks were both perceived by industry peers in 1996 as having high reputational ranking and competitiveness rankings, whereas Nokia's businesses displayed much more variety in this sense in 1990. Thus, by 1990, the relative rankings and perceived competitiveness of the previously existing six businesses in their respective industries had been allowed to become mediocre or even poor - even poorly performing business units had supported the corporate raison d'être of being 'a big industrial player'. In other words, (as is analyzed in more detail below) in restructuring its portfolio, one of the criteria Nokia used in its retain/divest decisions were the relative reputational rankings of its businesses. Figure 4 depicts and summarizes the main changes in Nokia's corporate business model from 1990 to 1996.

It is also worth noting that, despite the drastic transformation in the corporate business model, the business models of the remaining business units remained practically unchanged during the 1990–1996 transformation. Although not the main focus of this research, we illustrate this in the Appendix, where Tables 1 and 2 depict the business unit-level business model elements in 1990 and in 1996, respectively, and show that nearly all the elements of the retained units' business models remained unchanged. The only (minor) changes were that Tele Networks became more focused on the mobile telecom network equipment and solutions businesses, and its earlier reliance on fixed telecom business, trading with the Soviet Union, was eliminated while in the mobile phones model, the earlier strategy that included the possibility of well-considered acquisitions (such as that of the British mobile phone manufacturer Technophone in 1990/1991) had changed to one focused purely on organic growth.

Corporate business model transformation: inter-organizational cognitions as drivers

As implied above, our main findings focus especially on how Nokia's top managers' cognitions, or their beliefs about inter-organizational cognitions, influenced the firm's transformation process, which led to its highly successful turnaround.

