Making Sense of Ambidexterity
A Process View of the Renewing Effects of Innovation Activities in a Multinational Enterprise

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Key words: innovation, ambidexterity, entrepreneurship, strategic renewal, multinational enterprise

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PREFACE

It takes extraordinary effort and commitment to make a scientific contribution. This project took three years of persistent hard work, interspersed with short periods of total devotion, spent cloistered, focusing on this research project. These periods of total devotion enabled me as a researcher to dive deep into the minds of the innovators and fly high with the theories. Such immersion fostered lateral thinking and productive writing, both necessary to finalize this work. The unconditional support of my entire family was integral in this undertaking.

Hanken has been a great academic home for the doctoral work. The great personalities, the state of the art competences and the rich international networks facilitated an elaborative way of working. The elaborative approach to research has been key to my discoveries. In particular, the vast academic experience and accommodating personality of Martin Lindell was crucial for developing the ability to do research grounded on real business rather than merely theoretical frameworks. The empathetic encouragement and practical advice of Eero Vaara helped me push through the “valley of death” in the research project. Ingmar Björkman’s and Saku Mantere’s guidance on theory studies helped me progress swiftly in building the theoretical foundation of the work. I am extremely grateful for the able support of the Leadership and Organization Department at Hanken. In addition, the help of Petri Rosenlöf, Chris Fogarty and Staffan Dellringer has made the outcome of the research easier to digest. Thank you Staffan, Chris and Pete for your contributions in editing the dissertation.

In inductive research, the research object takes on an active role. The discoveries are made together. The findings of this study build on the thoughts and insights of the actual innovators at Nokia. Thanks to the access granted by Heikki Norta, Kai Öistämö and Seppo Aaltonen we were able to study illuminating innovation cases. Pia Erkinheimo’s altruistic effort enabled to get hold on the true innovators in those cases. The open attitude and intellectual participation of the innovators brought novel ideas to the theory development. My heartfelt thanks goes out to Nokia and its innovator communities for the privileged access to their experiences and thoughts.

In distilling the insights and thoughts of the interviewees to the theories, I have been blessed with the world’s best scholarly guidance. Thorough and constructive feedback from the examiners Robert Burgelman of Stanford and Yves Doz of INSEAD has profoundly improved the quality of my work. Thank you Yves and Robert for the time and effort that you have put into this dissertation!

This research has been conducted in the entrepreneurial spirit. The first phases were conducted as part of a Tekes-project. As the research advanced, the source of funding shifted to the collaborative projects with ICT Shok and Aalto University. Collaboration with Seija Kulkki of CKIR and Reijo Paajanen of TIVIT has been particularly crucial to this work. Thank you, Seija and Reijo for your collaboration and support! In addition, substantial grants from Liikesivistysrahasto have enabled me to devote time to this work. Additionally, Waldemar von Frenkell’s, Ella and Georg Ehrnrooth’s and Marcus Wallenberg’s Foundations have funded individual tasks during the project. Thank you all for funding this scientific endeavor!

Finally, I would like to thank my family for their love and support. A special note of gratitude goes out to my wife Mirkka for making this dissertation possible! Without your love and flexibility this work could not have been accomplished.
This study speaks to the innovators and leaders of organizations. The aim is to provide conceptualizations that help link the creativity of individuals to the progress of organizations and society. I hope the work makes its humble contribution to fostering creativity and innovation for the common good.

The work is dedicated to the bright future of our sons Hannes and Lauri!

Helsinki, March 25, 2012

Seppo Laukkanen
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INTRODUCTION, RESEARCH GAP AND INQUIRY

Exploration and exploitation complement one another in the organizational learning. Exploration fosters the ability to diversify while exploitation increases specialization (March, 1991). Innovations stem from the productive interplay of exploration and exploitation. Exploration facilitates discovery of new knowledge; exploitation applies this knowledge, in conjunction with previously held knowledge and skills, to build firm value. For innovations to take place, the discoveries from exploration need to merge with the exploitative activities of the firm (Katila and Ahuja, 2002).

In essence, the innovativeness of a company is rooted in the ability to explore new opportunities while exploiting the accumulated capabilities of the company (March 1991; Levinthal and March 1993). This critical ability to concurrently explore and exploit is termed 'organizational ambidexterity' (Duncan, 1976; March, 1991; Tushman and O'Reilly, 1996; Gibson and Birkinshaw, 2004). Innovativeness of a company benefits from an organizational setting that nurtures a viable mix of exploration and exploitation. Exploitation builds on established, efficiency-driven routines and is justified by tangible market demands. Exploration implies deviation from set routines and processes. While necessary, sophisticated capabilities refined for the ongoing business tend to facilitate cognitive inertia, cause path dependency and low levels of experimentation (Vanharbeke and Peeters, 2006). The incumbent firms, despite their superior resources, often suffer from inertial stagnation. They have a weak track record in maintaining sufficient levels of exploration (March, 1991; Tushman and O'Reilly, 1996; Christensen, 1997; Hamel and Prahalad, 1996). The classic ambidexterity literature has emphasized this tendency of organizations to gravitate toward exploitation at the expense of exploration. As a consequence, many leadership and organization scholars have promoted the benefits of separating the explorative activities from the mainstream business (Duncan, 1976; March 1991: Tushman and O'Reilly, 1996). The compartmentalization of exploitation and exploration activities enables each unit to optimize its strategy, competencies and practices according to its primary focus.

However, this compartmentalization introduces profound limitations in actual business praxis. First, it limits the necessary synergy between the explorative and exploitative activities. Second, it slows down the renewing effect of explorative activities in the mainstream business. The conceptual separation of exploitation and exploration prevents research from analyzing the processes and outcomes of the interplay between these working modes. After all, it is the interplay of the working modes that optimizes and commercializes the novel discoveries of the exploration activities.

Katila and Ahuja (2002) verified the value of the interplay between exploration and exploitation by pointing out the positive correlation between the interplay of these working modes and product development performance. Birkinshaw and Gibson (2004) further elaborated the interplay, its antecedents and outcomes. They identified positive 'organizational context', as defined by Ghoshal and Bartlett (1994), as conducive to the productive interplay of exploration and exploitation. In organizations characterized by discipline, stretch, trust and support (Ghoshal and Bartlett, 1994; Birkinshaw and Gibson, 2004) individuals work toward matching their working mode with the actual task requirements. These 'contextually ambidextrous' organizations are better able to reach their full potential when compared to organizations characterized by structural segregation.
The contextual ambidexterity concept brings both the dynamic interplay of exploration and exploitation and the entrepreneurial agency of innovators into the center of the ambidexterity discussion. However, on these critical aspects, ambidexterity has remained under-theorized and under-conceptualized. The majority of the research on ambidexterity has focused on examining the effect of a single variable on ambidexterity or establishing correlations between ambidexterity and individual output variables of an organization. Few researchers have focused on the creation of an overarching theory explaining the concept and effects of organizational ambidexterity (Simsek et al., 2009). In particular, the present literature lacks clarity regarding how this concurrence of exploration and exploitation is achieved in practice, and how it leads to beneficial organizational outcomes, such as innovations and renewal (Gupta et al., 2006). As James March, the original founder of the ambidexterity concept stated, the processes by which exploration and exploitation are enacted are still “under-examined and unexplained, which has inhibited progress in creating understanding on how organizations adapt” (March, 2006).

Similarly, entrepreneurship as the driver of ambidexterity has been insufficiently conceptualized and characterized. The term entrepreneurship refers to purposeful enactment, which involves opportunity recognition as well as resource deployment and diffusion (Van de Ven and Poole, 1995). Entrepreneurship is central to innovation performance (Schumpeter, 1934; Kirzner, 1973; Burgelman, 1984; McFadzean, O'Loughlin and Shaw, 2005; Ireland, Covin and Kuratko, 2009). In the corporate context, entrepreneurial activities reflect the Strategy and Structure of the company. By the same token, the innovative entrepreneurial activities shape the Strategy and Structure of a firm by introducing novel inventions. The processes by which entrepreneurial innovation activities synergize with the firm’s Strategy and Structure have not been exhaustively analyzed (Burgelman, 1991; Lovas and Ghoshal, 2000).

In summary, the current scientific knowledge falls short in explaining how organizations renew themselves through organic innovation activities. First, the processes by which exploration and exploitation are enacted are under-examined and unexplained (March, 2006). Second, the causal chain from the ambidexterity of activities to its envisioned outcomes, such as innovations and organizational renewal, is poorly examined and described (Simsek et al., 2009). Third, the accounts of ambidexterity across multiple unit of analysis levels are missing entirely (Raisch and Birkinshaw, 2008). Finally, the processes by which the entrepreneurial innovation activities shape the Strategy have not been exhaustively analyzed and described (Burgelman, 1991; Lovas and Ghoshal, 2000).

As a consequence, there is a need for an overarching conceptualization linking ambidexterity and entrepreneurship to the innovations and strategic evolution of the firm. In order to enhance the understanding of how firms organically renew themselves, the conceptualization should illuminate how ambidexterity materializes in the form of innovations and organizational renewal, how entrepreneurship drives ambidextrous innovation activities and how entrepreneurially driven innovation activities interact with the Strategy of the firm.
1.1. The Research Gap and the Focus Areas of the Research

In order to create such an overarching conceptualization of ambidexterity, entrepreneurship and the Realized Strategy of a firm, there is a specific need for a retrospective study analyzing the processes of ambidexterity. In order to illuminate the causal chain from ambidexterity to innovations and organizational renewal the analysis needs to be sufficiently nuanced to reveal the dynamics of exploration, exploitation and their interplay with one another as well as with the Strategy and Structure of the company. Moreover, the analysis needs to be able to link entrepreneurship to ambidexterity and the renewal of Realized Strategy by highlighting the processes through which the entrepreneurs enact innovation opportunities and interact with the Strategy and Structure development of the firm.

1.2. The Aim of the Research

The fundamental aim of the study is to produce a process view of how ambidexterity materializes in innovation projects across multiple units of analysis, and how entrepreneurially driven innovation activities interact with the Strategy and Structure of a company while producing innovations and renewing Strategy.

1.3. The Research Inquiry

This research analyzes ambidexterity and entrepreneurship in the innovation projects of a Multinational Enterprise (MNE). Based on the rich narrative accounts from the actors of purposely-selected innovation projects, the study creates a sequential analysis regarding processes of ambidexterity, entrepreneurship and renewal of firm Strategy.

The analysis on ambidexterity shall be sufficiently nuanced to reveal in specific terms how ambidexterity materializes in a variety of innovation environments and across multiple unit of analysis levels.

The analysis considers the role of entrepreneurial agency and processes associated with ambidexterity, innovations and Renewal of the Realized Strategy in sustaining and renewing innovation environments. The reciprocal interaction between entrepreneurial innovation activities and the Strategy of the firm shall be examined and illustrated in sufficient detail to reveal the processes through which the entrepreneurial innovation activities, Intended Strategy and the Realized Strategy of the firm influence one another.

The figure 1 summarizes the key research inquiries on ambidexterity, entrepreneurship and interplay between the Strategy and entrepreneurial innovation actions. The study examines each theme separately and synthesizes the findings across the themes in order to develop a new paradigm through which organizational ambidexterity can be understood.
1.4. **The Structure of the Dissertation**

The dissertation opens with a broad overview of literature, theories and conceptualizations in the fields of Ambidexterity, Entrepreneurship and Corporate Entrepreneurship research (Chapters 2-5). The aim of these opening chapters is to establish an understanding of what is currently known about the research inquiry and to identify multiple frames of reference for analyzing the cases. The broad overview of theories is followed by a discussion of the research method (Chapter 6). Herein, the research method is described in detail and the methodological choices are explained and justified.

In the third block of the dissertation (Chapters 7-12), the four innovation cases are reviewed on three abstraction levels: the personal narrative view, the process view and the interplay view. The personal narrative view investigates how the actual participants viewed the cases. The process view elaborates the cases as concrete innovation projects. Here, the aim is to reveal the key phases of the innovation projects and their characteristics. The analytical focus of the interplay view is on the interaction between the cases, external environment, corporate Strategy and the working practice development of the firm. The aim is to summarize and categorize characteristics of innovation cases for identifying patterns in the processes of producing different types of innovations.

The ‘Cross Case Analysis’, i.e. Chapter 13 examines ambidexterity and entrepreneurship in the cases. The particular aim is to characterize entrepreneurship according to the innovation task types and to illuminate the mechanisms through which entrepreneurial actors of innovation projects gained momentum and achieved influence over the higher-level evolution of the firm. The Cross Case Analysis is firmly grounded on the actual cases and produces substantive grounded theories by using rudimentary conceptualizations.
The Chapter 14 develops ‘Theoretical Conceptualizations’ of ambidexterity and the interplay between ambidextrous activities and the Strategy and Structure development of an organization. The conceptualizations developed herein are the product of reflecting relevant theoretical conceptualizations built by earlier research to the case studies of the current inquiry. By analyzing commonalities and differences between the cases the present study develops a process model of the ambidextrous innovation activities and their interplay with the Strategy and Structure of a company. The process model is grounded in the insights gleaned from the empirical data as well as on the scholarly discourse on the topic. The aim is to produce a formal grounded theory that reveals the micro-processes of ambidexterity and is able to characterize entrepreneurship as the driver of ambidexterity, innovations and organizational renewal.

The dissertation closes with the summary and practical implications of the results and their place in the field of current organizational research.

Figure 2  The structure of the dissertation.

As figure 2 above illustrates, the analysis was an iterative process, where a broad set of theoretical frames of reference and insights were used as lenses in examining the cases. The examination of the cases produced substantive grounded theories. The theories were in turn linked back to scholarly discourse to identify common principles for generalization and formal grounded theorizing.

1.5. Definitions

**Ambidexterity:** In the field of Organizational Learning, ambidexterity refers to the ability to perform both the exploiting and exploring tasks. In the field of Organizational Evolution it refers to the ability to be efficient in the management of the present business and also be able to cope with the changing demands of the business environment.

**Ambidextrous Activities:** The activities, which entail exploration and exploitation.

**Ambidextrous Outcomes:** The consequences of ambidextrous activities, i.e. innovations and performance of an organization.
**Contextual Ambidexterity:** Adaptive ambidexterity within a single organizational unit. Each activity, reflecting its operational characteristics, is conducted either in an explorative or exploitative mode.

**Exploration:** Acquisition, creation and pursuit of new knowledge.

**Exploitation:** Use of readily available knowledge. The ongoing use of the knowledge base of an organization.

**Intended Strategy:** An articulated long-term Intention of an organization.

**Realized Strategy:** The retrospectively observed pattern in the evolution of the firm.

**Structure:** The organizational, process and cognitive structures that direct, inform and support the activities within the organization.
2 AMBIDEXTERITY – THE COMBINATION OF EXPLORATION AND EXPLOITATION FOSTERS INNOVATIONS

This chapter elaborates ambidexterity as an underlying phenomenon for organizational learning and innovation. The chapter provides a definition to the term and introduces the key insights and conceptualization, which the previous scientific inquiries have developed (2.1. - 2.2.). The chapter analyzes and maps the existing scientific knowledge in order to highlight the points of agreement and contradiction, as well as identified gaps in the current scientific knowledge (2.3. - 2.4.). The chapter closes by relating the research inquiry of this current study to the pre-existing knowledge on ambidexterity (2.5.).

2.1. Exploration and Exploitation as Complementary Learning Modes

Sustained success in a dynamic business environment stems from an organization’s ability to efficiently align its activities with the demands of the present as well as be adaptive to the changes and the future needs of the business. This dual handedness builds on the exploitation of existing capabilities and explorative activities to create new capabilities.

In his groundbreaking article, James March (1991) pointed out the fundamental difference between exploration and exploitation as organizational learning modes. The analysis highlighted the idea that the explorative and exploitative working modes complement each other in terms of their contributions to the organization. Exploration increases variance, experimentation and creation of new knowledge in the domains that are loosely related or unrelated to the present operational paradigm of an organization. Exploitation, in turn refers to cohesive and refining action in the current operational domain. Both modes contribute to organizational learning, but in complementary ways. Learning associated to exploitation increases specialization, whereas exploration increases the capability to diversify. Moreover, exploration is assumed to bring new ideas to the refinement of existing practices and products. In terms of financial contribution, the exploration and exploitation differ markedly from one another. The returns on exploration are uncertain and distant, whereas the returns of exploitation are highly predictable and proximate in timing.

Given the complementary contributions of exploration and exploitation, an organization should seek balance between these working modes. The balance depends on the dynamics of the environment and the Strategy of the firm (March, 1991).

Too much emphasis on either working mode hampers the performance of an organization over time. Too much emphasis on exploration leads into a ‘failure trap’, as the organization engages itself into working on too many under-developed ideas and faces a risk of not developing distinctive competence. The performance both in the short- and long-term suffers.

On the other hand, exploitation bias leads to a self-enforcing ‘competency trap’, where the company continues specializing in its area of expertise. The marginal gains of these increasingly focused efforts diminish. More substantial gains could be achieved by exploring less saturated domains. The inevitable outcome of competency trap is obsolescence.
In his conceptualization, March (1991) viewed exploration and exploitation as two ends of a continuum and concluded that there is an inherent trade-off in setting the balance between these working modes. The trade-off stems from the conflicting managerial and resource demands of exploration and exploitation. Given the lower risk level of investments on exploitation and employees’ tendency to conform the codes of the organizations, firms have a tendency to overemphasize exploitation (March, 1991).

2.2. Overcoming Exploitation Bias

2.2.1. Structural Separation

Tushman and O'Reilly (1996) examined the challenge of overcoming the exploitative bias of established companies. By reviewing the development of the semiconductor industry from 1955 to 1995, along with a complementary sample of global enterprises from a variety of industries, they established a linkage between organizational evolution, accumulation of inertia and the need to overcome the rigidities of a mature firm in a dynamic business environment. The analysis revealed that, despite the clear benefits of proactive change, only a small minority of firms succeeds at changing before their performance dramatically declines and the company faces a crisis. The analysis revealed that success inevitably brings managerial conservatism and inertia into the organizations.

The analysis pointed out structural and cultural inertia as critical rigidities inhibiting organizational renewal. Tushman and O’Reilly (1996) introduced the concept of ambidextrous organization to address the paradox of efficiency and renewal. In their conceptualization, an ambidextrous organization consists of multiple seemingly contradictory structures, processes and cultures, some of them optimized for efficiency and incremental innovation, and some of them for renewal and radical innovations.

The authors argued for the benefits of small entrepreneurial units within a large, mature company to vitalize the capability to produce radical innovations. To sufficiently glue together these entrepreneurial units, the analysis highlighted the importance of creating a ‘tight-loose’ culture. This decentralized structure is characterized by an over-arching corporate culture that ties the units together, but leaves the entrepreneurial units with a large degree of autonomy, accountability and responsibility. Moreover, the analysis identified a strong and consistent finance and control system and an open, un-authoritarian communication culture as crucial enablers for such tight-loose culture. In terms of leadership style, building an ambidextrous organization assumes experienced, low-key and persistent managers with an open communication style (Tushman and O’Reilly, 1996).

2.2.2. Sequential Phasing of Exploration and Exploitation

A thorough analysis on the evolution of Sony, Canon and NEC revealed another valuable insight into Organizational Ambidexterity. The corporate history of these companies is built on cycles of radical and incremental innovations, which are facilitated by the evolution of the underlying knowledge of the company (Helfat and Raubitschek, 2000). Analysis of the history of these firms confirms the co-evolution of science- and technology-based core knowledge and associated integrative knowledge.
The integrative knowledge contains the key that links the core knowledge to the surrounding activities and complementary capabilities of the company.

The analysis revealed a pattern of evolution where the sequences of step function learning and bursts of incremental learning followed one another. This sequential and rhythmic pattern applied to both core and integrative knowledge. The radical innovations were generally followed by a series of incremental innovations. At times, the evolution of core knowledge was setting the pace. Other times, the integrative knowledge was the key to product development. The product introductions of the company acted as carriers across these streams of evolution by facilitating the cross-fertilization between the streams of core knowledge and integrative knowledge. Products at any point in time in the evolution were related to one another with the integrative knowledge of the firm. The portfolio of products, core knowledge and integrative knowledge formed the real options for the further evolution of the firm (Helfat and Raubitschek, 2000). The analysis paints a picture of organizational evolution as a path-dependent learning experience, where the evolution of knowledge and technology play a central role. This evolutionary journey contains temporally separated step function leaps and bursts of incremental progression. The step function leaps are associated with exploration, whereas incremental progression builds on exploitative learning practice.

### 2.2.3. Enforcing Exploration and Interplay to Foster Innovation

An extensive investigation into the product development performance of multinational robotics firms support the finding concerning an organization’s inherent tendency to over-emphasize exploitation (Katila and Ahuja, 2002). The international study on the exploration and exploitation and their effects on product development performance suggest that a firm’s product development performance increases proportionally with the increases in exploration. The relation between exploitation and product development performance was found to be curvilinear. The researchers concluded that the linear relationship between exploration and product development performance stemmed from the fact that firms “under-explored” and were consequently positioned in the early part of curvilinear exploration-performance curve. This implied that any increase in exploration improved the product development performance. A firm’s placement in the middle of the exploitation-performance curve implied that, to a certain extent, additional exploitation increased product development performance. However, beyond an inflection point of the curve, the additional exploitation reduced product development performance (Katila and Ahuja, 2002).

In addition to the notion of the under exploring tendency of the firms, the study demonstrated the positive effect of interplay between exploration and exploitation. Exploration and exploitation facilitate organizational learning by bringing in and creating new knowledge in complementary domains. The interplay between these learning modes enables combinations of the tried and tested and the new and novel; the new elements and their combinations are introduced to the ongoing business in an operationally manageable way (Katila and Ahuja, 2002). Katila and Ahuja concluded that exploration and exploitation were complementary and different dimensions in the organizational learning. The product development performance increased linearly with additional exploration, whereas the relationship between exploitation and performance was curvilinear.
2.2.4. Contextual Ambidexterity

Based on an extensive study of 41 business units of 10 multinational companies, Birkinshaw and Gibson (2004) argued that the organizational ambidexterity is not best achieved through structural or temporal separation of exploration and exploitation, but by building an organizational context that encourages individuals to make a justified choice of the working mode according to the actual task requirements (Ghoshal and Bartlett, 1994; Gibson and Birkinshaw, 2004). According to a conceptualization by Birkinshaw and Gibson, the adaptive, self-organizing ambidexterity, striving to reach the optimal balance between exploration and exploitation, is achieved by creating an organizational context where the individuals strive to do their best for the good of the organization. The conceptualization builds on the principles of the organization-context-conceptualization developed by Ghoshal and Bartlett (1994). Goshal et al argue that the effectiveness of an organization depends on the willingness of individuals to take personal initiatives for the benefit of the organization. Such altruistic setting can be achieved by creating a positive organizational context. A positive organizational context is built on four pillars: discipline, stretch, trust, and support (Ghoshal and Bartlett, 1994). The role of the management is to create a positive organizational context.

The study by Gibson and Birkinshaw (2004) established links between those contextual factors, ambidexterity, and the medium-term performance of a business unit. The contextually ambidextrous business units were considered to achieve their full potential better than business units in general. The analysis of the antecedents of contextual ambidexterity highlighted the fact that the capability was rooted in a business unit's performance management practices (discipline and stretch) and overall social setting (support and trust). These observed contextual factors resonated well with the findings of Ghoshal and Bartlett (1994).

Gibson and Birkinshaw (2004) pointed out that the critical factors influencing performance management practices are: 1) How well the targets were aligned with the performance criteria of the business unit; 2) How clear the accountabilities were and how well they were monitored; 3) How aggressive the targets were and 4) How intellectually stimulating the targets were.

The critical aspects of the social setting were: 1) How well the authorization reflected the actual tasks; 2) How well the decision making power was delegated to the appropriate level in the organization; 3) How easy it was to access relevant information and how fact-based the decisions were; 4) The attitudes to the risk-taking and failure, as well as the efforts devoted to developing employees and organizational capabilities (Gibson and Birkinshaw, 2004).

These favorable contextual factors in performance management and social setting complement the constructive objectives of individual tasks and effective management systems in striving exploitation oriented activities. The exploration performance, in turn was amplified by an organizational culture supportive of challenging the status quo and by stressing flexible working practices within a unit (Gibson and Birkinshaw, 2004). Overall, the leadership actions were found to be instrumental in getting the contextual ambidexterity to materialize. Active leadership interventions, such as those that support exploration, were needed to overcome inherent rigidities within an organization and turn its ambidextrous capacity into value adding outputs. In particular, new ideas and risk-taking called for support from the leadership of the business unit (Gibson and Birkinshaw, 2004).
The existence and benefits of such adaptive ambidexterity are supported by Winter's and Szulanski's (2001) study on replication as Strategy. The study revealed that an effective replication involves both exploitative replication of the core concept and exploration to adapt and enhance the concept that was being replicated. The replicated concept turns into a living creature that gets refined and amended with each successive replication. Even the imitative process of replication contains exploration, which brings new elements to the concept.

2.3. Towards Synthesis of Ambidexterity

Organizational ambidexterity has been examined on different unit of analysis levels and from a variety of perspectives. The studies share a common notion of the complementary nature of exploration and exploitation and the need to balance resources between those modes. In other aspects, such as how to achieve ambidexterity, earlier studies have produced a variety of seemingly contradictory insights. However, mapping those insights with the respective units of analysis reveals that the seemingly contradictory insights highlight complementary aspects of ambidexterity, its antecedents and outcomes. Table 1 on the next page summarizes the key insights of current scholarly knowledge and highlights the unit of analysis levels and scholarly perspectives that have yielded these insights.
<table>
<thead>
<tr>
<th><strong>STUDY</strong></th>
<th><strong>FOCUS &amp; UNIT OF ANALYSIS</strong></th>
<th><strong>CONCEPTUALIZATION AND FINDINGS</strong></th>
<th><strong>INSIGHTS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. James March, 1991</td>
<td>Organizational learning SMALL UNITS</td>
<td>Exploration and exploitation as learning modes with different requirements. Problems associated to inbalance. Organizational tendency to gravitate to one or the other.</td>
<td>Balance yields optimum result. Exploration and exploitation set different managerial requirements and compete for scarce resources.</td>
</tr>
<tr>
<td>2. Tushman &amp; O’Reilly, 1996</td>
<td>Organizational evolution and design CORPORATE</td>
<td>By referring to technology cycles, organizational evolution the study reasons that organizations develop inertia that prevents renewal when the market shifts. Ambidextrous organizations remain adaptive and can change.</td>
<td>Culture, leadership and organizational architecture instrumental in fostering ambidexterity. Small entrepreneurial units crucial in vitalizing organizations.</td>
</tr>
<tr>
<td>3. Helfat &amp; Raubitschek, 2000</td>
<td>Organizational evolution, Knowledge and technology CORPORATE</td>
<td>Core technology and integrative knowledge progress in the sequences of rare step function instances and burst of incremental learning. The products at a time reflect the core and integrative knowledge. Products form a real option for the future.</td>
<td>Exploration and exploitation take place in sequence. The core and integrative knowledge evolve in parallel and are bridged by the products.</td>
</tr>
<tr>
<td>4. Winter &amp; Szulanski, 2001</td>
<td>Organizational learning SMALL UNITS</td>
<td>In addition to simple exploitation replication involves exploration and refinement of core knowledge, as well as creation of additional knowledge.</td>
<td>Principled but flexible conception of core knowledge facilitates exploration and learning in replication.</td>
</tr>
<tr>
<td>5. Katila &amp; Ahuja, 2002</td>
<td>Product development, Organizational learning BUSINESS UNITS</td>
<td>Exploration (search scope) and exploitation (search depth) are complementary dimensions. Product development effectiveness increases linearly with exploration and curvilinearly with exploitation. Interplay between exploration and exploitation has positive effect to the product development effectiveness.</td>
<td>The interplay between exploration and exploitation is critical to the productivity in new product development.</td>
</tr>
<tr>
<td>6. Birkinshaw &amp; Gibson, 2004</td>
<td>Business Unit performance BUSINESS UNIT</td>
<td>Contextual ambidexterity where individuals chose between exploration and exploitation according to task characteristics has positive effect to the mid term performance of a Business Unit. Discipline, stretch, support and trust are critical attributes for achieving contextual ambidexterity. Leadership’s has critical role in supporting new ideas and adaptability.</td>
<td>Performance management and supportive and trustful atmosphere foster contextual ambidexterity. Leaders’ support to new ideas and to flexibly adjusting organizational routines is central to innovation performance.</td>
</tr>
<tr>
<td>7. Duncan, 1976</td>
<td>Organizational design CORPORATE</td>
<td>Organizations need dual structures: Organic to create innovations and mechanistic to implement and deploy them.</td>
<td>Structural separation of exploration and exploitation needed to support innovativeness.</td>
</tr>
</tbody>
</table>

Table 1  The scholarly insights about ambidexterity.

As table 1 points out, the Organizational Learning scholars have been active on the levels of individuals and small teams. In that research context, exploration and exploitation were initially considered to be the two ends of a continuum. This led to the tendency of recommending structural separation of these modes (March, 1991). The later studies of small-scale organizations and teams have revealed the positive effect of the interplay between these modes on the creation of new knowledge and innovation (Winter and Szulanski, 2001). In addition, the positive effect of the interplay between exploration and exploitation on the business performance has been established in large-scale studies on ambidexterity in the business units of Multinational Enterprises (Katila and Ahuja, 2002; Birkinshaw and Gibson, 2004). Conversely, the corporate
level studies of organizational evolution and renewal have pointed out the benefits of temporal and structural separation in nurturing ambidexterity in large organizations (Duncan, 1976; Helfat and Raubitschek, 2000; Tushman and O’Reilly, 1996). The graphical illustration below highlights how the findings regarding the relative benefit of separation and integration reflect the unit of analysis.

![Graphical Illustration](image)

**Figure 3** The conclusions of ambidexterity research on different unit of analysis levels.

The organizational learning perspective has revealed the fundamental difference between exploration and exploitation as learning mechanisms. Baum, Li and Usher (2000) subcategorize exploitation into the following: learning via local search; experience based refinement; selection and re-use and exploration as concerted variation; and planned experimentation and play. Organizational learning scholars point out that a combination of these two learning modes is critical to the long-term prosperity of an organization. Combining the explorative and exploitative modes in the same organizational unit is not trivial. They set different managerial requirements for the organization and compete for the scarce resources of the unit (March, 1991).

The organization design scholars have wrestled with the question of how to design an ambidextrous organization. Duncan (1976) suggests that an organization needs a dual structure to deal with the paradox of innovating. An organic structure is needed to create innovations, and a mechanistic one to deploy them. Conversely, the more recent organizational design studies suggest that organizations can combine organic and mechanistic features into the same unit (Dyer et al., 1999) by creating an organizational context where individuals can make choice about the appropriate working mode (Gibson and Birkinshaw, 2004). In particular, these studies suggest that it is the dynamic interplay between exploration and exploitation that yields advantage in terms
of innovative products and the mid-term competitiveness of the unit (Katila and Ahuja, 2002, Birkinshaw and Gibson 2004).

Overall, the conceptualizations of ambidexterity share the common notion of exploration and exploitation as complementary operating modes. They complement one another in terms of their contribution to the firm performance. The combined effect of exploration and exploitation is critical to the long-term survival of an organization.

However, reflecting the paradoxes of organizational reality, different views about the means to achieve ambidexterity in practice exist. The integration school argues for the integrated approach where ambidexterity is achieved within one unit. The scholarly benefit of this conceptualization is that it enables studies on the interplay between exploration and exploitation. In business practice, the integrated approach facilitates adoption of new inventions in the broader organizational context. The separation school argues for the benefits of separating exploration and exploitation to overcome the organizational tendency to overexploit. The separation view appears particularly salient in analyzing the corporate level renewal. Both structural and temporal separations have been identified as effective means to achieve organization level adaption.

2.4. Issues to be Clarified on Ambidexterity

Ambidexterity is loosely conceptualized. The present conceptualizations are not specific about the unit of analysis. Instead of the unit of analysis being the guiding principle for the analysis and conceptualizations of ambidexterity, the level of analysis is typically embedded into the analysis itself. This has inhibited scholars from having a structured discussion about how the level and the complexity of an organization influence the means to achieve ambidexterity. In the same vein, as highlighted by Raisch and Birkinshaw (2008), the ambidexterity conceptualization reaching across multiple unit of analysis levels are missing completely. The lack of multi-level analysis relates to the insufficient understanding of the micro-processes of ambidexterity. As pointed out by James March (2006), the processes through which ambidexterity is achieved are still ‘under-examined and unexplained.’ Most of the ambidexterity research has focused on establishing correlations between antecedents and outcomes. Often the focus has been on the effect of a single variable. There has not been too much concern about establishing conceptualizations about ambidexterity itself as a phenomenon (Simsek, 2009).

At present, there is limited clarity on how this concurrence of exploration and exploitation is achieved in practice (Gupta et al., 2006). The ‘black box’ of ambidexterity itself has remained un-opened, as the micro-processes of the phenomenon have not been the prime focus of past research. The scattered understanding of the micro-processes of ambidexterity has prevented scholars from doing holistic analysis about how ambidexterity materializes across unit of analysis levels and on multiple levels of abstraction.

Moreover, as ambidexterity itself as a phenomenon is not sufficiently conceptualized and its micro-processes are poorly examined, it has been difficult for scholars to discuss entrepreneurial agency as the driver of ambidexterity. There has not been sufficient conceptual foundation to analyze the characteristics of entrepreneurship associated with exploration, exploitation and interplay between those modes.
2.5. **The Ambidexterity Inquiry of this Study**

This study shall attempt to bring clarity to the conceptualization and processes of ambidexterity itself. The aim is to identify the micro-processes of ambidexterity, analyze how ambidexterity materializes in the activities across multiple unit of analysis levels. The analysis reaches from the level of individual to the teams, and further on to the business units. Even the corporate level considerations of ambidexterity will be discussed. The focus of the analysis is on the processes of ambidexterity. By referring to the realized processes of ambidexterity, the antecedents and outcomes will be looked into in specific terms and on multiple abstraction levels.

This study pays particular attention to the entrepreneurial agency as the driving force of ambidexterity. The characteristics and processes of entrepreneurship associated with exploration, exploitation and their interplay are examined in specific terms. Moreover, to build a holistic understanding of the outcomes of ambidexterity, the study looks into innovations and Realized Strategy as the primary outcomes of ambidexterity. The micro-processes of how ambidexterity feeds into innovations and Strategy are articulated by referring to the examined case studies and to the existing literature.
3 ENTREPRENEURSHIP AS A DRIVER FOR INNOVATIONS

This study examines entrepreneurship as the driver of innovations by taking the premise of ambidexterity into account. The premise of ambidexterity entails diversity of action. Exploration and exploitation are fundamentally different activities in their character, which implies that they are likely to benefit from different kinds of entrepreneurship. Moreover, the processes through which exploration, exploitation and the interplay between them take place are distinct. This implies that these tasks manifest different mechanisms through which entrepreneurial action influences innovation, and interacts with the Intended and Realized Strategy of the firm.

This chapter discusses entrepreneurship as the driver of innovation by referring to existing literature. First, the linkage between entrepreneurship, innovation and renewal is examined in general terms (3.1.). Chapter 3.2. discusses the renewing effects of entrepreneurship in the corporate context. Once the linkage between entrepreneurship and innovations and corporate renewal is established, the emphasis of the chapter moves to characterizing entrepreneurship. The behavioral traits of entrepreneurially oriented individuals and the working principles of entrepreneurial teams are discussed in chapter 3.3. The discussion on entrepreneurship as the driver of innovations closes by anchoring the entrepreneurship inquiry of the present research to the content of this chapter (3.4.).

3.1. Entrepreneurship as the Driver of Innovations

Entrepreneurial agency is the central driving force for innovation (Schumpeter, 1934; Kirzner, 1973; Burgelman, 1984; McFadzean, O’Loughlin and Shaw, 2005; Ireland, Covin and Kuratko, 2009). As a term, entrepreneurship refers to a deliberate and purposeful act that involves opportunity recognition, resource deployment and diffusion. Van de Ven and Poole describe entrepreneurial action as a purposeful enactment that involves intentions and actions of entrepreneurial actors in a generative process that aims to create new ventures or business (Van de Ven and Poole, 1995).

Since Schumpeter’s framing of creative destruction, entrepreneurship has been viewed as the central driving force of innovation and renewal. Schumpeter viewed entrepreneurs as individuals who are capable of breaking new ground and pioneering new fields by exploring nascent ideas that do not exist as tangible business opportunities before they get verified as innovations in the actual market. The instance of successful innovation disrupts the established market equilibrium and initiates a new paradigm where the entrepreneur enjoys a pioneer’s first mover advantage (Schumpeter, 1934).

The neo-Austrian school complements Schumpeter’s disruption-oriented view of entrepreneurship by conceptualizing entrepreneurship as a teleological act that stems from the discovery of a tangible market discrepancy or gap, which others have not yet exploited (Kirzner, 1973). Schumpeter’s conceptualization of entrepreneurship resonates well with James March’s notion of exploration while the neo-Austrian view of entrepreneurship is in line with the notion of exploitation. As a common denominator, these complementary conceptualizations view entrepreneurship as a purposeful act driven by individual agency and intended for the creation of business value. Also, common to these complementary conceptualizations of entrepreneurship is that entrepreneurship is associated with innovation and renewal.
3.2. Entrepreneurship in the Context of Established Organization

The Corporate Entrepreneurship is defined as a process, whereby an individual or a group of individuals within an existing organization create a new organization or instigate renewal or innovation within the organization (Sharma and Chrisman, 1999). The focus of corporate entrepreneurship is typically on overcoming the liability of tradition (Tushman and Anderson, 1986) by shifting the emphasis of an established organization on a narrow or a broader area from the inbound control orientation to the outbound opportunity orientation.

In order to facilitate the organizational capability to act in a decentralized yet cohesive way, established organizations employ multiple complementary levers to foster, lead and channel strategic entrepreneurship. The entrepreneurial companies exhibit their entrepreneurial Strategy, both in terms of their forward-looking intents as well as in their operational practices. Observed from the outside, entrepreneurial Strategy appears both as a pattern and a process. Internally viewed, it goes deep into the organization and its intents, articulations and routines. Reflecting this, creating or changing entrepreneurial Strategy does not happen through high-level decisions alone, but it needs to be supported with a holistic interplay between entrepreneurial Strategy, entrepreneurial action and the working practices of an organization. A comprehensive conceptualization of Corporate Entrepreneurship Strategy by Ireland, Covin and Kuratko (2009) divides the ingredients of entrepreneurial Strategy into three categories: 1) entrepreneurial strategic vision, 2) pro-entrepreneurial organizational structures and 3) entrepreneurial processes. The Strategy appears through action and leads to renewing organizational outcomes.

As figure 4 on the next page illustrates, the conceptualization of Ireland, Covin and Kuratko (2009) divides the organizational antecedents of Entrepreneurship into Entrepreneurial Strategic Vision and Pro-Entrepreneurship Organizational Architecture. The model clusters the individual level antecedents under the header of ‘Individual Entrepreneurial Cognitions,’ consisting of beliefs, attitudes and values. The model divides the outcomes of entrepreneurship into ‘Reposition’ and ‘Competitive Capability’, which relate closely to the terms innovation and renewal.

The model conceptualizes entrepreneurship itself as action and behavior. Ultimately, the organization is viewed to be entrepreneurial through action. Entrepreneurship refers to the chronological flow of action that involves opportunity recognition, resource deployment and diffusion.
In order to establish a more specific linkage between entrepreneurship and innovation, McFadzean, et al (2005), and Shaw, et al (2005) carried out an exhaustive literature review of the entrepreneurship and innovation management fields. Based on their review, the authors outlined several schematic presentations to sum up the scholarly knowledge about the relationship between corporate entrepreneurship and innovations. In outlining the models, the authors built on Leibenstein’s (1968) granular definition of entrepreneurship as an action that aims to create or carry on an enterprise in the field where all the markets are not well established or clearly defined and/or where parts of the value creating process are not known (Leibenstein, 1968). In this process of entrepreneurship, an entrepreneur puts in place the resources to create, produce and market the new product or service. The entrepreneur coordinates the contractual arrangements between the contributing parties and creates and cultivates appropriate processes, culture and structure to execute innovation. During the process of innovating, the entrepreneur responds to market changes and deficiencies and connects the buyers and sellers in order to establish a foundation for commercial business (Leibenstein, 1968).

To elaborate the characteristics of entrepreneurs engaged in the process of innovating, the authors position entrepreneurs on a continuum ranging from imitator to initiator according to entrepreneur’s thinking and problem-solving style. Differentiating the entrepreneurs in the imitator–originator spectrum reflects Kirton’s view about people’s
fundamental thinking styles. According to Kirton, individuals range from ‘Innovators’ to ‘Adaptors’ in their thinking and problem solving styles (Kirton, 2003). The innovators are the ones who produce the most of the new ideas. The ideas may or may not be relevant or implementable. Generating new ideas reflects the innovators’ desire for doing things differently. The innovators challenge established solutions and seek alternatives. They often challenge the generally accepted tenets as well. They seem to be less concerned about present efficiency and lay emphasis on long-term gains.

The adaptors, in turn, are focused on more immediate gains. They accept the current paradigm as it is and seek for pragmatic solutions by using available knowledge and ideas. They focus on doing things better by applying a few relevant and at times novel ideas, which can be easily adopted in the market. Adaptors are instrumental in managing and renewing established systems, but face difficulties in the unexpected disruptive events (Kirton, 2003). Still, many of disruptive innovations have been created with an adaptive approach. For instance, a word processor is a combination of a typewriter, a computer and a screen (Drucker, 1985). The Internet is a combination of computing and telephony (McFadzean, O’Loughlin and Shaw, 2005) and cellular telephony is a combination of radio technology and telephony.