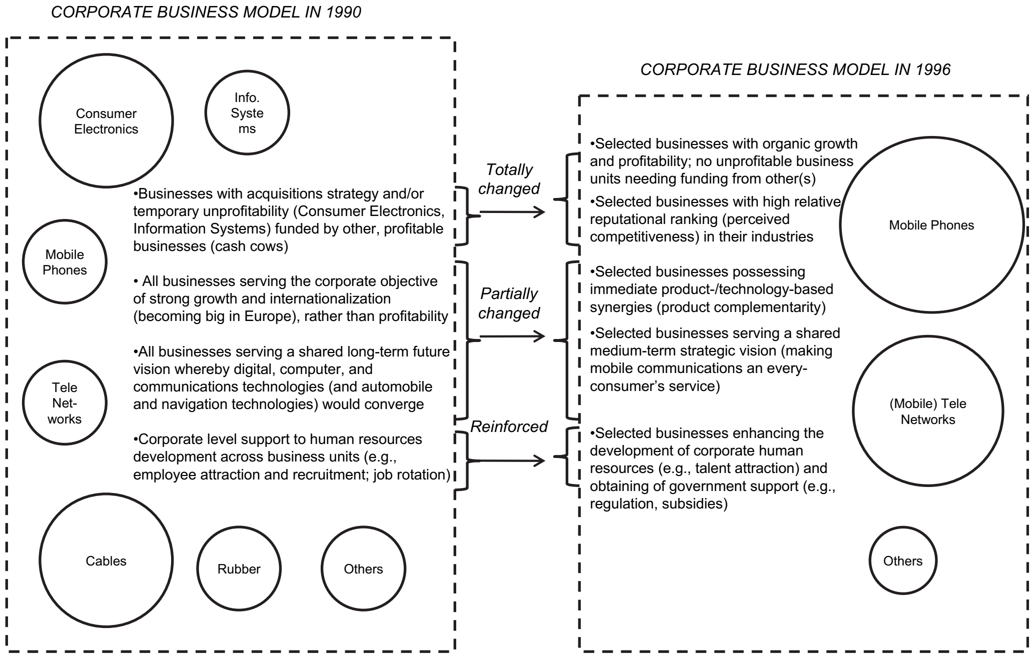

Figure 4. Changes in Nokia's corporate business model from 1990 to 1996

Corporate recipes and focus on a narrower set of businesses

An explanation of how inter-organizational cognitive drivers influenced Nokia's business model transformation needs to account for the significant narrowing-down of the number of businesses in its corporate business model. It should be first noted that Nokia's top managers faced new kinds of institutional pressures around the beginning of the 1990s. Finland was deregulating its financial markets and opening them up to international investors, removing the previous strict restrictions both on the amount of foreign debt and the foreign ownership of Finnish corporations. At the same time, foreign institutional investors (in most of the Western world) had started to prefer narrowly focused corporations with tight business links rather than diversified groups of businesses which had few inter-relationships other than internal capital flows, as our executive interviews record:

> *At the beginning of 1990s, the general international mindset and also our own investors, started to be against excessive diversification… Of course this affected us, too, and motivated to consider focusing on a few businesses.* Executive (retrospective interview).

In terms of inter-organizational managerial cognition, this development can be analyzed in terms of corporate recipes and their legitimacy. In our case, Nokia's top managers recognized that a new corporate recipe had gained legitimacy in the eyes of institutional investors and shareowners by the early 1990s. A new corporate recipe calling for a corporation with fewer, more narrowly-focused and more tightly linked businesses was emerging. In contrast, the prevailing corporate recipe – the diversified group of businesses with little cooperation except internal capital flows – was becoming increasingly delegitimized among those communities. Thus, the corporation could enjoy better legitimacy if it conformed to investors' new preferences for a corporate recipe involving fewer businesses. The influence of this inter-organizational cognition – and corporate managers' recognition of it – aligns with the commonly-held view that investors and securities analysts in Western economies have discouraged corporate diversification since the 1980s. They had difficulties in evaluating diversified firms (Zorn et al., 2005; Zuckerman, 2000) and preferred to take responsibility for risk diversification themselves, by investing in different firms with clear industry identities (Davis et al., 1994; Fligstein and Markowitz, 1993).

Our evidence, however, also indicates that while some Nokia executives recognized the emerging, more legitimate corporate recipe, many still preferred the multi-business conglomerate strategy well into the 1990s. In fact, no decisive moves to narrow down the corporate recipe were made until problems in certain business units took the corporation into a veritable struggle for survival. Only in 1991–1992, when poor post-acquisition integration efforts following major acquisitions by the Consumer Electronics and Information Systems businesses had produced losses severe enough to make the bankruptcy of the whole corporation an imminent threat, did Nokia executives finally reach a political consensus to adapt the whole corporate business model to the novel corporate recipe preferred by financial market actors. Even then, this required explicit inter-organizational negotiations – including negotiations with Nokia's main shareowner banks – as well as a change of CEO in 1992.

Indeed, the initial lack of consensus about changing the corporate recipe was partly due to Nokia's traditional dual CEO-President model, which had led to conflicts and inefficiencies at the very top. These problems were compounded by conflicts between Finnish top executives and the foreign executives selected to oversee the (failed) post-acquisition efforts. Finally, as bankruptcy neared in 1992, the squabbling CEO and President were both removed, as were the foreign executives, and a new CEO, Jorma Ollila, took over as a result of an emergent agreement between him and major shareholders (Saari, 2007). His newly-picked executive team then quickly exhibited consensus – or leadership unity (Doz and Kosonen, 2010) – about changing the corporate business model to suit the new legitimate corporate recipe of fewer, more focused businesses. Many of our retrospective interviews with top managers and board members from that time, as well as the earlier corporate histories, confirm these development drivers:

> *In the first years of the 1990s, the board meetings were indeed mostly about discussing various bad news stemming from Nokia's Consumer Electronics and Information Systems divisions… But then there was also the problem of the fighting CEO and President and the fighting and conspiring board members… In this sense, the happenings at the turn of 1991 and 1992 were very important, as they cleared the table, set the stage, and finally got things going. Simo [the old CEO] and Kalle [the old President] were both sacked, and the chairman of the board was changed by the remaining major shareowners. And Jorma Ollila was selected as the CEO by the new chairman of the board Casimir. He understood that now the conspiring and fighting must end and gave Jorma the keys and 'joystick' to get things going. And Jorma, with his new executive team really got things going, and the rest is history … they focused down the corporation.* Board member (retrospective interview)
>
> *When Ollila became CEO [he announced that] the corporate logic could not be the old idea that 'we are a Finnish conglomerate which is involved in technology'. After a few months of thinking, Ollila and his team came up with a strategy summarized in four slogans: telecommunication-oriented, focused, global, value-added… [And the new board and shareholders also willingly approved this new strategy]* Nokia Corporate history. (Häikiö, 2001a p. 58).

Based on this analysis, our first findings are:

> *Finding 1a: A corporate crisis caused by problems in some Nokia business units led its top managers' to reach a consensus to change the overall corporate business model towards a new, more legitimate corporate recipe (i.e., one with fewer, focused businesses).*
>
> *Finding 1b: Reaching this consensus on changing the overall corporate business model required inter-organizational negotiations between key stakeholders (main shareowners) as well as a change of CEO and some executives.*

In interpreting these findings, it is important to note that the crisis that led to the consensus to move to a new corporate recipe was by no means caused by sticking to the old diversification recipe *per se*, but by particular problems with business models of a few business units. But although the crisis was caused by business unit-level problems (and not the old corporate-level recipe), it elicited a consensus towards changing the whole corporate-level recipe as well.

Our findings also suggest another interesting factor – that *detecting* the emergence of a new legitimate corporate recipe may not necessarily be the hardest part for the executives (Prahalad and Bettis, 1986; Tripsas and Gavetti, 2000): reaching a consensus on acting on this understanding may be far harder. This is in line with the propositions of earlier strategic change research: (1) that implementing new and radical strategic initiative requires top managers to reach a (cognitive) consensus about its feasibility (e.g., Bogner and Barr, 2000; Fiol, 1994; Lohrke et al., 2004); (2) that reaching such a consensus is a political process requiring a strong coalition among top managers (e.g., Lyles and Schwenk, 1992; Cyert and March, 1963); and (3) that an acute survival crisis is likely to facilitate the formation of such a new dominant executive coalition, and thus the necessary consensus (Staw et al., 1981). Nevertheless, our findings also provide new theoretical insights; especially that reaching a consensus to change a corporate recipe may require explicit inter-organizational negotiations between corporate top managers and key stakeholders such as main shareowners or investors.

Selection of businesses

While these baseline findings have some explanatory power concerning why the corporate business model in Nokia was narrowed down to two businesses over such a short period of time, an even more interesting question is what kind of inter-organizational cognitive drivers led to Nokia's decision to focus its new corporate business model on mobile phones and tele-networks instead of on its other businesses. To address this question, we consider two further inter-organizational managerial cognitions (Porac et al., 2002): (1) reputational rankings and (2) boundary beliefs or elements. The focus on these cognitive *explanans* is interesting as Nokia's (highly successful) choice to focus on mobile phones and tele-networks cannot be explained solely by the objective business potential or prospects in terms of expected profits or growth of these segments. Namely, numerous internal documents from the time and our retrospective interviews indicate that Nokia's top managers did not, in fact, foresee the massive growth enjoyed by the mobile communications industry later in the 1990s.

Honestly, none of us could see it coming, or predict exactly how well the mobile communications business would take off in the late 1990s. Board member (retrospective interview).

Many executives judged that the Cable business, for instance, had at least as much growth/profit potential (see e.g., Figure 5 analyzed below) – but it was still abruptly divested by 1996. The same fate befell Consumer Electronics (especially TVs), even though it had still been viewed as the very core of Nokia at the end of the 1980s, playing an important role in making the company a big player in the emerging technology-intensive consumer mass markets. Again, the Rubber business

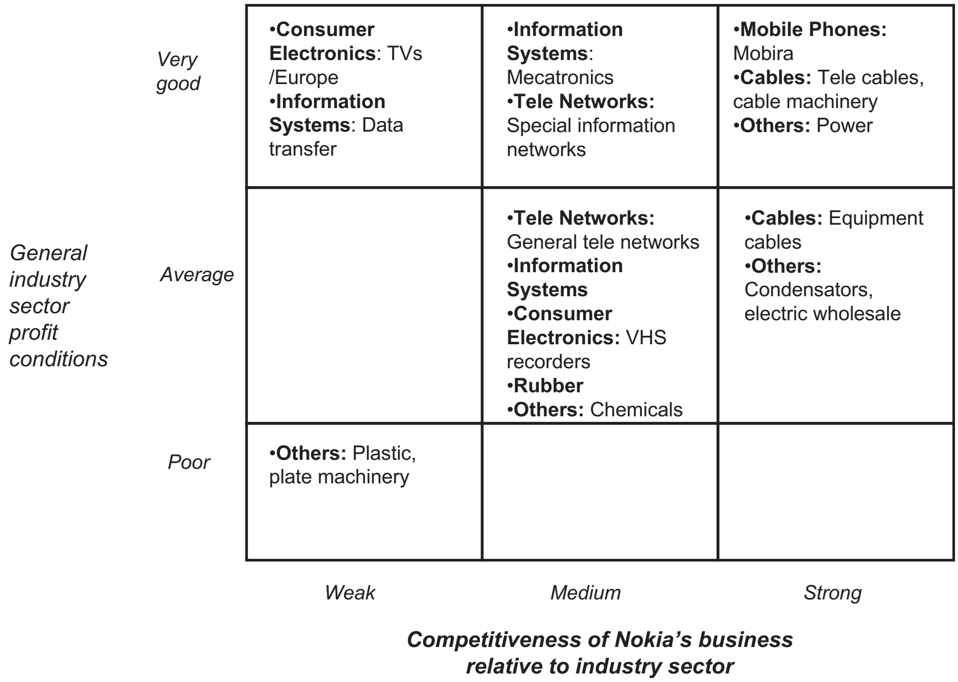

Figure 5. Corporate archives: Reputational rankings of Nokia's businesses relative to industry peers (the horizontal axis) at the end of the 1980s

was also spun off in 1995, even though the considerable expansion of the Russian tire market in the late 1990s and 2000s meant it ended up recording (as an independent company) sales and profit growth figures comparable to those of the mobile phone and tele-networks businesses.

Reputational rankings

As explained above, reputational rankings refer to how companies' reputations, or performance statuses, are evaluated against those of their competitors within inter-organizational communities. Each industry, in which a firm operates, usually has its own perceived ranking orders, so a diversified company may have different ranks in different industries. In the case of Nokia, the archival data and interviews with the executives indicate that, around 1990, its top managers recognized its main businesses as having European/global reputational rankings as follows:

- weak-to-medium in the Consumer Electronics industry;
- medium in the Information Systems industry;
- medium in the Rubber industry;
- medium-to-strong in the Tele-Networks industry;
- strong in the Mobile Phones industry;
- strong in the Cable industry;
- various rankings ranging from weak to strong in its 'Other' industries..

Figure 5 reproduces contemporary strategic portfolio analyses for the end of the 1980s from Nokia's archives, showing company strategists' rankings of the corporation's businesses in terms of their perceived overall 'competitiveness' vis-à-vis industry peers (i.e., reputational rankings) on the horizontal axis. Cables and Mobile Phones, located on the right-hand side on the figure, are shown as having the highest rankings; Tele Networks and Rubber scoring medium (in the center of the figure); and Information Systems and Consumer Electronics ranked medium to weak (on the left). Notably, the rankings of Consumer Electronics and of Information Systems were also weakening further, with their business and competitiveness problems accumulating at the beginning of the 1990s.