As summarized by the holistic Entrepreneurship-Innovation framework of the next page (McFadzean, et al, 2005) entrepreneurial attitudes and actions challenge bureaucracy and work on new opportunities. The entrepreneurial problem-solving styles range from initiating to imitating. Entrepreneurial agency drives the creation of innovations through multiple mechanisms that are clustered under the term innovation process.

According to the conceptualization by McFadzean, et al (2005) the innovative outcomes can be categorized into new products or services, new solutions, new business models and new processes. The innovations range from incremental to radical and further on to major innovations. The innovative outcomes create value to the company through the business processes of the firm. Also, the innovation process yields value by providing creative alternatives to the strategic positioning of the company.
3.3. Characterizing Entrepreneurial Agency

3.3.1. Behavioral Traits, which Facilitate Entrepreneurship of Individuals

What entrepreneurs actually do and which behavioral traits foster their entrepreneurship are central questions to characterize entrepreneurial agency. Dyer, Gregersen and Christensen (2008) analyzed the behavioral traits of individual entrepreneurs. Their extensive literature review on the topic points out that the psychological differences between entrepreneurs and the general population of executives are minimal. The differences are limited to small yet consistent differences in the need for achievement (+), tolerance for ambiguity (+) and need to conform (-) (Begley and Boyd, 1987; Miner, Smith and Braker, 1989). Moreover, the literature brings some evidence on differences in cognitive aspects and social networking practices. The entrepreneurs tend to have a slight bias toward overconfidence and representation. The research supports the view that entrepreneurs have somewhat superior pattern recognition capabilities compared to the managers in general (Baron, 2006). Also, the research suggests that the entrepreneurs may excel with access to knowledge through their above average networking capabilities (Renzulli, Aldrich and
Moody, 2000). The active networks benefit entrepreneurs in opportunity recognition, knowledge acquisition and resource mobilization.

In order to find out what the entrepreneurs actually do, and how these differences in networking and cognitive capabilities materialize in the organizational reality, the authors conducted a grounded theory research (Dyer, Gregersen and Christensen, 2008). With an open, inductive approach, the authors identified behaviors of innovative entrepreneurs. The inductive phase was followed by a survey that examined the differences between entrepreneurs and the general population of executives. The empirical research highlighted that the innovative entrepreneurs differ from the general population of executives by having a stronger bias against the status quo. Innovative entrepreneurs deploy four behavioral traits that provide them with ideas and concepts for associational thinking: questioning, observing, experimenting and networking (Dyer, Gregersen and Christensen, 2008). The broad experience base of an innovative entrepreneur, combined with these behavioral traits, provides a versatile range of cognitive frameworks and ideas for associational thinking (Dyer, Gregersen and Christensen, 2008). The dynamism of networked discussion tends to amplify these idea acquisition and associational thinking capabilities into a virtuous cycle. The fresh ideas and associations makes the entrepreneur a more interesting discussion partner among the parties in the networks, which in turn further amplifies the exchange of ideas and concepts in the networks where the entrepreneur is present. The ultimate outcome of this virtuous cycle is the superior capability to identify opportunities for innovation. The figure 6 below illustrates the factors contributing to innovative entrepreneurs’ opportunity recognition capability.

![Figure 6](image.png)

Figure 6  Dyer, Gregersen and Christensen’s model for an innovative entrepreneur’s opportunity recognition.

### 3.3.2. Subjectivity of Entrepreneurship

As Penrose (1959) pointed out individuals have different preferences, knowledge and expectations. Subjective knowledge may be tacit, private and subject to change (Polanyi, 1962). The voluntary exchange of these subjective views is beneficial to economic activities (Penrose, 1959). The division of knowledge matches the division of
labor (Hayek, 1945) and is path-dependent as the individuals and teams are better able to learn topics that are related to their previous knowledge (Levinthal and March, 1993).

The subjectivity is not limited to the possession of knowledge. As knowledge is transferred it gets interpreted by using the cognitive schemata of the recipient. The utility value of the knowledge is subject to efficacy and the worldview of the recipient (Lachmann, 1986; Nonaka, and Takeuchi, 1995; Brannen, 2004). As a consequence, the knowledge relevant to economic action is inherently subjective (Foss et al., 2008).

The subjectivity is further amplified when dealing with the future. The future cannot be known, it can only be imagined. The cognitive frames, the worldview, and the perspective an individual holds to great extent influence an entrepreneur's outlook on the future. The dominant view of the entrepreneurship research considers opportunities as exogenous, determined and tangible in spite of the simple fact that the future can only be imagined (Kirzner, 1973; Shane 2003; Dyer, Gregersen and Christensen, 2008). This dominant view considers entrepreneurship first and foremost as awareness of exogenous opportunities (Foss et al., 2008).

Foss, Klein, Kor and Mahoney (2008) extend the dominant opportunity-recognition oriented view of entrepreneurship by getting back to Schumpeter's original notion of creative destruction. When the information is partial and ambiguous, entrepreneurship turns into an act that is initiated by the entrepreneur's judgment of the opportunity itself and the entrepreneur's efficacy to seize the opportunity. Judgment is subjective and it reflects the heterogeneity of inputs regarding the opportunity, the plurality of resources available and the productive services the available resources can render (Foss et al., 2008). Schumpeter terms this entrepreneurial judgment as intuition. Intuition is the ability to see things the way that proves to be true afterwards. Judgment has properties of self-fulfilling prophecy, as it entails the entrepreneur's personal commitment to addressing the opportunity and it reflects the view of the opportunity and the means to address it. As Casson states (1982), an entrepreneur believes he is right while everybody else is wrong (and he can prove it).

Following this logic, the heterogeneity and efficacy of the team involved in making the judgment are critical factors in determining the view that develops in assessing the opportunity. The view of the opportunity, in turn, is decisive in concluding whether or not to proceed with the initiative.

### 3.3.3. Team Entrepreneurship

Classic entrepreneurship research views entrepreneurship as an individual actor's performance (Schumpeter, 1934; Kirzner, 1973). The approach neglects the possibility that entrepreneurship could be an outcome of a social process (Foss et al., 2008). Despite the fact that only individuals think, it is probable that opportunities are recognized, judgments made and plans enacted in the social settings. The configuration and dynamics of these settings instrumentally influence how opportunities are viewed and enacted.

Heterogeneity in knowledge, experiences and skills may initiate a creative team act (Foss et al., 2008) that facilitates creation of novel combinations of knowledge (Koestler, 1974). Heterogeneous entrepreneurial teams can craft opportunities others have not crafted before (Smith, DiGregorio, 2002) and can consequently produce a
more prolific opportunity set than individuals or homogeneous teams could do (Fiet, 2007). Moreover, the heterogeneous teams can access more diverse complementary assets when enacting their vision.

In particular, diversity brings benefits in changing and ambiguous environments. Diverse inputs and cognitive frameworks facilitate lateral thinking and thus creative solutions to address opportunities that deviate from the traditional opportunity space of an organization. In the interaction with parties who hold different views and outlooks, the team members learn to modify their own mental models (Foss et al., 2008), which tends to reduce cognitive rigidity within the team. The optimum degree of diversity is contingent on the task characteristics and operational environment of the team. Cohesive teams are effective in executing exploitative tasks according to established routines, whereas diverse teams are better suited to deal with changing and ambiguous environments. The optimum diversity can be illustrated with an inverted U-curve (Nooteboom, 2005). The optimum diversity depends on the task characteristics and environmental factors.

Diversity of mental modes in a team puts pressure on the team leadership. Healthy debate stimulates lateral thinking and brings new insights to the opportunity recognition, problem solving and enacting tasks. However, making heterogeneity productive requires leadership with a broad set of mental models and a genuine sense of trust and respect among the team members. Shared understanding of the diversity of mental modes and its benefits facilitates synthesizing conclusions (Foss et al., 2008), which in turn is instrumental in producing entrepreneurial rents to the company. Ultimately, the authors conceptualized a schematic model of subjectivist team entrepreneurship. They highlighted the fact that heterogeneous teams that appreciate and nurture subjectivity are better equipped for crafting and enacting entrepreneurial opportunities than individual or cohesive teams. Subject to leadership that can foster positive team dynamics, the heterogeneous teams can produce superior entrepreneurial rents, particularly in turbulent environments (Foss et al., 2008).

3.4. Entrepreneurship Inquiry of this Study

This study examines the properties and processes of entrepreneurship that drives innovations. The examination shall be done on the levels of individuals and innovation projects. The innovation projects were conducted in the team like formations. The analysis is sensitive to the notion that exploration, exploitation, and the interplay between them are likely to call for different kinds of entrepreneurship.

The analytical focus is on examining the entrepreneurial act of innovating, its characteristics, as well as the process through which the entrepreneurship interacts with the Strategy and Structure development of the firm. Ultimately, the aim of the study is to produce a process view and qualitative characterization of entrepreneurship as the driver of innovations.
4 THE INTERPLAY OF ENTREPRENEURSHIP, STRATEGY AND STRUCTURE

This chapter elaborates entrepreneurial innovation actions in the broader ecological, strategic, and structural context of a firm. The aim is to establish a link between the entrepreneurial innovation activities and strategic evolution of the firm. The underlying principle of the discussion is an established view about Strategy as fit between external ecological forces and internal selection environment. In that context, corporate entrepreneurs draw from the intended corporate Strategy and are subject to internal selection environment as well as to external ecological forces. Being subject to external ecological forces and internal selection environment, the entrepreneurial innovation activities produce outcomes that have an effect on the Realized Strategy of the firm.

This chapter reviews the most broadly used conceptualization of the interplay between entrepreneurial innovation action and corporate Strategy in order to establish it as a preliminary framework for investigating the empirical data on entrepreneurship and its interplay with the Strategy of the firm.

4.1. Strategy as a Fit between External Ecological Forces and Internal Selection Criteria

As highlighted by Ireland, Covin and Kuratko (2009), corporate entrepreneurship Strategy goes deep into an organization and its intents, articulations and routines. With Burgelman’s conceptualization of Strategy as fit between external ecological forces and internal ecological selection criteria, the entrepreneurial Strategy goes both deep into the organization and also reaches far out to the external environment. It goes deep into the organization through the selection mechanisms, which the organization applies, and it goes far out as it seeks opportunities and fit with the environment and its ecological forces (Burgelman, 1994, 2003). A Successful Strategy is the one that gets implemented and survives the test of the market. In the highly dynamic environments, unpredictable correlations and interdependencies of external evolutionary forces make most strategic plans unreliable (Burgelman, 2003). The induced Strategy gets complemented with an autonomous one and the Strategy materializes as an outcome of deliberate Strategy, unrealized Strategy and emergent Strategy (Minzberg and Waters, 1985).

In Burgelman’s framing of the Dynamic Forces Driving Firm Evolution, Corporate Strategy reflects the Basis of Competitive Advantage of Industry and Distinctive Competence of the firm. As figure 7 of the next page illustrates the Strategy seeks fit and opportunities in the field of ecological forces. The Strategy gets cascaded through an Internal Selection Environment. The Strategic Actions within the company are subject to Internal Selection Criteria, Ecological Forces of the Industry and Distinctive Competences of the firm.
4.2. Autonomous Entrepreneurial Action Brings Novelty to the Strategy

Burgelman developed his conceptualization of Strategy as an emergent outcome of the fit between external ecological forces and Distinctive Competence of the firm with an in-depth inductive case study on the Intel Corporation and its strategic transition from memory chips to microprocessors. During the era of memory chip production, Intel's Strategy process was quite loose and gave a fair amount of leeway to autonomous entrepreneurial actions. The autonomous entrepreneurial initiatives got selected, guided and supported by the internal selection criteria that the middle management applied in their decision-making and daily management. These organically guided autonomous activities provided Intel with strategic options to tap into as the industry shifted with the commoditization of memory chips and forceful expansion of Japanese and Korean companies in the memory chip business (Burgelman, 1984). The microprocessor business had been developed as a relatively autonomous product variation business during the memory chip era, and as a consequence it had been subject to constant tests of the markets. As a new entry was verified on the markets, it represented something the management believed was good for the long-term prosperity of the company. As the market shifted, the microprocessor business was fit to set the foundation for the next era of the corporate longevity of Intel.

As illustrated in the figure 8 on the next page the Autonomous Strategic Action aims to work its way through the Strategic Context Determination Process to the Corporate Strategy to get support and to become legitimized. The structures, administrative practices and routines clustered under Structural Context support the Induced Strategic Actions. The Induced Strategic Actions in turn reflect the intended Corporate Strategy of the firm.
Figure 8  Burgelman's framing of Corporate Strategy as an outcome of Autonomous Strategic Action and Induced Strategic Action.

In the figure above, the capital letter “E” refers to the environment as seen in the Corporate Strategy, whereas the “e” refers to entrepreneurs’ personal view of the world.

4.3. The Interplay between Entrepreneurial Action and Strategy

During the microprocessor era, Intel’s Strategy process shifted emphasis to the induced Strategy due to the frustrating experience of a complex settlement process between autonomously developed competing microprocessor architectures. To avoid such operational imperfections, Andy Grove, the CEO of Intel, decided to vectorize everybody in the company to the same direction (Burgelman, 2003). The structural context of the company got molded together with the core business Strategy to drive maximum efficiency and effectiveness on the chosen strategic path. It was effective, and the company developed into an undisputed leader of the rapidly growing microprocessor market. However, the company ended up in facing empty handed the next shift of the industry. When networked computing emerged as the next major trend in the IT sector, Intel was slow in determining its new Strategy. There were no tried and tested options to build on, because the creativity of individuals had been dampened and disconnected from the business processes. The company responded by initiating numerous new business initiatives, but the emphasis of induced Strategy process had substantially weakened the company’s capability to create new business and drive transformation to the next era of corporate evolution. As a consequence, Intel ended up loosening its strategic control to be better aligned with the dynamics of the business landscape.
4.4. The Process of Determining Strategy

As reasoned by Burgelman, the Strategy content and process are inherently intertwined. The process generates the content and content disciplines the process (Burgelman, 1988). On one hand, Intel’s narrowly defined Strategy during the microprocessor era helped top management to develop strategic insights of that particular field. On the other hand, it cemented the spectrum of Corporate Strategy discourse. This narrow spectrum of Strategy discourse and associated vocabulary prevented Intel from having a substantive discussion about new salient Strategy topics such as networked computing, Internet or mobile communications. Business development on these attractive new areas was inhibited by the fact that the management agenda was exhaustively filled with induced initiatives supporting the core microprocessor business.

With this premise of Strategy as fit between external ecological forces and internal selection mechanisms, corporate entrepreneurship turns into a purposeful, value creating act that seeks support and influence by interacting with the Strategic Context Determination process. As Burgelman (1983a, 1983c, 1984) frames it, the Corporate Strategy gets extended to accommodate new business activities with the Strategic Context Determination process. The process serves to overcome, or at least to ease, the inertia and obstacles that stem from the Structural Context. The Structural Context, in turn, consists of the organizational and administrative mechanisms and routines that have been put in place to implement the current Corporate Strategy.

4.5. Championing as the Act of Matching and Linking

In Burgelman’s conceptualization of Corporate Entrepreneurship, Product Championing is the act that defines how a particular market opportunity is addressed by using technologies, capabilities and resources available in and to the organization. The act of Product Championing takes place on the operational level of the organization. Organizational Championing supports the Product Championing by linking it to the Strategic Context Determination process either proactively or retrospectively. The top management of the organization influences the entrepreneurial activities primarily by influencing the internal selection environment by shaping the Structural Context and occasionally by induced selection.

As figure 9 illustrates the Product Championing focuses primarily on creating the proposition that addresses the opportunity. The Organizational Championing is a higher order act that connects the entrepreneurial activity to the broader strategic evolution of the firm.
Overall, Burgelman’s conceptualization of evolutionary Strategy renders a picture where any activity, whether entrepreneurial or induced, is constantly subject to external ecological forces and internal selection mechanisms. The induced Strategy is primarily effectiveness-oriented and focuses on the domains that the company masters in the outset. Autonomous Entrepreneurial Actions are instrumental in developing new opportunities that are beyond the reach of firm’s existing operational capabilities. Autonomous actions are also critical in challenging the strategic assumptions of the firm.

In his work on innovation Burgelman has clustered the innovation activities according to their relatedness to the operational capabilities of the company. The differentiation between operationally related and unrelated innovation activities enables more granular analysis of the operational challenges related to the innovation. Based on the analysis of operationally related and unrelated innovations Burgelman has created a set of recommendations for these different types of innovation activities. This clustering of innovations according to their operational relatedness gives a justified starting point for analyzing innovations in an established multinational enterprise.
4.6. Inquiry about the Interplay between Innovation Activities and Strategy in this Study

This study examines the act of innovating in diverse innovation environments. Burgelman’s method of clustering the innovation activities according to their operational relatedness provides a salient starting point for the theoretical sampling of the cases. The study examines the exploration, exploitation, and the conversion mechanisms in the innovation environments that are both close to the operational tradition of the firm, as well as those that are new to the company. Also, the study views the categorization of activities into autonomous and induced as another salient starting point for the analysis. Moreover, the study recognizes the need for ‘Championing’ in one or another form as a necessary bridging function between the operational activities and the Strategy of the firm. However, the study assumes that, in the current organizational reality characterized by virtualization and increased turbulence, the strategies are articulated in multiple abstraction levels and thus are increasingly subject to subjective interpretation of entrepreneurs. Also, the increased dynamics of the business landscape call for more granular analysis on how the entrepreneurial actions influence the Intended and Realized Strategy of the company.
5 TOWARDS SYNTHESIS OF AMBIDEXTERITY, ENTREPRENEURSHIP AND FIRM STRATEGY

This chapter summarizes the key findings and conclusions from the existing literature from the viewpoint of this research. The first part (5.1. – 5.5.) summarizes the key findings and conclusions as such. The summary of the findings is followed by the knowledge gaps identified by the leading scholars of the field. The identified knowledge gaps are matched with the research questions of this study to verify the viability of the inquiry (5.6.).

5.1. Benefit of Exploration and Exploitation – The Paradox of Separation and Integration

The accounts on ambidexterity, depending on the unit of analysis, have reached different conclusions about the merits of integrating exploration and exploitation into the same organizational entity. Some studies, mainly on the corporate level but also in the team context, highlight the merits of compartmentalizing exploration and exploitation. In explaining their findings, scholars refer to the conflicting resource and managerial demands of these working modes. Other studies, in particular on the Business Unit level, emphasize the merits of integration. These studies refer to the observed performance differences and to the benefits of interplay between exploration and exploitation.

A common notion across the studies on ambidexterity is the complementary nature of exploration and exploitation in terms of their contribution to the learning of an organization. Moreover, the studies on the cross-point of exploration and exploitation have found the interplay of these working modes conducive to innovativeness and long-term performance of the organization (Birkinshaw and Gibson, 2004; Winter and Szulanski, 2001; Katila and Ahuja, 2002).

5.2. Combining Cohesion with the Variance Seeking Behavior to Achieve Ambidexterity

In the context of a larger organization, the administrative and social psychological regularities tend to gravitate activities to the domains that are operationally and cognitively close to the existing core. To overcome this tendency of organizations to over-exploit, the structural and temporal separation of exploration and exploitation have been found to be beneficial (Tushman and O'Reilly, 1996; Helfat and Raubitschek, 2000).

Moreover, loosening the control of the Strategy and relying on the autonomous entrepreneurial action has a positive effect on exploration. Ambidexterity stems from the combination of a cohesive induced action and a diverging exploring action with sufficient mandate and capabilities to influence the Strategy and associated working practices. Ambidextrous organizations have the capability to combine systematically managed induced activities with the self-driven exploration of new opportunities. Achieving ambidexterity in an organization requires the use of leavers for cohesion and variance: The cohesion is fortified with the tight integration of strategic intentions, resource allocation and normative working processes of the firm. Variance, in turn, is
amplified by providing leeway and means to the opportunity-oriented self-actualization of entrepreneurial actors.

5.3. Behavioral Traits Driving Entrepreneurial Pursuit of Opportunities

Entrepreneurship is the process through which the opportunities are identified, judged and enacted. Entrepreneurship of an organization is driven by individuals or teams with strong identities (Foss et al., 2008). On the individual level, the ultimate driver is the person's tendency to resist the status quo. The behavioral traits that facilitate an individual overcoming a standing state are observing, questioning, experimenting and networking. The combination of these traits facilitates associational thinking by providing new ideas to the entrepreneurial process (Dyer, Gregersen and Christensen, 2008). Entrepreneurs tend to get motivated through their desire to actualize themselves and through social commitments (Dyer, Gregersen and Christensen, 2008). Entrepreneurs have a strong commitment to follow through (Shaver and Scott, 1991). Financial motivators appear mainly as an important 'hygiene factor' to corporate entrepreneurs.

5.4. Social Configurations as Mechanisms to Accommodate Versatile Subjective Views of Opportunities

In the process of innovating, entrepreneurs deal with ambiguous future opportunities as well as subjective views, beliefs and claims. Individuals have inherent biases and limitations in their subjectivities. Social configurations, such as teams and networks, are more versatile in terms of their capability to craft rich and nuanced visions of the future. They also have better access to the resources and capabilities than individuals do. Subject to constructive team dynamics, heterogeneous teams see future opportunities more holistically than individuals or cohesive teams (Foss et al., 2008). The diversity of cognitive frames and social connections enable heterogeneous teams to identify, judge and enact opportunities in the broader opportunity space. As a consequence, diverse teams can identify and address opportunities that the cohesive settings may not see.

Moreover, ambidexterity as a phenomenon benefits from the diversity of actors. This is because exploration, exploitation, and interplay between them differ markedly from one another in their character. It is likely that the characteristics of entrepreneurship within an ambidextrous organization vary according to the task type. The characteristics of entrepreneurship benefiting exploration are likely to be different from the characteristics of entrepreneurship benefiting exploitation. McFadzean, O’Loughlin and Shaw (2005) suggest this by differentiating entrepreneurs on the initiator-imitator dimension. Also, Scholhammer (1982) and Lumpkin and Dess (1996) suggest that entrepreneurs of different characteristics are effective in different task environments. Thus far, the characteristics of entrepreneurship have been only loosely linked to the innovation task type.

5.5. The Interplay of Entrepreneurship, Strategy and Processes Development Facilitates the Strategic Renewal of the Firm

In order to be productive, corporate entrepreneurship needs to interact and find balance with the Strategy, operational processes and other realities of the firm. Finding
the balance requires adaptation, both in the entrepreneurial activity itself and in the Strategy and operational practices of the firm. This reciprocal interplay leverages multiple mechanisms, on one hand to set direction to the entrepreneurial activities, and on the other hand to connect the development of Strategy and working practices to the entrepreneurial activities of the firm (Burgelman, 1983a, 1983c, 1984; Ireland, Covin, Kuratko, 2009).

In Burgelman’s framing of Corporate Entrepreneurship, the Strategic Context Determination process represents this interplay between the entrepreneurial action and corporate Strategy and process development of the firm. Organizational Championing is the act that links entrepreneurial actions into the broader strategic development of the firm. Organizational Championing works through Strategic Context Determination process to influence corporate Strategy and associated working practices (Burgelman, 1983a, 1983c, 1984). The micro-processes of Strategic Context determination are only vaguely elaborated in the accounts on corporate entrepreneurship (Burgelman, 1991).

5.6. Gaps in the Current Scientific Knowledge and the Research Inquiry of this Study

Understanding the interplay between ambidexterity, entrepreneurship and Strategy is central in developing an understanding of how the companies organically renew themselves. The literature review confirms that there is no overarching conceptualization that brings ambidexterity, entrepreneurship and strategic evolution of a firm into the same discussion. Moreover, the leading scholars of the field have pointed out multiple shortcomings in the current state of scientific knowledge:

1) Processes by which exploration and exploitation are enacted are under-examined and unexplained (March, 2006).

2) The causal chain from the ambidexterity of activities to its envisioned outcomes is poorly examined and described (Simsek et al., 2009).

3) The accounts of ambidexterity on multiple unit of analysis levels are missing entirely (Raisch and Birkinshaw, 2008).

4) The empirical accounts have not matched the characterizations of entrepreneurship with the attributes of innovation tasks and their outcomes.

5) The processes by which the entrepreneurial innovation activities shape Strategy have not been exhaustively analyzed and described (Burgelman, 1991; Lovas and Ghoshal, 2000).

The summary matrix on the next page highlights the key insights of ambidexterity, entrepreneurship and its contribution to the corporate Strategy of the firm. The matrix also summarizes identified gaps in the scientific knowledge in each area. Matching the research questions with the identified gaps in the current scientific knowledge confirms the viability of the research inquiry.
<table>
<thead>
<tr>
<th>Key Insights</th>
<th>Ambidexterity</th>
<th>Entrepreneurship</th>
<th>Interplay of Strategy and Entrepreneurship</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exploration and exploitation complement one another as organizational learning methods. Integration brings benefit to the Business Unit performance. Separation brings benefit on the corporate level.</td>
<td>Entrepreneurship is central to the innovation performance and to the renewal of the Strategy.</td>
<td>Entrepreneurship is instrumental for renewing the Strategy. Strategic Context Determination Process mitigates between the entrepreneurial actions and Strategy and structure development.</td>
</tr>
<tr>
<td>Gaps</td>
<td>Processes of exploration and exploitation are unexplained. The causal chain from the ambidexterity of activities to its envisioned outcomes is poorly examined and described. Multi-level conceptualizations of ambidexterity are missing.</td>
<td>Contingencies between characteristics of entrepreneurship and innovation tasks have not been mapped.</td>
<td>Processes through which the entrepreneurial actions interact with Strategy are not exhaustively analyzed.</td>
</tr>
<tr>
<td>Research Questions</td>
<td>How does the interplay of exploration and exploitation take place in the innovation initiatives? Do exploration and exploitation take place in sequence or in parallel? Are those modalities mutually exclusive or complementary? How does the interplay between exploration and exploitation take place? How does ambidexterity materialize in the activities and in the organization? What are the processes through which exploration and exploitation are enacted to create sustaining and disrupting innovations?</td>
<td>How does entrepreneurship manifest itself in the innovation projects and how does it affect ambidexterity? Which characteristics and behavioral traits of individuals and teams support entrepreneurship? How do those individual and team level characteristics and behavioral traits facilitate exploration, exploitation and the interplay between them? What are the micro-processes by which entrepreneurship feeds into innovation and firm renewal?</td>
<td>How does the Corporate Strategy interact with the act of innovating? How does Strategy drive the act of innovating and how do the innovation activities directly and indirectly influence the Strategy and associated organizational practices? What are the processes at play in the interplay between innovation activities, corporate Strategy and organizational practices?</td>
</tr>
</tbody>
</table>

Table 2  Research questions versus the key insights and research gaps identified in the literature review.
This research aims to fill the gaps summarized in table 2 by creating a temporally sensitive analysis and conceptualization about the processes of ambidexterity, entrepreneurship and renewal of the Strategy.

By relying on the rich empirical accounts of actual innovation cases this research aims to augment the currently incomplete conceptualization of the interplay between Strategy, ambidexterity and entrepreneurship as its driver.

The aim is to create

1. An overarching conceptualization, as well as
2. Specific conceptualizations of central aspects of the continuum from ambidextrous activities to the strategic renewal of the company.

The overarching conceptualization links ambidexterity to entrepreneurship and further on to innovations and renewal of the Strategy and Structure. In addition, in order to elaborate specifics of ambidexterity, entrepreneurship and the interplay of entrepreneurial activities and Strategy and Structure, separate focused conceptualizations will be created from the central aspects of the overall process of innovation and renewal. The focused conceptualizations of ambidexterity will be sufficiently nuanced to reveal in specific terms how ambidexterity materializes in variety of innovation environments.

Entrepreneurial agency as the driving force of innovation and ambidexterity will be broken into specific attributes with the aim to link the characteristics of entrepreneurship to the characterizations of the innovation tasks and outcomes.

Moreover, the ‘black box’ of Strategic Context Determination Process will be examined and illustrated in sufficient detail to discuss the processes through which the entrepreneurial innovation activities, Intended Strategy and the Realized Strategy of the firm interact with one another.
6 METHODOLOGY

6.1 Discovering the Real Nature of the Innovation and Entrepreneurship

As pointed out by evolutionary naturalist realist Jane Azevedo (1997, 2007), the world exists independent of our knowledge of it. The nature of the world is such that we can have knowledge of it. In the scientific terms, the world is open for empirical investigations. In naturalist realist research, the aim is to discover the real nature of the world. Its primary goal is to discover the causal and generative mechanisms underlying the researched phenomena. The notion of naturalist refers to the view of the world, where everything that exists can in principle interact with everything else. Realism refers to the notions that there is a real world independent of our attempts to understand it and that everything in the real world can, at least in principle, interact with humans. It is through this interaction between the phenomena of the real world and the humans that humankind accumulates knowledge of the real world. All gained knowledge is physically embodied and consequently subject to constraints and biases of the systems that embody it (Azevedo, 2007).

Donald Campbell’s model for inductive scientific gains (Campbell, 1979) takes into account the social nature of scientific knowledge. It is analogous with the Darwinian model of biological evolution, as it builds on the notion of variation and selective retention. In science, however, the cognitive modeling and the associated methodology sensors enable exploration of ‘vicarious environments’ without being directly exposed to harmful effects of the environment. Scientists survive the ecological forces but the survival of fittest principle applies to the scientifically constructed models and theories. As the methodological sensors of science provide a ‘narrow window’ through which nature can speak (Campbell, 1979), acquired scientific knowledge cannot be known to be true in an absolute sense. However, the validity of scientific knowledge is determined, on one hand, by the way the world is, and on the other hand, how reliable scientific knowledge is for guidance for action and decision making. Ultimately, the validity of scientific knowledge is related to the interests of its users. Scientific knowledge is constantly exposed to the test of practical use (Azevedo, 2007). The scientifically constructed models and theories, which survive the test of praxis, accumulate into the human body of knowledge. In order to provide valid insights of the complex world into a variety of uses, the evolutionary natural realism deploys multiple research methods and communication techniques.

This study has the aim of an evolutionary naturalist realist inquiry. The intention is to produce rich and valid insights into the act of innovation, entrepreneurial agency in innovation projects, the institutional factors surrounding innovation initiatives and how those factors are worked on, and how the examined innovation initiatives, through a variety of causal mechanisms contributed to the firms’ evolution. The insights are to be produced on the level of innovation projects. The observations on this unit of analysis level are discussed in the broader organizational context. The work is longitudinal in the sense that the cases are examined from their beginning to the end. Moreover, the evolution of the organization is discussed over the time horizon that enables a holistic analysis of key inputs and outcomes of the projects (Burgelman, Grove, 2007). Ultimately, the aim of the work is to identify patterns and causal mechanisms that enable generalizations. The identified patterns and generative mechanisms build on the detailed records of particular cases and while drawing from the relevant scientific knowledge of the research field (Burgelman, 2011).
The unique contribution of the study stems from the exceptionally transparent relation to the interviewees as well as from the researcher’s extensive practical and scholarly experience in the research field. Moreover, the researcher’s first hand knowledge of the case company and the cases under examination give basis for substantive analysis and helps in linking the events to the overall evolution of firm and industry.

6.2. A Multinational Enterprise (MNE) as a Research Context

A globally present multinational enterprise a research context introduces and reveals a rich set of complexities and nuances to any research inquiry. For understanding innovation projects, the large multinational scale brings a versatile set of organizational capabilities and resources to look into, and implies organizational complexity and institutional inertia in adopting anything that deviates from the established models and routines. The cases under examination are further enriched by the ongoing transformation of the company in a systemically complex global industry. In this research context, the act of innovating reaches across a broad range of interdependent and dynamically co-evolving constituencies. This dynamic, dispersed, interdependent and highly institutionalized setting provides an exceptionally ripe environment to analyze interplay between the actors of innovation initiative, its institutional environment and the Realized Strategy of the organization.

6.3. Sampling and Data Collection

Within the case company, four innovation cases were chosen on theoretical grounds (Eisenhardt, 1989). The case selection aimed for sufficient variance in terms of the type of innovation and working modes involved, as well as their proximity to the ongoing business of the firm.

The cases were examined by using the recommendations of the Strategies of Theorizing from Process Data (Langley, 1999). The use of process research methodology was motivated by the fact that the primary interest of the research inquiry was to understand eclectic patterns in the sequences of events reaching across multiple unit of analysis levels. As pointed out by Pettigrew (1992), the complex organizational phenomena, such as innovation and Strategy, spread out over both space and time. Making sense of such complex phenomena calls for event-based analysis, which reaches across multiple levels of analysis, and is sensitive to the contextual factors on each unit of analysis. To reflect the need to elaborate contexts, the study uses variance data to illuminate characteristics of the research context. In line with Ann Langley’s (1999) recommendation, the study complements the process data with the selective use of variance data. Variance data is used to create characterizations of contexts and key actors, which influenced the events. The underlying criterion in selecting the categories of variance data for the research was their assumed significance to the act of innovating. The underlying aim of the research was constantly kept in mind when selecting data categories for the study. Similarly, to develop a deep understanding of the act of innovating, the flow of the analysis went back and forth between collecting empirical data and doing literature review on the themes that gained traction in the interviews. Constant comparison technique was applied both across informants and between empirical observations and literature. Moreover, the individual narratives written from the interviews were constantly compared with one another and with the written archives and the knowledge of well-informed parties within the case company. The sample and foci of the fieldwork evolved towards increasing emphasis on
ambidexterity, entrepreneurship and its interplay with the institutional factors, such as processes and the Realized Strategy of the firm. Those were the themes, which gained momentum and traction throughout the research process.

The primary data of the research consisted of thirty-six open ended, face-to-face interviews. The researcher interviewed multiple stakeholders of each innovation case with the aim to develop a rich and representative understanding of the cases. The 1.5 hour interviews were conducted as semi-structured conversations, where the researcher and interviewee elaborated the topics of a theme list. The interviews were recorded and transcribed in detail. Moreover, the researcher did detailed interview notes. The notes were used as references in the phases of preparing narratives and analyzing the data. Each interview consisted of three sections. The first section focused on the background of the informants, the second part centered on the innovation initiative by examining what was actually done in the initiative. The third section focused on examining the social setting of the initiative and the interaction within the project and between the project and its environment. The themes and detailed questions are found in appendix 1. The reliability of the accounts was continuously confirmed with written archives and verbal inquiries in the case company. The table on the next page summarizes the interviewees by the cases and by the emphasis of their activities.
<table>
<thead>
<tr>
<th>Plan and manage</th>
<th>Explore</th>
<th>Combine and Converse</th>
<th>Exploit and Deploy</th>
</tr>
</thead>
</table>
| **N95**         | Joe Coles: VP Portfolio Management  
                  John Byrne: Director  
                  Portfolio Planning  
                  Juha Putkiranta: SVP  
                  Multimedia Product  
                  Business  
                  William Sermon: VP  
                  Multimedia Design  |
|                 | Joe Coles  
                  John Byrne  
                  Timo Elomaa: Product Manager  
                  Simo Rossi: Manager  
                  Multimedia Cocepting  
                  Eero Salmelin: Director Camera  
                  Module Development  |
|                 | Mika Kuisma: Product Program Manager  
                  Joe Coles  
                  John Byrne  
                  Timo Elomaa  
                  Eero Salmelin  
                  Jarkko Kaislasaari: Product Manager  
                  Mikko Perälä: Engineer Imaging  |
|                 | Mika Kuisma, Product Program Manager  
                  Mikko Perälä: Product Manager  
                  Timo Elomaa  
                  Joonas Geust: VP Imaging  |
| **N82**         | Joe Coles  
                  Satu Ehrnrooth: VP Camera Category  
                  Juha Putkiranta  
                  William Sermon  |
|                 | Panu Kuusisto: Software Integration Manager  
                  Eero Salmelin  
                  Mikko Perälä  |
|                 | Panu Kuusisto  
                  Satu Ehrnrooth: VP Camera Category  
                  Eero Salmelin  
                  Mikko Perälä  |
|                 | Panu Kuusisto  
                  Satu Ehrnrooth  
                  Mauri Ukonmaanaho: Product Program Manager  
                  Colum Duffy: Product Manager  
                  Tatsu Arimoto: SW Project Manager  |
| **CwM**         | Ilkka Raiskinen: SVP Services  
                  Tommi Mustonen: The Head of Music Business  |
|                 | Ilkka Raiskinen  
                  Tommi Mustonen  |
|                 | Tommi Mustonen  
                  Tuula Rytilä-Uotila: The Head of Global Go-To-Market  
                  Pekka Väyrynkn: Product Program Manager  
                  Minna Wahlberg: Senior Product Manager  |
|                 | Tuula Rytilä-Uotila  
                  Bambos Kaisharis: Go-To Market Manager, Singapore  
                  Pekka Väyrynkn: Product Program Manager  
                  Minna Wahlberg  
                  Mikko Kahlos: Product Manager  
                  Sami Männistö: Software Project Manager  
                  Anita Navartnam: Go-To-Market Manager  |
| **ST**          | Kari Hjelt: VP Research  
                  Ilkka Raiskinen  
                  Kimmo Myllymäki: The Head of Technology Out-Lisencing  |
|                 | Jussi Kaasinen: Researcher  
                  Antti Sorvari: Researcher  
                  Ykä Huhtala  
                  Harri Länsipuro: Director, Business Development  
                  Ilkka Raiskinen: Researcher  
                  Jari Pasanen, VP Innovation Acceleration  |
|                 | Jussi Kaasinen  
                  Antti Sorvari  
                  Ykä Huhtala  
                  Harri Länsipuro: Director, Business Development  
                  Kimmo Myllymäki: The Head of Technology Out-Lisencing  |

Table 3  The interviewees and their primary focus areas.
The interviewees highlighted with the bold letters formed the core interviewees. Individual narratives were produced of these core interviews. Once the core interviews were recorded in the form of individual narratives, the rest of the interviews were analyzed in order of significance. The analysis of each innovation case proceeded as long as the interviews revealed new knowledge from the viewpoint of understanding the process of innovating, entrepreneurship and the interplay between the innovation project and the Realized Strategy of the firm.

The secondary data of the research consisted of written documentation about the working processes and organizational structure at the time of the innovation initiatives. The annual reports and public announcements of a two-year period after cases were used to trace the impact of the innovation cases to the Realized Strategy of the firm. Moreover, the case narratives as well as the process descriptions of the cases were reviewed with managers who had been close to the cases, but who had no vested interest in how the cases were perceived.

6.4. The Process of Preparing the Case Descriptions

The recorded interviews were transcribed in detail. The transcribed interviews complemented the interview notes and formed the basis for preparing the narratives and for the analysis. The interviews, which turned out most illuminating for understanding the cases, were further developed into the individual narratives. The individual narratives presented a view of how the individual in a particular role viewed the case and the organization around it. The individual narratives also gave specifics about the individual roles and the tasks associated to the act of innovating.

The actual case narratives built on the individual narratives. The original transcribed interviews and the interview notes were used as reference data in preparing the case narratives and process descriptions of the innovation projects. The case narratives and the process charts of the cases were reviewed with well-informed executives and managers of the case company. The continuum from the interviews through individual narratives to the case narratives and further on to the process descriptions produced a cohesive view of how the cases had taken place. The individual narratives also opened views to the working environment in the respective task areas. The cohesive view of the main flow the initiatives gave confidence to the reliability and integrity of the interviews. Yet, the individual cases produced variety of specific insights about different task areas, which added to the richness of the case narratives.

The fact that the researcher has an extensive practical experience in this field of research, and that he knew many of the interviewees personally, gave a good basis for substantive interviews. By the same token, the familiarity with the field of inquiry required close attention to the effect of the researcher's subjective views in the process of preparing the narratives. It was critical to pay attention to the role of interviewer in developing the themes in the interviews, as well as in the process of preparing and analyzing narratives.

6.5. Analysis and Theory Building

In Ann Langley’s (1999) categorization of theory creation approaches using process data, the analysis method used here falls into the category of the synthetic approach. First, detailed narratives of the cases were produced (Eisenhardt, 1989). Then, visual
maps illustrating the chronological sequence of the key events of the cases (Meyer, 1984 and 1991) were created to identify patterns in the act of innovating. The visual maps summarize the key tasks, how the tasks were organized, how entrepreneurial agency materialized in each phase of the innovation undertaking, how the innovators worked on those factors and what the key strategic and institutional factors interacting with the innovation initiative were. In the third phase of analysis, alternate theoretical templates (Allison, 1971; Markus, 1983; Pinfield, 1986; Collis, 1991) were used to search for insights from the cases and to probe the viability of previously established theoretical frameworks in the context of these cases. This research examined the cases by using the key templates of ambidexterity research, entrepreneurship research and ecological perspective of firm. In the fourth phase of the analysis, the temporal bracketing technique (Barley, 1986; Denis, Langley and Cazale, 1996; Doz, 1996) was used to identify characteristics of entrepreneurship. In order to contrast the differences between the phases and the working modes involved in the innovation cases, the observations of the characteristics of entrepreneurship were clustered into groups according to the phase and the working mode of innovation. Similarly, to identify mechanisms in the practices of interacting with the Strategy and process development of the firm, the cases were mapped according to their proximity to the operational tradition of the firm. The aim of this synthetic approach (Langley, 1999) in analyzing the data was to create simple and moderately general theories that advance an understanding of ambidexterity, entrepreneurial agency as its driver and of the mechanisms that connect ambidexterity to the broader evolution of the firm.

As Van Manen (1990) suggests, phenomenological study differs from deductive content analysis by being discovery-oriented and by using reflection to follow paths as the cases reveal them. In phenomenological research a subjective reflection of a real experience is viewed to give the experience a special significance. The phenomenological research method is receptive and responsive to unexpected observations. In line with this, McMillan and Schumacher (1997) suggest that qualitative data analysis is optimally an inductive process and the categories and patterns emerge from the data rather than being imposed on the data. Creswell (2002) points out that there is no single way to analyze qualitative data but the process of analyzing is ‘eclectic’ in the sense that the researcher tries to make sense of the information with multiple attempts. That being the case, the empirical data was reviewed several times from different perspectives. The analysis was conducted each time. Both theoretical perspectives and the ways to categorize the data were adjusted according to the observations of the previous phases of an analysis.

Overall, in line with the recommendations of Glaser and Strauss (1967) and Burgelman (2011), the intent was to first produce holistic narratives of the cases. The narratives provided a description of the phenomenon as seen by the participants of the cases. In the second phase, several scholarly lenses were applied to extract insights and to conclude grounded conceptual frameworks from the narratives. Those substantive grounded conceptual frameworks were transparently connected to the case narratives and used rudimentary conceptualizations. The rudimentary conceptualizations were compared with existing literature to identify corroboration and deviations for further analysis (Burgelman, 2011). The third phase focused on formal grounded theorizing. The rudimentary conceptualizations were reflected with the conceptualizations in the existing scientific literature. In addition, to complement the conceptualizations of the substantive grounded theorizing, the cases were elaborated in the broader time horizon and industry context. The aim of the formal grounded theorizing phase was to create more general conceptualizations, which relate the observations to the dynamics of the broader Strategy and industry context as well to the existing literature.
Fundamentally, the research logic of this study builds on the particular generalization approach of modern history research, where generalizations are embedded into narratives of a particular phenomenon (Gaddis, 2002). However, in order to improve the applicability of the findings, the work goes beyond the particular generalizations by creating conceptual frameworks that describe how the overarching system is built up and what its operative logic is (Burgelman, 2011). In line with Burgelman’s (2011) recommendation, the aim is to produce reliable and grounded higher-level generalizations ‘inside-out’ by systematically analyzing the cases on three abstraction levels. The first level of analysis discusses the cases as they were seen by the actors. The second abstraction level uses rudimentary frameworks, which are closely grounded to the actual cases. This abstraction level is termed substantive grounded theorizing (Glaser and Strauss, 1967; Burgelman, 2011) and forms a critical bridge between the particular cases and formal grounded theorizing on the higher abstraction level (Glaser and Strauss, 1967; Burgelman 2011). The third level, the formal grounded theorizing, aims to feed into the evolution of the body of scientific knowledge (Burgelman, 2011). As Burgelman (2011) concludes, a longitudinal research of this kind builds a valuable bridge between particular, concrete cases and general theory by crafting specific substantive and suggestive conceptual frameworks that help to better understand key aspects of the phenomena captured in the case narratives (Burgelman, 2011).

<table>
<thead>
<tr>
<th>REDUCTIONISM: GENERAL PARTICULARIZATION</th>
<th>LONGITUDINAL QUALITATIVE RESEARCH</th>
<th>HISTORY: PARTICULAR GENERALIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>• General</td>
<td>• Specific</td>
<td>• Particular</td>
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<tr>
<td>• Abstract</td>
<td>• Substantive</td>
<td>• Concrete</td>
</tr>
<tr>
<td>• Non-experiential</td>
<td>• Suggestive</td>
<td>• Experiential</td>
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</tbody>
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Table 4  The founding principles of the longitudinal qualitative research.

This study follows the principles of Longitudinal Qualitative Research (Burgelman, 2011) and the recommendations of Strategies for Theorizing from Process Data (Langley, 1999). The rich narratives with embedded generalizations form the basis of low-level substantive conceptualizations and mid-level suggestive theoretical frameworks. In line with Campbell’s (1979) model of inductive scientific gains, these suggestive theoretical frameworks will be subject to the test of praxis and further scientific research.

6.6. Evaluation of the Method

As Marshall and Rossman (1995) put it, the qualitative research method is effective in examining organizational phenomena, which are either poorly understood or need to be further clarified. In examining poorly understood phenomenon, salient research questions concern patterns of activities and how those patterns are linked one to another, and to the broader institutional context. In examining the causal mechanisms of a phenomenon, plausible research questions concern the forces shaping the phenomenon, and how those forces shape the examined phenomenon. Marshall and
Rossman (1995) assessed the case study approach, which builds on in-depth interviews as a plausible method for examining the causal mechanisms of poorly understood organizational phenomenon.

### 6.6.1. The Criteria for Evaluating Qualitative Process Research

In evaluating the validity, reliability, and generalisability of a qualitative research, Marshall and Rossman (1995) recommend using the following yardsticks.

The validity primarily depends on whether the researcher has gained full access to the respondents’ knowledge and meanings (Collins and Young, 1988). Access to empirical data becomes one of the key considerations in assessing the validity of qualitative research. The questions, such as how sensitively and effectively the evidence has been collected, the transparency of the research process, the quality of the relationship between the informants and the researcher, and whether the informants or their organization have been involved in validating the findings become central criteria in assessing the validity of the research (Collins and Young, 1988).

In assessing the reliability of qualitative research, the audit trail throughout the research process is the key consideration, because qualitative studies are particular instances that cannot be replicated. Questions like are the empirical records and intermediate conclusions easily retrievable become key criteria in evaluating the reliability of the qualitative research (Marshall and Rossman, 1995).

The generalisability of the qualitative research concerns how well the theories, which have been created on the basis of the research, can be applied to other contexts. The key consideration is how well the gained understanding about the organizational processes forms the basis for understanding those processes in other similar settings (Remenyi, Williams, Money and Schwartz, 1998). Generalisability is an outcome of:

- Credibility, i.e. the confidence on the study method being able to capture and describe the researched phenomenon.
- Transferability, i.e. how the researched phenomenon is tied into a broader frame of reference, and what the specific organizational processes that are being generalized are.
- Dependability, i.e. what are the conditions on which the researched phenomenon depends?
- Conformability, i.e. does the study conform to relevant generic conceptualizations?

In this study, a qualitative process research method was chosen, because the aim of the research is to make sense of eclectic patterns in activity sequences that reach across multiple unit of analysis levels. The multiple case study approach was chosen in order to facilitate transferability of the findings (Van de Ven and Poole, 2005). The synthetic approach (Langley, 1999), which builds on the creation and analysis of narratives and process descriptions, as well as on the bracketing of characterizations of key events was justified because the study is a discovery-oriented phenomenological inquiry. The chosen analytical approach had the capacity to take unexpected discoveries into account in the process of analyzing the data.
Van de Ven (1987) states that the quality of the process research builds on four founding pillars. Firstly, the inquiry should use a clear set of concepts about the inquired topic. Secondly, the methods for observing and recording change in the organization over time should be systematic. Thirdly, given the vast amount of empirical data, the methods for recording and tabulating raw data should be systematic and enable identification of chronological and other patterns. And finally, the analysis and theory building should test multiple alternative change theories in order to avoid imposing data to fit into a model, which does not represent reality.

6.6.2. The Research Method of this Study

The present study opened with a comprehensive review of ambidexterity and entrepreneurship literature in order to identify a set of preliminary concepts, which were used for probing and analyzing the data in the cross-case analysis. Those concepts also set the starting point foundation for building substantive and formal grounded theories.

The sample of cases for the research was chosen on theoretical grounds (Eisenhardt, 1989) and with the aim to study innovation activities that varied in terms of their relatedness to the operational tradition of the firm. The thirty-six interviewees of the cases were chosen together with the management of the case company. The selection of the interviewees was aimed at having the key actors of the cases and a balanced representation of organizational disciplines and layers in the sample. While conducting interviews, the sample of informants was complemented with additional informants who were identified as being the best-informed persons about a particular area of interest. The researcher with extensive practical and scholarly experience of the research field conducted the theme-based open-ended interviews. The interviews covered pre-defined themes and had the flexibility to incorporate topics that the interviewees considered relevant to the research inquiry. Research notes were prepared, and the recorded interviews were transcribed word by word. The interviews were categorized into core interviews and complementary interviews according to their centrality to the research inquiry.

The case narratives were first prepared by referring to the core interviews. The complementary interviews and the written documentation about the company were used as reference material. The interviews gave a cohesive view about how the innovation activities had taken place in the cases. Also, the interviews contained a comprehensive coverage of functional perspectives, as well as perspectives from different organizational levels.

Based on the extensive case narratives, visual process maps and summary charts about innovation processes were prepared. The process charts summarized the inputs, phases and outputs of each innovation undertaking. The characterizations were attached to each phase. The summary charts described the key phases of each innovation undertaking and characterized entrepreneurship and its interplay with Strategy in each phase. With his extensive experience of the subject area, the researcher was able to use the practitioners' frames of reference in preparing the narratives, process charts and the summary charts. The case narratives, process descriptions, and summary charts formed the case descriptions. The case descriptions were reviewed with a group of well-informed managers of the case company. The review verified the authenticity of the case descriptions.
The cross-case analysis was built on the verified case descriptions. The cross-case analysis used the transcribed interviews and written documentation, such as process descriptions, press releases, and annual reports of the company as reference material. The cross-case analysis produced substantive grounded theories of the cases as they had occurred. The cross-case analysis also revealed three innovation patterns, which formed the primary typology for further analysis and theory building. Organizing the further analysis and conceptualization work by innovation patterns enabled the development of a fine-grained process model of how innovation activities interact with the Strategy and Structure of the firm and how they leave traces to the Realized Strategy.

The process model was made more transferable by creating a formal grounded theory combined the findings of the cross-case analysis and the conceptualizations of the pre-existing literature. The formal grounded theory connects the ambidextrous activities to the ambidextrous outcomes and changes in the Strategy and Structure of the company. The formal grounded theory was made more specific and nuanced by amending it with detailed process descriptions and focused conceptualizations about the most central aspects of the theory.

6.6.3. The Assessment of the Method of this Study

The systematic and methodical research method, which is aligned with the primary aim of the research, supports the reliability of the empirical data and the validity of the results. The rigorous research method and the fact that a single researcher with extensive experience in the research field conducted all stages of the research minimized data collection errors. However, the bias stemming from the human tendency to post-rationalize actions inevitably has an influence on the results. The constant comparison between informants and with the secondary data reduced the malicious effect of such bias on the results of the study. The sequence from empirical findings to theoretical conclusions was systematic and inductive. The broad range of theoretical constructs applied in analyzing the cases reduced the risk of a certain theoretical framework being imposed on the empirical findings. The conceptualizations were first and foremost built on the observations of the examined cases. As the conceptualizations were further developed to the substantive and formal grounded theories, they were constantly compared with the actual case narratives. Thus, the formal grounded theories that the study produced built on the reliable empirical foundation of the examined innovation cases.

The inventory of the research documentation forms a complete audit trail throughout the research process. The audio files, interview notes, transcribed interviews, research notes on the preparation of the case narratives, and case narratives themselves are all stored with date tags. Similarly, the conceptualizations of substantive grounded theories and formal grounded theories are also filed with date tags. Thus, the sequence of theory building can be retrospectively reproduced if needed.

The case company is a large scale MNE in a high-volume, high-technology consumer product business. The company had gone through a two decade long journey of successfully scaling up its business in a narrowly defined and intensely competitive business area. The Strategy and Structure of the company can be characterized as focused and specialized. As the study examined the interplay between innovation activities and the Strategy and Structure, the dynamics of the Strategy and Structure needed to be taken into account when transferring the findings to other organizational
contexts. The underlying causal mechanism between the act of innovating and innovation outcomes is likely to be generally applicable in large-scale enterprises. The act of innovating interacts with the Strategy and Structure. The combined effect of the innovation and the changes in the Strategy and Structure leaves traces on the Realized Strategy. The logic of the characteristics of innovation activities reflecting to the properties of innovation outcomes and further on to the associated uncertainties is generally applicable irrespective of the organizational setting. Likewise, the insight that the challenges of business management change with market fluctuation and Structural uncertainty is universal.

On more specific findings, the study gives confidence that the identified innovation patterns can be generalized to the context of large product business companies, which have fine-grained Strategies and established Structures in place. Moreover, the specifics of the interaction mechanisms of each innovation pattern and the Strategy and Structure of the firm are embedded in the pattern of innovating. The study gives fair confidence that those interaction mechanisms between innovation activities and the Strategy and Structure of a company are broadly present in the larger, established product business companies. Also the characterizations of entrepreneurial agency driving the activities in each innovation pattern are likely transferrable to other organizational contexts. However, reflecting differences in the granularity of Strategic schemata and the dynamics of the Structure, other industry settings, such as service industry, may have complementary and even alternative patterns of interaction between the innovation activities, Strategy and Structure. Also, the stage in the industry life cycle of an organization may influence the patterns of interaction between the innovation activities, Strategy and Structure. The industry and organizational dynamics during the eras of ferment, high growth and industry reconfiguration may imply change sequences, which differ from the ones identified in the current study of an incumbent company.
7 NOKIA AS THE CASE COMPANY

At the time of developing and launching the products and services under examination, Nokia was the undisputed global leader of the Mobile Phone Industry. The leadership was built on mastering a wide array of products for vastly different market environments of different geographies and different stages of market development. The company was aggressive, both in the traditional mobile phone arena and the rapidly growing smart phone market. It enjoyed a leading market share across the whole spectrum of mobile phones. With its portfolio of over 100 active products, the company generated annual revenue of 51 Billion Euros. With that revenue, Nokia yielded a profit of close to 8 billion Euros, which corresponded to an operating margin of 15.6%. The company invested heavily into research and development. With an annual investment of 5.65 billion Euros, the company was clearly the intellectual leader within the traditional industry boundaries. The research and development activities engaged totally over 30,000 employees and were spread into 10 R&D sites, which were strategically located to cover all relevant knowledge hubs of the rapidly developing IT and wireless communication sectors. In addition to mobile phones and smart phones, Nokia was investing heavily in the development of Internet services for the users of the mobile devices.

To match with the accelerating convergence of telecommunication, information technology, and media industries, Nokia made several competence-enhancing acquisitions during the examined cases. The company acquired Twango, Enpocket, Loudeye, gate5 and Intellisync. In 2007 Nokia announced the acquisition of a navigation service and software company Navteq.

With its global scale, broad range of products, and versatile product development activities, Nokia was a salient research object to examine ambidexterity and how ambidexterity interacts with the broader Strategy and Structure development of a Multinational company. The fact that Nokia was actively developing new Internet services business, which was only loosely related to its operational tradition of the hardware business, made Nokia an interesting research site to examine challenges associated to creating operationally remote new businesses.

7.1. The Global Presence

The sales revenue of the company came from its worldwide presence and extensive portfolio of competitive products and technologies. Over the course of the previous 15 years, the company had persistently built a sales and marketing network that covered all major global markets. In 2007, the sales revenue of the company distributed between the regions as follows:

- Europe: 39 %
- Asia Pacific: 22 %
- Middle East and Africa: 14 %
- China: 12 %
- Americas: 13 %
The company was well positioned in all significant growth markets. Its market share in India was close to 70%. In China, Latin America, Middle-East & Africa-region and Russia the company was an undisputed leader with a growing market share.

In general the company was enjoying the leading share in the markets where it could fully exploit its broad portfolio of products and technologies as well as leverage its consumer marketing capabilities. In practice, this implied that Nokia clearly had a leading share in markets where free, operator independent distribution counted for a significant portion of the overall mobile phone sales. In those markets, Nokia could get its whole product range to the consumers and it could use its marketing power to promote the products, which were more precisely defined according to consumer needs than the competitors’ products. In the markets where the operators controlled the sales, the competition was focusing on responsiveness to the specific requirements set by the operators. The breadth of the product range was a secondary issue in these markets. In fact, there was an inherent conflict between the responsiveness to the specific, and often difficult to implement, operator requirements and effective management of the global portfolio. Moreover, the leading operators of those markets perceived some degree of Strategy conflict with Nokia in the area of new business development. Some of the operators aimed to establish an exclusive control over the services and downloadable software available to the phone users in their networks. Nokia understood that mobile Internet will be omnipresent and the overly restrictive service strategies are bound to fail. Nokia considered it as a strategic necessity for it to move into services and applications business. This strategic conflict added to the tensions the company was experiencing in some of the operator-controlled markets.

7.2. Managing Complex Business

In order to manage this whole complexity, the company was organized into three Business Groups, each responsible for certain types of products. The sales, marketing and manufacturing were organized into geographies and were globally managed by the Customer and Market Operations of Nokia. Similarly, the technologies and technical building blocks used in designing and building the mobile phones were developed in the Technology Platform unit serving all Business Groups.

The Multimedia Business Group was in charge of advanced, multimedia-oriented smart phones targeting the consumer markets. In addition to the smart phones, the business group carried the responsibility of developing mobile Internet services for consumers. To tap into open innovation and application developer community, the Multimedia Business Group strongly advocated the use of an open operating system. Hence, all Multimedia devices used open Symbian-based operating system. There was a dedicated group of people working together with the developer community to help them to develop applications for Nokia devices.

The Enterprise Solutions Business Group was in charge of developing business-oriented smart phones and applications for enterprise use. To facilitate interoperability between the phones and enterprise systems, the business group was putting a lot of effort into a mediating middleware for accessing enterprise IT resources with smart phones.

The Mobile Phones Business Group was in charge of conventional mobile phones for consumers. Originally the dividing line between the Mobile Phones and Multimedia Business Group was the open operating system. However, as the sophistication of
ordinary mobile phones increased, the Mobile Phones Business Group also adopted the Symbian open operating system.

7.3. Technology Platforms

To optimize the commonalities and to build technological building blocks that could not be justified by the individual products, or even categories of products, Nokia developed the fundamental technical capabilities unit called Technology Platforms. The organization was the cross point of requirements coming from different Business Groups. The Multimedia Business Group was driving high performance and multimedia functionalities, as well as open operating systems and a free applications market. The Enterprise Solutions Business Group was driving cost-optimized performance and integration to the corporate systems. In particular, they were eager to have an e-mail application. Mobile Phones were driving cost-optimized versatile building blocks, which enabled addressing the extremely price sensitive emerging markets. Moreover, the Mobile Phone Business Group was looking for effective exploitation of the functionalities developed for the Multimedia and Enterprise Solutions businesses. In practice, the Multimedia Business Group was leading the platform development in most areas. They were the first ones to introduce a new platform release. This was followed by derivatives with Enterprise adaptations. The Mobile Phones Business Group was typically using more cost-optimized embedded software or older versions of an open operating system as they required less memory and processing power and were consequently more cost efficient.

The Technology Platform organization was divided into streams of Hardware and Software. The Business Groups had different priorities in driving the needs of different development streams and were designing and assembling the products of those streams.

Keeping an interconnected organization operational required a lot of interaction between different parties. The flow of requirements, updates and deliverables was massive, which at times led to challenges in making sense of the big picture. Also the sense of ownership got diluted as there were multiple parties owning the activities. The success often depended on factors beyond the control of an individual actor.

7.4. The Success Formula and Its Development

Mastering consumer needs and developing product categories to match these needs had been a profound source of competitive advantage to Nokia for almost two decades. In the early 1990's, the company invented a simple formula for deriving multiple products from the same technology base. Building on the middle range classic phones, the company made further miniaturized versions for the 'premium and fashion categories and more colorful designs for the youth-oriented expression category. Derivative products were driving the growth of the company and industry by attracting new user segments to adopt mobile phones. Given the high sales and relatively low R&D investment, these derivative products had very high return on investment. The practice of making derivative products was a self-enforcing cycle and led to rapid proliferation of the product portfolio.

In addition to being an effective approach to serve different design aspirations of consumer segments, a broad range of designs gave a good foundation for addressing
the different needs of the industrial customers. By mixing and matching versatile designs, the company could saturate different markets and customer portfolios and thus gave less leeway to the competitors. The market share and profitability roared all the way through the 1990’s.

Encouraged by this and by building on the accumulation of the consumer marketing knowledge and product design knowledge, the company made a substantial market research and analysis effort to come up with a formal and thoroughly reasoned segmentation model: the Sunflower model. The model mapped the user segments and their design preferences to the product categories and associated design properties. It helped the marketers, product designers and sales force to communicate with each other. It also developed into a compass that helped to build continuation to the product plans. Being a well-verified and presentable model, it was broadly adopted by the industry as 'the segmentation model'. In particular, in markets characterized by open distribution channels, the interdependent actors of the value chain adopted the model broadly. It helped them to communicate with each other and align their sales and marketing efforts. Nokia’s market share, revenue and profitability continued to soar in particular in those areas where the open distribution structure enabled Nokia to fully utilize the entire range.

However, in the markets where operators were exclusively in charge of distributing the products, the competition was more about addressing the specific requirements of an operator with a single product or a few products. The operators aimed to minimize the effort of carrying a range of products and by setting unique product requirements they intended to lock the products to their networks and services. This approach was in conflict with the Nokia’s logic of precise segmentation and broad range of products. Moreover, meeting those operator-specific requirements was more complicated with Nokia’s technology platform model where multiple products and products of multiple markets shared the same technology base. The complexity of interdependencies across all the variants grew unmanageable. Besides, at times the requirements of different operators were simply in contradiction with each other.

7.4.1. **Adding Value with Functionalities and Services**

Towards the end of the 1990’s the company came to the realization that once the markets mature, the focus of the industry will shift to delivering value through new functionalities and digital services. Well before a visible shift in the market, and in contradiction with the dominant view of industry analysts, the company shifted a substantial portion of its R&D spending into the development of new functionalities such as imaging, mobile office applications, and digital music. At the turn of the millennium, the company established a dedicated business unit, the Digital Convergence Unit, which was to bring those new functionalities enabled by digital convergence, miniaturization and Internet into fruition. The Digital Convergence Unit was also developing digital services labeled Club Nokia. New functionality categories, such as Imaging, Games, Music and Communicators were overlaid with the ‘Sunflower’ segmentation model. The portfolio grew even more extensive, with these new functionality categories.

The Imaging Phones category brought the digital cameras into mobile phones with highly successful products such as the Nokia 7650, 6600 and 6630. The Nokia 6630 product was the first mass market WCDMA (Wide Band Code Divided Multiple Access) product. WCDMA in turn, was a critical cornerstone in enhancing the value creation
potential of mobile phones as it expanded the data transmission speed of the mobile telephones to a level comparable with a broadband Internet connection.

The needs of the new product categories of Digital Convergence Unit drove the creation of open software architecture. The Series 60 software platform grew from the Symbian based software of the camera phones. The same software platform was adopted, first in the game and music devices and later in the enterprise focused devices. Finally, the Series 60 platform migrated in practice to all higher tier mobile phones of the company. The company made a substantial effort to open the platform for the competitors to turn it to a de facto standard of the industry. The series 60 software platform became the most critical technology enabler of the company.

In parallel with the adoption of an open operating system, Nokia started its activities with the developer community. The community was excited about new business opportunities spearheaded by the Nokia phone sales. From the perspective of an application developer, the sales volumes of the products were huge and opened substantial business opportunities for small software developers. On the other hand, Nokia's extensive product portfolio represented a great challenge for developers. The nuanced differences in the implementation of different products caused sizeable development and testing obstacles to the developer community. Moreover, the platforms were evolving at a very fast phase. The new platform releases were not necessarily fully compatible with previous ones, which implied that many of the applications needed to be re-written at the transition points between different generations of software. This, combined with the pre-mature sales arrangements through Nokia's Club Nokia channel and operator channels, caused the application market to develop slower than desired.

7.4.2. Organizing for Diverse Opportunities Enabled by the Digital Convergence

The rapid take off of WCDMA technology combined with rapidly growing processing power, memory capacity and radical improvements in the display technologies opened a sizeable business opportunity for more versatile devices. Nokia was well prepared for the transition. The company had multiple strategic options to build its future on. In 2004, based on the heritage of the Digital Convergence Unit, the company was divided into three Business Groups: Multimedia, Enterprise Solutions and Mobile Phones Business Groups, each of them having its unique product focus:

- The Multimedia Business Group was to develop devices emphasizing multimedia functionalities for the consumer use. The Group inherited the Imaging, Music, Games and Media retrieval product categories. Moreover, the Multimedia Business Group was responsible for developing Digital Services for the consumer markets. The Multimedia Business Group added value to the market with highly successful general-purpose multimedia products such as the N 70, N 80 and N 95. Another tier of products, the extreme functionality focused devices, such as extreme music device, camcorder phone and gaming devices helped Nokia to develop leading edge technologies. However, commercially these extreme high technology propositions did not make the mark. Despite the difficulties in turning the extreme multimedia devices into immediate commercial success the Multimedia Business Group was a great success, both financially and strategically. In 2007, during its third operational year, it already made close to one third of the company profits and
was setting the pace for most of the new technology development. However, in starting up the Internet services business, the Multimedia Business Group was facing severe challenges.

- The Enterprise Solutions Business Group was focusing on business use-optimized devices, such as communicators and other products with QWERTY keypads. The company adopted an ambitious Strategy to create an open middleware that would enable proprietary enterprise systems to talk either with general purpose or dedicated clients on the mobile devices. The complexity associated with the enterprise systems turned out to be overwhelming. The companies working on the proprietary vertical solutions such as Research In Motion (Blackberry) were able to make more rapid progress in developing and delivering reliable mobile e-mail to enterprise customers. The Enterprise Solutions ended up having a slower start than anticipated. Both financial and strategic gains of the unit materialized only after the dissolution of the unit.

- The Mobile Phones Business Group was focusing on mass-market mobile phones. They seek volume growth from the emerging markets and value growth from migrating Multimedia functionalities into the mainstream of mobile phones. Mature markets had simply reached beyond the phase were appearance design was a significant differentiation factor. Conformist and plain designs with broad market appeal were gaining momentum. The extreme design-oriented categories such as Premium and Fashion were running out of steam. The Mobile Phones Business group successfully developed a youth-focused Music Category, which exploited the music capabilities developed by the Multimedia Business Group. Similarly, the Mobile Phones Business Group was active in developing camera phones and the all-around products within the “Classic” category by using tried and tested solutions from the Multimedia Business Group.

The organization model in the period from 2004 to 2008 is illustrated in figure 10 on the next page.
The large scale of the business and the organizational matrix structure called for a new approach to manage interdependent businesses. This new 'federation of states' approach was central in managing Nokia’s overall product and technology portfolio. The clarity of accountabilities of the organizational units was a key consideration in the organizational model. Two guiding principles were applied consistently throughout the organization:

1. Within their defined product category domains, the Business Groups were solely responsible for products and for the related solutions businesses.

2. Within the geographical areas, the Customer and Market Operations were responsible for the business operations.

To complement these clear accountabilities, both inbound and outbound organizational learning was facilitated with collective portfolio management run by Customer and Market Operations. The collective portfolio management was a critical process for effective Product Championing at the Business Groups. However, as a rigid process shared by all the business groups, it did not facilitate entrepreneurial opportunity development of individual business groups.

To improve its ability to develop new business opportunities the Multimedia Business Group ended up developing its own portfolio management practice, which engaged their own sales executives from the sales regions and product planners and technology developers from the global Business Group management. The practice they created was more elaborative and interactive. As a dedicated process, it was capable of crafting ideas in a much more dynamic way than the general purpose portfolio management.
process run by the Customer and Market Operations. These complementary portfolio-planning practices co-existed and there was a fair amount of exchange, both formally and informally, between these processes. The dedicated practice of the Multimedia Business Group used the generic market descriptions, competitor analysis and overviews of Nokia’s portfolio created by the Customer and Market Operations run portfolio management process. In return, the Multimedia Business Group brought their product proposals to a review by the Customer and Market Operations process once they had reached sufficient maturity. The process run by Multimedia Business Group focused on interactively developing ideas with holistic insights from the people in marketing, product planning and technology development.

Similarly, the Multimedia Business Group enhanced its capability to have a systematic and elaborative interaction with the technology experts of the Technology Platforms organization. They developed an ‘Annual Range Planning’ practice that, in collaboration with the experts of Technology Platforms and Nokia Research Center, elaborated the value creation potential of interesting new technologies and evaluated the timing and maturity of coming technology releases. As a consequence of this effort to interact effectively with the markets and technology experts, the Multimedia Business Group could see opportunities more holistically and they could also envision and plan the implementations more comprehensively.

7.5. Consolidation of the Business Groups

The three-Business-Group-model caused redundancies and duplications of efforts. There were cases when all the Business Groups initiated the development of quite similar products to address a salient market opportunity pointed out by the Customer and Market Operations. Also, the opposite was common. The less significant market opportunities got evenly low priority from all the business groups. Special arrangements were needed in order to initiate development to address these second tier opportunities. Moreover, the diluted accountabilities in the product development markets hampered effectiveness and morale in the strategically critical technology and product development. The most fundamental problem was that the organization of three parallel Profit and Loss responsible business groups caused inertia in solving common, urgent strategic problems. The optimization of the financials of the business group and solving common strategic problems were simply in conflict. In 2007, the executive board of Nokia made a decision to integrate the three business groups into two units: Devices, and Services & Software. The new organization became effective from the beginning of 2008.

The new organizational model dismantled the Business Groups and integrated devices business into a single unit and Services and Software Business into another one. The global operations were to be managed by one single organizational structure.
The Services and Software unit was responsible for creating and managing service platforms for the global service propositions. The Devices unit was responsible for the product business across the board: The product portfolio of the Devices-unit covered the products ranging from the most cost-optimized products to the developing markets to the sophisticated smart phones, competing with the smart phone contenders such as iPhone, Android devices and Blackberry.

The Markets unit was responsible for managing the global operations of Nokia. The global operations entailed integrated go-to-market activities of service, software and hardware propositions, sales and marketing across the globe as well as world-wide manufacturing and logistics.

Navteq, the newly acquired navigation company, was highlighted as an equal business with Nokia Siemens Networks on the top-level organization chart of Nokia Group. The corporate Development Office looked after the development of operations at Nokia level, as well as the creation and dissemination of Corporate Strategy. Moreover, the Nokia Research Centers reported to the Corporate Development Office.

Overall, the group level organization of Nokia was indeed an integrated model. Even the names of the organizational entities reflected the operational rationales of the units rather than entrepreneurial intentions of the company.
8  THE CASES

The four innovation cases of this study were all introduced to the markets in 2007 and 2008. The development time of the cases varied from a year and a half to five years. As a consequence of differences in development time, the organizational context of the cases varies slightly. To take into account the variation in the setting, the organizational context is discussed to a relevant degree as part of the cases.

Also, the originating units of these cases varied: N 95 and N 82 were initiated and executed by the Multimedia Business Group. The activities leading into the creation of COMES-WITH-MUSIC proposition were originally initiated in the Digital Convergence Unit at the turn of the millennium, but the development took place mainly in the Multimedia Business Group and finally the proposition was introduced to the market as a combined effort of Devices, Services and Markets units. The SPORTS TRACKER activities were in turn initiated at Nokia Research Center, which also took care of the implementation of the pre-commercial service proposition. The SPORTS TRACKER development was in interaction with the Services organization of the Multimedia Business Group. However, the interactions with the Services organization did not lead into commercialization of the SPORTS TRACKER invention.

The development times of the cases varied according to the complexity of the development task and to the nature of the work: the N 82 was the quickest one while COMES-WITH-MUSIC took the longest to define and develop. Also, the organizational context of the cases varied, as will be explained alongside the cases.

The four cases were selected on the theoretical grounds. The cases were chosen from Nokia’s overall product portfolio of 2007 and 2008 in collaboration with Nokia’s senior executives. The aim was to have a desired mix of recently accomplished innovation
cases, which market performance could be judged at the time of analyzing the empirical accounts of the activities in the projects.

The selection aimed for variance in terms of innovation types and dominant working modes. The study covers product and service innovations, which range from incremental to radical. Also, in order to have the sufficient variation in terms of deployment and diffusion challenges, the sample includes two innovation cases that rely closely on the operational tradition of the firm and two cases that did not build on the existing traditions of the company.

In the grid on the next page, the **Y-axis indicates the novelty of the innovation as perceived by the market** at the time of commercialization:

- The N82 was perceived as a rather incremental innovation. It stretched performance of smart phones on a narrowly defined area.
- The N95 was perceived as a highly innovative product. It introduced profound new functionalities such as navigation, true Internet browsing and a broad sphere of multimedia features to the market.
- SPORTS TRACKER and COMES WITH MUSIC were perceived as radical innovations as they introduced unforeseen holistic services to the market.

**The X-axis of the grid illustrates the proximity to the operational tradition:**

- The N82 and N95 products were smart phones, which were developed, manufactured, and sold by using the established processes of mobile phone business. As a consequence they are mapped as operationally close cases.
- The service innovations SPORTS TRACKER and COMES WITH MUSIC could not rely on the established product development and manufacturing processes and practices of the company. Thus, they are mapped as operationally remote cases.

**The size of the circle** signifies the scale of the development effort:

- N82 and SPORTS TRACKER were relatively small-scale efforts, whereas
- N95 and COMES WITH MUSIC were large-scale development programs.
The N 82 produced incremental, yet noticeable innovations to the business as it was defined in the established strategic schema of the company. The development of the product applied existing processes without modifying them.

The N 95 created a more radical departure from the established business paradigm of the firm. The innovation activity took place through existing processes. However, the activity had the capacity to modify the processes and the formulations of the Strategy. Yet, in essence, the innovation was rooted in the operational and strategic tradition of the firm.

The SPORTS TRACKER and COMES-WITH-MUSIC cases represented new businesses, which were only loosely connected to the business tradition of the case company. The Innovation activities did not rely on the processes of Nokia’s traditional business.
9 THE N 95 CASE

9.1. Introduction

The Nokia N 95 was a high performance multimedia phone, which changed the perception of what mobile devices are capable of. At its launch in March of 2007, it introduced strategically significant new capabilities such as true high-speed Internet browsing and navigation functionality to the market. Moreover, in terms of imaging and multimedia functionality it represented the state of the art in the industry. In fact, in these functionality areas the product raised the bar to the level that was viewed as the benchmark of the industry even well after the active sales period of N 95. Also, in terms of product design, the Nokia N 95 brought novelty to the market. It had sliding mechanics with a dual functionality: When the slide was opened to reveal the conventional keypad, the conventional phone functionalities appeared on the display. The slide also moved in an opposite direction. This movement revealed multimedia keys and an associated user interface on the display. As a consequence of the dual slide functionality the versatile functionalities of N 95 were intuitive to operate and also more clearly visible to the consumers.

The N 95 product helped Nokia to re-establish itself as the intellectual leader of the industry. It also made a huge financial contribution to the company and was clearly the most profitable multimedia device of the company during the period from 2005 to 2010. Moreover the product helped Nokia to embark on the new strategic trajectory, where the combination of a multifunction device and associated service propositions created value well beyond the value of the device alone. Over the course of the product development of N 95, Nokia acquired gate5 to complement the location functionality of the product with the navigation service proposition.

In the European, Asia-Pacific and Middle-East markets Nokia N 95 turned into an iconic product. It fundamentally changed the market and the reversed negative trend in the consumers' perception on Nokia’s innovativeness. At its launch, in 2007 Nokia N 95 was viewed as the most innovative product of the industry.

9.2. The Narrative

9.2.1. The Foundations for Being Innovative – The Mission and Latitude to Drive Changes

As stated by the SVP of Multimedia Product Business, the driving force for making a series of leading edge product implementations at the Multimedia Business Group was the aspiration to make ultimate performance machines according to the competitive dimensions defined by the product category Strategy. The person in charge of the product category Strategy: VP of Portfolio Management, echoed the view, but highlighted the importance of external forces and continuous learning. He iterated: “The quest for making the ultimate performance machines was driven by the strategic mission of the Multimedia Business Group, the competitive pressures of the market and continuous learning from the previous generations of the products”. The N 95 was a point in the case of product category Strategy reflecting the external forces and the learning capability of the company. The previous generations of multimedia products
had been based on the product category framework where the highest end products were narrowly focused on a particular functionality. This focused approach facilitated aggressive development of underlying technologies enabling those functionalities. However, due to their very nature, the focused high performance products appealed to limited target markets only. VP of Portfolio Management viewed that during the earlier product generations the revenue generating business was left for the lower tiers of multimedia products, which were more generic in their functionalities. He reasoned that they simply appealed to the broader market. Now, the experiences on the earlier products, mounting competitive pressures and the development of technologies had brought the Multimedia Business Group to the point where it became viable if not necessary to consider a multi functional device in the high end of the range. VP of Portfolio Management explained further that this insight was subsequently verified with the market research. The research confirmed the insight that the consumers were looking for a pocket size product accommodating a wide array of Multimedia and Internet functionalities.

As summarized by the Executive in charge of the Multimedia product business, the N95 proposition was set to hit that opportunity. The product program was given the mission to bring an ultimate ‘all-in-one’ multimedia experience to the market.

9.2.2. The Practice of Creating an Innovative Concept

As stated by the VP of Portfolio Management, the product portfolio management process of Multimedia Business Group was a heavy-duty practice. It engaged the key Multimedia Business Group executives of Sales areas, Product development, and Design and Portfolio planning into a tight and influential process. The VP of Portfolio Management further elaborated that the process was heavy also in the sense that it covered all important aspects of product planning including sales planning of existing products, product planning of future products, monitoring of product development and driving technology development and design. Moreover, the team covered these aspects across existing products on the markets, the products in the development and in the conceptualization phase. As the Director of Portfolio Planning put it, the planning forum and associated networks were learning hands-on from the market experiences, as well as from the technology opportunities. The forum and associated networks had competences, capability and mandate to manage those aspects effectively. The members of the forum had a strong influence to the execution of the plans, as far as they were subject to the resources of Multimedia Business Group. The Portfolio Planning forum was also, through Multimedia Business Group management and personal relationships, able to influence the strategic framings that their work was building on. The VP of Multimedia Design recalled that the Portfolio Planning forum shared collective mission, they were learning effectively and planning systematically. In this contexts he also pointed out the importance of shared history: “Through common working history and a couple of previous planning iterations the set up was also able to deal with the paradoxes and trade-offs that inevitably emerge in the complex field of product planning”.

The core of the Portfolio Planning network consisted of UK originated dynamic executives, mostly in their early 40’s. The core of the network shared a number of years of common working history. As pointed out by the VP of Multimedia Design, they had spent substantial amounts of time in the informal settings at airports and other places. They all knew one another also in private. They shared a common identity as ‘Brits’ within the organization. Over the course of the years they had developed a collaborative
and supportive working practice among themselves. The British core of the network was amended with the key executives with their informal networks grounded in Tampere R&D site and in the 'management corridors' of Espoo. The Tampere site was a critical pool of multimedia technology competence. It was also a node for a large portion of multimedia related vendor networks. As explained by the Product Manager of N95, the foundation of the multimedia competence in Tampere had been created during the previous decade. First it had taken place under the umbrella of Nokia Research Center and later on in the multimedia focused business units and platform entities. The UK site, and in particular the product planners, had a tradition of interacting with the markets, business and design management. Moreover, through years of working on the Japanese market, they had an extensive experience to work with the Tokyo R&D site. In the context of multimedia products, the Tokyo site was instrumental in interacting with the camera and other hardware suppliers as well as in benchmarking with the leading Japanese consumer electronics companies. All in all, as consistently explained by the people of the product portfolio management community, the product portfolio planning set up of the Multimedia business was a well-connected, grounded, capable, and sufficiently diverse and influential set up with a common identity and mission. Through its network it had access to a wide range of competences and resources relevant to performing their planning task. Through common identity and working history they were able to process complicated matters and even paradoxes. Through their seniority and well-functioning and mutually respectful connections with the senior management, they were able to get resources and support for their aims, as well as adjust the cognitive frames and firm routines that influenced the execution of their plans.

9.2.3. The Competence Foundations of N95

As the Director in charge of Camera modules explained, the history of multimedia competence reaches back to the early 1990’s, when a unit for developing wireless data devices was set up in Tampere. Originally the unit was focusing on data-centric devices for the business use. That focus facilitated the creation of data transmission and software competences in Tampere. Those competences in turn opened avenues for exploring ideas in the imaging, media player and gaming domains. In the late 90’s the multimedia competences in Tampere were primarily organized under Nokia Research Center. In the turn of the millennium most of the resources gradually migrated to the Business Unit focusing on the Digital Convergence Products. The first and most successful application area in the digital convergence space was imaging, i.e. the camera phones.

Four generations of Multimedia products had been designed in Tampere, among them the first Symbian S60 phone with an open operating system, as well as the first mass market WCDMA product, the Nokia 6630. Through the development of the earlier products the core technology resources had gradually moved into the platform mode of operating: Instead of having strict product focuses, the technical teams were focusing on creating capabilities and concrete technology modules in their respective application areas. The modules were then applied across the products. At the time of developing N95 these platform units were organized into Symbian Product Platform.

With its experience, knowledge and networks the Tampere site was the undisputed intellectual leader in understanding the multimedia use cases, technologies and solutions. As pointed out by the Product Program Manager of N95, they were also
centrally positioned in dealing with the multimedia technology vendors as well as in managing Nokia’s software partnerships.

Tokyo site was another site with a say in the development of multimedia products. They provided a benchmark in the leading multimedia devices market. Relevant benchmark knowledge was coming partially from the mobile phone market in Japan, but to great extent it was coming from other consumer electronics product categories such as cameras, displays and players. The Tokyo unit had a mixture of Japanese and foreign people, who shared curiosity of multimedia technology development. With the diversity stemming from 23 nationalities in the personnel, the unit had good combinatory capabilities, and was well connected to the other R&D sites in different parts of the world through its informal networks.

9.2.4. Creating the N 95 Concept – the Organic Way of Learning

The VP of Portfolio Management revealed that in fact the attractiveness of the ‘all-in-one’-proposition had previously been probed with a product coded N 80. Launched in the April 2006 it was positioned as a premium smart phone. In contradiction with the earlier product category Strategy N 80 had no singular functionality focus but rather it had a broad appeal feature list. The sales of N 80 started nicely but the product died young, as it was difficult to position it on the product category map, where products were differentiated by their functionality. In that product category model, it was simply too close to the less expensive N 70 in terms of its functionality. The product lacked the differentiating edge and was not distinctive enough. Still, as a market sensing experiment it provided soft evidence on the plausibility of an ‘all-in-one’ –product Strategy.