Our first interpretation of this evidence is that, between 1990 and 1996, Nokia's top managers chose to retain businesses (Mobile Phones, Tele-Networks) that had at least medium-to-strong reputational rankings in their respective industries, but to divest those with weak or weak-to-medium reputations (Consumer Electronics, Information Systems, Others). It is also interesting to note that, in reducing its businesses, Nokia executives seemed expressly to concentrate on *current or existing* reputational rankings and to ignore *prospective* rankings, i.e., the performance statuses that the corporation might have been able to develop in a few years. For instance, Nokia had forcefully expanded its Consumer Electronics business at the end of the

1980s with the aim of becoming one of the key players in the European-wide industry – yet this prospect was ignored when the business was divested after 1990. Thus, our first finding of how reputational rankings explained Nokia's choice of businesses is:

Finding 2a: Nokia's top managers based the choice of which businesses to retain in the new corporate business model mainly on the current reputational rankings of the businesses within their industries (as opposed to prospective rankings).

The circumstantial evidence suggests that another reputational ranking that played a part in Nokia's business model transformation relates to its overall corporate identity and its overall rank in the domestic labor markets, and in the domestic society in general. Throughout the transformation, Nokia's executives sought to continue the company's investments in maintaining the strong image it had established as an attractive employer in the Finnish labor market during the 1980s, as well as to invest in reinforcing the company's high status in the Finnish society, with its potential for securing preferential treatment in national educational, science and industry policies. Nokia's retention of its Mobile Phones and Tele-Network businesses was seen as particularly effective in further reinforcing its reputational rankings in both these arenas. For instance, recruitment ads found in Nokia's archives from the period focused on emphasizing the company's high-tech businesses (especially mobile phones), and much of the corporate correspondence with authorities also centered on its mobile phone and network businesses – at a time when mobile communications markets were being progressively deregulated in Finland and across Europe. Their high-tech nature and their links with a rapidly growing international market meant that the mobile phone and tele-networking businesses, especially, were seen as making Nokia both attractive to talented job-seekers and worthy of societal support in the form of governmental policies and subsidies. Thus:

Finding 2b: Nokia's top managers' choice of which businesses to retain in the new corporate business model was supported by those businesses' ability to reinforce the corporation's reputational ranking as (i) a high-status industrial actor in the national society and (ii) an attractive employer in the domestic labor market.

These two findings about the role of the reputational rankings of the corporation and its businesses in Nokia's top managers' choice of which businesses to retain and which to eliminate from the corporate business portfolio are novel to the research on reputations in particular and strategic transformations in general. While previous research on the sources of organizational reputations is wide, as is research documenting the business performance effects of having a good reputation (see, e.g. the review by Rhee and Valdez, 2009), there has been little prior work on the role of reputational rankings in managers' strategic transformation decisions. So our findings – that the corporate business model transformation of one of the most successful global companies of recent decades was partially based on reputational ranking-related criteria in choosing which businesses to focus on – make an addition to the literatures on both general strategic change and on corporate reputation.

Boundary elements

Boundary beliefs are managers' and stakeholders' beliefs of the elements of a business unit which determine whether it belongs to a certain industry or inter-organizational community. In this case, our question is: In addition to the reputational rankings dealt with above, what kind of boundary beliefs did the managers use in selecting which businesses should be the focus of their new corporate business model?