The VP of Multimedia Product Business pointed out that the biggest innovations in the N 95 were made on the level of the roadmap and the product category framework. Building on the experiences of N 80, the assumption of functionality-based categories was challenged. The definition of N 95 product was driven by an alternative vision of an ‘all-in-one’ device. In this context, also the assumptions on the viable price points of mass-market products were challenged. With the initial price of over 650 €, the N 95 was clearly and substantially the most expensive product targeting the mass market. The product was priced over one third higher than previous high tier mass-market products. VP of Portfolio Management recalled that this pricing allowed extreme performance focus in defining the product. The product was set to have a camera that was comparable to any compact camera, an integrated GPS, memory capacity sufficient for storing maps and multimedia content, a large high quality display and an excellent browser to support the high speed browsing and true Internet experience. The product was set to be a convergence, not a compromise product.

The Director of Portfolio planning recalled that the N 95 was defined as part of the ‘Range 2006’ planning activity. The ‘Range Planning’ activity aimed to define three parallel products N 7X, N 8X and N 9X. The N 7X was targeting the mass market and had the broadest appeal, the N 8X product was supposed to be in middle of the road in terms of its sophistication and price point. The N 9X product was given the latitude to stretch the performance boundary of multimedia technology to the extreme. The product was targeting the most progressive consumers. As the SVP of Multimedia Product Business recalled, the N 95 was urged to take risks beyond ordinary, and even to the point that involved the risk of failing.
The VP of Portfolio Management iterated that by challenging the convictions on the product categories and product pricing, the concept decisions of N 95 opened avenues for new combinatory thinking. It was not the price point but the value of sufficiently easy to use functions that dictated the attractiveness and volume potential of the product. For the operator customers, the value of the product stemmed from the fact that it was to be a product that drives the highest data traffic.

On these grounds, it is fair to conclude that the most fundamental innovation of N 95 was made on the level of product category Strategy. Instead of making a focused application product the N 95 was set to be a true convergence product, which was aimed at maximizing the value with the advanced functionalities. The value was to be maximized primarily from the perspective of the end users, but also the operator perspective was taken into account. Both Director, Portfolio planning and Product Manager of N 95 elaborated, that the fundamental change in the category logic triggered streams of innovations in multiple areas of product design. As the Product Manager stated, this change in the category logic was coupled with the changes in the consumer demand. With the experiences of fixed Internet and previous generations of multimedia oriented mobile phones the consumers were ready for the all-in-one device. Similar coupling existed to the changes in the Operators’ strategies. The operator customers were growing more open to the propositions that drove maximum data traffic to their networks. Previously, they had been mentally locked to more closed service propositions with their proprietary service strategies. Now having witnessed the take off of ubiquitous Internet services, the operators had come to realize that more liberal approach to services provided by other parties was necessary. The N 95 addressed the opportunity stemming from the concurrent changes in technology, industry logic and consumer behavior. The success of the N 95 did not build on entirely new functionalities but rather on a unique combination of previous categories and concepts.

9.2.5. The Concept

The VP of Multimedia Design explained that the N 95 product was set to be an avant-garde “all-in-one” concept with a clear visual and functionality distinction. In line with the strengthening mobile multimedia take-off, the product was set to have a display centric design. The team started looking for a visual metaphor around a horizontally used landscape user interface. As a concept, the screen centric design of N 95 had been already tested in the previous Games category. VP of Multimedia Design explained that the seeds of the design concept came from the previous N-Gage gaming device category. The sketches of a concept that had been living in the design organization for years were brought to the portfolio planning community. As recalled by the VP of Multimedia Design the adoption of the tried and tested design concept was helped with a pragmatic ‘copy with pride’ mentality, which was advocated by the Multimedia Business Group management at the time. However, as stated by the SVP of Multimedia Product Business, it was not the design alone, but the design and the capability of the product planning community to actually envision the way to execute it holistically that made the concept compelling. Confidence on the capability to implement different aspects of the concept brought the concept into full blossom. Ultimately it was the capabilities and sphere of influence embedded into the ‘heavy-duty’ product planning routine that enabled the planning community to see the power of the concept.

In addition to the novel positioning of the product, Global Positioning System (GPS) functionality was brought into the concept to make a true distinction and impact on the
market. As VP of Portfolio planning stated, the decision was made at a risk. The location-based services were still in a pre-mature stage in general and Nokia had only scarce knowledge on how to leverage the functionality. As he recalled, the strong positive customer feedback of the concept testing focus groups was critical to keep the vision alive through the challenging times of the design and development process. The product was viewed and articulated as an ‘Exciting Wonder Machine’ with all Multimedia bells and whistles. This resonated well with the strategic mission of Multimedia Business Group. This kind of progressive vocabulary and position was encouraged and even assumed at the Multimedia Business Group.

9.2.6. **The Set up, which Created the Concept**

The VP of Portfolio Management explained that the product concept team consisted of design, product management and technology architecture people from R&D. The focus of the work was on the core essence of the product as well as on the rough viability of the concept. After such pre-concept work a systematic R&D-concept creation and product definition work was initiated. The latter activity focused primarily on how the implementation will be made. The alignment between these two phases took place through common identity, common management and actively participating senior management. VP of Portfolio Management recalled that in particular the Senior Vice Presidents of Multimedia Business Group’s product business and product development were instrumental in securing cohesion between the pre-concept and the detailed concept creation work. The actual engineering work took place in Tampere, where the multimedia competence had been accumulating for a decade. The roadmap community, product marketing, design and architecture people handled the early phases of the concept-development continuum. The Product Manager was in the key role of pulling together the complementary perspectives of different disciplines. In the Product Manager’s view this sequencing of the work facilitated combinatory innovation. The people engaged in the early phases of the work were well informed about the opportunities and the trade-offs in their respective disciplines but still they were not overly deeply rooted into technical nuances and complexities of making these unique combinations. The VP of Portfolio Management reasoned that the in-depth knowledge divided into disciplines might have inhibited combinatory innovations by anchoring the creation of new knowledge into the sophisticated layers of a particular discipline. The cross-disciplinary team configuration of the early phase of concept creation work was rife with combinations. Identification to common mission, goals and management of Multimedia Business Group facilitated the process of overcoming obstacles in implementing challenging combinatory innovations. In addition to the Business Group level identity, the community working on the early phases of concept creation work developed its more specific identity, mission and goals. The relatively autonomous and self-organizing community developed norms and shared rationales into its continued effort to implement the innovative proposition. These norms and rationales traveled with the people to the teams actually doing the implementation. These norms created during the early concept creation work provided a foundation to its members to drive relatively cohesive implementation work in different parts of the organization. The Product Manager pointed out that the shared norms and rationales also provided a mechanism for searching for compromises in the instances where they were needed.
9.2.7. Support from the Senior Management

The VP of Portfolio Management viewed that a newly created high level practice of Monthly Planning Meetings was instrumental for seeking guidance and getting support for the N 95 conceptualization work. The relevant board members of the Multimedia Business Group got together between the Product Portfolio and the Management Board meetings in order to discuss the concepts and development activities. This forum took stance to the strategic matters and complicated trade-offs. The people attending these planning meetings were the SVP of Product Business; SVP of Product Development; VP of Portfolio Planning and VP of Design. VP of Portfolio Planning pointed out that in particular the SVP of Product Business demonstrated strong leadership and did not wobble in the early phases of N 95. He believed in the double slide concept and had the courage to opt for high performance components at the expense of cost. He also had the courage to factor in the cost erosion of the components into the business plan. As the SVP of Product Business explained, his view of the cost erosion was based on the experience of the earlier high volume, high performance multimedia phones. The VP Portfolio management appreciated the fact that the Monthly Planning Meeting focused on doing “strong things” for the benefit of the overall concept. It accepted the risks those “strong things” caused to the schedule and the business plan. The Monthly Planning Meeting demonstrated its commitment to make the difference in line with the mission of the Multimedia Business Group. The commitment and determinations spread. Moreover, as the VP of Imaging reasoned, the interaction in the Monthly Planning Meetings helped the key stakeholders to proactively prepare to meet the challenges of implementing the ambitious proposition of N 95.

9.2.8. Specification Changes During the Development

The Product Manager recalled that after the definition of the product had firmed up, still a few critical amendments were made to the proposition:

N 95 was linked to the roll out of High Speed Data transmission in 3rd generation mobile networks (HSDPA), which increased market risk but at the same time made N 95 a strategic product to the operators.

Earlier introduction of the product to the lead customers allowed sufficient time for the deployment of technical capabilities at the operator networks. This required deviation and finally a change to the routine of introducing products to the customers. The change of the routine was enabled by the close relationship of the planning community to the head of the Multimedia Business Group and his uncompromising commitment to the mission of the Business Group. The tensions caused by the change in the routine were eased by the diplomacy of the operational people of the portfolio management.

Navigation functionality brought the product development team into unknown turf, which inherently could not be planned in detail. The work involved unknown variables such as new partnerships.

Some graphics components to the User Interface. However the team did not make most of the screen even though the Program Manager took the initiative to introduce some graphics to it. The organizational and process setting of the User Interface development was broken.
As the Product Manager and Product Program manager stated, the bar on the product specification was set so high that some of the ‘medium size matters’ did not get enough attention in the product development. After the strategic stretch the next thing was to stitch it all together. It was easier to work on the strategic stretch matters as they were driven explicitly by the aspirations of Multimedia Business Group. The medium size, less strategic but still important aspects from the viewpoint of the attractiveness of the product, were embedded into the minds of the doers and routines of designing products.

During the development, some minor design features were dropped and the mechanics ended up in being somewhat compromised in terms of touch and feel. These changes did not affect the overall attractiveness of N 95. Also, the GPS was upgraded to A-GPS. This upgrade was enabled by the fact that the location service concept was being developed as a parallel activity and did not cause risk for the development of the whole product. The developers of the GPS technology had proactively worked out a solution for making the transition from GPS to A-GPS as smooth as possible. This arrangement gave latitude to explore and search for performance improvement in the location and navigation services.

9.2.9. *The Transfer of Intents and Knowledge*

The Director of Portfolio Planning explained that the product definition and specification traveled through the process in the minds and discussions of the people involved. The monthly review meetings helped to keep the discourse active, cohesive and connected to the management discourse. It also brought the principle of peer review into the process. Overall, there were three methods to take initiatives and ideas forward in the design process:

1) The formal way of working with documents.

2) Established review and meeting practices.

3) Working level practices and relationships to spread and discuss intuitions.

As explained by the VP of Portfolio Management and the Program Manager the emphasis of the work in N 95 was on the working level practices complemented with the meetings and reviews. Often the formal way of working with the documents followed the actual implementation work. A configuration of this kind takes time to develop. In this case, even the concept was initially designed for another purpose. According to the VP of Portfolio Management, working in such a dynamic and ambiguous fashion requires, that people share some common history, they need to be relatively well networked, and they have to have a capability to work together effectively in different kinds of formations, such as in pairs, triplets etc. Moreover innovativeness calls for openness towards changes and adoption of solutions that have been invented elsewhere.

9.2.10. *The Product Development Program*

The development of N 95 exceeded ordinary product programs in terms of the risk level and the need for continuous adjustments, both in the project and its organizational surroundings during the development. Operating on the high-risk level was enabled by
the Product Program Manager’s competence, mindset and established contact network. He had been working with the contributing networks already during his previous two product development assignments. The relationships of mutual trust and respect enabled elaborative and explorative way of working.

As the Program Manager recalled, the assumed 3-product vision gave the participants peace of mind in stretching the boundary and considering pre-mature options. The parallel processing of three concepts was essential for internalizing the logic of the range and the fundamental role of each individual product in the portfolio: The teams focusing on individual products were able to derive specific targets out of grand goals of each product.

The Director of Product Planning and the Product Manager run the product marketing aspects in the range planning practice. They represented the market and the users. A Technology Architect in the N 95 team was looking into technical options of realizing the product. In August 2005 the product concept was concluded as a part of the E-1 milestone package: The definition included the mission of the product, a draft of the key selling points, the concept itself, and ambitious technology and schedule goals on a fairly general level.

9.2.10.1. Refining the Targets

The refinement of the goals and turning them into explicit targets was left to the program. The senior management of the Multimedia Business Group, in particular SVP of Product Business was in active dialogue with the N 95 program and contributed to the refinement of the goals through continuous discussion. Formally the goals and targets were reviewed in the Multimedia Product Business Board as a part of the product development milestone reviews. At the critical E1 milestone, which formally released the product development investment, the targets were confirmed at the Multimedia Board. The advice from the board was that the changes were to be agreed with SVP of Product Business. The preparation of the specific targets was an iterative process with a lot of trade-off interdependencies, such as the memory card format – product size trade-off. As the Product Manager explained, the further iteration of targets involved re-shuffling of trade-offs, refinement of the targets and in some cases tightening of targets. At the time of the initial target setting, it was simply impossible to know enough to set specific targets on certain rapidly changing and new areas. In these instances general goals or indications of direction were set to direct the work. The initial rudimentary targets of those areas were further refined and made explicit during the development. The Product Manager gave the maps application as an example of such refinement process. In that case the refinement process engaged even external partner candidates into an explorative search activity; the Product Manager and key engineers of the field were in discussion with multiple partner candidates. They learned more about the navigation application area and were able to set more specific and justified targets within it. During this iterative search process the most prominent candidate was selected as a partner. In this case the chosen partner was ultimately acquired. As illuminated by the example of navigation, there was an active interplay between the strategic management and the proposition definition work. The interplay was able to deal with a wide variety of issues and options, ultimately even the acquisition of a partner company, gate5.
9.2.10.2. Dynamic Approach in Supporting and Extending the Development Program

Over the course of the development of the N 95, the set up supporting the program was adjusted dynamically according to the needs of the holistic development of the product and the Business Group in general. A trio consisting of the VP of Imaging, SVP of Multimedia Product Business and SVP of Multimedia Sales reviewed the plans and status of the work regularly. The VP of Imaging was in effect reporting both to SVP of Multimedia Product Business and to SVP of Multimedia Sales. He was getting the support of their respective organizations to the implementation of the product, and in particular to working out new routines for bringing the product to the market and doing collaborative business development with customers and other business partners. In return, the Sales and Product Business organizations were able to use N 95 as a vehicle to develop their operations. Also the program set up evolved according to the challenges at hand. The Product Manager changed of his own initiative. The Product Manager of the early phases was very strong in the concept creation. As the program matured there was a need for a more operational product manager. The earlier Product Manager transferred his role to a more operational product manager, whose personality, competences, and working style were in line with dealing with the technically oriented product development program. In addition, the product marketing team was strengthened with a dedicated Go-To-Market (GTM) Product Manager. Competences were in turn in line with the challenge of dealing with complex Go-To-Market program, which reached to the Sales organization and to the customers.

Overall, the working mode of N 95 went through the progression including 1) a highly networked task forced in concept creation, 2) a disciplined program stage predominantly following the well established routines of concurrent engineering project, and 3) an expansive network oriented change management project to handle the launch of the product and associated collaborative business development with the business partners.

Moreover, as explained by the VP of Imaging, the program was working with external networks through bloggers. The bloggers got some early prototypes to test and to play with. This early friendly user test gave valuable input for further improvement of the product. More importantly it helped Nokia to build up an intellectual leader's image. The role of the VP of Imaging was to keep the whole set up sufficiently cohesive and to keep the focuses and priorities clear for effective execution. It was a dynamic hybrid set up with a mixture of exploitative and explorative activities. The dynamic nature and inherent instability of the system facilitated a high energy level, kept the participants in constant interaction. The set up was agile yet building on tried and tested practices where justified.

9.2.11. Creating a New Practice for Launching a Product

While being developed, N 95 drove new ways of working at Nokia. A systematic Go-To-Market (GTM) practice was reactivated. Timing wise, the practice was established at a quite late stage of the N 95 program (in September 2006, as the product started shipping in March 2007). The GTM practice was reactivated as a response to the practical problems in securing that the proposition actually delivered the value in the live networks. Also the GTM approach was to bring cohesion to the positioning and sales arguments of the product across the markets. The GTM practice was built on the previously applied business development practice of Nokia 7650 and 6630. Those products had introduced fundamentally new telecommunication functionalities such as
Multimedia Messaging and WCDMA to the market. Also in those cases the consistent deployment of enabling technologies was critical to the successful launch of the products.

Another factor that supported creation of the new GTM practice was the fact that the Multimedia Business Group had in its overall forming up reached the maturity to deploy and enforce a holistic Go-To-Market approach. Coinciding with this overall development the N 95 program was facing the practical challenges of making a holistic proposition cohesively alive on the market. The N 95 program and the parties around it were given a mandate to apply a new and more resource intensive way of launching the product. To address the resource intensiveness, the resources of the sales regions were engaged in the process. The fact that the SVP of Sales was involved in managing the VP of Imaging helped in getting the resourcing decisions made in the sales regions. The GTM working practice was brought together on multiple organizational levels and actualized through N 95 as a ‘spearhead product’.

The aim of the new Go-To-Market way of working was to achieve cohesive positioning of a multifaceted product in a variety of market environments. The focus of the actual GTM work was on securing that the service aspects of the proposition got properly deployed on the markets. There was a lot of learning involved in developing and deploying the service aspects of the proposition. The learning transferred in some cases through the center and in some cases directly from country to country. A good example of holistic and non-linear learning is the progression of the location feature into a holistic navigation service proposition. The initial target setting for the location feature was a typical product feature target setting. Continued work on the feature led to a more comprehensive understanding of navigation as a service proposition. This in turn introduced a set of complexities on multiple fronts. Firstly the proposition was to be created in collaboration with the navigation service companies. Secondly the proposition was to be implemented in the main markets. This implied acquisition of map information on the targeted market areas. From Nokia’s perspective, launching the navigation service proposition in a variety of markets required the creation of an entirely new market. As explained by the VP of Portfolio Management, the old product development governance approach was tuned to take care of product development. To complement this, the key managers initially handled the deployment of the navigation service proposition as self-organizing voluntary work. Gradually the work evolved into a more formal GTM way of working. A dedicated GTM Manager was appointed to manage the dispersed activities. The work started with a pragmatic review of the state of affairs in different countries. As the Head of Global Go-To-Market activity recalls, the review revealed that the Key Selling Points were scattered and incompletely implemented. GTM Manager created a follow up mechanism, which used a simple template and systematic review practice to collect status information from individual countries. The review meetings took place bi-weekly. The daily work of the GTM Manager focused on securing cohesive deployment of the proposition, and it entailed reviewing and influencing the business development activities in the individual countries. The SVP of Multimedia Sales and the VP of Imaging were the ultimate review authorities monitoring the deployment of the Key Selling Points of N 95 in the countries. The VP of Imaging supported the deployment by influencing through the middle management. The SVP of Sales secured the resources and support of the sales regions.

As the Product Manager explained, another important principle of the GTM work was a tight and pragmatic focus on the UK as the lead market. The GTM Manager organized the work with local people. The people from the Product Development Program spent a
considerable amount of time on the market. This effort helped the program align its implementation with the market realities and vice versa. The face-to-face contacts and the time spent with the customers helped to create a collaborative set up and mutual empathy. The VP of Imaging pointed out that the principle of extreme focus was taken all the way to the level of customers. An example of this is the collaboration with the biggest retailers in UK. It was critical for verifying the retail proposition and the non-operator version of the product. A truly collaborative mindset was established by working out a unique color variant for the retailer.

As a consequence of the collaborative way of working with the key customers, the formal customer acceptances on the markets were exceptionally smooth. After the sales start decision, the customer approvals were received in a matter of hours. The customer approvals typically take weeks to receive. The VP of Imaging concluded that the clear and focused lead market approach brought multiple benefits. Firstly, it secured the deployment of the service enablers on the market. Secondly, it helped the program to verify the proposition and do necessary adjustments to it. Thirdly, it verified the new GTM routine.

The actual sales of the N 95 were started in phases. First in the UK; the next week in two other countries and in the following week three more countries were activated. The Product Manager in charge of GTM managed the process and phasing and the SVP of Multimedia Sales set the incentives for the sales people accordingly.

9.2.12. Working on the Strategy

N 95 had no explicit link to the corporate level Strategy process of Nokia. Still N 95 was in the core of the Strategy as it was driving capabilities and features that were central to Nokia’s strategic renewal. The Music player, Yahoo collaboration, MSN collaboration, DRM implementation and e-mail set up wizard were all in the core of transformation into more service oriented value creation. The product drew from the Strategy and it fed into how Nokia’s Strategy materialized.

The link to Multimedia Business Group Strategy was explicit and supported by allocation of attention and resources as well as by mandate to optimize the working practices in an alignment with the task at hand. The VP of Imaging spent 50-75% of his time on N 95 despite the fact that he had a portfolio of products to look after. He got strong support from the leadership of Multimedia Business Group (EVP, MM BG; SVP, MM Product Business; and SVP, MM Sales) to his work. In particular, after the public launch of the product, also the support from the platform organization was aligned with the strategic role of the product. The clear positioning of N 95 in the Multimedia Strategy and the excitement stemming from the market responses to the product energized the set up that was working on developing the product and the ecosystem for it.

9.2.13. Working with Other People

The work involved a lot of interaction and mutual adjustments by the participants. According to the VP of Imaging, in particular the timings and positioning of the proposition were continuously adjusted. The VP of Imaging put a lot of effort into communicating the changes and engaging people into required re-planning. While the VP of Imaging was focusing on the communications and dealing with the people
outside of the program, the Product Program Manager focused on the internal execution. A transparent relationship and mutual trust between the VP of Imaging and the Product Program Manager was essential for the effectiveness of this continuous adjustment process. The differences in the focuses and competences enabled this duo to work effectively on a broader range of issues. The principle applied in this adjustment process was that first the issues were discussed and the solutions were searched among peers. If the solution could not be found through these horizontal networked activities, escalation was considered. Even in the cases of escalation the VP of Imaging aimed to work together with the operational people. The escalation was done together or at least the other party was aware of the escalation. Even the resourcing issues were primarily resolved through direct interaction with operational people in the other parts of the organization. This may have been partially enabled by the high priority of the program and the level of attention the program received from top management of Multimedia Business Group, and also from the other executives of the company.

The fact that the issues were primarily worked through direct interaction facilitated reciprocal trust and commitment building, which was one of the key factors for effectiveness in the mutual adjustments during the development. The gate5 -case was an exception in the sense, that in essence gate5 was a small entrepreneurially led company. The founder-manager was actively involved in the case himself. In the case of gate5 all critical arrangements were agreed with the founder-CEO of the company. Effectively, the way of doing mutual adjustments depended on the case matter. Imaging and Music were already established functionalities. In such established domains setting up justified explicit targets was possible. The target setting was driving the collective effort. The process was teleological. The location/navigation field was genuinely new, and precise target setting would have been pointless. The collective effort was driven by the vision and quite general level intent. The search for the solution and gradually developing the specification took place in a networked effort, where agility was critical. The target setting was emergent and took place through discourse with dialectic characteristics. As VP of Imaging stated, nobody was explicitly in charge. A compelling vision and the people committed to a broad strategic direction drove the work. The stimulation came from doing something significant and striking together. The high priority of the N 95 enabled execution and actualization of complex multifaceted tasks in an organic way.

The Product Program Manager pointed out that setting up a realistic schedule is critical in defining the window for the specification and innovation. In the case of N 95 the overly tight schedule target led into freezing the specification pre-maturely in certain areas. However, the overly tight schedule may have been necessary in order to secure timely deliveries from the internal and external technology partners. At the time of the N 95 product development Nokia was operating in a strict platform mode, where for instance the entire Software implementation came from the Symbian Product Platform. The Software Requirement Management Process of the Symbian Product Platform was impersonal and had interfaces open both to the market and to product programs. The management ended up spending a lot of time in making sense of the lists of hundreds of software requirements. The backlog of requirements was hundreds of requirements all the time. In the N 95 program the key person in the process was the Software Manager, who kept track on the requirements. There was a gap between the program needs and the capability of the platform. This in turn led into bargaining between SVP of Multimedia Product Business and SVP of Symbian software. The sense making of the flood of information turned into a critical capability in the software requirements
management. Instead of managing specific details and the quality of their implementation, the work was focusing on making sense of a mess.

Ultimately the program got more or less of what it required from the Symbian Product Platform. However, in the software development this was enabled by the fact that the N 95 relied heavily on the implementation of N 93 and that the product had an exceptionally high priority in the management discussions. Despite the high priority, in order to succeed, the mindset was that N 95 was an integration program and compromises were to be accepted in order to get the product ready on time.

The hardware development was more explicitly managed through the program. The program was responsible for the integration of the hardware modules. The modules were developed by the platform organization but still the process was more manageable as the requirements and specifications came exclusively through the program.

In the given set up the program was not innovating on ‘what’ after the specification was set. In fact there was no need to do it either, as the specification was ambitious enough from the outset. However the program innovated a lot in ‘how’: How certain features work in practice, how to get them implemented and how to tell the story about the key features. In working on the ‘how’ questions, for instance in the navigation area, the tensions between the parties were creative. The starting points and interests of the Product Program and the Service organization were different. However by referring to the user experience the people were able to find common ground and settle the specifications. The settlement process worked reasonably well with the gate5 people as they came from a small company/unit and had a lot of practical customer feedback inherently embedded into their thinking. The user experience issues were inherently present in the discussions. Another positive example is the multimedia carousel, a new user interface style. There the iteration of the specification took place in a small team consisting of people with technical expertise and market expertise. The lead-time of the implementation was impressively short. It took only couple of months to create a user interface feature that truly made the difference on the market.

The opposite example is Voice-over-IP where the iteration took place in collaboration with technology experts alone. The usability and market reality issues were not present in the discussion. The implementation turned out as a technologically sophisticated implementation, but it was hard to get working in the markets. As a consequence, the Voice-over-IP implementation did not contribute to the innovativeness image of the product. The same problem applied to the Browser implementation, which was crucial for a high-speed data product, which aimed to change the perception of browsing with a mobile phone. The technologically sophisticated browser team was in Boston, while the management of Symbian Product Platform was in Oulu. Moreover the compatibility of the browser with different market realities needed to be tested in different parts of the world. There was very little opportunity recognition potential in the system. As a consequence, the browser implementation was kind of a ‘black box’ from the viewpoint of the program.

The program managed the bit flow by issuing weekly reports with a large distribution. The hardware build plan in relationship with the software release plan and software status was in the intranet and visible to all relevant parties. The strategic role of N 95 helped in getting attention to the issues. A single mechanics partner consolidated the interactions with internal and external hardware suppliers. VP of Imaging handled the Go-To-Market interactions.
9.3. The Key Phases of Development

The mission of the Multimedia Business Group, the rapid take-off of consumer Internet services and accumulated experience about the usage patterns of multimedia mobile phones influenced the goal setting of the N 95. Clearly there was a need for all-in-one high-end propositions.

The influential portfolio management community took the challenge to define the product, which hits that opportunity. The facts that the team was versatile, experienced and well connected both operationally and to the management were all factors contributing to the efficacy of the team.

With a decade long research and development investment in the area, Nokia had a broad portfolio of technologies to build on. Clear mission, broad mandate, and large efficacy of the portfolio planning community enabled them to see the opportunity holistically and drive the necessary changes to the product Strategy and operational practices of the company. The product Strategy framework was changed from the functionality focused products to multipurpose devices. This change triggered a flood of combinatorial innovations. The changes on the working practices aimed at enabling a holistic definition and management of propositions that consist of product and service components.

The work was driven by the entrepreneurial leadership of Multimedia Product business, who challenged the earlier price point and practices for estimating the cost structure of mobile phones. These changes gave leeway for incorporating aggressive innovative functionalities to the product. Also the leadership urged turning all the stones and going back to old concepts and experiments. The double slide concept that resolved usability challenges associated to high functionality multipurpose device was found through this search from the past.

Once the product was defined, the development evolved into a large-scale product program, which worked according to established practices in the core development tasks. Respecting established practices was essential in order to manage the massive flow of information and to manage the deliverables coming from different technology platform units and component vendors. In the area of new service development the program managed to provide sufficient latitude and flexibility to cope with the needs of exploration in the new areas. This explorative work included both internal and external parties. A certain degree of exploration and adaptation was necessary for effective business development of global and country specific services. The VP of Imaging was responsible for orchestrating the country specific business development activities through the newly formed Go-To-Market practice. The interface to the global service partners took place in collaboration with the parties of newly formed monthly planning practice. The people from the program were directly involved in working out technical aspects associated to the business development.

The market facing business development called for changes in the launch process. The newly formed Go-To-Market approach enabled earlier introduction of the product to the strategic partners and lead customers that were critical for the creation of proposition consisting of service elements. The creation of the new GTM practice was helped by the fact that the Multimedia Business Group and the N 95 program shared the same strategic interest to create a capability to launch holistic propositions containing both hardware and service elements. Moreover, the reporting practice, where the person in charge of the Go-To-Market activity in effect reported to the SVP of
Sales helped to secure the resources drive to the new practice. A strict focus on the lead market and on to the specific lead customers enabled comprehensive implementation, which entailed both global and local service elements. The country specific launch was effectively and adaptively replicated from country to country.

As an outcome of this combination of cohesive and dispersed effort the N 95 turned out as the most innovative product in the industry. It facilitated the creation of global navigation service for Nokia, which was a combination of local and global service components. Moreover the associated business development acted as a catalyst in many countries to create versatile mobile services by the local parties.

**Figure 14** The development process of N 95 product.

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9.4. **The Drive and the Interplay with the Environment**

The aggressive mission of the Multimedia Business Group drove the program. The development of operating practices was subordinate to the mission statement. The N 95 program drove change to both Portfolio Management practice and Go-To-Market practice of the company. The Portfolio Management community developed their working practices with the aim to have a holistic life cycle management approach. That approach, combined with the participants from the market, design, portfolio planning,
and technology management communities enabled Portfolio Management to see opportunities holistically. They were also in a position to enact them effectively. The community had good teamwork dynamics and an ‘all in’ attitude.

The SVP of Product Business demonstrated strong entrepreneurial risk-taking and leadership by driving through pricing and material cost assumptions, which deviated from the tradition. Those assumptions enabled aggressive adoption of new technologies. The risk-taking was supported by a license to fail. In the outset, the N 95 was supposed to be just one product in the range of three. The lateral and combinatory thinking was supported by the fact that technology architects were not experts of any particular field, but rather generalist technology architects. This facilitated combinatory thinking and capability to translate technologies into commercial benefits.

The exploitative implementation phase was effectively separated from the explorative Go-To-Market activity that ran in parallel. The exploitative implementation was done by a cohesive program organization. The program team members were highly respected and many of them had worked together in two earlier programs. The program got first grade support in terms of resources and influence from the SVP of Product Business and SVP of Product Development. The Explorative Go-To-Market work was led by the VP of Imaging and he got support from SVP of Product Business and SVP of Sales. Moreover, an Operations Development Manager supported the Go-To-Market work. Success criteria in Go-To-Market work were a tight focus on the lead market and lead customer and an effective replication thereafter. The replication practice was adaptive.

All the way through, the N 95 program and the Portfolio Planning community were transparently integrated into the Strategy discourse of Multimedia Business Group. They were also capable of interacting actively with the external parties such as technology and service partners as well as with customers. On top of that the program was capable of managing the massive bit flow related to technicalities of the implementation. The N 95 program was effective in sense making. The insights they created from the diverse inputs of both internal and external realities fed into the Strategy discourse and working mode development of the company:

1) The portfolio planning practice was developed into the direction of more holistic portfolio lifecycle management approach. This change facilitated more holistic opportunity recognition by incorporating the inputs of current products and insights for defining the future products. The portfolio planning practice extended effectively to the markets and to the technology supplies chain.

2) The launch process was developed to the direction of orchestrated business development process, which facilitated collaboration with external service partners.

3) The linkage to the global service business development was strengthened. In practice the collaboration was orchestrated through a new monthly planning practice that engaged key stakeholders of global business development. The program was directly engaged in the cases that assumed technical development or adaptation.

Overall, the N 95 turned into a highly innovative product that ended up renewing the product Strategy in a profound way. It also renewed several strategically important working practices in the company. Moreover, the innovation activities of the N 95 program were in continuous interaction with the external service partners. This interaction assumed adaptation both at Nokia’s side and at the service partners’ part.
Throughout its development, the N 95 program successfully expanded its sphere of influence. In the first instance, the range planning practice provided a broad range of inputs of technological opportunities to the process of defining the product. The extended portfolio planning practice extended the efficacy of the program on internal Strategy and process development, as well as on external business development. The capability to work with external parties and the influence over the Strategy and internal process development was further elevated with the adoption of monthly planning practice that engaged key stakeholders of those lines of activities. The Go-To-Market process in turn extended the geographical reach of business development activities to each and every country.

The strong sense of ownership and collective entrepreneurship, which successfully developed from the core of the product definition work, and there specifically from the personal example of SVP of Product Business and VP of Portfolio Planning, spread out through the people involved in the processes of this organic effort. As a consequence, the program gained influence over the internal Strategy and business process development. Moreover, the N 95 program became influential over the business development with the Telecommunication and Internet service industries.
9.6. The Summary of the N 95 Case

The N 95 product changed radically the consumer perception of mobile phones. It introduced a number of groundbreaking functionalities in a novel design concept, which clearly was a deviation from existing products.

The critical phase in developing this radical innovation was that the product definition work. It was done as a part of holistic portfolio planning process. With the definition work of the N 95 product, the portfolio planning process was elevated into an extensive and highly influential process engaging the key stakeholders of sales, product planning, product development and technology development. This elevation of the process was driven by the entrepreneurial initiative of SVP of Product Business and VP of Portfolio Planning. The participants of the elevated process were able to bring broad set of inputs, cognitive frames to the planning and making decisions about the product. With their broad locus of influence they were also able to envision the value of the innovative proposition in a broader context. Influenced by the leadership of the Multimedia Business Group, the mindset of the enhanced product planning process was open and receptive to ideas from all parts of the organization and also from the past. The mission and leadership of the business group urged progressive risk-taking. Moreover, the fact that the participants of the planning process developed a sense of ownership to the innovation was instrumental in later stages of the development work. The dispersed action required for implementing the holistic radical innovation was easier to execute, as the key stakeholders of different parts of the organization were supportive to the work from the outset. The portfolio planning process was tightly linked to the Strategy discourse of the business group. The product definition work of the N 95 product re-
framed the principles, according to which the products were positioned and defined. This reframing was an innovation as such. Even more importantly, the change facilitated the conceptualization of new combinatory innovations in the product definition work.

In addition to being influential, well connected and knowledgeable, the process was effectively grounded to the operational business management of the business group as it covered the products in the active sales, products under development and products in the process of being defined. Operating in multiple time horizons created a ripe environment for organizational learning, by providing a second and even a third loop for organizational learning.

The product planning community was highly entrepreneurial, lead by the example of the VP of Portfolio Planning and SVP of Product Business. The entrepreneurship of the product definition work spread to the product development program with the key people that transferred from the product definition to product development as the initiative proceeded to the next phase.

The product definition work was preceded by systematic explorative search for innovative technologies in line with the overall strategic direction of the business. The search continued in parallel with the product definition work and provided continuous input to the definition process. Also, the focus of the search got refined according to evolving conclusions of the product definition work. The search was performed on the assumption that there would be three parallel products. This assumption promoted higher risk-taking in making progressive proposals for solutions and technologies to be used in the N 95 product.

The planned proposition was deployed in a primarily exploitative stream of product development activities and a highly explorative streams business development and of Go-To-Market activities. Exploitative product development activity was a large-scale requirements management and integration project. It was executed according to well-established product development and requirements management routines. It benefited from high priority and sense of ownership established during the product definition phase. Moreover, the complex and interdependent product development activity was favored by an experienced core team, which partially shared common working history. The team was well connected to organizations that were contributing to the implementation of N 95 product. Tangible numerical targets drove the entrepreneurship of the exploitative product development program on timing, product parameters and financials of the product. SVP of Product Business and SVP of Product Development championed the product development work and acted as an escalation route for securing the resources and deliverables from the other parts of the organization.

The explorative stream of Go-To-Market activities were done through an organic set up consisting of key stakeholders from the sales and product business. The working mode relied heavily on the internal business networks of the key actors. Go-To-Market activity created a new way of working to the company. A critical element of successful Go-To-Market activity was the selection of a single lead market. The lead market approach enabled a concrete verification of the business system and also provided tangible feedback to the development project to refine the technical implementation according to business requirements. The replication of the experiences from the lead market to the follower markets took place both through Head Quarters and directly from market to market. It was an effective and adaptive replication process, which
entailed replication of core concept and local adaptation, as well as continuous learning from the local adaptations. The sense of ownership established during the product definition phase was a major supporting factor in this dispersed learning and execution phase. The Go-To-Market work was championed by SVP of Product Business; SVP of Service Business; and SVP of Multimedia Sales. The trio had the capacity to secure resources and align the higher level target settings of their respective organizations. With the dispersed and adaptive Go-To-Market approach the act of innovating reached the country organizations of Nokia as well as the key business partners.

The commercial launch of the N 95 was strong and impactful. The innovative product had worked itself to the core of the new product Strategy. The internal organization supported the sales and marketing of the product. Also the business partners adopted the product and the associated Strategy. In fact the N 95 product turned out as a strategic product for most of the customers. As a consequence the N 95 became a commercial success that substantially strengthened Nokia’s position in line with the Intended Strategy. The N 95 changed the Realized Strategy of the company markedly by converting the product category approach of Multimedia Business Group from categories defined according to functionalities to all-in-one propositions.

<table>
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<tr>
<th>N 95</th>
<th>Explore-Plan-Concept</th>
<th>Convert – Integrate - Develop</th>
<th>Deploy – Market - Sell</th>
<th>N 95 Overall</th>
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<tr>
<td><strong>Strategic intent and logic</strong></td>
<td>Change to all in one approach Ultimate Performance machine The flagship of three products Drove the category strategy</td>
<td>Ultimate performance machine Drove the platforms – explicit relation to HW – dialectic to SW Linked to global Service business development</td>
<td>From volume to value Global and local Service business development Value to the operators</td>
<td>Changed strategy to “all in one”Centrally positioned in the strategy discourse. Driving strategy. Holistic commitment by the management</td>
</tr>
<tr>
<td><strong>Act of innovating</strong></td>
<td>Systematic exploration in defined domains, Securing heterogeneous input to opportunity assessment. Broad set of inputs, broad sphere of influence</td>
<td>Cohesive exploitative product development. Dispersed heterogeneous and adaptive market and business development</td>
<td>Adaptive and effective replication</td>
<td>Strong emphasis on the Opportunity development process which used rich inputs and build efficacy</td>
</tr>
<tr>
<td><strong>Process</strong></td>
<td>Powerful portfolio management drove new practices Portfolio planning, Range planning practice and Marketing Multimedia in dynamic forming state</td>
<td>Strong influence to platform: Horizontal connections &amp; strategic role High priority in marketing Global service business development</td>
<td>Network supported by the top of sales and product business Dedicated actors in the areas and countries Aligned targets</td>
<td>Powerful portfolio management. Solid program management. Adaptive business development. Drove renewal of business critical processes</td>
</tr>
<tr>
<td><strong>Organization</strong></td>
<td>Powerful portfolio management community Monthly planning with Business Group management</td>
<td>Standard program organization, adaptive marketing and business development network headed by VP Imaging. Support from the whole Business Group</td>
<td>Cohesive program. Collaborative and direct involvement on the lead market. Dispersed network for global launch</td>
<td>Combination of cohesive and networked models that enabled large scale ambidextrous behaviour</td>
</tr>
<tr>
<td><strong>Competences</strong></td>
<td>Sales-PM-R&amp;D-Tech-Design Multimedia of Tampere, PM &amp; design of UK, market knowledge of sales</td>
<td>R&amp;D complemented with service business development and collaboration with Navteq</td>
<td>Business development, Sales, Product Marketing, Engaged R&amp;D and marketing</td>
<td>Broad competence base</td>
</tr>
<tr>
<td><strong>Commitment</strong></td>
<td>High priority in the business management. Support from the markets and technology</td>
<td>High commitment all the way up and across organization. High priority gave power</td>
<td>Commitment and support from the top of the M BG, Sales and product business</td>
<td>Commitment from the top of Business Group all the way to the operational level</td>
</tr>
<tr>
<td><strong>Internal Networks</strong></td>
<td>Portfolio management core with strong informal ties Grounded in Multimedia competence and influential in the management.</td>
<td>Cohesive engineering oriented in the program. Engaging and open in the category management and business development</td>
<td>Extensive, task driven, dispersed, identified to common goals</td>
<td>Extensive internal networks and influence through working processes</td>
</tr>
<tr>
<td><strong>External Networks</strong></td>
<td>Through Portfolio planning and monthly planning practice</td>
<td>Through portfolio planning and monthly planning. Driving service development. Collaboration with global service partners</td>
<td>Extensive to customers and local and global service partners</td>
<td>Extensive interaction with external parties mandated by the monthly planning forum. Both direct and indirect</td>
</tr>
<tr>
<td><strong>Cognitive frames</strong></td>
<td>Strategy, Category strategy, Business development, Product business management. Three tier assumption</td>
<td>Engineering in the program. Priorities and work flow in platforms. BD in the services</td>
<td>Business management, business development. Product marketing</td>
<td>Broad range of cognitive frames subordinated to the framing of product business</td>
</tr>
</tbody>
</table>

Table 6 The summary of N 95 case.
10 THE N 82 CASE

10.1. Introduction

The N 82 was an award winning camera phone launched in the end of 2007. The product won the Technical Image Process Association and Best Mobile Awards of Best Camera Phone on the market. Moreover the product program won Nokia's internal quality award for its uncompromised development of the camera functionality.