We have seen how, in 1990, many of Nokia's businesses already shared a *prospective* vision of common *future* boundary elements – in terms of the expected convergence of digital, computer, communications and navigation technologies – so that most of the six businesses were expected, eventually, to belong (more or less) to the same broad industry domain or community: the consumer-oriented electronics and communications industry. But the only businesses that actually had *existing* common boundary elements at the beginning of 1990s were the Mobile Phones and the mobile telecom business of Tele-Networks, which already shared a tangible (radio transmission) technological base and some common customers (telecom operators). The 'product ontologies' of these two businesses were also effectively intertwined – since mobile phone use was naturally predicated on the existence of an ubiquitous mobile network infrastructure. In contrast, product complementarities or other common boundary elements between any of Nokia's other businesses would only be realized in the more distant future – when true digital convergence of television and data transfer/computing technologies and/or on-board automobile technologies (navigation, phones, computers and tire sensors) would come about. Thus, we find:

Finding 3: Nokia's top managers based their choice of which businesses to retain in the corporate business model partly on common boundary elements, selecting those businesses that already shared complementary products and customers, rather than on the prospect of sharing future boundary elements.

Certain elements of the earlier business unit-level business models also seemed to reinforce the decisions to rule out retaining the Cables, Consumer Electronics and Information systems businesses, thus confirming the choice to retain the Mobile Phones and Tele-Networks. To judge from the central business unit-level model elements listed in the Appendix Tables 1 and 2 (for 1990 and 1996), Nokia chose to *de*select especially those businesses whose core elements included active acquisitions and/or having the Soviet Union as a significant buyer. What is notable here is that both these elements were among the main attributed reasons behind Nokia's dismal performance in 1989–1991 (see Figure 2). In terms of acquisitions, Nokia had acquired numerous other companies very quickly in the 1980s, culminating in its largest-ever acquisitions – SEL, Oceanic, and Ericsson Data as well as the cable machinery manufacturer Maillefer – in 1987, leading to losses which clearly started to threaten the survival of the entire corporation. Furthermore, those businesses which were excessively reliant on sales to the Soviet Union – especially Cables, (fixed-line) Tele-Networks and Rubber – found their revenues came to an abrupt halt on the demise of the Soviet Union in 1990–1991, causing Nokia's already shaky profitability to register a further plunge in 1991. These two elements – swift acquisitions and excessive reliance on the Soviet market – were key examples of recent business unit-level business model failures, and were the factors to which the Nokia executives most often attributed their corporation's near-failure. As our interview evidence confirms:

> *I think that [in the 1980s] we had suffered from excessive optimism with the acquisitions strategy. And [the profitability crisis that resulted from the acquisitions] was then also deepened by the demise of the Soviet Union, because Nokia had traditionally had very profitable business towards the Soviet market… These were the main things behind the crisis.* Executive/Board member (retrospective interview)

Our interpretation is that these two factors served as additional 'elimination criteria' when the Nokia TMT decided which businesses to retain in its new corporate business model. The business models of Cables and Rubber (Soviet Union reliance) and of Consumer Electronics and Information Systems (acquisitions reliance) all involved one or other of these 'failure elements' and, although actual profitability was only poor in the latter two, all were eventually divested. In contrast, neither element was present in the business models of the Mobile Phone business, or the mobile telecom sector of Tele-Networks – which were (effectively) the only businesses to be retained. Hence, we find:

> *Finding 4: In choosing which businesses to retain, Nokia's top managers eliminated (all) businesses whose business models included elements to which they attributed the earlier business units failures that had nearly caused corporate-level collapse.*

A further (albeit somewhat speculative) interpretation of this finding is that Nokia's top managers may have wanted a new corporate identity or image unassociated with the earlier failure elements in the minds, for instance, of investors or employees, to minimize the risk of being perceived as a group that "do not learn from their mistakes" or "make the same mistakes repeatedly". In any case, with their very choice of which businesses to retain, top managers were effectively drawing upon their associated beliefs to reshape the corporate boundaries.

This finding relates to several other important theoretical points from prior research. First, while such research has proposed that, in their strategy-making, managers may resort to business model elements associated with past corporate *successes* (Tripsas and Gavetti, 2000; Miller and Friesen, 1980; Prahalad and Bettis, 1986), the above findings indeed suggest that managers can equally well be motivated by wanting to avoid past '*failure factors*'. Because – as the adage says – 'losses loom larger than gains', factors associated with past failures may have carried more weight in their cognitive processes than those related to past successes. Second, the finding suggests that the cognitive mechanism tended to treat individual businesses as isolated wholes: rather than recrafting business models of those units that incorporated 'past failure factors', and allowing them to continue operation with those elements removed, Nokia's top managers chose to eliminate the factors by divesting the business units in their entirety. This included eliminating even those (Cables and Rubber, for instance) whose current profitability or prospects were fairly good. This decision mechanism might have to do with managers' limited mental resources and bounded rationality (Simon, 1955; March and Simon, 1958) – in the sense that managers may find it easier to just eliminate such businesses than to revise their business models to eliminate the failure factors. Such straightforward and decisive action can also give executives the positive feeling of making a fresh start, engendering a corporate self-confidence and optimism about the renewed corporate business model that can become self-fulfilling, enhancing the effectiveness of their transformation. Finally, our finding also aligns with Winter and Szulanski's idea of replication strategy (Winter and Szulanski, 2001; Szulanski and Jensen, 2004; Szulanski and Jensen, 2008; Lamberg et al., 2009), which suggests firms are often better off replicating successful business models in their entirety, rather than trying to figure out which individual parts of their current models to alter, and which to 'copy'. In Nokia's case, the executives indeed replicated or retained the successful business models of their previous Mobile Phone and (mobile) Tele-Network businesses in their entirety, and eliminated (rather than tried to alter) the more or less unsuccessful business models of the Consumer Electronics, Information Systems, Cables and Rubber businesses.

Discussion and conclusions

The broad view that emerges from our study of Nokia's corporate business model transformation is that corporate top managers can make their decisions about changing the composition of their corporation's businesses and the value-creating links between them based, in part, on their recognition of inter-organizational cognitions. In Nokia's case, the cognitions that drove or influenced their strategic transformation choices included, *inter alia:* new, emerging corporate recipes deemed more legitimate among key stakeholders that were internalized and taken into account at a time of corporate crisis; the current reputational rankings of the corporation's businesses in their respective industries; beliefs about shared current boundary elements between businesses (i.e., currently complementary products and customers); and the elements of some existing unit's business models to which they attributed 'failure'.

Naturally, a single case study like this cannot lead to definitive conclusions as to whether the top managers of firms in general tend to be influenced by the inter-organizational cognitions in the same way that Nokia's executives were in their corporate business model transformation. In other corporations, such transformation may be more influenced by, for example, pursuit of businesses with the best prospective (as opposed to current) reputational rankings, or less by new corporate recipes emerging from investors (which might turn out to be mere fads). We also do not claim that, even at Nokia, inter-organizational cognitions – or managers' basing their decisions on them – can explain corporate business model transformation in its entirety.

Moreover, although in Nokia's case, the exercise ended up being enormously successful (judging by its success in the global mobile communications markets post-1996), we cannot definitively conclude whether or to what extent the success of the transformation depended on its executives basing their transformation decisions on inter-organizational cognitions. However, given that success we can argue that basing the executive transformation decisions partially on inter-organizational cognitions was not deficient, either. In this sense, we do not support the notion that managers' cognitive decision heuristics will inevitably be a source of biased judgments or errors (cf. Tversky et al., 1982). Instead, we argue that certain cognitive heuristics in strategic decision-making may actually lead to fairly smart decisions (cf. Gigerenzer and Todd, 1999). In Nokia's case, indeed, the proposed cognitive processes led a corporation, which was struggling for survival, to select and further develop the businesses (and business models) that not only saved the corporation from demise but also enabled its great success under its redesigned corporate business model.