The product introduced xenon flash to Nokia’s line-up and optimized the camera sub system in the phone to the level that matched the quality parameters of compact cameras. As a consequence of the substantial change in the product category Strategy and slight delay in the product development, the N 82 turned into a commercial failure and did not have an impact on the markets. While being appreciated as an excellent camera phone it was not adopted into Nokia’s, and Nokia’s trade customers’ marketing programs.

10.2. The Narrative

10.2.1. Planning and Defining the N 82 Product

VP of Portfolio Management explained that the N 82 was defined as a tactical product in response to competition, and to fill a gap in Nokia’s portfolio. Moreover, as highlighted by the VP of Camera Category, the product was to attract female consumers to Nokia’s Multimedia products: Until the N 82, the designs of Nokia’s multimedia products had been quite masculine and the N 82 was set to have a more unisex appeal.

The N 82 was part of Nokia’s N-Series range, which was aggressively driving the adoption of new multimedia functionalities to Nokia’s line up. The range had been categorized into functionality focused product categories. In this product Strategy framework the N 82 represented an extreme Camera phone. The VP of Portfolio Management explained that during the development time of the N 82 the category Strategy of Multimedia Business Group was in the crossroads. On one hand it was still functionality based, and on the other hand, the newly introduced N 95 represented an alternative way of thinking. Together with an earlier product, N 80, it was a market sensing experiment to probe the viability of a high-end ‘all-in-one’ proposition. VP of Portfolio Management pointed out that the category Strategy of Nokia effectively changed with the success of the N 95. As a consequence of the change the devices of the Camera category lost their priority and support, as marketing shifted to promote all-in-one multimedia propositions.

According to the VP of Portfolio Management, still at the time of defining the N 82, the product management received mixed signals on the viability of higher tier all-in-one propositions. The mixed signals were a consequence of the sales performance of the N 80, a mid tier all-in-one proposition. The N 80 had started selling nicely, but did not really get proper traction on the market. Neither could the extreme functionality focused products, such as a ‘camcorder phone’ extend their market coverage. They clearly remained as narrow appeal propositions, which attracted only a narrow segment of the consumers. In the autumn of 2006, the N 95 was still under development. Director, Portfolio Planning recalled that the early customer feedback of the N 95 was
excited, but given the early phase of the development, there was no guarantee of the success of the new way of categorizing the multimedia products yet.

VP of Portfolio Management elaborated that the N 82 was set to target the Christmas sales of 2007. Technically it was a derivative of the N 95 with an added xenon flash camera. It was the first Nokia phone to have a xenon flash. As explained by the VP of Camera Category, the N 82 had to be done according to a very quick plan. From the beginning the aim was to take full advantage of the N 95, and simply to create the best possible camera in it. As the VP of Camera Category recalled, the goal was made more tangible with the targets about picture quality and the user experience of taking photos. She clarified that the most important aspects of the improvement work were minimizing the latencies, and transparent integration of the xenon flash, and making the image capturing experience quick and pleasant. As the VP of Camera Category explained, the goal setting for latencies was very top-down; Simply remove the delays. Also, all the more precise focus areas, such as picture quality, and the ability to take pictures in different lighting conditions were set top-down. However, how far these aspects should be stretched was left for the product development team to decide. The underlying principle was to use the same camera hardware as in the N 95, but to make it really good with the optimization of the software and xenon flash.

According to VP of Portfolio Management the timing was of essence in developing N 82, because the gap filler products run at the risk of getting cannibalized and squeezed by the follow up products. The timing of the N 82 was made even more critical by the fact that it was targeting the Christmas sales, which is critical to the trade customers. The trade customers simply don’t want to take any unnecessary risks in deciding their product lineups for the campaigns.

The VP of Camera Category explained that the execution time window was tight: 12 – 14 months. She pointed out that just working out the mechanics takes 10 months. Given the tight timeframe, the mode of developing the product was implicitly assumed to be rather straightforward and exploitative with a license to explore only in the narrowly defined areas of optimizing the camera. Both the VP of Portfolio Management, and the VP of Camera Category recalled that the agreement was that the optimization of the camera must not risk the schedule nor require “critical resources” needed in developing more strategic products.

The VP of Camera Category highlighted that the underlying principle in the early phases of the development was to define the product specification from the end-user benefit perspective. Looking into user experience in certain focused functionality areas gave a foundation to map the factors that influenced the experience. This in turn helped to consistently discuss with the technology supply chain the improvements and the related trade-offs. The VP of Camera Category and the Program Manager shared the view that engineers both in the program and technology supply chain were pleased of the end-user perspective, as it gave clear and undisputable guidance to their work. Moreover, as pointed out by the Program Manager, a clearly described end-user perspective helped to walk through the factors contributing to a “subjective” experience. For instance the subjective image capturing experience includes the quality of image on the display of the product, though it does not affect the actual quality of the stored image.

The VP of Camera Category highlighted that another key point in driving the product development was the focused identity of the “Cameras” category. It propelled the work on the camera functionality forward. It gave the category a mandate to press on with
imaging related matters and it also gave an identity and mission to the people working in the technical aspects, which contributed to the quality of image capturing.

According to the VP of Portfolio Management the financial targets did not play a significant role in defining the products, as they were subject to overall development in the portfolio. The portfolio planning however derived financial targets to each category of products, which in turn migrated into the financial targets of individual products. He clarified that on the level of individual products there were “mandatory financial thresholds” that were to be met.

The VP of Camera Category viewed that the attention from the design organization to the program was problematic: The first designs were simply ugly. She concluded that the problem had to do with the modest business prospect of the product and the weak informal links between the actors located in Japan, UK and Finland. Given the tight schedule and loose connection between the program and design organization, the designers were simply not sufficiently oriented to the task to make a good quality contribution. Creative work requires genuine agency, which did not build up under these circumstances. According to VP of Camera Category the first design iterations had five fatal issues. She explained that to overcome these problems an extra round of designs was needed, which caused a 6 - 8 weeks delay. The VP of Camera Category appreciated the fact that the SVP of Multimedia Product Business stepped in and worked intensively over the weekend with the designers and the program, which lead into a quantum improvement in the designs.

As pointed out by the VP of Portfolio Management this iteration and delay was critical to the schedule performance perception of the N 82 program and deteriorated the confidence in the sales and marketing. According to the VP of Camera Category the poor confidence in turn was clearly visible in the lack of attention and low priority in preparing the product launch. The design delays also affected the confidence of the Multimedia Business Group management towards the product and generated doubtful remarks, which affected the support from the operating level people of sales and marketing.

10.2.2. The Development of the N 82 – Working on the Tight Core

The Program Manager explained that the N 82 program worked on three key improvement areas: An extreme performance of the camera functionality, rotating User Interface and remote software updater. According to the Program Manager, the critical success factor for the camera improvement was that there was a single owner of the activity in the program. The Program Manager emphasized the importance that the owner of the improvement work understood software architecture and the realities of developing software to multiple products. Moreover, as described by the Program Manager, the owner of the improvement work was enthusiastic and energetic. His example spread enthusiasm and “can-do-attitude” to others throughout the technology supply chain. Moreover, as highlighted by the Program Manager, he saw the optimization of the imaging subsystem as a learning opportunity. In addition to these personality characteristics, the clear targets on the image quality and latencies favored the camera improvement work. According to the Software Integration Manager, the person who took ownership of the improvement, a lot of personal initiative was required to come up with the specific definitions and targets of improvement items. As he recalled, the starting point was the N 95 camera module, which was reasonably good as such. However, it still had a few shortcomings. The Software Integration Manager
explained that he reviewed the camera performance systematically, identified shortcomings and thought how to overcome them one by one. As complementary analytical approach he took hardware as given and designed the software to take the best out of that hardware configuration. The improvement areas set by the management were: latencies, auto focus, auto exposure and auto white balance. The Software Integration manager explained that the first half of the program time was spent on minimizing the latencies. In this work the N 95 prototypes were used as a test bed. As explained by the Software Integration Manager the optimization exercise was a clear interaction play with a number of contributors. The Software Integration Manager organized a small core team in the program to review software code line by line and to make improvement suggestions. The Software Integration Manager explained that the improvement suggestions were reviewed face-to-face with the engineers in charge of the actual code. Software Integration Manager pointed out that quite often these face-to-face workshops generated further improvements and the actual implementation turned out better than the original suggestion. According to the Software Integration Manager there was a fair amount of distributed learning and improvisation in the process of optimizing the latencies.

The Program Manager explained that once the work on latencies had been completed, the autofocus issues were addressed, and then the activity moved on to work on the auto white balance. Auto white balance requires improvements on subjective tone issues. The entire product development team in Tokyo mobilized to accomplish the task. For example, the Project Assistant was assigned to take a massive number of pictures with the phone, using different settings. The program took also pictures with competitors’ devices and compared the results. Moreover, the program organized a photo contest with the early prototypes to get a sufficient flow of images to assess the subjective aspects of the auto-white balance. As explained by the Software Integration Manager, all in all, the fine-tuning of the camera took a rather long while and the entire personnel of the program, as well as other people close to the program were involved in enhancing the camera performance. The time window available for the improvement work was such, that there was no severe schedule pressure causing stress.

As the final stage in improving the camera performance, the program moved on to auto exposure, which was technically the most challenging. The Software Integration Manager explained that getting the auto exposure right was time consuming and required dynamic collaboration between the parties to get the tones right. The work on auto exposure involved also an external supplier. The network was committed to the task and kept on improving the performance throughout all the time available for the work. The last improvements came out just a few days before the sales started. The Software engineer pointed out that this work was building on the network established during the work on reducing the latency. The work on auto exposure was a dynamic and interactive act, and would have been difficult to accomplish without established network, which had been tried and tested with a more static task.

Both the Program Manager and the Software Integration Manager emphasized the importance of the underlying principle, where the product development program focused on making it easy for others to implement the desired improvements in their respective technology assets. The method was first to conduct feasibility studies on how to improve certain aspects of the functionality. Then, face-to-face workshops were conducted with the actual engineers or their superiors to discuss what to do in practice, and to elaborate how to do it. The workshops were iterative and elaborative by nature. The work was taking place on the level of code lines. As highlighted by the Software Integration Manager, many ideas were further developed in these workshops. Also, the
face-to-face connection on the operative level spread enthusiasm and energy and built mutual identification to the aims of the product. As a consequence the work on the camera improvements turned into a collective effort across organizational boundaries. In most optimization incidents the Integration Manager of the program worked in person together with the core contributors. All in all, the work engaged 27 core contributors from different parts of the organization, each one of them was linking the demands of the N 82 to the development of technology in her respective area of expertise. In one case, the Imaging Virtual Engine, one contact person covered multiple technology areas. In a sense, the program turned into a requirements management and settlement mechanism for the network of people working on improving the camera experience and image quality. The VP of Camera Category and Program Manager pointed out that the Software Integration Manager's broad experience base and collaborative working style facilitated this collective improvement effort.

The Software Integration Manager viewed being an enthusiastic and a goal oriented personality as the main success factors in the camera improvement work. In his opinion, also the management should be enthusiastic in order to spread excitement. In his mind, bureaucracy counters innovativeness. In his experience the innovative and bureaucratic settings require and also generate different kinds of atmosphere. When people are enthusiastic they also succeed better, at least in creating novelty. Moreover, according to the Software Integration Manager, the enthusiasm spreads. In the case of the N 82 camera optimization, the excitement spread primarily horizontally between the peers. However, optimally it also spreads and gets amplified vertically. According to the Software Integration Manager, a bureaucratic approach by the mid management dampens innovativeness by killing the enthusiasm. In his mind, that kind of environment requires extraordinary performance from the doers to create enthusiasm. According to the Software Integration Manager, in the N 82 project the excitement was enabled by the good spirit in the program, good peers, Program Manager's un-authoritarian leadership, clearly articulated end-user benefits, and tight but still doable schedule.

As pointed out by the Program Manager and Software Integration Manager, only a few escalations were needed during the development of the N 82 to gain momentum in certain feature development activities. They explained that the work took place mainly on the operative level with the aim to gradually get platform units onboard. The main means the product development program used to get the contributing parties onboard were: 1) highlighting the user benefit, 2) showing the way, 3) working together, 4) motivating with the re-use consideration. The re-use consideration was critical as the resource constrained software asset people were responsible for the performance of the software across product generations and were consequently interested in taking the improvements onboard if they were re-usable.

Program Manager and Software Integration Manager recalled that in the rotating user interface the program took experimentation approach. They hacked a rotating user interface with their own software resources and demonstrated it to the head of the Multimedia Product Business, who authorized them to continue working on the feature, on a condition that it does not jeopardize the overall schedule. Once the authorization was given by the SVP of Multimedia Product Business, the idea was taken forward. It re-used the implementation of the previously introduced camcorder-phone N 93. As stated by the Program Manager, the rotating UI innovation would have taken place in any case. It was an obvious improvement area and clearly needed in some applications. This experimenting approach simply made it quicker to take the invention into use.
The third innovation area, the software updater, was a functionality that was in the pipeline in software asset development. The Program Manager explained that the N 82 product development program organized an internal partnership with Customer Care to work out the specifics of taking it into use. Through collaboration with Customer Care the feature was verified in detail and demonstrated to Customer Care. Through the demonstration Customer Care learned to extract value of the functionality. As a consequence the necessary momentum was gained for the implementation in the product, as well as in the operative Customer Care business.

Based on the experience of the N 82, the Program Manager and the Integration Manager view, that the most important considerations in getting the innovations through in a tactical product are: 1) to articulate end-user benefit clearly, 2) to work out roadmap continuity, and 3) to form internal partnerships to build momentum. They reasoned that the innovations that do not contribute to the continued competitiveness of the technology asset are doomed to fail. The collaboration with people responsible for the continuation of the asset is critical. The main success factors are the personal relationships and quality in interaction with the network. A good quality of interaction reduces the actual effort it takes to implement the required features. The Software Integration Manager pointed out that at its best interaction also spreads enthusiasm and builds collective mindset and collegial power.

10.2.2.1. *Problems in Getting Attention – The Design Iterations*

As highlighted by the VP of Portfolio Management and the VP of Camera Category, the design iteration of the N 82 took longer than planned. The designer was in Finland, the category management in the UK and the product program team in Tokyo. The Program Manager is of the opinion that the distance as such did not bring problems. The main issue was the lack of overlapping cognitive frames. The Program Manager explained that the product development team in Tokyo was not capable of talking with the designers’ vocabulary. Also the informal relationships were weak. The short time available for working out the first designs did not allow designers to create a sense of ownership of the design of the N 82. The VP of Camera Category emphasized that in addition to poor ownership, the design work was impeded by the designers’ poor orientation to the work. The lack of orientation stemmed from the mismatch between the positioning of the N 82 and the new category Strategy, which was in the process of firming up, based on the early customer feedback of the N 95. The VP of Camera Category pointed out that the fact that the N 82 program and the Camera Category in general were poorly connected to the overall product portfolio Strategy discussion contributed to the problem. The N 82 product deviated from the mainstream product Strategy discussion of the time. The designer in charge lacked the means of internalizing the essence of the product. As the Program Manager stated, it did not make much difference whether the physical distance was 100, 1000 or 10000 kilometers, but it was something else in the communication. The distance just made it more difficult to overcome the communication challenges. As a consequence of mismatch in positioning and the challenges in communication, the first designs failed and they had to be redone.

10.2.2.2. *Disjointed Linkages to the Management and Marketing*

The VP of Camera Category, the Program Manager, and the Software Integration Manager shared the view that the N 82-program worked mainly on the operational...
level. They pointed out that there were only a few escalations during the program. The Category and Program Management were focusing on defining the product and on the execution task at hand. The VP of Camera Category and the Program Manager highlighted that the networks of both Category Management and Program Management were primarily horizontal peer networks. The working style was to operate through the practical level. As the VP of Camera Category put it, being located in the UK the Category Management felt being only remotely connected to the core management discussions in Finland. She felt that the Category Management was weak on the informal linkages to the business and strategic management of the Multimedia Business Group. Despite the strong link to the SVP of Sales, she felt that the Camera Category was marginalized in the product Strategy discussions.

The weak involvement in the management discussion of the Multimedia Business Group led to a vicious circle. The low priority and attention in the design implied insufficient discussion on the product positioning and design approach. It also contributed to an inexperienced designer being selected as Chief Designer of the N 82. Moreover, due to limited discussion on positioning and design approach of the product, the designer’s orientation to actually design the product was insufficient. That combined with the physical distance between the designer and the mechanics team of the program led to poor design that required escalation and re-iteration. The re-iteration in the design caused delay to the program. The delay in the early phase of the program, combined with a remote relationship between the category management and the key executives of the Multimedia Business Group led to a lack of confidence on the overall schedule performance of the program. Poor confidence on the schedule performance was a factor affecting the degree of commitment from the sales and marketing. As a consequence of the reasons discussed above, the product missed the time window of Christmas sales.

As pointed out by the VP of Portfolio Management the N 82 also slipped into a marginal position in the product Strategy discourse. The category Strategy effectively migrated from functionality-based categories to all-in-one Multimedia computer-product Strategy. The Camera category never materialized as a category on the market. The change in the product portfolio Strategy was not incorporated into the positioning and marketing plan of the N 82. Due to this mismatch the product was excluded from the presentations of the marketing events of Nokia. Ultimately, the product was launched only through the Internet.

The VP of Camera Category and Program Manager recalled, that the product launched somewhat more successfully in Asia-Pacific and China, probably due to the informal relationships between Nokia offices in Japan and Singapore, and Japan and China. The VP of Camera Category reasoned that the relationship with Singapore came through the regional management as Japan was under the management of Asia-Pacific. The Asia-Pacific Management was located in Singapore and had a special relationship with the local market there. The Program Manager viewed that the relationship with China was as a spillover effect of technical collaboration with the Chinese component vendors. The people from the program had spent a lot of time in China with the key vendors. In the relatively small-scale regional offices, people learn to know one another across functions. The informal relationships and discussions influence practical business priorities and decisions.

The Program Manager pointed out that to compensate being disconnected from the management discussions of Multimedia Business Group, the N 82 program and the category management did underground work through the established informal
relationships on the operational level. The Program Manager recalled that, for instance, the program engaged directly with Vodafone account, as the head of the Camera Category had previously been working in a key role in the Vodafone account team. Also the person in charge of the Vodafone account knew the Program Manager of N 82 in person. Still, these underground efforts did not lead into any substantial outcome. The product was never included into the sales programs of the key markets or customers and the commercial impact of the N 82 product turned out minimal.

10.3. The Key Phases of Development

The overall goal setting of the N 82 product was driven by the induced product category Strategy, where the product functionality was the key determinant. The product was originated as an extreme camera phone, building on existing technology building blocks of the N 95.

The timing was critical as the product was planned for the Christmas sales. The implementation work was set to take place primarily in the engineering and product design domains, which was reflected to the streamlined configuration of the program. The program activity was predominantly exploitative in a very tight time window.

The implementation time of the core product defined the time available for the improvement work on the camera sub-system. In that area the program made an effective explorative stretch of the imaging performance. The exploration was made in the concerted learning mode. The Software Integration Manager was appointed to orchestrate the work. He, together with a few members of the program team reviewed the existing implementation and set the targets for the improvement work. The targets were discussed in face-to-face meetings with the engineers who contributed to the performance of the imaging sub-system. In these face-to-face encounters the proposed parameters were in several occasions improved beyond the original target setting. A dispersed network of 27 contributors was able to improve the usability and the image quality markedly, which had a long lasting effect to Nokia’s competitiveness in the mobile phone cameras.

Nokia’s product Strategy was at a fluid state during the product development time of the N 82. The broader product Strategy discourse was moving away from the extreme functionality categories of Nokia’s multimedia products. The mixed messages between the guidance coming from the Camera category and broader Strategy discourse confused the designers. The product design turned ill-orientated. The product design was reworked, which caused delay and a lack of confidence in the overall schedule performance of the program.

During the development time of the N 82, the product category Strategy of Nokia formally changed. The N 82 as an extreme Camera phone fell through the cracks of the change. The streamlined and engineering focused Camera Category was not connected to the related discussions and faced the change empty handedly. It could not adjust its internal course and neither could it get the required exceptions through in the planning of short term marketing activities. As a consequence the product was excluded from the critical product launch process of Nokia and got introduced only through Internet and some improvised market specific arrangements in a few Asian countries.

An award winning camera phone ended up making a very limited direct impact to the market and did not contribute to the financial performance of Nokia. However, the
successful improvements on the Imaging sub-system have brought substantial long-term benefits to Nokia’s competitiveness in mobile phone cameras.

Figure 16 The development process of N 82 product.

10.4. The Drive and the Interplay with the Environment

The N 82 product had a mission to make the leading edge camera phone in line with the product category Strategy of Multimedia Business Group. The product planning and implementation of N 82 followed the established product design process with the exception of the explorative work done on the imaging sub-system. The entrepreneurship during the process was sporadic. In the early phases of the process the VP of Camera Category demonstrated strong entrepreneurial drive in target setting and by emphasizing the end user benefit perspective in the design process. The entrepreneurial ownership of the N 82 product did not extend beyond the domain of the Camera Category with the exception of the entrepreneurial initiative by the SVP of Multimedia Product Business to rectify the design.

The Software Integration Manager, who was in charge of the optimization of the imaging sub-system, demonstrated a strong entrepreneurial drive and ownership in the
optimization activity. The active networking approach facilitated opportunity recognition and development among the network of 27 contributors, mostly from the Technology Platforms organization. The work involved also some external companies as contributors. The way of working was a process innovation, which facilitated entrepreneurship on multiple fronts. The entrepreneurship ranged from innovating to imitating and took place purely on the operational engineering level.

<table>
<thead>
<tr>
<th>Entrepreneurship</th>
<th>Induced by Old Category Strategy</th>
<th>Lost Uncertainty About Category Strategy</th>
<th>Lost - Remote Program - Schedule Risks</th>
<th>Disconnected - Change in the Strategy - Schedule Risks - Program Risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>VP Imaging Alone</td>
<td>VP Imaging and PPM Development Task Oriented</td>
<td>VP Imaging Program Manager SW Integration Manager</td>
<td>Program Manager Program in Tokyo SW Integration Manager</td>
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<tr>
<td>Definition Task</td>
<td>Development Task Oriented</td>
<td>Product Development Standard Process Stretch&amp;Explore Imaging Subsystem Owner of Exploration Activities Keen &amp; Collaborative - Know SW Architecture, the Logic of Platforms and Who of Contributors</td>
<td>No Introduction to the Market Missed Steep Process</td>
<td>No Diffusion Limited Launch Due to Shift in the Category Strategy - N02G1 - Perceived Schedule Risk</td>
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<td>Oriented</td>
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<td>Taken for Granted</td>
<td>Taken for Granted</td>
<td>Taken for Granted No Adaptation in Product Development Improving Networks for Imaging Subsystem</td>
<td>Taken for Granted No Adaptation No Adaptation No Involvement in Strategy Process Excluded from the Marketing Process</td>
<td>Taken for Granted No Adaptation No Adaptation No Involvement in Strategy Process Excluded from the Marketing Process</td>
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<td>Taken for Granted No Adaptation No Adaptation No Involvement in Strategy Process Excluded from the Marketing Process</td>
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<td>External Parties</td>
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<td>None</td>
<td>None</td>
<td>Sporadic</td>
<td>Sporadic</td>
</tr>
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10.5. The Sphere of Influence

The Camera Category and the N 82 program were set up as efficient organizations to execute a product according an induced Product Category Strategy of the Multimedia Business Group.

The streamlined category management and the engineering oriented product program did not have the means to link their activities into the broader Strategy discourse of the company. As the induced product category Strategy of the Multimedia Business Group was justifiably changed, the Camera Category, and the N 82 program within it lost their alignment with the Strategy. As a consequence, the program did not get necessary support for the market launch. The commercial impact of the product got marginalized.
Even the exceptionally effective entrepreneurial activity to optimize the camera sub-system got disconnected from the commercial activities of the company. However, thanks to the pragmatic attention paid to the re-use considerations in optimizing the camera sub-system, the technical improvements of the camera sub-system came to benefit Nokia phones over multiple product generations.

Overall, the N 82 program worked effectively in implementing the induced product strategy by working on the product design and engineering domains. Due to its strict focus, streamlined resourcing, and scattered geographical presence, it got disconnected from the product strategy discourse. Consequent misalignment between the positioning of the N 82 and the new product strategy led into the product being excluded from the formal product launch process of the company. Neither the product nor the category had a substantial influence to the strategy and commercial outcomes of the company.

![Figure 17](image)

**10.6. The Summary of the N 82 Case**

The N 82 product stretched the performance boundary of the industry on a focused area. On the other functionality areas the product exploited existing tested solutions. The product represented incremental innovation on the market. The product and the related working practices were fully in line with the dominant operational logic of the Multimedia Business Group. Also the product was consistently in line with the product strategy of the Business group at the time of defining the product.
The decision about the product was made in the standard product planning process. The product specification was set according to existing, taken for granted product Strategy framework. The implementation work was primarily exploitative, building on existing technologies and routines. The product development program was streamlined and had no slack to respond to unexpected changes. However, in the focused area the product development program had a license to explore and search for new solutions. The exploration took place purely in the engineering domain. The timing and resource windows for the focused exploration were set tight. The overriding principles were not to use any strategic resources, contribute to the re-usable asset with the work, and execute the work in the time window that was available due to the critical path of developing the mechanics of the product.

An individual owner was nominated to concert the explorative work. His approach in the exploration assignment was entrepreneurial. The mindful leadership of the Product Program manager provided sufficient leeway to the entrepreneurship. In the first instance the owner of the activity identified improvement areas and the network of contributors to the work. The actual exploration took place among the network of contributors in parallel with the exploitative mainstream product development work. The owner of the activity set the initial targets for the exploration together with the other program team members. The act of exploring was dispersed; the owner of the activity induced the initial targets into the process. By working together with the contributors the targets and implementation options were reviewed. Often the implementation turned out better than originally targeted. The actual implementation work of the improvements was primarily exploitative, but in a few instances the developers explored and created novel solutions to enhance the performance.

The exploration and exploitation were clearly complementary in this product development. The explorative and exploitative activities were distinctively divided into separate streams of activities. The management practices of those streams were different: exploitation followed well-established product development routines, whereas exploration built on the networked practice with embedded dispersed learning. In most instances the exploration work divided sequentially into an explorative phase of crafting the solution and exploitative phase of implementing it. On a few occasions even the implementation phase was explorative by nature.

In terms of the performance parameters, the product turned out as desired: It was un-disputably the best camera phone on the market. However, the product Strategy framing of the company changed during the development of N 82 product. The product development set up of N 82 product was not connected to the Strategy discourse. The product did not adapt to be in line with the new Strategy and neither did the new Strategy adjust to incorporate an N 82 type of a product. As a consequence, the product got only limited support from the complementing parties, such as sales and marketing. The product was launched only through a few distribution channels and there was no marketing campaign supporting the sales of the N 82. Consequently the N 82 product sales did not take off in true commercial sense.

Overall, the N 82-program was configured as an effective mechanism to implement a product according to an induced Strategy. As the intended product Strategy of Multimedia Business Group changed during the course of developing the product, the streamlined program lacked the means to seek for a settlement with the changes. It did not have the resources to change its internal direction. Neither had it capabilities nor influence to work out exceptions to the short term plans reflecting the new product Strategy. As a consequence the innovations and innovative ways of working in the N 82
program ended up in bringing benefit to Nokia only through the technical implementation of imaging sub-system of a phone. The commercial outcome, as well as the impact on the market was miniscule.

<table>
<thead>
<tr>
<th>N 82</th>
<th>Plan-Concept</th>
<th>Integrate-Develop</th>
<th>Diffusion-Market-Sell</th>
<th>N 82 Overall</th>
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</thead>
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<tr>
<td>Strategic intent and logic</td>
<td>Extreme Camera phone Remove latency, Optimize Xenon</td>
<td>Strategy changed to multimedia computers – No interplay with N82</td>
<td>Tactical press activities</td>
<td>Originally induced as extreme camera phone – Strategy changed – Program disconnected</td>
</tr>
<tr>
<td>Act of Innovating</td>
<td>Exploitative in line with induced strategy</td>
<td>Exploitative main stream, exploration in a focused engineering domain</td>
<td>Tactical innovations with severely constrained resources</td>
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</tr>
<tr>
<td>Process</td>
<td>Standard product planning and product definition process</td>
<td>Efficient PD practices for core program Dispensed learning network for Camera</td>
<td>Excluded from standard launch process. Improvisational launch attempt</td>
<td>Standard process with networked exploration</td>
</tr>
<tr>
<td>Organization</td>
<td>Small team and category management working together with Portfolio planners</td>
<td>Core program of engineers and product manager. Dynamic network on Camera.</td>
<td>Product Manager in Tokyo, VP Imaging in UK</td>
<td>Streamlined to implement induced activity efficiently</td>
</tr>
<tr>
<td>Competences</td>
<td>Program: Technical VP Imaging: Marketing</td>
<td>Technical VP Imaging: Marketing</td>
<td>Technical Technical marketing</td>
<td>Engineering and product design</td>
</tr>
<tr>
<td>Commitment</td>
<td>Commitment by category. Low commitment by the portfolio management and design</td>
<td>Commitment by category. No continuation.</td>
<td>Commitment by category only</td>
<td>Strong commitment in the team. Low commitment from the management</td>
</tr>
<tr>
<td>Internal Networks</td>
<td>Small core team in Japan. Scattered network in the Business Group Management</td>
<td>High trust collaborative horizontal network in the camera optimization</td>
<td>Informal/scattered networks in APAC and China</td>
<td>Sporadic with the exception of exploration network</td>
</tr>
<tr>
<td>External Networks</td>
<td>None</td>
<td>None</td>
<td>Dispersed to some customers</td>
<td>Minimal</td>
</tr>
<tr>
<td>Cognitive frames</td>
<td>Engineering</td>
<td>Engineering</td>
<td>Engineering and technology marketing</td>
<td>Engineering and technology marketing</td>
</tr>
</tbody>
</table>

Table 8  The summary of N 82 case.
11 THE SPORTS TRACKER CASE

11.1. Introduction

SPORTS TRACKER was a first of a kind service innovation that enabled people to link their self-created multimedia content to the location. In practice the user of SPORTS TRACKER could tag a digital map with his personal training data or other self-created content, such as photographs or videos. The application opportunities for the context engine, which links the data to a location on the map were viewed very versatile. The SPORTS TRACKER application was factory installed to products such as N 82 and N 79. When introduced to the market in 2007, it was the first context-aware mobile service. It won the Best Mobile Service award in 2007.

The SPORTS TRACKER was launched only as a pre-commercial service. It got an outstanding reception from its users. The enthusiastic user community viewed SPORTS TRACKER as the best service ever introduced by Nokia.

However, Nokia never commercialized the service: Nokia’s acquisition of Navteq in 2007/2008 caused a strategic conflict between the SPORTS TRACKER and the overall digital services Strategy of Nokia. The pre-commercial version of SPORTS TRACKER used Google maps. With the acquisition of Navteq, it became necessary to transfer the implementation to their platform. The integration process of Navteq’s and Nokia’s services brought a lot of urgent practical issues to the engineers working on the service platform development. As a consequence, they were not able to find the resources to accommodate SPORTS TRACKER to Navteq’s service platform.

The implementation of SPORTS TRACKER on the Navteq platform never got materialized. That being the case, Nokia decided to spin off SPORTS TRACKER. The initiative for spin off came from the frustrated team of innovators that had developed SPORTS TRACKER. The spin off was executed in mid 2009.

11.2. The Narrative

11.2.1. The Origins of the SPORTS TRACKER

The three interviewed researchers of the development team explained that the origins of SPORTS TRACKER could be traced back to 2004. That was the time when their team of researchers from the Nokia Research Center got initial funding for the project. They had been seeking for funding for their project for the previous two years. They recalled that in 2002 the answer had been a clear no, but already in 2003 the project got some limited support from Nokia’s business units. In 2004 they finally got the green light for the development. The research team consisted of people with versatile research oriented backgrounds: a mathematician with a second degree in finance, computer scientists, and a computer scientist with business studies. The working experience of the team members was primarily from smaller software development companies. The team members had been exposed to the challenges of setting up new businesses, but they lacked business experience from Nokia.

The team members explained that originally SPORTS TRACKER was to be an application on a rugged sports phone. The plan was to implement the application on a
phone in the Active Category. The initial concept had no digital service associated to it. SPORTS TRACKER was intended to accumulate training data to the phone. The data was then supposed to be transferred to a PC, which would serve as a storage place and an analysis tool for the data.

**The first wave of changes**

As the VP of Research recalled, Nokia Research Center activated itself in the development of services in 2005. This opened new avenues for the SPORTS TRACKER team to pursue. The service server software development of sports applications was initiated. In the first instance the development focused on creating a virtual diary for storing personal sports and wellness data.

The development team elaborated that in addition to exploring service concepts they initiated an activity aiming to link a pulse sensor into the SPORTS TRACKER application. The pulse sensor belt development was connected to the development of Active Category of phones, which implied that also the funding and further guidance to the development work came from there. The management and product planners of the Active Category were enthusiastic about the possibility to exploit the deliverables of the SPORTS TRACKER program in the commercial ‘extended products’.

In 2006, the SPORTS TRACKER team demonstrated the service software to the management of Nokia Research Center in Palo Alto. The management was enthusiastic about the opportunities of a context-aware service. The team explained that, encouraged by the positive feedback from the management, the team started discussions with Google about the use of their maps in the service. According to the SPORTS TRACKER development team, the representatives of Google were genuinely interested in giving the rights to use their maps. However, Google’s contractual position with the content partners did not allow them to officially give the rights. Giving the rights to use the maps would have pushed Google into a complex renegotiation of the contracts with their content partners. A small-scale experiment simply did not justify such a massive activity. The team explained that already in 2006 the first version of the SPORTS TRACKER server software was released to an internal alpha test. This first release was without integrated maps. The users could upload their training tracks to their PC. The tracks consisted of heart rate information on a graphically presented exercise track. On their computers the users could overlay their training tracks on top of a digital map. As highlighted by the development team, VP of Research and the SVP of Services, the feedback from the users of this first software release was enthusiastic.

In 2006 Nokia acquired a navigation service company by name gate5. SVP of Services recalls that the engineers of gate5 indicated that the software release that would allow intuitive on-the-go linking of personal training tracks and maps could be developed in a matter of weeks. It turned out to be more complicated than that. As the gate5 organization got into the practicalities of integration, their priorities did not allow them to develop the software modules needed for a real time connection of the sports tracks and maps. The SVP of Services elaborated that another factor that potentially inhibited the support from gate5 was that the work was originally initiated through working level discussions with the engineers of a newly acquired company. The founder-CEO, who had been entrepreneurially driving his company, was not involved in these first discussions. This may have caused a defensive reaction and push back in making formal decision about priorities and resource allocations.
The VP of Research recalled that the same year, in 2006, the sports oriented Active Category was terminated. The development track that was connected to the specific sports oriented products became obsolete. Moreover, the activities of Nokia Ventures organization, the home of the Wellness Diary, went through a critical review. As a consequence of this review the operations of Nokia Ventures organization were scaled down. The funding of Wellness Diary work was terminated.

Under these rapidly changing circumstances Nokia explored an opportunity to transfer sports and wellness related activities into an external company that was active in the sports equipment field. Despite the strategic fit the operative management of that firm demonstrated lack of interest in actually acquiring the activities. The lack of interest was clearly felt by the SPORTS TRACKER team, which was participating in the negotiations.

11.2.2. One More Combat

The SPORTS TRACKER team elaborated that they responded to the turbulence and hardships with a ‘Winter War’ mentality. They moved into the mode of ‘one more combat’. In their mind, with clever maneuvering they linked the development to the ‘wearable electronics research program’ to secure funding, and continued the development of the SPORTS TRACKER service. As the VP of Research recalled, the management saw the mismatch but allowed the work to be continued, because they saw the viability and the potential of the service. As a part of the plot, the development team also released a SPORTS TRACKER application and service through beta labs of Nokia Research Center. Beta Labs was an experimentation environment, where the advanced friendly users and lead customers were trying out pre-commercial applications. Still, at this time point the SPORTS TRACKER service was without maps, but the progressive beta lab users were able to easily link the tracks to the digital maps. According to the SPORTS TRACKER development team, the VP of Research and the SVP of Services the beta lab’s release generated a massive volume of traffic to the download server. Enthusiastic feedback was flowing in from the users of the service.

The SPORTS TRACKER development team explained that, encouraged by the positive feedback of the service, they refused to move to the potential acquirer, as they had demonstrated lack of genuine interest in the negotiations. They felt that the company would make a bad home for a prominent service. Instead they proposed a Management Buy Out (MBO) to Nokia. The MBO discussions did not lead into any practical outcome as Nokia had no recent experience in executing an MBO, and as the competences required for making such transaction for the first time were occupied in more strategic activities.

11.2.3. SPORTS TRACKER and Service Business – an Uneasy Engagement, No Marriage

In the summer of 2007 SPORTS TRACKER was released to the public as a pre-commercial proposition. In November 2007 it was bundled with the launch of the N 82 and the device software was installed in factory to two highly popular smart phones. The service was available through a pre-commercial server. Linking the tracks to the maps was still left for the consumers, which made the service somewhat cumbersome and unintuitive for ordinary users. Despite the fact that marketing tried to support the commercialization of the SPORTS TRACKER service by arranging the rights to use
Google maps and by promoting the service, SPORTS TRACKER did not get properly commercialized. As the SVP of Services recalled the publicity of the pre-commercial service was enthusiastic and hundreds of customers were pleased with the service. However, the service end of the proposition was still experiencing severe challenges. The organizations of newly acquired navigation companies gate5 and Navteq were in the middle of integration process and consequently surrounded by urgent practicalities. Despite the request from the Senior Vice President of new service development Navteq, gate5 and the SPORTS TRACKER team were not able to find common ground to make necessary compromises and to make SPORTS TRACKER a truly commercial service.

Even the proactive Executive Vice President urged people to “Do anything it takes to bring the service to the market” as the SPORTS TRACKER still had huge novelty value. The two key people from Nokia Research Center moved over to the Services Organization’s New Services unit to work out the problems. As explained by the SPORTS TRACKER development team, they got lukewarm reception. The Business development team of the Services organization evaluated SPORTS TRACKER with a critical eye. As explained by the Director of Business Development, the SPORTS TRACKER service proposition was poorly defined. The commercial aspects of the service had not been thought through. The use cases were insufficiently defined. The business model as a pure service business was not feasible. The integration to scalable service platform was difficult. The business development team of the Services organization concluded that SPORTS TRACKER was specified as a standalone service. It was difficult to integrate it to a wider navigation service proposition. In practice, to use SPORTS TRACKER the users had to re-start the navigation application. People in charge of the navigation service demanded, that the navigation service would need to be always on and SPORTS TRACKER would be activated as an add on feature on top of that. Resolving this issue would have required a tight integration of the SPORTS TRACKER proposition to the navigation service and software. According to the Services organization the SPORTS TRACKER team was not perceived as very collaborative in planning the proposed adjustments. They did not commit to the work, which would have diluted the identity of the SPORTS TRACKER proposition.

### 11.2.4. The Spin off

Nokia SPORTS TRACKER was ultimately spun off from Nokia in July 2009. The original inventors of the project joined the spin off. The new company, SPORTS TRACKER Technologies Ltd offers the service and continues developing clients for different mobile phone manufacturers’ phones. The spin off got the SPORTS TRACKER technology as is. In practice they received the source code for both server and client software and the associated documents. The company continues developing both the service and the application propositions for different mobile phone platforms with a primary focus on Nokia related platforms. Nokia kept the right of refusal for any substantial changes to the shareholdings of the SPORTS TRACKER Technologies Ltd.

At Nokia’s side similar context aware services have been integrated to the Nokia Maps services. The consumers can store images, video clips and music to geographical locations with their phones.
11.3. The Key Phases of Development

Three researchers with diverse business backgrounds and interest in sports, created the original idea about linking training data to location. The idea had utility value in a number of application areas. In the first instance the work focused on creating a value-adding feature to a rugged Active Category sports phone. As the Active Category got terminated the inventors shifted focus to another application area “Wellness diary”, which was supposed to create a separate venture. As the Corporate Venturing activity got scaled down, the inventors moved on and started working on a holistic service proposition. The service proposition work advanced to a highly successful pre-commercial service with a few thousand enthusiastic users. The feedback was enthusiastic.

The pre-commercial test version of the proposition was using the maps of Google maps, which turned problematic with Nokia’s acquisition of a competing map service company Navteq. Transferring SPORTS TRACKER implementation to the Navteq platform turned out to be non-trivial. The business case, which counted only the revenue from the service, did not justify the work required to transfer SPORTS TRACKER to the Navteq platform. Moreover, there was a conflict of identities in seeking the settlement: The SPORTS TRACKER team opted for having an own identity for the service, whereas the Services business development team saw sports tracking, or context awareness as a generic feature in the digital services.

The SPORTS TRACKER activity was ultimately spun off.

Figure 18 The development process of the Nokia SPORTS TRACKER service.
11.4. The Drive and the Interplay with the Environment

Throughout the phases of development the SPORTS TRACKER team was working autonomously in Nokia Research Center. The team set up was intellectually and creatively oriented but lacked practical business experience from Nokia. The leadership and guidance to the team were formally coming from the Research Center, but the actual guidance came from the internal partners of the operational businesses. Despite the fact that the management of the company recognized the value of the SPORTS TRACKER proposition, the migration from an experimental implementation to a scalable commercial proposition failed. The self-organizing autonomous activity and its output were incompatible with the interests and technical requirements of Nokia’s service business.

The root cause of the mismatch is multi-faceted. The strategic context in which SPORTS TRACKER had been developed had changed several times during the development. The requirements of these different strategic contexts varied markedly and at times were in conflict with one another. Also the SPORTS TRACKER team lacked the diversity to cover market, business, usability, and scalability aspects in the development. They identified themselves as a development team in Nokia Research Center. The senior sponsorship of the case had changed a few times during the development. As a consequence of the changes and the lack of cohesive championing the team had adopted a mentality to work on their own. Of their own initiative the SPORTS TRACKER team connected sporadically with the market, technology and Strategy developments of the company. Through self-organizing entrepreneurial activity the SPORTS TRACKER proposition developed into an innovative and attractive concept, which was in the core of the service domain strategic to Nokia.

Still, integrating SPORTS TRACKER to a commercial proposition failed. The operational requirements of the service business had not been taken into account in the SPORTS TRACKER proposition. Also, in the new organization structure the Services Business was responsible only for the services. They assessed SPORTS TRACKER as a pure service business case, which did not do justice to the proposition creating value both as a service and through device sales. Moreover, the SPORTS TRACKER team had developed its own identity. Reflecting their identity the team saw SPORTS TRACKER as a distinctive service, whereas the Services Business saw the tracking functionality as a feature across the services.
The sporadic and somewhat opportunistic dealings with the internal parties prevented the project team from extending its sphere of influence internally. With earlier business experiences from smaller companies, the SPORTS TRACKER team was well equipped to have creative discussions with external parties about the concept, technologies and implementation aspects. However the poor internal connection to the management and Strategy discourse at Nokia could not provide sufficient mandate or capability to escalate these discussions into proper negotiations. As a consequence the discussions did not lead to commercial outcomes.

The team ended up developing a novel experimental implementation on the server platform, which was not scalable to meet the business requirements of Nokia. Neither was the implementation easily transformable to Nokia’s service platforms. The experimental implementation got enthusiastic response among its users. It was viewed as novel, valuable and fun.
The SPORTS TRACKER team had strong personal networks and they could pursue with multiple alternative attempts to bring the proposition to the market. They could even influence the strategic direction of the company. Still, due to

- The SPORTS TRACKER team was lacking commercially experienced team members,
- The multiple shifts in the focus of the work,
- The very strong identity of its own in the team,
- The SPORTS TRACKER case being analyzed as a pure service case,
- Services organization being in the middle of constrained integration phase,

the SPORTS TRACKER service did not migrate into the mainstream setting of Nokia.

Despite the undisputed novelty and value of the proposition, it never got implemented as a commercial proposition by Nokia, but ended up in being spun off from Nokia.

**Figure 19**: The sphere of influence of the SPORTS TRACKER development work.
11.6. The Summary the SPORTS TRACKER Case

When introduced as a pre-commercial proposition, SPORTS TRACKER was a potential disruptor to the mobile services business. It was the first service that enabled consumers to tag maps with their self-created content, such as training data, images and verbal comments. It was a radical departure from the existing mobile services. For the company, it also represented a substantial deviation from the dominant operational logic of hardware business.

The SPORTS TRACKER Innovation started as an explorative search for product extensions to the hardware products and new software application area. The exploitative attempt to integrate the early outcomes of the exploration into an extended product was terminated due to a change in the product Strategy.

The second exploitative attempt to create a new application got side tracked as a consequence of the changes in the overall corporate Strategy and associated changes in the corporate level organization. The original idea of the new software application has continued to evolve in a form of a small-scale project and it may still lead into a material business.

The SPORTS TRACKER service invention emerged in continued exploration. The exploitative attempt to create a commercial service proposition was executed in Nokia Research Center. The work was only loosely connected to the Strategy discourse of the relevant business unit. The connections to the development of operational routines of the service business were non-existent. The development team of the SPORTS TRACKER service proposition consisted of entrepreneurially oriented technology experts. The team had conceptual understanding of the business needs, but there was no actual business experience in the team. The team built relationships to the operational service business and corporate venturing organization of its own initiative. There was no systematic mentoring or championing available to the SPORTS TRACKER team. The relationships to the businesses were somewhat sporadic, and the interests of corporate venturing and operational service business were conflicting. The corporate venturing was looking for a vertical business that would have enabled creation of a standalone business, whereas the operational services people were looking for horizontal capability that would have enhanced the value of a wide array of services. Moreover, the organizational routines and the requirements stemming from them were different in the operational service business and corporate venturing. As the development team had a strong will, they ended up in proceeding on their own. The service proposition was introduced to the market through an experimental setting at Nokia Research Center. It attracted an impressive number of enthusiastic users and created excitement both internally and also among the pre-commercial users.

The top executives were aware of the SPORTS TRACKER proposition and the excitement it created. The innovation was viewed to be well in line with the overriding strategic direction of the company. As a result, a progressive member of the executive board demanded a prompt implementation of the proposition in the operational service business. He assigned two highly qualified and respected executives to work out the way to commercialize the proposition. The priorities of critical resources, lack of ownership among some critical stakeholders, positional debates among operative people, and harsh technical realities prevented the commercial deployment of the
SPORTS TRACKER innovation. Some of the ideas of the SPORTS TRACKER innovation migrated to the plans of other service propositions of the company, which led into introduction of other context aware services. The novelty value of the SPORTS TRACKER proposition shrank with time. Finally the team worked out a plan to spin off from Nokia with the experimental implementation.

<table>
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<tr>
<th>Sports Tracker</th>
<th>Explore-Plan-Concept</th>
<th>Convert-Integrate-Develop</th>
<th>Deploy-Market-Sell</th>
<th>Sports Tracker Overall</th>
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<td>Strategic intent and logic</td>
<td>A- Extended product to active category</td>
<td>Active category stopped Wellness Service Line stopped at NVO</td>
<td>Contextual service development supported by NRC</td>
<td>Nokia’s broad intent to add value and develop digital services. Inspired by strategy but loosely connected</td>
</tr>
<tr>
<td>Act of innovating</td>
<td>Exploration and creating invention</td>
<td>Searching for opportunities for the inventions</td>
<td>Exploiting invention</td>
<td>Exploration to create invention and venture</td>
</tr>
<tr>
<td>Process</td>
<td>Research, venturing, (subcontracting)</td>
<td>Venturing and (subcontracting) Application development Service development</td>
<td>Venturing Experimenting and refining</td>
<td>Subordinated to processes of internal partners. Finally start up mode.</td>
</tr>
<tr>
<td>Organization</td>
<td>Small homogenous and enthusiastic team with the background in academia at NRC</td>
<td>Small homogenous and enthusiastic team. Collaboration with “Active Category” and Venturing.</td>
<td>Small homogenous and enthusiastic team. Incompatible with the operative business</td>
<td>Homogenous team with strong identity of their own</td>
</tr>
<tr>
<td>Competences</td>
<td>Researchers with start up mentality Venturing</td>
<td>No first hand business experience No consumer marketing experience</td>
<td>Technical Venturing</td>
<td>Research, venturing, software development</td>
</tr>
<tr>
<td>Commitment</td>
<td>Commitment by Active Category, NVO and NRC</td>
<td>NRC- The head of MM BB Services did not commit due to positioning conflict</td>
<td>NRC – Beta labs NBZ program</td>
<td>Commitment varied and came from different parties at different phases</td>
</tr>
<tr>
<td>Internal Networks</td>
<td>Community of researchers, NVO and Active Category. Relationships at fairly high level</td>
<td>NVO, at high level to New Services org</td>
<td>Strategy New Service Organization, Out Sourcing</td>
<td>On and off, according to the plan at the time</td>
</tr>
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<td>External Networks</td>
<td>Research community</td>
<td>Concept development of Internet Service companies</td>
<td>Venturing community</td>
<td>Research community, Start up community, Internet service developers</td>
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<td>Cognitive frames</td>
<td>Invention, Research, Venturing</td>
<td>Inventor Venturing</td>
<td>Inventor, Venturing</td>
<td>Research, Inventor, Start up</td>
</tr>
</tbody>
</table>

Table 10 The summary of SPORTS TRACKER case.
12 THE COMES-WITH-MUSIC CASE

12.1. Introduction

The COMES-WITH-MUSIC proposition was a revolutionary service and business model innovation that introduced an alternative pricing scheme to the consumers and a new service category to the music content owners. In concrete terms, it enabled consumers to purchase rights to a practically unlimited music library at the time of buying a Nokia COMES-WITH-MUSIC phone.

For the record companies it opened a new service category, which expanded the market for selling their music rights to mobile phone users. For a successful introduction to the market, it was critical to tie the service proposition to the launch of a compelling and distinctive product. This bundling combined Nokia's global presence, and a massive marketing campaign made the proposition attractive to the owners of the music rights. They saw it as an opportunity to, practically without any effort, sell and distribute their content to the audience that would have otherwise been apt to copy illegal music to their mobile phones.

12.2. The Narrative

12.2.1. COMES-WITH-MUSIC -proposition

As explained by the Head of Music Business, the COMES-WITH-MUSIC proposition was an outcome of a decade long journey of conceptualizing, developing and experimenting with a variety of use-cases for consumers to enjoy music with their mobile devices. The proposition consisted of the music-oriented device, the COMES-WITH-MUSIC application in it, the COMES-WITH-MUSIC service delivery platform, and the access to the music content. The origins of the service and business model innovation can be traced back to Nokia's discussions with the thought leaders of the music industry. The idea developed in a conversation between the Head of the Music Business at Nokia and a very influential actor in the music industry.

The SVP of Service Business explained that the development of the COMES-WITH-MUSIC service took place in multiple dispersed streams of activities, each of them focusing on different aspects of innovation. A team with an extensive software engineering capability developed the service delivery platform. A team of commercially oriented people negotiated and secured the rights to the content. The actual deployment of the service proposition had both global and local aspects to it. The Product Program Manager of the Nokia 5800 explained that the concrete development of the service proposition and the product that was launched with it ran in parallel for two years. For the initial year the product development and the service development remained independent. The actual bundling decision was made about one year before the integrated service-device proposition was brought to the market. Straight after the integration decision a systematic market deployment program was initiated, as explained by the Head of Global Go-To-Market activity. She added that globally a core team with strong internal networks and solid track records handled the market deployment. The local deployment activities were critical to the success, because the business system involved local actors and needed to reflect the local business practices. According to the Go-To-Market Manager, progressive local business development
managers took care of business development in their respective countries. The business
critical hardware product was developed in a product program. The hardware product
got defined at a fairly late stage of the overall undertaking, as the Product Program
Manager pointed out.

The return on investment on the successful COMES-WITH-MUSIC-NOKIA 5800
combination was substantial. The financial contribution of the NOKIA 5800 was the
highest in Nokia’s product portfolio during the first half of 2009. The successful launch
of the integrated product-service combination in Singapore was effectively replicated
to the other markets. The practices of the effective area focused service launch were
learned and further refined during the phased market-by-market launch of the
proposition. Each country specific launch was another learning instance in the process.
A phased, dispersed, but yet globally concerted Go-To-Market practice was learned for
the coming service launches.

12.2.2. Exploring Opportunities in the Music Space

The assignment to define music propositions to Nokia was exploratory by nature. The
SVP of Service Business recalled that in the turn of the millennium a newly graduated,
Internet savvy, bright and active business development manager and a small team were
requested to figure out what Nokia should do with the music opportunity. Shortly after
this they got a holistic ownership of developing propositions for the music use cases.

The Head of Music Business explained the elaborated stream of activities. During the
years different configurations of people working with the music produced altogether
nine substantial music related feature, product and service releases. The releases
ranged from FM radio to podcast, Internet radio, music players, dedicated music
devices and ultimately to the COMES-WITH-MUSIC proposition. The market impact of
Nokia’s music activities was impressive: In 2006 the company became globally the
biggest supplier of FM radios with 130 million integrated FM radios delivered in Nokia
mobile phones. In 2007 the company became the biggest supplier of music players with
146 million music players delivered. In 2008, at the time of N 95 sales, 76 % of the
users of Nokia’s multimedia oriented devices were enjoying music regularly with their
mobile phones. As a continuation to this, in 2009 Nokia introduced the COMES-
WITH-MUSIC proposition.

According to the Head of Music Business, the conceptualization and development work
of the propositions had been exploratory. People involved in the case had a lot of
latitude to work out proposals. In the actual integration of the commercial propositions
in each phase, the emphasis had been strongly in the exploitative mode. However, the
integration of more complex propositions had included a probing exploration as well.
The underlying principle throughout these phases had been to seek for differentiation
and define propositions that utilize inherent strengths of Nokia. As the Head of the
Music Business pointed out, the work had been motivated by the insight that the value
migrates from hardware to software and further on to the services. With these guiding
principles the team had worked out solutions that enable consumers to find, acquire
and consume music, as well as to manage the music content they have at their
possession.
12.2.2.1. Clear Direction, Changing Landscape

The Head of the Music Business viewed that the overall direction and general focus of the work had been clear all the way through, but the shifts in the balance of power within the industry had caused significant changes in what was viewed as appropriate in different stages of the industry development. That had affected how the work materialized in the actual commercial propositions. The Head of Music Business explained that in the first phase of the development of the music propositions Nokia was actively developing Club Nokia Services. However, Nokia’s service strategy got into conflict with the telecom operators’ interests and as Nokia’s biggest customers they forced Nokia to pull out from the active development of the digital services. As a consequence, the development of digital service propositions turned into a skunk-work at Nokia. The publicly visible work in the music field focused on developing applications that enabled consumers to enjoy music with their devices. According to the Head of the Music Business the operators’ strategies gradually developed towards more liberal direction with the overall evolution of the Internet services landscape. This voluntary liberalization in turn enabled Nokia to re-activate itself in the field of developing digital services. In anticipation of this shift Nokia had acquired Loudeye. Loudeye was primarily a music delivery service platform company, but it also had leading edge knowledge in developing consumer service propositions.

At the time of acquiring Loudeye Nokia’s internal music team had reached the head count of 80 people. The acquisition of Loudeye brought another 120 people into the music organization. As pointed out by the Head of the Music Business, the amount and the competence base of resources shifted markedly. The new competence base, networks and scale enabled conceptualization and development of a holistic music service proposition. According to the Head of Music Business, Nokia was actively searching for service propositions, which on one hand leveraged Nokia’s strategic strongholds in the mobile communications field, and on the other hand utilized the fact that the company had no position to defend in the music service business. The Head of Music business viewed strategy as clearly disruptive. In order to search for ideas to define the service concept, the Head of Music Business visited several Music industry thought leaders, such as Doug Morris, Lucian Grainge and Thomas Hesse. He iterated that the aim of these visits was to develop an insight into what Nokia could bring to the table to attract the music industry to feed their content through Nokia services or devices to the consumers. Systematically visiting the key thought leaders of the music industry took about two months. The Head of the Music Business pointed out the very first the idea of the COMES-WITH-MUSIC proposition as the main outcome of these visits.

12.2.2.2. Foundations for the Disruptive Innovation

According to the Head of the Music Business the necessary competence enhancing steppingstones to get to the COMES-WITH-MUSIC work were:

- Integration of FM radios to mobile phones, as it opened the eyes to see the scale of the music business opportunity.
- N 91, the extreme music device, as it enabled development of Digital Rights Management, music codecs, PC-synchronization and interoperability with Microsoft software products.
- Rapid replication of the music enablers across the N-series range after the N91, as it paved way to the successful negotiations with the record companies.

- The learning of the successful acquisition and clever integration of Loudeye, as it left the critical competences and practices of the acquired company alive.

According to the Head of Music Business, it was important that organizational foundations were in place and that the actors got mentoring support from the senior management. The mentoring support came primarily from the Executive Vice President, who had led the Digital Convergence Unit at the time of initiating the development of music service propositions. He was convinced that the industry would transform from voice centric hardware business to Internet enabled experience business. He saw the development of Nokia service propositions as critical to the continued success of the company. Moreover, at the time of rather informal, entrepreneurial and dynamic Digital Convergence Unit, he had developed strong personal bonds with the key entrepreneurial actors, who were driving the development of convergence products and services. The Executive Vice president and the entrepreneurial actors shared a similar entrepreneurial mindset. The entrepreneurial behavior and voluntary self-organizing way of working were central norms in the Digital Convergence Unit. According to the Head of Music Business the entrepreneurial heritage of Digital Convergence Unit continued in developing the music business.

The Head of the Music Business pointed out another key mentor, on a slightly more operative level. The executive, who was heading the digital services development at the Digital Convergence Unit was coaching the music team in a more substantive manner and, in fact was the line manager for the music services development in several phases of the organizational development.

The Head of the Music Business explained that the way in which the organizational foundations were in place changed over time with the organizational changes. In the first instance the Digital Convergence Unit was the context in which this development took place. Being a relatively small scale and rather informal operation the Digital Convergence Unit provided an open yet pragmatic environment for lateral thinking and combinatorial innovations. Also the mindset in the unit was progressive and open for exploration. In fact, in the Digital Convergence Unit there was a striving for experimentation. The Head of the Music Business highlighted that one of the overarching principles of the unit was that the new services were to build on "de facto standards" which would be created with successful experiments and rapid scaling up of the outcomes of those experiments.

In the next phase of organizational development the context was the Multimedia Business Group. This Business Group also had a very progressive agenda. The scale was larger and there were more formal structures and more business analytical rigor than in the Digital Convergence Unit, but still the environment was ripe for lateral thinking, forward looking risk-taking and experimentation.

At the time of its launch, the COMES-WITH-MUSIC proposition was a part of the Service and Software unit. The environment was open for lateral thinking and it was progressive for the service development. However, as pointed out by the Head of Music Business, the Service and Software Unit was profit-and-loss responsible exclusively for the services business. The downside of the service business focus was, that the additional business value that materialized elsewhere at Nokia did not count in the business planning. As the value of the COMES-WITH-MUSIC proposition comes from
the combination of the hardware and the service product, it was challenging to justify the continued resource spending on the proposition. The high awareness, the informal support of senior executives and the bundling with a strategic hardware product launch enabled COMES-WITH-MUSIC to get over this hurdle.

As explained by the Head of Music Business despite the several organizational changes the implementation work went on. It was a gradual discovery-oriented stream of action, where the actors had sufficient latitude for searching for solutions and making combinatory innovations. Most of the inventions were obvious and even necessary, but for instance the COMES-WITH-MUSIC innovation was a truly ground- and rule-breaking, disruptive invention. As pointed out by the Head of Music Business, it was an outcome of an active search for disruptive innovations at the cross-point of the music and mobile phone industries. Still, it was building on the capabilities created in the previous phases of the learning journey, in particular in the Nokia Music Store and a PC-client. As pointed out by the Head of Music Business, COMES-WITH-MUSIC was a combinatory innovation, building on the knowledge accumulated by the organization and external views from the music service industry. An important consideration in moving on to the resource hungry deployment with the initiative was the assessment of the internal absorption capacity at that point in time. The Head of Music Business explained that it was important that the basics of the music had been learned before the acquisition of Loudeye. Similarly it was important that the integration of Loudeye had been completed before moving on to the complex development of the COMES-WITH-MUSIC proposition.

Altogether, the Head of Music Business viewed that fostering diversity had been critical in driving creativity, lateral thinking and combinatory innovations throughout the journey of developing Nokia music experiences. In his mind, the benefits of diversity had been an outcome of complementary perspectives, a broader range of competences and a wider variety of networks. According to the Head of the Nokia Music Business, getting the benefits of diversity requires open communication culture. In his view open communication culture means among other things that one avoids closing other people’s mouths, and drives proper dialogue and positive confrontation. The Head of Music Business pointed out that in a practical business, there are times when you can afford to open up the whole complexity for debate. Most of the times you need to limit the focus of the debate, but still remain open to the alternative views. According to the Head of the Music Business, diversity calls for empathetic approach to the human encounters, as tensions and cognitive conflicts are inherent in the diverse settings. In his experience it also calls for patience as it takes a longer time to internalize the diverse views. On a practical level, as he explained, it means face-to-face encounters, because people often lack a widely spread common vocabulary. Getting over the cognitive impediments stemming from the lack of common conceptualizations and vocabulary takes time, empathy and courage. Based on his experience the Head of Music Business stated that diversity is absolutely critical to the success in the fields where departures from the dominant paradigm are needed. In addition to the capability to deal with diversity, one has to be open to the external views and has to have capability to understand alternative logics. To foster diversity and absorption of alternative logics, the head of Music Business moved over to the home base of Loudeye during the integration. His aim was to be physically present in the discourse dominated by the alternative logic. In his view the physical presence and empathetic approach yielded results. Employee satisfaction of the integrated team was the second highest in the entire company and the team learned how to work effectively with the rest of the company.
Based on his experience, the Head of Music Business summarized that diversity calls for openness and trust. It facilitates innovation and creates high performance teams on the condition that one can overcome the communication challenges. The politics needs to be fought against. Getting a diverse team to perform requires capability to create a unifying vision. In the changing environments it is not enough to be able to cope with diversity but one should have a strong will for diversity in order to turn it into an asset. In the case of developing music propositions through gradually improved knowledge level, the team was comfortable to suggest less obvious and more radically innovative investments. Latitude for creativity increased as the network learned more. The sense for the risks involved came from the engagement in all fronts of the development.

12.2.2.3. Diverse People Working Together

The development of the music business has involved a lot of exploration of poorly known matters. According to the Head of Music Business, high performance in such highly uncertain environment requires a sense of engagement. The sense of engagement stems from the inspiring and credible vision and ethical leadership. The core in the ethical leadership in an uncertain environment is reciprocal trust. Creative exploratory learning builds on constantly pushing on the limits of the known. On the edge of the knowledge people are surrounded by uncertainties and they have to act on their own personal risk. The course of action is based on their intuition and subjective views. Subjective views and intuitions are hard to articulate and verify before acting. The confidence the organization feels for the intuition relies on the trust each person enjoys. As a consequence the mandate to operate in such an environment reflects the trust an individual or a team has developed. By acting effectively an individual can earn more trust, whereas unjust failures erode the trust. Under such circumstances it is decisive whether the leadership amplifies trust or doubt.

In addition to trust, a key consideration is the leader’s capability to help people to perform. With his participation a leader can either assist or complicate the work. Another consideration is the leader’s influence to the mindset of the organization. In the light of the experiences of the music business development an optimistic, opportunity oriented mindset helps people to find solutions, whereas a problem oriented and skeptical mindset impedes people to take action. As highlighted by the head of the music business, when environment changes, it is easy to change the Intended Strategy, but changing the structures, framings, processes and mindsets is difficult. His observations of the development of the music business suggest that the diverse teams are more robust and adaptive. They are more agile to respond to the changes in the environment or structures. Homogenous settings are easier to manage but they are have difficulties with more complex environments. Moreover, homogenous settings are rigid towards changes.

According to the business leader’s experience the common identity of diverse teams and networks comes from the unifying theme and by working together. The experiences in the music business suggest that working together and in particular sharing contributions build common identity most effectively.

The exploratory work performed by the music teams was continuously connected to the strategic discourse and development of the working practices of the company. The fact that the activities took place in the operational business units made this connection multifaceted and pragmatic. Interdependent entrepreneurial and improvising way of working was a norm in developing music and other digital services in the Digital
Convergence Unit. Strong identity, reasonable priority and the support of the key executive mentors enabled the team to bring its points to the discourse both on the level operational business units as well as on the corporate level. The multifaceted communication interfaces on the business unit level enabled the music team to be connected with development of working practices and technological capabilities in the unit. Being part of the overall development of practices and capabilities was critical to successful integration of the proposition.

12.2.3. Developing the Service Proposition

In developing the service proposition the Head of Music Business viewed himself as an internal entrepreneur with the focus on addressing an identified opportunity. The execution involved developing the business model, negotiating the agreements and monitoring the technical development. The ownership was a holistic business ownership. The different streams of deployment work took place in different parts of the organization and were not necessarily managed by the management of the music business. The key principle he was applying, was on one hand to minimize the negative implications of the large company, and on the other hand to fully leverage the strengths of the company. The Head of the Music Business allocated his time to: 1) hiring people and setting direction and goals for them, 2) negotiating agreements with the external parties, and 3) monitoring the technical development. Only about 5% of his time was allocated to the actual conceptualization work.

The deployment of the COMES-WITH-MUSIC proposition engaged about 300 people in 17 cities. Embedded into the development was a delicate interplay between the client and service platform development and the realities in the value net. The deployment work was initiated in the Multimedia Business Group. With the organizational change in 2008, the activity was transferred to the Services and Software Unit.

In creating the value network for the COMES-WITH-MUSIC proposition the negotiations with the record labels were critical. The first agreements were negotiated with a heavy duty set up involving the Executive Vice President of Multimedia Business, the Head of Music Business, and the Head of Multimedia Legal. Once a couple of first agreements had been concluded, the snowball effect made it possible to lighten the set up. Still the interplay between client, server and the value net developments was essential and required the Head of Music Business to be involved in the second tier negotiations.

Interplay with the application software development was relatively straightforward as the core music team had been collaborating with the product programs in the past. On the journey to the COMES-WITH-MUSIC proposition, the N 91 extreme music device with a holistic music experience was an important experiment. As a spearhead product it brought together the developments that were relevant for delivering a holistic music experience. Despite the fact that the commercial success of the N 91 was limited, it helped the company better understand the market of music propositions. Probably even more importantly, it brought the parties central to the development of the music propositions together and helped them to learn to collaborate. Reflecting this, the Head of Music Business views that the best way to knit together a complex client-server -service value net setting, is to first hack something together on the existing platforms. By doing so the actual proposition gets verified and defined more in detail. The next step involves introduction of actual scalable propositions, be they then hardware or software products or service propositions. This approach requires more patience of the
involved parties, but enables development of more holistic and optimized propositions. Alternatively, one can make an induced bundling decision at a fairly high level of organization (where the ownership of complementary businesses meet) and then execute in different corners of the organization. In particular, when adopting this alternative approach one should give priority to optimizing user experience rather than timing. Otherwise the quality will get compromised. According to the Head of Music Business, the biggest challenge in deploying complex service-HW product combination is to fight against the schedule pressure and negotiate room for completing the work with good quality. Most times the timing pressures are internally motivated rather than driven by the market realities.

12.2.4. Developing an Innovative Music Phone for the Youth

The development of NOKIA 5800 mobile phone took two years altogether, as it involved a development of new hardware and software platforms. During the initial year, from January 2007 to February 2008, the development was independent from the development of the Music Service proposition. In this early stage of development the focus was primarily on defining the concept both in terms of the aesthetics and the functionality and figuring out which software platform to use for the purpose. As the physical concept got defined and as the software platform was defined to be Series 60, the emphasis of the development shifted to the software development.

A key person on that front in the program was the Software Integration Manager. He handled the interface to the software development. During the first year of the product development the functionality focus of the product was assumed to be a broader media and navigation focus. The decisive unique selling point was to be “the first mass market touch screen phone”.

The working practices for defining the concept were exceptionally hands on, and high levels of experimentation as the product concept was completely new and there were many details to work through and define in detail, without the possibility of referring to old implementations. Also otherwise, the program adopted a flexible and interactive way of working. The core team was small, consisting of only 10 - 15 people. The working mode reflected the nature of the challenge, and the experiences of the Program Manager. The Program Manager had several experiences on working in dynamic and relatively small units, which had been directly linked to the business. The implementing resources were scattered in different parts of the company. The core team acted as a coordinating hub of dispersed activities. The team was very active in visiting and working together with the contributing teams. They also set up an intranet site for internal communication and information sharing.

A key point to work on was the optimization of the user interface. An individual in the program took initiative in optimizing the user interface from the users’ perspective. He got support and expertise both from the design organization and software platform organization to work out the practicalities of the user interface. The review workshops were organized from the viewpoint of the actual users. The workshops were intensive 1 - 2 day sessions, where the user interface (UI) was reviewed. All program people participated. They went through the key use cases and created the outline for the UI specification. The UI person of the program was recording the conclusions and kept the Series 60 platform up-to-date about the specification and requirements. The VP of Devices Portfolio and Innovation with extensive experience on UI design was actively contributing, following up, assisting, and keeping the senior management in the loop of
the discussion. His participation was crucial for building up momentum for the UI design and implementation work. With his participation and contribution the experienced Vice President inspired the people in charge of the user interface development to contribute beyond the ordinary. Also the quality of the software improved with this practice. The software was reviewed and refined based on the outcome of these workshops.

Another critical point was the review of the end-to-end performance of the key functionalities. The implementation of the enabling technologies was reviewed throughout the service value chains contributing to the user experience. Based on the reviews, the implementations in the product and service platforms were tuned in order to get the service delivery chain to work.

About one year after the initialization of the NOKIA 5800 program the Executive Board made the decision to bundle the launch of the first mass market touch screen phone and the COMES-WITH-MUSIC service proposition. The combination of the propositions was believed to make a sufficient impact to counter the marketing buzz stemming from the iPhone. The maturity of both development streams was viewed to be sufficient for an acceptable risk level in the bundled package.

As the functionality focus of the product shifted, its styling and some minor mechanical details were revised and changed. However, in terms of the operational focus the changes were drastic:

- The interface with the music service platform development became critical. A weekly review practice for managing this interface was established. A critical success factor in managing this interface was the fact that the person in charge had experience working on the platform organization and could associate with the challenges on the other side of the counter. His working style was systematic and fact based and he referred to the user experience and to end-to-end performance in his judgments.

- Holistic Go-To-Market became critical for the success of the combined package. For that purpose a dedicated handpicked Go-To-Market manager was appointed to the case. Her experience on working with the markets and specifically with some key pilot markets combined with an active and energizing personality, were critical to success on this front. In Go-To-Market management the strategic role of the product launch brought a lot of attention to the activity. The Go-To-Market program got a lot of senior coaching from the head of Go-To-Market of the category. The Category management in turn got a lot of support and attention from the head of Go-To-Market and from the Go-To-Market board. The Go-To-Market working practices were developed based on the needs of COMES-WITH-MUSIC launch. The Go-To-Market work was monitored with the Go-To-Market board, which enabled senior management to support the case with resource allocation and target setting of complementing parties. Moreover the senior management review had a positive effect to the esteem of the implementing network.

- The executive steering group, consisting of the Executive Vice Presidents of Products and Services as well as the Vice President of Product Development, was established to follow up the progress of parallel implementation streams, and to resolve issues that could not be resolved in the product or service development alone. The steering group was an important vehicle for getting
attention to the programs. Also it was important in facilitating the discussion on the Executive Board and Business Board levels. The number of actual escalation cases was minimal. However, the Executive steering group was instrumental in building momentum and securing high priority of the implementation activities in different parts of the company.

These arrangements made the communication lines between the business critical activities as direct as possible. Direct communication facilitated creation commonly shared understanding of affairs. Moreover, it created collective mindset among the doers in different parts of the organization.

Clearly, the bundling decision made both NOKIA 5800 and COMES-WITH-MUSIC propositions strategic to the whole company. The recognized strategic role brought more attention and priority to the dispersed activities in different parts of the organization. Moreover it had a positive effect on how people perceived their contribution to the case. The strategic priority combined with the personal engagement of the senior executives inspired people to contribute beyond the ordinary.

12.2.5. Taking Combined Proposition to the Markets

The market facing the global Go-To-Market program was conducted as a phased activity and took ten months altogether. The Go-To-Market Program Manager was appointed in January 2009 and the product started shipping in November. The initial two months went to orientation and building up a network. During the initial two months the shift from broader media and navigation focus to music was firmed up in the Executive board of the company. The true action started in March-April. The action was dispersed and emergent, yet it was a globally concerted effort. A lot of initiative was distributed to the local actors and the role of the global Go-To-Market program was to phase and co-ordinate the activities, monitor the progress and synchronize the activities with the global product and service programs. The global Go-To-Market team also represented markets in the global development projects. Moreover they secured cross-pollination of the learning between the countries and created energizing buzz to the program. The global activities were motivated by the strategic importance of the launch and continuity of the work. Recognition was an important factor, both on global and local levels. The touch and communications were primarily personal. The main media were phone calls, text messages and face-to-face meetings either physically or with video. This personal communication practice highlighted trust and mutual respect, and helped to build common identity to the actors. It facilitated entrepreneurial improvisation rather than ticking the boxes by contributing parties. The June-August period was critical as the Go-To-Market team conducted a road show with an early software version. The key members of the program participated in the road show. The round was crucial as it built up excitement for the product, strengthened personal bonds between the actors and enabled Go-To-Market team to review and cross pollinate the local execution plans. For instance the idea of midnight retail events came about through these local execution plans and was replicated in a number of markets.

The program management in the markets organization operated on country, area and global levels. The key stakeholders in this dispersed deployment set up were the Device Product Program Manager, the Singapore Go-To-Market manager and the global Go-To-Market Program Manager. The set up developed reciprocal trust and peer review mentality. The operational mode was to develop through an iterative learning process. It was not designed. It was organic, but it had clear roles in different lines of activities.
The success of the set up was dependent on the active and devoted individuals. The Product Program Manager, living in the established Concurrent Engineering tradition was experienced but not rigid. The Go-To-Market Program Manager was an active boundary spanner and did not aim to claim the overall responsibility of the case but was rather focusing on facilitating the collaboration. The Go-To-Market manager in Singapore was an ambitious person capable of taking a holistic ownership of the case and improvising on multiple fronts. The Heads of the Go-To-Market and the Live Category wanted to demonstrate with the COMES-WITH-MUSIC case that the operational mode worked. They provided a lot of senior support to the case. The mindset was pioneering and ambitious, yet humble to the complexities.

The local Go-To-Market Director in Singapore took a lot of personal ownership of the launch preparation. The fact that he had direct lines to the global Go-To-Market, the Device team and the Service team combined with the collaborative mindset facilitated interdependent way of working. He got a lot of senior support from the global Go-To-Market manager. The local activities and devotion were motivated by the role and visibility of the Singapore launch in the overall scheme of things. The Singapore pilot case alone took half a year of active execution. The business development manager ran the Go-To-Market in Singapore with a very strong initiative. The whole areal management was involved in the process. The physical proximity of Asia-Pacific area management and the sales and marketing management of Singapore helped in executing the Go-To-Market in Singapore. It was easier to cut through the levels of organization in Singapore as everybody was in the same office. The execution was helped by the ability to focus and get the support from different organizational levels to the case. The execution chain involved the area management, the country management and the account/retail management, all in the same office. That led into a very holistic and pragmatic way of working. That combined with the concrete feedback from the UK launch enabled Go-To-Market people to focus on the issues critical to the consumer experience. The goal was to develop a holistic and compelling user experience and the execution set up was able to manage a good range of critical aspects in it.

The failed UK launch of the Music Service proposition was important as it demonstrated the challenges of launching a service proposition. The anchor points of the operational mode were in the markets, devices and services. To really learn by doing required actualization in a concrete physical setting, which in this case was chosen to be in Singapore. The personal mode and tone in communicating was critical in facilitating the improvising way of working. The principles of reciprocity and peer review secured collectivity and needed mutual adjustment in the dispersed action. Everybody felt responsible for the launch. According to the head of the global Go-To-Market activities, Nokia’s culture supports dispersed entrepreneurial action. The entrepreneurial action drives what happens in the line organization. The line organizations support the collective entrepreneurial action. Moreover, once the first implementation had been done in Singapore, the scaling up of the operation took place dynamically. The learning from the Singapore experience was partially orchestrated globally, but the actual learning spread mainly directly from Singapore to other sales companies. The formal and informal processes supported each other.

During the Go-To-Market phase the COMES-WITH-MUSIC proposition remained by and large unchanged. The communication of it changed markedly. The visual images of a touch screen were exploited to the fullest. Also the wording of “Free music” was introduced. The details of retail program were refined. Moreover, the improved software versions were waited for, to ensure that the first impression will be positive. The sales package was further improved even after the sales start. All in all, the sales
start schedule was not as tight as normal, which allowed time for critical fixes. The deployment network of improving the overall implementation and experience engaged expert teams in the Devices and Service Line and in the program management in the markets.

12.2.5.1. The Role of Concrete Metrics in Driving the Action

The targets set for the local execution were expressed in terms of: 1) Run rate (i.e. how many bought), 2) Activation rate (i.e. how many taken into use), and 3) How much the service was actually being used. The targets were set through dialogue between the global and local. The global GTM management proposed the targets; the local validated and suggested adjustments. Once the network of key managers was comfortable with the targets, they were brought to global Go-To-Market board for approval. The Go-To-Market board stretched the targets. In case of the failed UK case, the stretch had led to unrealistic targets. In the case of Singapore, the targets turned stretching but still remained doable. Setting targets for the services business was difficult for the company that had a strong tradition of setting the targets of the product business. Overall, the COMES-WITH-MUSIC case raised the question on how to best set targets for a new business that requires exploration. Despite the fact that the targets set for the COMES-WITH-MUSIC were numerical, they assumed qualitative requisites. The active user target, for instance, assumes that consumers are happy with the proposition. Similarly the market awareness of the new proposition assumes quality in marketing. The “consideration” measures the quality of communication. The measures led into simplification of the marketing communication and market-by-market approach in Go-To-Market. The key message was simplified from “Millions of tracks” to “Free music”. Also the Go-To-Market was first actualized in Singapore, where the whole value net was easily accessible and where the physical proximity of Nokia people helped execute the release transparently. The learning from the Singapore experiment was spread through the center and also directly to the other markets. The adopted approach led into internal ecological process of practices and propositions. This yielded maximum dispersed learning.

12.2.5.2. The Role of Vision and Strategic Priority in Driving Dispersed Action

In addition to the metrics, the goal was communicated in the form of a strong vision: Nokia wants to be a credible music brand. A strong identification to the vision can guide very effectively. It minimizes the need for micro management and enables entrepreneurial action in line with the vision. It also allows local innovation and creativity and also improvisation in the means to achieve the vision. Overall the vision can lead the qualitative and affective aspects of doing. It inspires, leaves improvisation to the actors, and minimizes the need for micro management. The hard targets enable the management of the process. According to the head of Go-To-Market the combination of a strong vision and a couple of hard targets appears to work most effectively in the dispersed execution. Having too many hard targets shifts the emphasis to the management of metrics, which erodes dispersed entrepreneurship.

The strategic priority in turn motivates people, who are contributing to the dispersed action. It also influences local decisions, which in turn helps people to effectively pursue their activities. Moreover, the combination of a strong vision and strategic priority makes the case attractive for the progressive people to join. It highlights the
meaningfulness of the activity and demonstrates that one can really make a difference through the action.

12.2.5.3. The Role of a Benchmark in Driving the Action

In the case of COMES-WITH-MUSIC the targets were set and articulated by referring to the UK experience. The launch in the UK and the live tests of the marketing materials revealed the gaps to focus on. First and foremost Nokia needed to establish itself as a credible music brand in order to be able to sell a music service. In terms of marketing evolution this brought Nokia back to the initial phases of building a market presence. A lot of effort was made to build awareness of Nokia as a music brand. Secondly, the UK experience highlighted the importance of pulling together a retail proposition. The training of the retail team, and the program for service activation were critical in building up the sales and marketing capability. Moreover, a lot of focus was put on highlighting the role of the Singapore launch in Nokia’s overall scheme of becoming a digital service company. The realization of the plan was helped by Nokia’s strong position in the Singapore market, the close proximity of the area, the local people of Singapore, and the liberal and progressive attitude of the operator customers in Singapore. To really allow all bits and pieces to come together, some extra time was allowed for working out the details. The launch of the NOKIA 5800 was delayed by about a month to work out the details. During that period a new software release that rectified about 40 bugs was accomplished. Also, the retail concept and the marketing program were further refined during the extra time. As stated by the Head of Go-To-Market activities, in the light of the bundled launch of COMES-WITH-MUSIC and the NOKIA 5800, a large Multinational Enterprise can afford tactical set backs to secure strategic gains.

12.2.6. Engaging External Parties

In the interplay with the external actors, the critical phase was getting the rights to the music. The first step in getting the rights was to prepare a compelling proposition and to demonstrate capability to execute it successfully. To make the business model compelling to the owners of the music rights, an attractive terminal launch was needed. The NOKIA 5800, the first mass market touch screen device, was an attractive enough product to make the bundle irresistible to the music labels. Singapore was to be the test market, as the market was advanced and of manageable size. Moreover Nokia’s position on the market was strong and the operators’ stance towards other parties’ services was quite liberal. It was possible to actualize the whole business model and associated value net in Singapore. Once the entire business system was constructed in Singapore, it was easier to replicate it in other markets. Doing the industry development first on a market that had favorable institutional conditions, both external and internal, increased probability of success markedly. The successful deployment on the lead market acted as the showcase for demonstrating the benefits of the new business model to different contributors.

Fulfilling these criteria gave Nokia a strong position to negotiate effectively with the record labels. To understand the scale of the negotiations it is worthwhile recognizing that introducing a new concept into an established global service business requires that all existing contracts have to be re-negotiated. In the music business it required getting first the four industry leaders behind the concept. They own about 60% of the rights. Once those parties are onboard, the others will follow.
Moreover, to make the service relevant in different geographies, local label owners need to join the value net and provide their content through the service. The practices of the music industry vary markedly area by area. Also there is a lot of variance in the associated infrastructure and transaction mechanisms. For instance the penetration of credit card payment varies a lot from country to country. To operationalize a business in a landscape that has both global and local elements, one has to centralize certain aspects of the business, and execute certain aspects of the business locally. Being able to operate in a multi-polar way requires mature governance structure. In the case of the roll out of the music service the proposition management was done globally. The overall orchestration of Go-To-Market and content negotiation activities were global as well. The local digital retail teams were accountable for building up business presence in their respective geographies. The Music Service Line, Product Business and the people in charge of the sales of the digital services in the areas jointly managed the Go-To-Market work.

Collaborative mode enables a mindful way of working in the instances, which require improvisation. In the digital services business the relevance of the service offering has to be re-made intermittently. The proposition management practices of a product company do not cover the daily management of the proposition after its initial launch. That brings a challenge to the product companies to sustaining competitive in the service business after the initial launch of the service.