In sum, the research contributions of our study are clear. First, while most prior business model studies have focused (explicitly or implicitly) on business unit-level business models, we focused on and provided a definition for the corporate-level business model. Second, instead of concentrating on snapshots or maps of firms' business model structures (or components of the business model concept) as much earlier research has done, our study provides insights into how different corporate business model elements are dynamically linked and transform over time. Finally, and most importantly, our study is – to our knowledge – among the first ones to examine the role of inter-organizational cognitions in corporate business model transformation, or in strategic corporate transformation in general. Indeed, whereas most extant research on managerial cognition has focused on executives' firm-internal cognitions (such as 'mental models', 'cognitive maps', or 'world views'), we took into our focus the inter-organizational cognitions present in the industry fields and communities where the firm operates (Porac and Thomas, 2002; Porac et al., 2002). Thus, our research provides novel insights into executives' (re) cognitions about inter-organizational cognitions – especially when it comes to the effects such cognitions have on a firm's strategic decisions.

Besides examining our findings with larger firm samples, future research may find it valuable to pay further attention to the triggers of corporate business model transformation, so as to identify further contextual, environmental or cognitive factors that trigger corporate business model transformation (i.e., the move from the second to the third box of Figure 1). The main trigger in the Nokia case was the corporate crisis and looming bankruptcy precipitated by the severe problems of some of its business units – as well as the ensuing problems of seeking a top management consensus to alter the corporate business model to fit a new legitimate recipe. Future research could also identify the relative occurrence and roles of other triggers, such as those related to the identification of opportunities in the environment, the personal charisma of top managers, or the initiatives of other stakeholders than managers (or investors).

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Appendix

Table 1. Core elements of Nokia's business unit-level business models in 1990

	Rubber	Information Systems	Cable	Consumer Electronics	Mobile Phones	Tele Networks
Strategy and structure						
Active acquisitions	No	Yes	No	Yes	Some	No
Internationality	Medium	Medium	High	High	High	High
Driven by vision of communication/digital technology convergence	Some	Yes	Yes	Yes	Yes	Yes
Operations and resources						
Main offering	Car tires	Computers and data systems	Cables	TVs	Mobile phones	Telecom network systems

(*continued on next page*)

Table 1. (*continued*)

	Rubber	Information Systems	Cable	Consumer Electronics	Mobile Phones	Tele Networks
Based on digital technology competence	No	Much	Much	Much	Much	Much
Based on radio technology competence	No	No	No	No	Much	Much
Based on technology combination competence	No	Much	Somewhat	Much	Much	Much
Based on systems integrator/ seller competence	No	Somewhat	No	No	No	Much
Based on mass production competence	Somewhat	Somewhat	Somewhat	Much	Much	No
Corporate training processes	Yes	Yes	Yes	Yes	Yes	Yes
Business network relationships						
Main buyers	Car manufacturers	Corporate customers	Fixed line telecom operators	Home appliance stores	Radio stores/ Mobile telecom operators	Telecom operators
The Soviet Union as a significant buyer	Medium	Low	High	Low	Low	Medium
Governmental/Lobby relationships	Low	Low	Low	Low	High	High
Finance and accounting						
Current profitability	Yes	No	Yes	No	Yes	Yes
Growth	Yes	Yes	Yes	Yes	Yes	Yes
Large one-off investments financed by other businesses	No	Yes	Yes	Yes	No	No

Table 2. Core elements of Nokia's business unit-level business models in 1996

	Mobile Phones	Tele Networks
Strategy and structure		
Active acquisitions	No	No
Internationality	High	High
Driven by vision of communication/digital technology convergence	Yes	Yes
Operations and resources		
Main offering	Mobile phones	Mobile telecom network systems
Based on digital technology competence	Much	Much
Based on radio technology competence	Much	Much
Based on technology combination competence	Much	Much
Based on systems integrator/seller competence	No	Much
Based on mass production competence	Somewhat	No
Corporate training processes	Yes	Yes
Business network relationships		
Main buyers	Radio stores/ Mobile telecom operators	Mobile telecom operators
The Soviet Union as a significant buyer	Low	Low
Governmental/Lobby relationships	High	High
Finance and accounting		
Current profitability	Yes	Yes
Growth	Yes	Yes
Large one-off investments	No	No

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