12.3. The Key Phases of Development

The COMES-WITH-MUSIC proposition came about as an outcome of an explorative search for opportunities in the convergence of digitalized music and mobile telephony. The original target setting for the explorative undertaking was to see what Nokia could do with the digitalization of music. The work was in the first instance done by a small team of young and entrepreneurial business developers at the Digital Convergence Unit of Nokia. It was lead by inspiration of the EVP in charge of the unit and by the VP of Business Development.

Reflecting the advancing technological capability of the products, the overall capabilities of the company and the leeway given by the operator customers, several exploitations of the outcomes of explorative search took place. The creation and market experiences of FM radios, music players, dedicated music devices and music service each added to the competences and capabilities of Nokia. In addition to internal capabilities, these exploitative steps improved Nokia’s capabilities to interact with the external parties involved in the creation of these propositions.

As the operator community became more receptive to the services of the other parties Nokia initiated a systematic search for disruption opportunities with music services. The search entailed number of elaborative discussions with the experienced experts of music and Internet services industry. The target setting was to search for disruption opportunities that would leverage Nokia’s strongholds of global presence, leading market share, and marketing capabilities.

The idea of the COMES-WITH-MUSIC proposition came about in these discussions. The concept was to create a fixed price bundle that would allow its buyers to download an unlimited amount of music from the associated record labels. The invention of the idea timing wise coincided with the acquisition of a relatively small digital music service company Loudeye. The acquisition of Loudeye was critical, because it added to
the music service competences and resources of Nokia. Those competences and resources were critical in the later stages of development. To achieve maximum impact, the proposition was attached to the launch of a device, which would be specifically designed to the music oriented youth market. Once the overall principles of the proposition were fixed, massive contract negotiation undertaking was started. The EVP of Multimedia Business Group and the SVP of the Services Development were instrumental in getting the first record labels committed. These senior executives put a lot of personal effort into getting the first deals signed. The strong commitment and involvement partially stemmed from the fact, that these very same executives had been instrumental in initiating the explorative search for the music business opportunities. They were keen on the content and committed to the agenda and to the people involved.

As the probability to succeed with the service component of the proposition increased, Nokia made a cross Business Group decision to bundle the service created by Multimedia Business Group with a youth oriented product of Mobile Phones Business Group. The cross business group decision was justified by the fact that the product was the most strategic product of Nokia’s portfolio of 2008 and it was targeting the relevant segments of the market. It was the first mass market touch screen phone and the plan was to create a massive campaign to launch it. The decision came at a fairly late stage from the viewpoint of developing this strategic product. The product had already been defined and its functionality focus had been set to be navigation. The change in the functionality focus was driven by the recognition of synergistic opportunity between the development of the COMES-WITH-MUSIC service proposition and the launch of the first mass market touch screen phone.

The work after the bundling decision was divided into three interdependent streams: 1) The development of service proposition, 2) The development of the product proposition, and 3) The market development activities. Each stream was executed in an entrepreneurial fashion in a set up of its own:

1) The global service proposition development was led by a person who had carried through the explorative activities in search for music propositions. He was reporting to the Head of New Service Development in the Services organization (a new role after 1.1.2008).

2) An experienced Program Manager led the product development, with a close and trustful relationship with the Head of Devices (a new role after 1.1.2008).

3) The executive, who had been in charge of Go-To-Market activities in the Multimedia Business Group, run the market facing business development activities. She reported to the Head of Go-To-Market in the Markets unit, and further on to the EVP of Markets. The Head of Go-To-Market had previously been in charge of Multimedia Sales and the EVP of the markets was previously the Head of Multimedia Business Group. They were both strongly committed to the new proposition.

The EVP of Devices and the EVP of Services (new roles after 1.1.2008) reviewed the progress and synchronization of these interdependent working streams in regular conference calls. The participation of the senior executives facilitated a constructive and collaborative spirit in these common meetings.
The Go-To-Market activity of NOKIA 5800 COMES-WITH-MUSIC bundle was multifaceted. The product development and the service platform development set the phase, and the business development of the lead market (Singapore) integrated the proposition in a tangible way in the local context. The local business development was in a decisive role in making the proposition marketable. They took a lot of initiatives to simplify the proposition and to work out practicalities associated in selling such a multifaceted proposition. They also created a practice to bring in local record labels to the service offering. The experiences from the lead market were incorporated into the preparation of global campaign as well as into the concurrent preparation of launches on the other markets. The launch of the bundle was a great success in Singapore and the replication in the other markets was effective.

Figure 20 The development process of COMES-WITH-MUSIC proposition.
12.4. The Drive and the Interplay with the Environment

The entrepreneurship of key actors and their interplay with the Strategy, practices development and external parties was a crucial factor influencing the impact of the innovation. Entrepreneurship of COMES-WITH-MUSIC activity was autonomous, but tightly connected to the Strategy discourse through the VP of Business Development (at Digital Convergence Unit, later the SVP of Services at Multimedia Business Unit and then SVP of New Services at Services organization).

The exploitative activities reflected first and foremost what the market tolerated, but they were also subject to Nokia’s Strategy and internal capabilities. The internal capabilities that were critical in setting the efficacy of Nokia in the music field were the performance of product technology, service delivery capability, and the capability to collaborate with the complementing parties required in the creation of service proposition. The development of these critical capabilities was interdependent but not concerted. Triggered by the impulses from outside, the entrepreneurial actor in charge of the explorative activity envisioned the service opportunity, which led into creation of the COMES-WITH-MUSIC proposition.

The COMES-WITH-MUSIC invention triggered a massive business development activity with the powerful global actors of the music and Internet services industries. The resources and capabilities of the acquired Loudeye were key to the process. The fact that the head of the music activity was co-located at Loudeye and preserved their ways of working was instrumental in extending Nokia’s competences with the capability to deal with these powerful actors with different industrial heritage.

As confidence on the capability to actually pull together such a complex service proposition increased, the volume of the work increased and the work was divided into three streams of activities, each of them having an entrepreneurial lead of its distinct characteristics. The head of global service development was characterized by innovativeness, the head of product development program by persistency and proactivity, and the head of Go-To-Market by networked dispersed entrepreneurship.

The entrepreneurial streams of activities interacted with each other on need basis. The global executive level review practice was effective in providing symbolic leadership to the interdependent stream of activities and in keeping the Executive Board of the company updated about the activity that was central to the Strategy of the company.
Table 11  COMES-WITH-MUSIC: Entrepreneurship and its interplay with the Strategy, working practice development and external business parties.

12.5. The Sphere of Influence

In the first instance the service propositions of the industry were controlled by the operators, thus the focus was on feature development. As the extra-industry influences and threats drove operators to relax their control of the digital services market, more service-oriented propositions became possible. In the third phase, with the omnipresence of the Internet services the telecommunications industry became conducive to the disruptive digital service innovations, which opened a business opportunity to the COMES-WITH-MUSIC proposition.

The entrepreneurial explorative activity has been in continuous interaction with Nokia’s Strategy and working practice development, as well as with the external parties. A guiding principle, which has helped the entrepreneurial set up to extend its ability to interact with internal and external constituencies has been the respect for heterogeneity in terms of competences and work experience.

The exploitative attempts had built on tangible opportunities of that phase in the industry development. The entrepreneurial unit had been able to get the necessary mandate and leeway to make the necessary contractual and operational arrangements to create and execute these new businesses. Transparent interaction with the Strategy
discourse has been instrumental in the process of getting the mandate to deviate from the norm, but the capability development had taken place through direct interaction with respective internal and external parties. The Strategy discourse and the institutional setting of the company had been in interaction with external developments and internal exploration.

The fact that the development activity was divided into three interdependent streams of activities further extended the sphere of influence of the NOKIA 5800 & COMES-WITH-MUSIC proposition as it enabled entrepreneurial action on a broad front.

![Figure 21](image)

**Figure 21** The sphere of influence of COMES-WITH-MUSIC development work.

The development of the COMES-WITH-MUSIC proposition was a combination of exploration and exploitation. Primarily explorative search for music propositions had been about a decade long journey. During the period of 2000 – 2009, nine concrete propositions had been produced. The propositions at any given time had reflected the market conditions, the institutional setting of the industry, extra-industry influences and the capabilities and Strategy of Nokia.
12.6. The Summary of the COMES WITH MUSIC Case

A small team of technology savvy business developers was assigned to explore business opportunities stemming from the digitalization of music. The team was a part of a progressive business unit, which had execution power and a mandate to define its own working practices. The outcomes of explorative work led to exploitative activities to extend products, create new applications and products, and ultimately to create a holistic service proposition. The exploration was a long-term continuous effort. The exploitative activities built on the capabilities created by the exploration. Each exploitative attempt created capabilities, cognitive frames and new routines or adaptation to existing routines, which were needed to operate in the new application area. Those routines and frames were instrumental in the continuous work in the application area.

The explorative and exploitative streams of activities were not mutually exclusive, but highly complementary. They were interconnected and managed under the same management structure. The diversity of the team was progressively developed in line with the challenges at hand. A substantial extension to the range and volume of competences was achieved by acquiring a company that was active in the music space. Instead of subordinating the activities of the acquired company to the routines and practices of Nokia, the manager in charge of the business moved into the premises of the acquired company to learn from their experiences and working practices. The understanding, competences and working practices of the acquired company were instrumental in the later stages of the development. The combined organization developed into a set up that had a broad spectrum of competences in line with the needs of the application area. The organization was well connected both to the internal constituencies and to the relevant external parties.

The explorative search for the service ideas in the application area engaged external parties from the complementing music industry. The original idea of the radical service innovation emerged in the discussion with an influential party from the music industry. The actual development of the service proposition involved explorative and exploitative development activities as well as negotiating complex commercial arrangements. The senior management and in particular two key executives, who were part of the business unit, which originally had initiated the exploration were instrumental in negotiating the commercial arrangements. The resources of the acquired company were taking care of a large portion of the operational commercial arrangements.

As a part of a major re-organization of the company the executive board made two decisions that facilitated the holistic implementation of the proposition. 1) The service proposition was bundled with the launch of a strategic product. 2) The implementation work of the holistic proposition and associated business system was divided into interdependent streams.

The disintegrated way of working facilitated an entrepreneurial way of working on multiple fronts. The development streams were interconnected both on the operational and executive level. The work was divided into four interconnected streams of activities.

1) Service development was done in collaboration between the acquired company and Nokia service development people.
2) Product development program followed the established routines of concurrent engineering. Special emphasis was put into managing the user experience and the interface to service and software development. The mode of working was dispersed and adaptive. The small core program focused on managing requirements, deliverables and securing cohesion and quality of the deliverables from the interdependent contributors.

3) In commercial negotiations with the complementing industry high level executives were in an instrumental role. The operational arrangements were done in collaboration between the people from Loudeye and Nokia. Scaling up of the commercial negotiations would not have been possible without the resources of Loudeye.

4) The business development work in the sales areas was a globally concerted dispersed effort, which engaged entrepreneurially oriented actors from the lead markets. The learning from the lead markets was replicated both through global core and from market to market. The process of replication involved learning and adaptation.

The decision to bundle the launch of the service proposition with the launch of a strategic product secured high priority in working out the practicalities of a complex service launch. This was instrumental, in particular, in order to get resources to the business development work to the business development in the countries. It also provided a strong marketing support to the commercialization of the service.

Based on the experiences of earlier service launches, the market making activity was organized as a dispersed but globally concerted effort. This new working mode was created by an entrepreneurial initiative of a small team in charge of global market making. The working mode facilitated entrepreneurial ownership in the markets as well as in the product and service development. The entrepreneurial ownership was apparent in particular on the lead market, where the owner of the activity took initiative and improvised knitting together a complex service ecosystem. The creation of the local service ecosystem was interdependent with the global service creation and product development activities. Locally it was strongly connected to the marketing and retail activities. The senior management of the Area sales organization provided support both in terms of resources and facilitating the creation of new working practices. New practices were created in particular to work with the retailers and with local record labels. The experiences from the lead market replicated both through concerted global effort and from country to country. The interconnected way of working enabled improvisation and entrepreneurship on multiple fronts. Moreover it facilitated rapid replication of experiences. The loosely networked Go-To-Market routine, association to common Strategy and leadership, the key executives’ attention and encouragement inspired and motivated people in this dispersed way of working.

The innovation turned out to be a clearly distinctive and value creating innovation on the market. It was in line with Nokia’s Intended Strategy and had a major influence to the Realized Strategy on the short term. The Nokia 5800 turned out very popular and the most profitable product in Nokia’s lineup of 2009. The COMES-WITH-MUSIC service proposition got a massive visibility on the market and ended up being bundled with a large portion of Nokia products in 2009 and 2010. The service was launched in 33 markets, which entails almost all prominent markets of mobile Internet services. The COMES-WITH-MUSIC was probably the most visible service proposition in Nokia’s portfolio of digital services in 2009. Despite the forceful distribution and
marketing of the COMES-WITH-MUSIC proposition, the take-off of active use was modest. Few hundred thousand consumers were actively using the service in the end of 2010. In 2011, as part of an overall review of Nokia Strategy of the Internet Services the COMES-WITH-MUSIC service was terminated.

<table>
<thead>
<tr>
<th>COMES-WITH-MUSIC</th>
<th>Explore-Plan-Concept</th>
<th>Convert-Integrate-Develop</th>
<th>Deploy-Market-Sell</th>
<th>CwM Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organization</strong></td>
<td>Small networked team team of business developers in a new and progressive business unit. Implementing resources shared.</td>
<td>Internal: 70 people focusing on application, service and business development. Loudeye:70 with music service experience.</td>
<td>SBS New services. S800 extended product, Go-To-Market program. Dispersed, networked, reorchestrated.</td>
<td>From small team to large org. of 100's of people. Diversity, acquisition of competences and dynamism central principles</td>
</tr>
<tr>
<td><strong>Competences</strong></td>
<td>Internet savvy business developer: fresh from the university. SW manager with work experience.</td>
<td>Business development, applications, Service platforms, Music industry</td>
<td>Music industry, Service platform dev., Negotiation, GTM, Marketing</td>
<td>Broad competence base and ways of working through preservation of diversity</td>
</tr>
<tr>
<td><strong>Commitment</strong></td>
<td>Commitment from the progressive business unit that had a company wide mission.</td>
<td>MM B2G, MP product categories. Sales and marketing.</td>
<td>Company wide commitment through bundling with strategic product launch</td>
<td>Commitment from two highly influential stake holders spread</td>
</tr>
<tr>
<td><strong>Internal Networks</strong></td>
<td>Networked within the business unit and to the product business in general.</td>
<td>Service business, Product Business, Sales and marketing.</td>
<td>Multiple initiatives and networks to service development, business development and negotiations.</td>
<td>Diverse and far reaching through multiple streams of entrepreneurial activities</td>
</tr>
<tr>
<td><strong>External Networks</strong></td>
<td>Scattered, mainly within the mobile communication industry. Build networks to the music player and service companies.</td>
<td>Networked to the music industry and Internet services industry.</td>
<td>Global and local through complementary streams of activities</td>
<td>Extensive through multiple streams of interdependent activities</td>
</tr>
<tr>
<td><strong>Cognitive frames</strong></td>
<td>Extended product, applications, basics of new service development.</td>
<td>Music service, extended products, business development with internal and external parties.</td>
<td>Services Business, Extended product, Business development, Marketing</td>
<td>Business management, business development, Internet service business, Music</td>
</tr>
</tbody>
</table>

Table 12  The summary of COMES-WITH-MUSIC case.
This chapter examines the cases by using the key templates of ambidexterity research, entrepreneurship research, and the ecological perspective of a firm. The aim of the analysis is to create a comprehensive account on ambidexterity, entrepreneurial agency as its driver, and on the mechanisms that connect ambidexterity to the broader evolution of the firm. The analysis contained herein produces substantive grounded conceptualizations, which will be further developed into formal grounded theories in Chapter 14.

The study specifically elaborates how entrepreneurship drives exploration, exploitation and their interplay, and how those activities reflect and influence the broader Strategy evolution of the firm. The analysis aims to reveal how corporate entrepreneurship sets its course, and how entrepreneurship drives innovation and organizational renewal in an established, large-scale organization. Hence, the study examines how ambidextrous activities turn into ambidextrous organizational outcomes. Ultimately, based on a grounded analysis of actual innovation cases, the study discusses how intended and realized corporate Strategy gets renewed through the entrepreneurial act of innovating.

The findings of the study are presented in the form of conceptualizations and characterizations of the micro-processes of ambidexterity and corporate entrepreneurship as they appeared in the examined innovation projects. The conceptualizations and characterizations illustrate the processes themselves and contingencies between characteristics of activities, actors and outcomes. Finally, the study renders a process view of the interplay between Strategy and the entrepreneurial act of innovating in order to clarify the mechanisms through which ambidexterity materializes in the Realized Strategy of the firm.

The cases and their operational characteristics are summarized in the table on the following page.
<table>
<thead>
<tr>
<th></th>
<th>N 82</th>
<th>N 95</th>
<th>SPORTS TRACKER</th>
<th>COMES-W- MUSIC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Act of Innovating</strong></td>
<td>Exploitative with exceptional exploration in focused engineering domain.</td>
<td>Strong emphasis on the conversion phase, which used rich inputs and built efficacy and commitment.</td>
<td>Autonomous exploration to create innovation and new venture.</td>
<td>Adaptive and dispersed combination of exploration and exploitation. High on learning.</td>
</tr>
<tr>
<td><strong>Organization</strong></td>
<td>Streamlined to execute induced activity efficiently.</td>
<td>Combination of cohesive and networked models that enabled large-scale ambidextrous behavior.</td>
<td>Homogenous team of enthusiastic wizards with strong identity of their own. Ultimately got isolated.</td>
<td>From small team to large organization of 100’s of people. Focus on diversity, acquisition of competences and team dynamics.</td>
</tr>
<tr>
<td><strong>Competences</strong></td>
<td>Engineering and product design.</td>
<td>Broad competence base including sales, business, R&amp;D, technology and portfolio management.</td>
<td>Research, venturing, software development.</td>
<td>Broad competence base and ways of working. Pushed diversity and experimentation.</td>
</tr>
<tr>
<td><strong>Commitment</strong></td>
<td>Strong commitment in the team. Low commitment from the management.</td>
<td>Commitment from the top of the Business Group all the way to the operational level.</td>
<td>Commitment varied and came from different parties at different phases.</td>
<td>Commitment from two highly influential stakeholders.</td>
</tr>
<tr>
<td><strong>Cognitive Ease</strong></td>
<td>Engineering and technology marketing.</td>
<td>Broad range including sales, business development, R&amp;D, technology and portfolio management.</td>
<td>Research, inventor, start-up.</td>
<td>Business management, business development, Internet service business and music.</td>
</tr>
</tbody>
</table>

Table 13  The summary of the operational characteristics of the cases.
13.1. The Flow of the Analysis

The analysis began by examining how ambidexterity materialized in the cases across multiple unit of analysis levels. The analysis examines ambidexterity on the level of individuals, teams and organization. The analysis on multiple unit of analysis levels was done to reveal how exploration, exploitation, and conversion between them took place in the cases and in the organization in general. The specific research questions on ambidexterity were:

*Did exploration and exploitation take place in sequence or in parallel? Were those modalities mutually exclusive or complementary? How did the interplay between exploration and exploitation take place? How did ambidexterity materialize in the activities and in the organization? What were the processes by which exploration and exploitation were enacted?*

Secondly, the study analyzed how entrepreneurship manifested in the examined innovation projects and how it facilitated the ambidexterity and innovativeness of the firm. The focus of this discussion was on determining:

*Which characteristics and behavioural traits of individuals, teams and organizations supported innovative entrepreneurship? How did those individual, team and organization level characteristics and behavioural traits facilitate exploration, exploitation and the interplay between them? What were the processes through which entrepreneurship fed into innovation and firm renewal?*

Ultimately, the research focused on examining how the innovation activities interacted with the Corporate Strategy. The examination of the interaction between the act of innovating, Strategy and Structure focused on bringing answers to the following research questions:

*How did Strategy and Structure drive the act of innovating and how did the innovation activities directly and indirectly influence the Strategy and associated organizational Structure? What were the processes at play in the interplay between innovation activities, Strategy and Structure?*
13.2. The Overarching Findings and Structure of the Chapter

The analysis of the cases confirmed the categorization of innovation activities into exploration, exploitation, and conversion. In the examined cases, exploration was found to be a search and creation of new knowledge and solutions in a loosely or tightly defined domain. Exploitation was found to be an effective application of readily available knowledge and solutions. In addition to exploration and exploitation, the empirical data illuminated conversion as the third distinct working mode in the process of innovating. The conversion either transformed the outputs of exploration into the inputs of exploitation or made sense of multiple streams of exploration and exploitation in order to draw reasoned conclusions regarding the best way to combine the outputs and proceed with further exploration and exploitation activities.

In the light of the empirical data, exploration can be further divided into two subgroups: exploration that creates options in a broadly defined domain, and exploration that seeks solutions to a tangible problem. The option-creating exploration produced ideas and novel building blocks for the exploitative implementation work. The solution-seeking exploration focused on solving a tangible problem by searching for alternatives or by seeking settlement to bring together elements that originally seemed incompatible.

The examination of the cases revealed that exploration, exploitation and conversion between them took place in sequence and in parallel. The analysis pinpointed three fundamentally different innovation patterns that stood apart one from another by the conversion process: linear, transforming and experimenting. The identified innovation patterns also stood apart from each other by the processes through which the activities interacted with the Strategy and Structure of the firm. Characteristics of entrepreneurship driving the act of innovating varied by the innovation pattern. This reflected the situational diversity observed in the conversion and in the interaction with the Strategy and Structure.

The identified innovation patterns were contingent on the operational relatedness and radicalness of the innovation undertakings. The case that took place in the close proximity to the operational tradition of the firm followed a linear innovation model. The transforming innovation pattern was uncovered in the case that was operationally related but created a radical departure from the established norm. The experimenting pattern was found in the cases that represented new business to the company and thus could not rely on the established processes of the firm.

As the pattern of innovating influenced all the topics of inquiry included in the scope of this research, the findings of the analysis are first discussed by the innovation pattern (13.3. - 13.5.), and then summarized by themes across the patterns of innovating (13.6. - 13.8.).
13.3. N 82 - The Linear Innovation Progression

13.3.1. Ambidexterity in the Linear Pattern

In the operationally proximate N 82 case conversion and exploitation tasks were performed sequentially rather than concurrently. The N82 was developed within the pre-existing product category schema and employed pre-existing working practices. Exploration in the domain defined by the product Strategy produced multiple options that were assessed by using existing fine-grained schema. Once the product decisions were made, the product development work moved to an exploitative mode. The exploitative product development coupled with solution-seeking exploration to work out the improvements in the product's camera sub-system.

Throughout the phases of exploration, conversion and exploitation, the work was performed on a low abstraction level with a great attention to detail. There was no higher-level sense making involved in the phases.

A shift in the product Strategy schema during the development of the product made the N 82 obsolete even before it was introduced to the markets. As a consequence, the innovative work that went into developing the N 82 only indirectly contributed to the innovativeness of the business unit and the company as a whole.

13.3.2. Entrepreneurship in the Linear Pattern

The N 82 project development exemplified the linear pattern. The project had one single entrepreneurial ‘owner’ of the activity in the outset. The business opportunity was presented in very concrete terms and on a high level of detail by using an established product Strategy schema from the business unit. Additionally, the resource allocation and development schedule was well developed from the outset. Within that tight time frame, the entrepreneurial owner of the activity proceeded to define and develop the product in an aggressive, market-oriented manner. The core members of the product development program were engaged in the product definition work. The defined product consisted mainly of elements that were readily available within the company. The program proceeded with the implementation work, which took place mainly in an exploitative mode. The entrepreneurship within the program focused on accomplishing the task quickly and efficiently without sacrificing quality. The entrepreneurship can be characterized as imitating and competitively aggressive.

The product development program managed to secure the leeway required to continue optimizing the camera sub-system in a solution-seeking, exploratory way. The project leader of that activity took entrepreneurial ownership of the assignment. In line with the assignment, he paid attention to questioning the existing implementations and to networking. With the network of contributors, the entrepreneur managed to achieve substantial improvements beyond the originally set targets. The entrepreneurial activity of optimizing the camera sub-system was an innovative, self-driven, network oriented undertaking accomplished despite the constraints posed by the tight schedule of the program and resource restrictions. The entrepreneurial activity focused on questioning the existing implementations and on solution-seeking exploration to make improvements. The entrepreneurship can be characterized as integrating.
In the linear product development activity, the entrepreneurial ownership and its efficacy remained strictly within the product category. With the streamlined and task oriented approach, the product development program succeeded in implementing an award winning product. However, as the product strategy changed and the program lost the support of complementary marketing resources, the program was unable to respond. As a consequence, the product only sold minimum quantities and had no effect on the perceived innovativeness of the company.

Figure 22 The process of entrepreneurial conversion in the linear case.

13.3.3. Characteristics of Entrepreneurship in the Linear Pattern

An individual, competitively aggressive and conformist entrepreneurship matched with the linear innovation task, where the innovation opportunity was tightly defined by using existing fine-grained schema. With this framing, established business processes were used to implement the innovation.

13.3.4. Interplay between the Linear Activities, Strategy and Structure

The linear innovation activity induced the strategy and the structure of the firm. It executed the strategy in a tight frame defined by a fine-grained product strategy schema, explicit targets, and a tight schedule. The established processes set the division of tasks and the actors performed their tasks with minimal latitude. There was no formal feedback loop from this induced effort to the strategy discourse, which defined the intended strategy. However, the small-scale explorative effort of optimizing the camera sub-system had a lasting effect to the realized strategy of the firm by enhancing the quality of Nokia’s camera implementations across product generations. This influence to the realized strategy came about through enhancements in the technology platform, which was used across products in multiple product generations.

13.4. N95 - The Transforming Innovation Progression

13.4.1. Ambidexterity in the Transforming Innovation Pattern

In the operationally proximate case, which had the mission and the mandate to redefine the product category schema, and some of the established working processes, exploration, conversion, and exploitation tasks were performed concurrently. The conversion turned into a prolonged sense making activity, which was in interaction with the ongoing explorative and exploitative efforts in the organization. The well-
known and influential actors of the business organization were driving the conversion effort. They had a mandate to change the working practices to improve their capabilities in the conversion work, and to build influence and momentum for the strongly prioritized innovation initiative.

By using inputs from multiple streams of explorative and exploitative activities, the conversion effort modified schema for positioning and conceptualizing the products. The modifications in the schema triggered further exploration and opened up avenues for fresh combinatory thinking. The outcomes of further exploration brought details and improvements to the schema.

During the iterative refinement of the schema, the exploitative product development activities were kicked off. Once the schema had reached sufficient maturity, the initiative moved into a clearly exploitative product development phase. The product development program entailed some degree of solution-seeking exploration. The concurrent business development activities were conducted in a mode that can be characterized as dispersed solution-seeking exploration.

The holistic approach to the conversion engaged influential actors in the initiative and created a compelling new positioning schema. An extensive conversion effort established a broad acceptance to the positioning schema, product concept, ambitious specifications and associated technical and market risks. The comprehensive conceptualization work also extended the initiative’s sphere of influence while building operational level commitment throughout the organization.

The influence, commitment and clarity of the schema were critical in securing sufficient cohesion in the dispersed solution-seeking exploration. The solution-seeking exploration was instrumental in modifying the internal working practices, as well as in the business development with external parties.

In the transforming pattern, the conversion phase got extended and overlapped with exploration and exploitation in timing. The extensive conversion phase was instrumental in creating new schema, working practices, commitment, and organizational influence, which appeared critical for the creation of the radical innovation.

### 13.4.2. Entrepreneurship in the Transforming Pattern

The N 95, the archetypical case of a transforming innovation pattern, was conceptualized while the organization’s product strategy was in flux. The entrepreneurial owner of the conceptualization activity engaged people from the operative level and management in a process of defining the concept and a new positioning schema for products in general. The Head of the Business Unit inspired the work with his entrepreneurial leadership. In the early phases of the work, he set the tone of the effort by demonstrating his desire to challenge the status quo and his willingness to take a technical and a commercial risk in order to aggressively compete on the market. The concrete inputs for the conceptualization work came from exploration and exploitation on the operational level. The entrepreneurial activity to define the concept was a team and network effort. The owner of the activity paid attention to engaging the right people for the job and facilitating positive team dynamics. The team approach enabled people to move between the abstraction levels of product positioning, product concept creation, and technical product specification. As a
consequence, the team was able to come up with a modified schema, which was simple, specific, and plausible.

The members of the conceptualization team developed a strong collective sense of entrepreneurial ownership of the product. The entrepreneurial ownership traveled with the people, which helped in the later stages of the undertaking. The collective entrepreneurial ownership was of particular value in the dispersed effort to create a complementary service business system across the globe. The study found that the team’s diverse cognitive frames and inputs, as well as the efficacy of the team involved in judging the opportunity, was critical in determining how holistically the opportunity was seen. Also, the diversity and the efficacy of the team increased their confidence in their own ability to address the opportunity. Moreover, the parties involved in the process of making the judgment developed a personal commitment to the judgment, which motivated the parties to do their utmost to get the innovation successfully implemented. In the examined case, the entrepreneurial ownership and commitment spread both among the network of contributors and to the higher levels of management.

Once the positioning framework and the product concept had reached sufficient maturity, the transforming innovation activity moved into a more linear program mode. The entrepreneurship driving that line of activity was similar to the one in the N82 project. In parallel with the product program activity, a solution-seeking, explorative Go-To-Market activity took place. The head of product category took entrepreneurial ownership of the activity. The initial focus of this activity was on securing the launch of complementary services in the lead market. Once the complementary business system had been created and verified on the lead market, the replication to the other markets took place rapidly. The parties, who had taken part in the conceptualization work, demonstrated entrepreneurial ownership in carrying out the business development tasks in their respective areas. The head of product category, together with the head of global sales and the head of product business, aligned targets for the dispersed effort, monitored its progress, secured synchronization between interdependent activity streams, and minimized conflicts between the interests of the dispersed business development effort and operational sales.

Figure 23 The process of entrepreneurial Conversion in the transforming case.
13.4.3. The Characteristics of Entrepreneurship in the Transforming Innovation Pattern

In the examined transforming case, the entrepreneurial actors modified existing product Strategy schema and established working processes in order to create a radical innovation. Working out changes to the schema and processes required wide a variety of inputs and cognitive frames as well as a large sphere of influence. Meeting these requirements called for collective action of a diverse team and networks. The entrepreneurship displayed in the context of this case was collective team entrepreneurship. The diversity of the members and the positive team dynamics contributed to the entrepreneurship and creativity of the team. The findings of the N 95 case support the idea of the subjectivity of entrepreneurship, as the future of the radical innovation could only be imagined. The team engaged in the conversion work saw the future through a lense of their own collective creation. The analysis of the conversion work of the N 95 highlights the importance of collective lateral thinking in creating a schema. The collective lateral thinking stemmed from the diversity of team members, positive team dynamics, and general participation in a variety of activities on different abstraction levels.

The collective entrepreneurship of the transforming mode was proactive, market oriented, and willing to take risk. In the N 95 case, the team influenced its environment through processes of ongoing business and through personal networks. The configuration of the team changed as necessary to best address the dynamic nature of the work. A continuous business championing was not necessary as the the core business processes provided a mechanism for the team to interact with their environment. However, the executive support of the aims of the undertaking appeared to be a substantial contributing factor to the ability to craft a radical, yet operationally related, innovation. Moreover, the legitimisation of associated risks was a critical enabler for making such a radical departure from the established norm. The alignment of the missions of the Business Group and the N 95 product development activity helped in realizing the radical innovation.

13.4.4. Interplay of Transforming Activities, Strategy and Structure

The focus of the transforming innovation initiative was aligned with the Strategic focus of the Business Group. The Strategic focus was, in turn, a reflection of the Corporate Strategy and the Structure of the firm. The vision and the mission on the corporate level had only a loose influence on the examined transforming innovation initiative. However, the mission and strategic intent of the Business Group had an explicit influence on the aims of the initiative. The established organizational structure and associated working processes set the foundation for the transforming interaction. The proactive mission of the Business Group justified and motivated the latitude that was given to the initiative. The entrepreneurial actors, driven by the Strategy of the Business Group, occupied the space available to them with transforming entrepreneurial effort. The entrepreneurial effort created multiple contributions to the Strategy of the firm:

1) An iconic product, which had an immediate effect on the Realized and the Intended Strategy of the firm.
2) A modified (or a new) product positioning schema, which broadly influenced the Intended Strategy, and with a delay the Realized Strategy of the Business Group and Corporation.

3) A modified process for the conversion and business development.

4) Acquisition and integration of new competences and capabilities through internal organization development and acquisitions.

13.5. The *Experimenting* Innovation Progression

13.5.1. *Ambidexterity in the Experimenting Innovation Pattern*

The analysis of the operationally remote cases of The COMES-WITH-MUSIC and SPORTS TRACKER projects reveals an innovation pattern that is fundamentally different from the operationally proximate cases. In these remote cases, exploration appears as a continuous stream of action. During the exploration phase of the projects, multiple exploitative attempts were conducted to bring inventions to the market. The exploitative attempts reflected the actors’ perception of market realities, and company’s the execution capability. The exploitative attempts acted as a probing mechanism to experiment with the outcomes of continuous explorative efforts.

The exploitative attempts crafted both internal capabilities and business partnerships of the company. The attempts also created new strategic schemata to make sense of the emerging business opportunities. In the case of the COMES-WITH-MUSIC project, the new business opportunity was recognized by engaging music industry leaders to the discussion and sense making. The sense making effort entailed product specification, product positioning, and business model level considerations. In addition to acting as market experiments, the exploitative attempts provided a financial justification for continuing exploring in the music domain.

In the COMES-WITH-MUSIC case the exploitative attempts formed a loose continuum, which gradually built a capability foundation and strategic schema for the groundbreaking innovation. In the case of SPORTS TRACKER, the exploitative attempts did not carry the invention forward, as they did not materialize as commercial propositions. Moreover, SPORTS TRACKER did not have an access to a “Business Champion” who would have been in position to make strategic sense of the attempts and to facilitate the interplay with the ongoing business. The relationship between the SPORTS TRACKER activity and the operational business of the company turned opportunistic, which did not facilitate the creation of new organizational capabilities and strategic schema.

13.5.2. *Entrepreneurship in the Experimenting Pattern*

The continuous exploration activities of both *experimenting* cases were driven by innovating and experimenting entrepreneurs, who challenged the status quo. A link through a “Business Champion” to the Strategy discourse and to business management of the company was a valuable asset to the entrepreneurs. Through this link the exploration activity influenced the Strategy, and adjusted its own course according to the developments in the organization’s Strategy. Moreover, the link to the business
helped in getting resources to the containing exploration and exploitation attempts. The reciprocal nature of the relationship with the business assumed that the entrepreneurial owner of the continued exploration activity was able to make compromises to his own agenda in order to work on the market experiments, which were not always in line with the entrepreneur’s immediate interests.

The successful market experiments were critical, as they justified continued exploration in the area of exploration and as they helped the entrepreneur, together with the “Business Champion” to create new schema. The new schema was an instrumental enabler for identifying and articulating the new business opportunities, which were outside the traditional business domain of the company.

In the successful experimenting case, the activity was disintegrated in the commercialization stage. The examined case divided into:

- A product program, which was conducted in a rather linear fashion.
- A global business development activity, which was a solution seeking exploration.
- Market facing business development, which was a dispersed solution seeking exploration.

Disintegration increased entrepreneurial drive in the initiative, as it enabled people to take entrepreneurial ownership of their activities in different parts of the organization. Sufficient coordination between interdependent lines of activities was achieved through a low-key global orchestration.

Figure 24 The process of entrepreneurial Conversion in the experimenting case.

13.5.3. Characteristics of Entrepreneurship in the Experimenting Pattern

As observed in the COMES-WITH-MUSIC and SPORTS TRACKER cases, innovators cannot rely on the processes of existing business in the operationally remote innovation
environment. Both *experimenting* innovation cases were initiated by individual entrepreneurship. The act of innovating built on continuous exploration and market experiments, as previously described. During the continuous exploration effort, the innovation set up went through multiple, and at times erratic, changes. The exploration in the new domain brought unpredictable discoveries to the fore. Additionally, the overall organizational set up of the firm changed multiple times during the prolonged exploration phase. Resilience was an instrumental characteristic for an entrepreneurial set up that was exploring opportunities outside the traditional territory of the firm. The diversity of the set up, external influences and acquisition of new competences were also critical in enabling the team to explore new fields. The external influences and diversity of the innovation set up enabled the creation of new, rudimentary schema outside the traditional boundaries of the firm Strategy. The new, rudimentary schema acted as a foundation for initiating the experiments. The experiments refined and amended the schema. The entrepreneur together with the “Business Champion” articulated the business experiments by using the refined schema. The entrepreneurial judgment of the business opportunity and the organization’s ability to address it built on the schema refined in the market experiments. The fact that the entrepreneur and the “Business Champion” worked together to judge the business opportunity and seek legitimization from the Strategy process was critical for continued entrepreneurial commitment. It made both parties personally and visibly committed to the judgment. As demonstrated by the COMES-WITH-MUSIC case, personal commitments of this kind have the capacity to survive across organizational changes. Such persistent support brings resilience to the continuing exploration. The legitimization by the top management and the Strategy enabled the entrepreneur and the “Business Champion” to formulate an explicit plan and get resources for a full-scale development of the new business. As was seen in the COMES-WITH-MUSIC case, the actual development of a new business is likely to be divided into multiple activity streams. Some of them take place in the *linear* mode, some of them in *transforming* mode, and some follow the principles of ‘dispersed solution seeking exploration.’ The consequent disintegration of activities requires an entrepreneur to compromise for the common good.

### 13.5.4. Interplay of Experimenting Activities, Strategy and Structure

The strategic intentions of the company influenced the Entrepreneurial Actors and “Business Champions” in the COMES-WITH-MUSIC case. In fact, the “Business Champions” had been instrumental in creating the strategic agenda of the company in the music domain. The innovators primarily explored in the areas where their interests met with the expressed strategic intentions of the firm. The exploration produced a rudimentary schema, which was applied in the business experiments and in the early interactions with the Corporate Strategy. The experiments verified, refined and amended the schema. During the prolonged exploration stages of both *experimenting* cases, the schema changed several times. In the successful *experimentation* case, the continued refinement and amendment of the schema through business experiments and by involving external parties in the process ultimately produced a sufficiently comprehensive schema. The schema was sufficiently rich while still being understandable to people outside of the innovation initiative. This duality made the schema well structured to facilitate the orchestration of full-scale implementation of the proposition.

The focus areas of these business *experimenting* continuums were connected, but not fixed, to the responsibility areas of the units from where they originated. In the case of the successful *experimenting* case, COMES-WITH-MUSIC, the “Business Champions”
were instrumental in bearing the risk and carrying the initiative through the organizational changes. They were also instrumental in connecting the initiative to the capability development of the firm. Without a connection to the internal capability development, it would have been difficult to implement the innovation at the end of the development process. Also, the “Business Champions” were active in spreading the innovation in the final stages to facilitate broader entrepreneurial drive in the final implementation of different aspects of the innovation.

SPORTS TRACKER, the experimenting case that was ultimately, span out had a substantial influence on the Strategy of the firm. The early conceptualizations of the service migrated into the corporate Strategy discourse and made the company realize the potential of such location-aware services. That led to attempts to develop similar service concepts elsewhere in the organization.

13.6. Characterization of Ambidexterity across the Innovation Patterns

The empirical observations confirm that exploration and exploitation are complementary working modes, which both contribute to the organization’s learning process. In the examined cases these two working modes took place both in sequence and in parallel. The conversion between exploration and exploitation was a necessary condition for innovation and organizational renewal. In the examined cases, it was the central mechanism in making ambidexterity productive and observable across levels of abstraction and organization. Without conversion, ambidexterity would not have yielded valuable outputs and would not have been commercially justified. The mechanisms through which the conversion took place were different for the innovation activities that were more closely related to the ongoing business, and for the innovations that did not build on the operational tradition and actors of the organization.

In the operationally close innovation cases the conversion took place through a process. An effective conversion process engaged influential actors and was transparently connected to the concrete explorative and exploitative activities as well as to the process development and Strategy discourse of the company. The capability to modify business processes and sense-making schema used for conceptualizing products was instrumental in creating radical innovations.

The analysis of the operationally close cases revealed three critical factors for achieving ambidextrous actions and outcomes:

1) Sufficient amount of relevant option generating exploration, which interacted with the exploitation and conversion.

2) Effective conversion practice, which took inputs from practical exploitation and exploration activities and was connected and influential in the business’ Strategy and process development discussion on the higher abstraction level. The capability to connect and synthesize discussions on multiple abstraction levels appeared critical to the ability to make implementable radical innovations.

3) The capability to seek solutions with a combination of explorative and exploitative approaches to bringing propositions to the market and in building new organizational capabilities.

1 i.e. the N 82 and N 95
In the light of the empirical findings, the incremental innovations are created on a single abstraction level, whereas radical departures assume sense making on a higher abstraction level. Sense making in the examined cases built upon inputs from exploration and exploitation and renewed schema for conceptualizing and positioning the products. The findings suggest that the virtue of prolonged and grounded sense making, which can move across abstraction levels, enables a company to define radical yet implementable propositions. The capability to modify business-critical processes is necessary for deploying radical departures from the established tradition of the company.

The empirical findings point out that another critical characteristic of the conversion phase is the capability to build commitment and influence across the organization. The more radical the proposition is, the more probable it is that its deployment entails dispersed, solution-seeking exploration. The findings of this study highlight the importance of such dispersed, solution-seeking exploration in deploying propositions that deviate from the established norms and routines of the company.

In the operationally remote cases, conversion capability is personified by one or more “Business Champions” who have the capacity to connect the continuous explorative effort to the ongoing business. These “Business Champions” are also important in creating a mutually receptive and adaptive dialogue between the actors of the explorative and exploitative lines of activities. As pointed out by the COMES-WITH-MUSIC case, the “Business Champion’s” ability take justified risk is instrumental to the ability to initiate a market experiment with an incomplete, rudimentary schema. In the examined experimenting cases the actual sense-making schema appeared retrospectively based on market experiments.

The analysis of operationally remote innovation activities highlighted the importance of:

1) A dynamic and influential linkage between the Strategy discourse and continuous exploration.

2) A series of exploitative attempts, which gradually build organizational capabilities and enable the company to probe the market with a sequence of innovations. The schema, which is used for making sense of the business opportunities, builds on the experiences from these exploitative attempts. It adds to the inventory of the strategic schemata of the company.

3) A “Business Champion” who facilitates the interplay between the explorative activity and ongoing business and is able to bear the risk of the market experiments. The “Business Champion,” together with the entrepreneur, also constructs sense-making schema for assessing the business opportunity.

13.6.1. Conversion as Necessary Condition for Ambidexterity of Outcomes

The analysis of the processes of ambidexterity brought to the fore three distinctive patterns, through which innovative activities feed into innovations and firm renewal. The linear pattern is where the work takes place on a single abstraction level by using fine-grained schema and processes of the existing business. This model produces incremental innovations in the traditional domain of the firm.
In the *transforming* pattern, the act of innovating reaches across abstraction levels through an effective conversion process. The conversion process creates new schemata and processes while extending the project’s sphere of influence. The conversion process reaches across multiple abstraction levels and appears instrumental in crafting radical innovations. The use of modified processes and schema was a cause-and-effect for the operational relatedness of the innovation.

In the third, *experimenting*, pattern the prolonged act of exploration is complemented with market experiments, which are executed primarily in an exploitative mode. The market experiments facilitate the creation of new sense-making schema on multiple abstraction levels. Through these experiments the company learns how to make sense of the business opportunities that are outside the traditional boundaries of the firm activities. The existing processes do not support these experiments. As a consequence, the experiments often have to be pulled together as one-off projects.

Figure 25 The characteristics of the processes of conversion mapped on the radicalness-operational relatedness grid.

### 13.6.2. Entrepreneurship as Driver of Innovation

The characteristics of entrepreneurship, and the mechanisms through which entrepreneurship drove the act of innovating and connected it to the broader strategic progression of the firm, depended on the pattern of innovating. The task requirements and consequent focus areas of entrepreneurship also varied in the degree of radicalness and operational relatedness of the activity. Similarly, the interplay between Strategy and Structure was contingent on the innovation patterns.

The grid on the next page summarizes how the innovation challenge was framed in these different task environments and what kind of entrepreneurial characteristics those different environments brought to the fore. The matrix also summarizes the
mechanisms through which the entrepreneurial actors created the innovations and molded the Strategy and Structure of the firm.

**Figure 26** The characterizations of Entrepreneurship by operational relatedness of the innovation activity.

### 13.7. Interplay of Entrepreneurial Act of Innovating, Strategy and Structure

The analysis pointed out that the way in which the Intended Strategy provides guidance to the Entrepreneurial Action reflects the pattern of innovating. As highlighted by the N82 case, linear innovation activities induce the explicit Strategy and the structure of the organizational unit. The established Strategy templates define in explicit and absolute terms the framework where the act of innovating takes place. The existing processes and cognitive frames are used as such.

The transforming innovation activities are driven by the missions embedded into the Strategy of the organizational unit. As observed in the N95 case, the innovation activities have a transforming mission in line with the overall Strategy of that unit. The transforming activities can achieve their aims through their transparent relationship to the development of cognitive schema and processes of that specific unit. As the N95 case demonstrated, the ability to modify schemata and processes is fundamental to the creation of radical innovations.

The vision, broad strategic intentions and missions of the firm may be able to inspire the relatively self-directed, experimenting innovation activities. Alternatively, as was the case in the SPORTS TRACKER innovation, they can be inspired by a compelling alternative or complementary view of the world. As demonstrated, experimenting activities may influence the development of cognitive and organizational structures within the firm. They do not rely on a continuous relationship with the development of processes and schemata, but rather on the dynamic relationship facilitated by the
“Business Champion”. The relative independence of *experimenting* innovation activities necessitates a connection to the Strategy and structure development of the firm. This is facilitated by the “Business Champion.” The “Business Champion” was able to bridge the divide between the organization as a whole and the innovation project, thereby facilitating the successful development of the COMES-WITH-MUSIC innovation. Conversely, the SPORTS TRACKER program suffered from a gradual alienation from the firm in part because of a lack of a “Business Champion”.

The interviews revealed that the autonomous exploring activities are self-directed, but still not sovereign. The Organizational and Administrative Structures of the firm set the boundaries, within which the autonomous exploration takes place. The self-driven, exploring actors take their motivation from their own personal view of the world, which may or may not be in line with the shared world-view of the company. The exploring entrepreneurs consider *experimenting, transforming,* and *linear* innovation activities, as well as the Strategy discourse of the company, to be potential consumers of their ideas and concepts.

The conceptual illustration below presents how the innovation activities of each pattern interacted with the Intended Strategy and the Structure of the firm. The innovation activities produced Strategic Outcomes, some of which led or did not lead into persistency. These persistent Strategic Outcomes fed into the retrospectively observed pattern in the stream of corporate actions. The retrospectively observed pattern in the stream of action constitutes the Realized Strategy of the firm.

![Figure 27 Interplay between entrepreneurial innovation activities, Strategy, and Structure.](image)
In figure 27, the grey area with the capital “E” signifies the corporate view of the business environment. The area in white and with lower case “e” represents activity areas where the action relies on the individual, subjective views of the actors.

As the analysis of the cases pointed out, the mechanisms through which the innovation activities enact and influence the Structure are also contingent on the innovation pattern. Exploiting activities conform to the processes and cognitive schemata while transforming activities mold them by working through exiting, yet flexible, processes. Experimenting activities focus primarily on creating experiments. The creation or crafting of associated schema and processes follow the experiments in retrospect. The new Strategic Capabilities created with the help of the innovation activities influence the Realized Strategy in the Long Term.

The option-creating exploration activities work through the internal market place of ideas. They do not influence working practice development, but rather reflect the organizational structure setting boundaries for the exploration.

### 13.8. How Ambidexterity Materialized in the Examined Cases

Analysis of the cases brought to the fore that ambidexterity materialized as concrete outputs through effective conversion processes. The conversion synthesized the inputs from the exploration and exploitation activities, either through a process or through high level championing. In the operationally related cases the conversion happened through existing or modified processes while in operationally remote cases high level championing was needed to facilitate the conversion.

In the operationally close innovation activities, the diversity of the actors and inputs, as well as the efficacy of the team, appeared instrumental in making radical departures from the firm’s tradition. Also, the capability to craft schema through discussions on multiple abstraction levels facilitated the creation of radical innovations.

In the operationally remote cases, the “Business Champions” were integral in forming a bridge between the exploration and exploitation activities as well as connecting the activities into the Strategy discourse of the firm. The sequence of converting proceeded from exploration through experiments to retrospective sense making. The retrospective sense making produced schemata that were instrumental developing and articulating the new opportunities.

The analysis points out that the ambidexterity of outcomes is dependent on 1) ambidexterity of the activities and 2) a set of conversion mechanisms. The conversion mechanisms convert the outputs of exploration into inputs of exploitation and link the ambidextrous activities to the high order Strategy and Structure development of the firm. The examination of the purposely-selected cases reveals that the ambidexterity of organizational outcomes can be elevated by supporting the conversion in line with the needs of envisioned innovations. The incremental innovations in the operational core of the company benefited from established processes and strategic schemata. The innovation activities, which aimed for radical innovations close to the operational tradition of the company, benefited from an amplified conversion process and sense-making capability. The operationally remote initiatives gained from business championing. The “Business Champion” shared the risk of the initiative and connected

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\(^2\)Processes and cognitive and organizational structures of the firm.
it to the operative business and Strategy discourse of the company. Championing also entailed retrospective sense making of the market experiments.

In the *linear* N 82 case, the efficient conversion on a single abstraction level and the consequent creation of incremental innovation, was supported by providing necessary resources for the activity that worked through established processes.

In the *transforming* N 95 case, the efficacy of the portfolio planning set up was elevated to enable a holistic conversion and a large-scale, dispersed execution in the later phases of the innovation undertaking. In addition, the effect of the N 95 on the ambidexterity of the organization was augmented by the fact that its mission was aligned with the mission of the Business Group. The N 95 program and Multimedia Business Group shared the same *transforming* mission, which helped the N 95 program overcome the rigidities in the processes and structure of the organization. The N 95 initiative was able to push through required changes to the schema and processes of the Business Group because of the fluid state of the product category schema and the recognized need to modify working practices in the portfolio management and Go-To-Market activities.

In the COMES-WITH-MUSIC case, the primary approach toward fostering ambidexterity was the continuous championing by few key actors. The “Business Champions” were prepared to take personal risk by approving the market experiments with rudimentary conceptualizations and business cases. The championing also helped the innovation activities by connecting the experiments to the operative business and Strategy discourse of the company. Moreover, towards the end of the undertaking, the “Business Champions” divided the initiative into exploitative product development and exploring business development streams. The decentralized, yet cooperative way of working facilitated entrepreneurial ownership in the multiple interdependent streams of activities, which enabled people to conduct solution-seeking exploration in their respective action areas. The dispersed, solution-seeking exploration was instrumental in bringing the disruptive innovation to the market.

THE CHAPTER OPENS WITH AN INTEGRATED CONCEPTUALIZATION OF THE CONVERSION PROCESSES THAT ENABLE RECIPROCAL ADJUSTMENTS IN EXPLORATION, EXPLOITATION, STRATEGY AND STRUCTURE (14.1.). THE ABILITY TO HOST MULTIPLE CONVERSION PROCESSES WAS FOUND TO BE KEY TO MAKING AMBIDEXTERY PRODUCE A DIVERSITY OF INNOVATIONS. THE STUDY IDENTIFIED THREE PROFOUNDLY DIFFERENT CONVERSION PROCESS PATTERNS. THE PROCESSES BY WHICH THE INNOVATION ACTIVITIES INTERACT WITH THE STRATEGY AND STRUCTURE (14.2.-14.3.) AND BY WHICH THEY PRODUCE INNOVATIONS (14.4.) ARE DISCUSSED IN THOSE INNOVATION PATTERNS.


1) The conversion process,
2) The entrepreneurship driving the act of innovating,
3) The interaction process between the act of innovating and Strategy and Structure development of the firm and
4) The innovation outcomes and their Strategic Effects.
In the linear pattern, the activities on a low level of abstraction and a fine level of detail form a chronological sequence. Exploration in the domain defined by the existing Strategy is followed by conversion, which applies the schemata and processes set by the Strategy. The schemata and processes establish a tight frame where the conversion takes place. Tight cognitive frames and a detailed division of the tasks do not provide latitude for radical innovations. A straight-forward, competitively aggressive and conformist entrepreneurship resonates best with the task requirements of the linear conversion pattern. The innovation outcome of this innovation pattern is inevitably incremental.

In the transforming pattern, the existing Strategy and process framework set the starting point for the conversion effort. The conversion takes place through a process and has the mission and mandate to alter the strategic schemata and processes. Ability to modify the schemata and processes builds on the diversity of inputs and cognitive frames. As a consequence, the constellation of the team performing the conversion process is instrumental in the transforming innovation pattern. The diverse actors of the conversion process apply multiple cognitive frames and are engaged in the discussions on multiple abstraction levels. The fact that the conversion takes place on multiple abstraction levels leads to reciprocal adaptation and settlement within the conversion process while facilitating lateral thinking. Mutual adaptation and lateral thinking call for an iterative conversion process, where exploration, conversion and exploitation occur concurrently. The entrepreneurship driving this kind of iterative process of multiple actors is collective. The ability to craft radical innovations stems from the ability to process knowledge and ideas on multiple abstraction levels and bring the knowledge together in novel and sensible combinations. Sense making on the higher abstraction level is an inherent feature in the transforming conversion. The sense making is subjective, because it applies the schemata that the innovators have created to make sense of the innovation opportunity. The deployment of radical innovation assumes that those subjectively created schemata get incorporated as changes to the strategic schemata of the company. Also, the realization of radical
innovations calls for modifications and amendments to the processes and capabilities of the company. Being related to the operational tradition of the firm, the radical innovations and their longer term effects are conceivable to the organization.

The *experimenting* innovation pattern applies to the fields that are remote to the operational tradition of the firm. Innovating in such a remote area by definition cannot rely on the existing processes of the organization. Thus, an individual entrepreneurial actor drives the innovation. Innovating on unexplored turf calls for continuous and persistent exploration. The exploration may be related to the overarching strategic intentions of the firm. The continuous exploration effort often lacks the ability to make strategic sense of the ideas and concepts that are being worked on. Due to a lack of experience in the new field, the rest of the organization often sees the schemata created through exploration as rudimentary and difficult to understand. Schemata is refined and augmented with the market experiments that are initiated at risk by relying on the incomplete rudimentary schema. Bearing such risk assumes involvement of a higher level “Business Champion.” The “Business Champion” has to be sufficiently closely connected to the exploration to internalize its merits. Also, the “Business Champion” keeps the exploration activities connected with the Strategy discourse and Structure development of the company. The fact that *experimenting* innovation patterns do not rely on the existing Structure of the company implies that the experiment has to be enacted as a one-off project. The “Business Champion” together with the entrepreneurial owner of the activity makes sense of the experiment. While making sense of the experiment, the entrepreneur and “Business Champion” develop comprehensive schemata that are used to articulate the new business opportunity to the rest of the organization. The new schemata lay the foundation for the changes in the Strategy of the company. The experiment also helps work out the requirements for the Structural changes and amendments needed for the sustaining business in the new domain. The *experimenting* innovation pattern has the capacity to produce innovations that are disruptive to the organization and may provide entries to new businesses. Such departure from the known tradition of the firm inherently implies substantial uncertainties, particularly in the longer run. The *experimenting* model resembles Burgelman’s conceptualization of the Process Model for Internal Corporate Venturing (1983b, 1984).

The Integrated Process Model on the next page (figure 29) illuminates the processes through which the ambidextrous innovation activities lead to ambidextrous organizational outcomes. The ambidextrous organizational outcomes are categorized into 1) Strategic Outcomes, i.e. innovations, 2) Modifications and Amendments to Structure and 3) the Long-Term Strategic Effects. The Long-Term Strategic Effects of innovation activities are a function of immediate Strategic Outcomes, changes in the Structure, the future actions of the company, and external ecological forces.

The figure 29 highlights that innovation patterns differ in their core process of conversion from exploration to exploitation, and in their processes of interacting with the Strategy and Structure of the company. The figure also points out that the radical and disruptive innovations call for changes in the Structure of the company. The *transforming* innovation pattern has the capacity to work out those changes along the process of innovating, whereas in the *experimenting* innovation pattern the structural changes are made in retrospect to the experiment. In the *experimenting* pattern, the initial experiment is executed as a one-off project.
Figure 29 An Integrated Process Model of the interplay between ambidextrous activities, entrepreneurship and Strategy and Structure of a firm.

The identified innovation patterns produce different Strategic Outcomes and have different Long-Term Effects on the Realized Strategy. These differences are contingent on the processes in which they are worked. The Strategic Outcome refers to the innovation itself, capabilities associated to the innovation, and the short-term financial effect of the innovation. The Long-Term Effect refers to retrospectively observable traces in the Realized Strategy of the firm.

14.2. How Innovation Activities Interact with Strategy and Structure

The identified innovation patterns are distinct in the processes, through which they interact with the Strategy and Structure of the company. The interaction processes reflect the dynamics of the act of innovating. Similarly, the type of knowledge and the level of detail in the interaction are contingent on the pattern of innovating. Moreover, the volatility and predictability of the market of the immediate Strategic Outcome of innovating have an effect on the level of retrospective strategic learning involved in the innovation. The grid on the next page summarizes the characteristics of the processes through which the Strategy is influenced in each pattern of innovating.
The linear innovation activity is kept in a tight grip of Strategy and Structure. The act of innovating reflects the shared world-view of the articulated Strategy. The Strategy is articulated in detail and the targets for the act of innovating are explicit. The Structure is aligned with the Strategy and compartmentalizes the work into specialized tasks. The exchange of knowledge throughout the act of innovating happens in explicit terms and on a fine level of detail.

The process does not provide leeway for sense making on a higher level, or for altering processes or schemata. Innovation is incremental and verifies the known mature market assumptions. The feedback-loop to the Strategy, and concerns the performance of the innovation and established market assumptions of the company. The feedback of incremental innovation may augment or even change the strategic market assumptions of the company.

The process of interaction between the Strategy and linear innovation is illustrated in figure 31. The Strategy and Structure are induced in the innovation activity, and the retrospective feedback of the market response to the innovation may change established market assumptions of the company from $E_i$ to $E_i$.
The *transforming* innovation activities are in a genuine interaction with the Intended Strategy and Structure of the firm. The Strategy is articulated in terms of aspiring missions. The schemata used in discussing the Strategy are flexible and give room for interpretation and creativity. Similarly, the processes are flexible and receptive to changes to help accommodate radical innovations.

The interaction between the Strategy and the act of innovating takes place through a process and involves number of influential actors who have the ability to act on multiple levels of abstraction.

The *transforming* innovation pattern creates a radical innovation that opens a new category or extends the existing market category. The changes in the category framework trigger an intensive learning process.

The Strategy and Structure development is connected to the evolution of the new market category. The world-view of the company evolves from $E_1$ to $E_1''$. 

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**Figure 31** Interplay between Strategy, Structure and *linear* act of innovating.

**Figure 32** Interplay between Strategy, Structure and the *transforming* act of innovating.
The *experimenting* act of innovating intermittently interacts with the Strategy and Structure of the firm. The strategic intentions of the company may or may not set the direction to the *experimenting* activity.

The viability of the *experimenting* activity is recognized by the “Business Champion” who selectively connects the *experimenting* activity to the operative business and Strategy and Structure development of the firm. The “Business Champion” supports the *experimenting* activity making risky decisions. He either legitimizes the decisions himself or seeks for approval through Strategy discourse.

The *experimenting* innovation crafts the required new schemata and working practices through its intermittent connections to the Strategy and Structure. The experiment is brought to the market as a one-off project.

In the market, the experiment is subject to external ecological forces. The market dynamics deviate from the traditional market of the company. Ultimately, the success of the new business is subject to the firm’s ability to respond to the dynamics of the new market. The development of new capabilities required in the new business is likely to call for substantial investments and a large-scale change management program.

The long-term success of disruptive innovation is primarily influenced by the future actions of the company and how well they meet the market dynamics of the new business.

As indicated in the figure 33, the world-view of the company evolves from E1 to E2 with the *experimenting* innovation activity. The new world-view incorporates the amendments e1” in the new business domain.

![Figure 33 Interplay between Strategy, Structure and *experimenting* act of innovating.](image)

In figure 33, e₁ refers to the entrepreneur’s subjective view of the business environment at the outset of the innovation activity. e₁” refers to the entrepreneur’s view of the business environment after the experiment. E₁ and E₂ refer to firm’s strategic view of the business environment before (1) and after (2) the experiment.
14.3. Three Strategic Context Determination Process Models

The examination of the processes through which the Strategy gets influenced along the innovation activities revealed three distinct patterns of Strategic Context Determination Processes. The grid below summarizes the key highlights of identified process patterns. Each pattern has the capacity to yield immediate novel Strategic Outcomes, i.e. innovations.

As figure 34 indicates, the world-view of the company remains unchanged in the linear innovation pattern. However, in the transforming pattern, the Concurrent Strategy and Structure Transformation imply that the strategic world-view of the company evolves gradually from E to E”. In the experimenting innovation pattern, the Retrospective Strategic sense making has the capacity to work out a quantum change from E₁ to E₂ in the strategic world-view of the company.

The analysis of the interaction processes between the innovation activities and Strategy and Structure of the firm reveal three alternative process sequences that determine the Strategic Context of the firm:

1) **The Strategic Context Determination Process of pre-described Strategy.**
   The Strategy is fixed, based on the accumulated knowledge and insights of the company. The Structure is coupled with the Strategy, and the action induces
explicitly articulated Strategy and established Structure. Retrospective learning follows and considers known market assumptions. The act of innovating does not change the strategic world-view.

2) **The Concurrent Strategic Context Determination process**, where Strategy, Structure and innovation evolve concurrently and are in continuous interaction through a process. This mutually adaptive process has the capacity to create substantial evolutionary departures from the tradition of the firm. The market assumptions associated to the innovation, as well as the internal capabilities are set to the test of praxis, which implies continued strategic learning after the market introduction of the innovation. The act of innovating complements the strategic world-view.

3) **The Experimenting Strategic Context Determination Process**, where Strategy, Structure and action are loosely coupled through championing. The loose, intermittent and selective coupling provides leeway for substantial and non-evolutionary departures from the Strategic and Structural tradition of the firm. The remoteness to the traditional business of the firm necessitates treating the Immediate Strategic Outcome as a one-off experiment. The experiment provides means to verify the rudimentary assumptions of the market and to define initial conceptualization of the Structure for continued commercial activity in the domain that is being tested. Given the untried internal Structure and unknown market, an intensive retrospective strategic learning takes place along the market experiment. The plausibility of the rudimentary market assumptions, and the company’s ability to respond to the dynamics of the new market, determine whether the experiment leaves a lasting trace on the Realized Strategy of the company. A successful market experiment amends the strategic world-view of the company.

14.4. **Characteristics of Innovation reflect Conversion and Strategic Context Determination Process models**

As the *linear* innovation activity is embedded into the fine-grained Strategy and Structure of the company, it produces incremental innovations and immediate financial return to the company. The *linear* pattern probes the existing market with products and continuously verifies the strategic assumptions of the company. The *linear* pattern is the foundation for the mainstream innovation activity of the company, as it facilitates cohesive and effective deployment of the Strategy. Despite the fact that the *linear* pattern entails exploration and conversion, it can be characterized as an exploitative approach.

In the *transforming* innovation pattern, conversion is an iterative process performed on multiple abstraction levels. Through its conversion process the innovation activity interacts with the Strategy and Structure development of the company. The comprehensive conversion process facilitates substantial Strategic learning and Structural adjustments during the act of innovating. This approach enables the creation of radical innovations within the reach of the underlying Structure of the company.

The *transforming* innovation pattern concurrently crafts radical innovation and molds the Strategy and Structure of the company. *Transforming* innovators work collectively through the processes of the firm. In order to succeed with their *transforming* aims,
the innovators need the mandate and the capability to modify the Strategy and Structure of the firm. The capability to modify the Strategy and Structure stems from the innovators being involved in discussions on multiple abstraction levels. In addition, the *transforming* innovators have the capacity to make sense across the abstraction levels and in a broad functional sphere. A multitude of cognitive frames is needed to achieve such versatile capacity. The diversity of actors, lateral thinking, and positive team dynamics are requisites for the *transforming* innovation pattern. The diversity of actors also assists in the deployment of radical innovations, because the deployment of comprehensive novel propositions assumes changes and concerted actions in the broad sphere within and without the organization. The *transforming* innovation activities influence the Realized Strategy of the company through two causal mechanisms. First, the innovation activity directly modifies the Structure and Strategy of the firm, which may have a lasting effect to the organization. Second, the radical innovation outcome appears as a trace in the Realized Strategy of the firm. The radical innovation and its effects on the Strategy and Structure are conceivable to the organization. Thus, the organization is likely to be able to draw immediate financial benefit from radical innovations created with the *transforming* approach. The ability to draw short-term financial benefit from *transforming* innovations improves the odds of those innovations having permanent effects on the Realized Strategy of the firm. The operational characteristics of the *transforming* innovation pattern limit the radical innovations to the domains that are related to the traditional business of the firm. *Transforming* innovation patterns have the capacity to prolong and add value to the existing strategic trajectory of the firm. Also, the radical innovations may entail aspects that may open up new avenues of business for the company.

The *experimenting* innovation pattern is loosely and intermittently connected to the Strategy and Structure of the company and has the capacity to create disruptive departures from the tradition of the firm. With the help of a "Business Champion," the primarily explorative innovation activity remains in selective interaction with the Strategy and Structure of the firm. Subject to the "Business Champion’s" ability and the firm’s tolerance to execute a one-off experiment, this approach has the capacity to create innovations that represent disruption to the operational tradition of the firm. The sense making on the Strategic level takes place in retrospect to the market experiment. The retrospective sense making of the experiment enables strategic learning in a domain, which is profoundly new to the company.

*Experimenting* innovation pattern is intermittently and selectively connected to the Strategy and Structure of the company. The loose connection with the Structure provides *experimenting* innovation pattern the latitude to craft potential new business entries to the company. As the innovation activity is loosely connected to the Strategy and Structure of the firm, the innovation process lacks the ability to create necessary Strategy and Structure elements required for executing the new business. To overcome this limitation, successful *experimenting* innovation activities rely on the credibility and influence of a "Business Champion" who is willing and has the capacity to provide resources to the market experiment. The market experiment verifies the innovative concept and produces the required schema for incorporating the new initiative to the Strategy. The market experiment also enables experience based planning of the continued commercial deployment of the new business. The new business is uncertain and subject to external market forces, which are not well known to the company. The long-term Strategic effect of the *experimenting* innovation activity is subject to the company’s persistent will and ability to respond to the market dynamics, which is only vaguely known at the time of evaluating the initial experiment.
14.5. The Probability of an Innovation Leaving a Trace to the Realized Strategy varies by the Innovation Pattern

The linear exploiting activities induce the Strategy and Structure of the firm as such. Thus, they produce predictable innovation outcomes, which have incremental, yet relatively predictable Long-Term Effects on the Realized Strategy of the firm. By using Van de Ven's and Poole's typology (1995) of change patterns, the linear pattern represents a teleological, cohesive sequence of purposeful enactment. The immediate Strategic Outcomes of enactment are subject to the evolutionary or dialectic forces of a well-known, mature market. The company knows the regularities of the mature market and thus the Long-Term Strategic Effect is predictable for the company.

The transforming innovation activities modify the higher-level schemata and processes of the company in order to produce radical Innovations. The modified schemata and processes are based on past actions of the company. As a consequence, the effect of radical Innovations on the Realized Strategy of the firm can be extrapolated and envisioned in terms of the direction. However, the magnitude of the effect is hard to anticipate. The Long-Term Strategic Effect of the transforming innovation activities to the Strategy can be characterized as conceivable. In Van de Ven and Poole's (1995) terminology the transforming innovation pattern represents a teleological and relatively cohesive purposeful enactment. However, by definition, the market category of a radical innovation is in the early phase of its lifecycle and thus the regularities of the market can only be extrapolated. Moreover, the newly developed internal capabilities have not been exposed to the test of praxis. The operational relatedness helps in assessing internal capabilities and in extrapolating market demands. Judging new market categories close to the dominant logic of the company is easier. It is
reasonable to assume that the probabilities associated with a radical innovation diminish with the operational remoteness and the degree of radicalness.

Business experiments probe the markets with novel bundles of propositions and business models. History provides little or no guidance for estimating the market and for foreseeing the take-off of such bundles. Moreover, it is difficult to estimate how well a company can address the future challenges associated to a new bundle of propositions and business models. As a consequence, the Long-Term Strategic Effect of a new business is uncertain and can only be imagined. The experimental 'learning by doing' is likely to extend beyond the initial business experiment. The Long-Term Strategic Effect can be characterized as uncertain. In Van de Ven and Poole's typology of patterns of progress (1995) the experimenting act of innovating is not a purposeful, cohesive teleological progression. Instead, the act of innovating in the experimenting mode entails internal dialectics of thesis, antithesis, and synthesis of ideas, and the evolutionary accumulation of knowledge and capabilities. The ability to produce the immediate Strategic Output, i.e. successful innovation, assumes sufficient alignment between the dialectic progression of ideas and evolutionary development of capabilities. In addition, the capability to integrate a one-off experiment is a necessary condition for a successful market experiment. The innovation that is being experimented is subject to external market forces. The company knows the regularities of these market forces only vaguely, as the market represents deviation from the dominant logic of the company. Following Van de Ven's and Poole's typology of progress patterns, one can reason that the external market forces follow either the evolutionary or the dialectic logic, depending on the market structure. The evolutionary logic dominates in an environment characterized by a high number of relatively weak competing entities. The dialectic logic applies in an oligopolistic environment with a small number of powerful actors. The probability of the Immediate Strategic Outcome of an experimenting innovation activity leading to persistency and thus into an observable trace in the Realized Strategy primarily reflects company's ability and willingness to respond to the dynamics of that particular new market environment.

As discussed previously the interaction mechanisms between the Entrepreneurial Innovation Activities and Strategy and Structure of the company vary depending on the innovation pattern. The mechanism and scope of the interaction determine which aspects of Strategy and Structure are influenced directly by the activity and the latitude available for the act of innovating. The latitude in the act of innovating determines how radical a departure from the existing tradition the immediate Strategic Outcome of innovating can be. The linear innovation pattern applies established structure and schemata of the company with no deviations. The act of innovating conforms to the Structure and Strategy of the firm. Thus, strategic learning may happen only in retrospect and is limited to the domain defined by the Strategy of the firm. The underlying mission of the organization drives the transforming innovation activity. The activity interacts with the Strategy and Structure of the organization and has the capacity to modify them. The transforming innovation activities renew Strategy and Structure by yielding modified processes and strategies as well as radical innovations. The experimenting innovation activities are influenced by the broad strategic intents of the company. The act of innovating produces rudimentary conceptualizations and schemata, which enable deployment of a one-off experiment. The one-off experiment refines the schemata and helps define the structural enhancements required for sustaining business in the experimented domain.
The immediate Strategic Outcomes of the innovation activities, together with the Changes in the Strategy and Structure\(^3\) lay the foundation for the strategic progression of the firm. Building on this foundation, the Long-Term Effect of an innovation is subject to the future management decisions and how well they match the external ecological forces.

**Figure 36** The structural and market uncertainties reflect the innovation pattern.

In summary, the internal and external uncertainties associated with innovations increase with operational remoteness. As a consequence, the ability to foresee the Long-Term Strategic Effect of an activity reduces radically with operational remoteness. The figure 36 above summarizes the internal and external uncertainties associated with the innovations created in each innovation pattern.

The incremental innovations address the known market with a tried and tested structure. The *transforming* innovation pattern creates new propositions with modified Structure. The dynamics of the market of *transforming* innovation pattern can be extrapolated by using the existing markets of the company as a reference. The innovations of the *experimenting* pattern probe markets that are unknown to the company with the Structure that has new, untried structural elements.

The combination of market and structural uncertainty determine the overall uncertainty related to a particular innovation. The structural uncertainties reduce the ability to plan corrective actions when the market uncertainties materialize. Thus, the probability of improvisation while implementing innovations increases with operational remoteness.

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\(^3\) Including technical capabilities
14.6. The Dynamics of Business Management Reflects the Pattern of Innovating

The sequence and intensity of interaction between the innovation activity and the Strategy and Structure varies by the innovation pattern. The linear innovation activity follows the Strategy and Structure, the transforming activity modifies the Strategy and Structure during the act of innovating, and the experimenting activity is loosely connected to the pre-existing Strategy and Structure. The experimenting activity first crafts rudimentary Strategy and Structure for the experiment, verifies the assumptions with the experiment, legitimizes them through strategizing, and proceeds to the creation of a new structure for the continued commercial activities in the new field. Reflecting the interaction process with the Strategy and Structure, as well as the capabilities embedded in the act of innovating, each innovation pattern renews the Realized Strategy and Structure of the firm to different extent. Also, the external and internal uncertainties associated with the innovations and subsequent firm renewal reflect the properties of the innovation pattern.

The external uncertainties stem from unknowns in the business environment. In case of a linear innovation, the life-cycle assumptions of the known market may change. This change may initiate a change in the firm Strategy. The transforming radical innovation opens a new category, which is conceivable to the company. The company presumes the strategic variables of the category, but the dynamics of the new category may surprise. The disruptive outcome of experimenting pattern brings the company to a foreign market that is profoundly new and uncertain to the company. The competitive variables, as well as their dynamics, are unknown to the company.

The internal uncertainties are either structural or concern the future actions of the company. The linear innovation pattern entails no structural uncertainty. The transforming innovations apply a structure derived from the tried and tested structure of the firm. The derivative changes in the structure increase the structural risks only moderately. The experimenting innovation pattern creates a new untried structure, which entails profound structural uncertainties.

The internal uncertainties about the future actions of the company are essentially related to the company’s commitment to follow through the outcomes of the innovation activities on the market. In the case of linear innovations, the underlying market assumptions may change through continuous market monitoring. The changes in the market assumptions may lead to changes in the Strategy, which in turn, may imply abrupt changes to the induced plans driving the innovation activities.

In the case of transforming innovations, the dynamics of a new category may deviate substantially from the predictions. In principle, the innovating organization has the means to address these changes, but in practice radical innovations need continued support from the business management of the company to respond to deviations from the plan.

In the case of the experimenting innovation pattern, the external and internal uncertainties related to the disruptive innovations are likely to lead to unexpected turns of the business. The innovating organization lacks the means to respond to those changes on its own. Support from the rest of the organization is necessary for responding to the changes on the market with the untried structure. Given the pre-maturity of the Structure of the new business, it is likely that the company has to improvise in a large organizational sphere to respond to the turns of the new market.
Turning market experiments into sustained traces in the Realized Strategy of the firm assumes improvisation by the senior management of the company.

The figure 37 below summarizes the external and internal uncertainties and reach associated with each innovation pattern. The further away the activity is from the operational and strategic tradition of the company, the greater the uncertainties. The parallel increase of strategic and structural uncertainty moves the operative distress to higher levels of management.

The challenges of the linear innovation pattern can be solved on the operational level. The transforming pattern assumes an active executive role of the middle management. Turning innovations, which have been created with the experimenting pattern into continued businesses is likely to require an improvised and concerted effort in the large organizational sphere. The widespread concerted effort calls for a persistent, hands-on leadership from the senior management of the company.

Figure 37: The reach and uncertainties of ambidextrous activities through each conversion mechanism.
14.7. The Focus of Business Management in Each Innovation Pattern

As the innovation patterns are distinct one from another in terms of their reach and associated uncertainties, they pose fundamentally different management challenges.

The linear innovation pattern keeps on probing the existing market with innovations, which induce the fine-grained Strategy and Structure. Cohesiveness of the activity and efficiency are the underlying operational virtues of the linear activity. Strategic learning concerns nuances and life cycle assumptions of existing business and market.

The radical innovations created with the transforming approach open new product categories to the company. The new categories resemble the prevailing business of the company, but the dynamics of such a new category may surprise. As the process of creating the radical innovations is organic, the key consideration in the conversion, as well as in the operational business management, is the cross-disciplinary and mindful interplay of a broad sphere of operational level actors. This interplay can be achieved with an organizational and a process structure that brings concerned parties into a continuous and mutually adaptive interaction with each other. Selecting influential and respected managers to bring together transforming activity and fostering their ability to work out adjustments to the Strategy and Structure of the company are critical enablers for effective transforming activity. Overall, the execution of transforming activities is led by influential middle managers. The senior management has a decisive role in defining the areas of transformation, selecting the key actors for transforming initiatives and creating an organizational context where organic transforming activity can successfully take place.

The experimenting innovation pattern probes the markets that are unfamiliar to the company. The dynamics of the unfamiliar market is likely to bring unexpected events to the fore. In responding to these unexpected turns in the market, the company relies on the newly created, pre-mature Structure. Responding to the unexpected turns with a pre-mature, internal Structure is likely to trigger the need to improvise and potentially re-configure the newly started activities. Thus, the long-term success of disruptive innovation is inevitably subject to the corporate leadership’s commitment to the innovation, and its ability to respond to the surprises of the new business. This study suggests that succeeding with the innovation, which represents disruption to the organization, sets high demands on the persistency, ambidexterity, and agility of the top management team and the senior management in general. Turning new businesses into successes requires a hands-on involvement from the senior management. Sometimes there is a conflict of interest between the ongoing operational business and a fragile new business. Resolving those conflicts to the benefit of the new business requires profound commitment to the renewal aims of the company. As the incentives of the senior management tend to emphasize tangible short-term results, persistency with the new business creation may even require compromises in the economic self-interest of the senior management.
14.8. Fostering Ambidexterity to the Strategic Benefit of an Organization

Ultimately, benefiting from ambidexterity assumes ambidexterity of activities and outcomes along with the ability to make the ambidextrous outcomes have a lasting impact on the Realized Strategy of the firm.

The individual actors perform ambidextrous activities. In organizations, activities take place in networks, team like formations, and through processes. Interaction with multiple streams of activities and changing task types enhance the ambidexterity of individuals. Diversity, spread of connections, and positive team dynamics are conducive to the ambidexterity of teams and networks. Ambidexterity can be amplified with iterative and flexible processes, which allow sense making on a higher level of abstraction.

Ambidexterity of outcomes is observable at the organization level. The immediate Strategic Outcomes, such as new products, services, process improvements, and new business models are typically identified with a particular organizational unit. Ambidexterity of outcomes on the organizational level is the function of 1) ambidexterity of activities within the unit, and 2) the use of plausible conversion processes to address the primary innovation challenges of the organization. The figures 34 and 35 link identified conversion processes to the radicalness and operational relatedness of the innovation outcomes.

The Long-Term Strategic Effects of ambidexterity, such as longevity or survival of an organization, are identified on the enterprise level. On the enterprise level, ambidexterity stems from

1) A sufficient amount of viable exploration,

2) Mastering a set of conversion mechanisms and

3) Organizational context, which fosters purposive action throughout the organization.

The conversion process brings novelty through purposeful entrepreneurial enactment into the commercial realm of the company. The conversion turns ambidextrous activities into valuable Strategic Outcomes, i.e. innovations. In turning ambidextrous activities into commercially valuable Strategic Outcomes, the entrepreneurial actors influence the Strategy and Structure of the company. The Strategic Outcomes of the innovation activities, together with the changes in the Structure and Strategy set the foundation for renewing the Realized Strategy of the firm.

The structural means have the capacity to improve the odds of Immediate Strategic Outcomes, turning into noticeable long-term traces in the Realized Strategy of the firm. The ambidexterity of outcomes and their progression into Long-Term Effects in the Realized Strategy of the firm are favored by organizational structures that provide viable coupling between innovation activities and the Strategy and Structure development of the firm. The findings of the study suggest that the transforming conversion benefits from having a transforming business unit that shares the mission of the transforming activity and provides innovators with sufficient latitude to alter the Strategy and Structure while innovating. In the case of experimenting conversions, the structural separation may influence the performance either way, depending on how the needed complementary resources are distributed in the organization. Also, structural arrangements intended to address the dynamics of the new business entry that the
experimenting innovation activity is working on are case specific. Irrespective of the organizational structure, the experimenting conversion is favored by attentive and influential championing, which dynamically connects the innovation activity to the Strategy and Structure development of the company. Moreover, given the external and internal uncertainty of new businesses, the long-term success of disruptive innovations is likely to depend on the ambidexterity, agility and persistent commitment from the top management team (Doz and Kosonen, 2009). Creating a new business with innovations is likely to require large-scale improvised action by the business management of the company.

As an ambidextrous organization has a diverse portfolio of innovation activities, any organizational structure is imperfect. The imperfections need to be compensated for and managed by an alert and participating managerial team. Moreover, nurturing behaviors, which embrace ambidexterity on the individual and team levels, is instrumental in cultivating ambidexterity throughout the organization. According to the empirical findings of this study, the principles of varying task types, and being connected with multiple streams of discourses on different abstraction levels increases the ambidexterity of individuals irrespective of the level of the organization. Diversity, iterative working practices, sense-making capability, and positive team dynamics appear conducive to the ambidexterity of the teams and networks across the organization.

The study confirms that exploitation is forcefully self-enforcing in mature organizations. Nurturing exploration and conversion fosters ambidexterity of outcomes within the organization.

Ambidexterity is subjective and eclectic in the sense that achieving ambidexterity on the higher unit of analysis level assumes biased action on the lower unit of analysis level. Bringing these biased pools of action together necessitates conversion. The conversion, which matches the innovation challenge at hand, was identified as the most critical factor for making ambidextrous activities productive and visible in terms of concrete innovations.

Once introduced to the market, the innovations face external ecological dynamics, which the company needs to match in order to draw long-term strategic benefit from innovative outcomes of ambidexterity. The more distant to the operational tradition of the firm an innovation is, the more fundamental and unpredictable the challenges with the external dynamics will be. Creating and sustaining new businesses with innovations that represent disruption to the organization set high demands on the persistency, ambidexterity and agility of the senior management.
15 CONCLUSIONS

The aim of the study was to produce a process view of how ambidexterity materializes in innovation projects across multiple unit of analysis levels and how the ambidextrous activities interact with the Strategy and Structure of the company in the process of producing ambidextrous outcomes. The study sought answers to the following questions:

1) How does the interplay of exploration and exploitation take place in innovation initiatives?

2) How does the act of innovating interact with the Corporate Strategy and Structure?

3) How does entrepreneurship manifest itself in innovation projects and how does it affect ambidexterity?

15.1. The Key Findings of the Study

15.1.1. Integrated Process Model of Ambidexterity

The study confirmed exploration and exploitation as complementary learning modes, and specifically highlighted the importance of conversion between the modes in making ambidexterity productive. In organizational praxis, exploration and exploitation take place both in sequence and in parallel.

The study produced an Integrated Process Model that illuminates how the ambidextrous activities lead into ambidextrous outcomes and facilitate changes in the Strategy and Structure of the firm. The ambidextrous outcomes and the associated changes in the Strategy and Structure lay the foundation for the strategic renewal of the company. The strategic renewal is the basis for longevity of an organization in a dynamic business environment.

The formal grounded theory created in this study addresses gaps in the current literature, which are summarized in table 2 (page 33). In line with the original objectives, the study succeeded in producing a temporally sensitive process model of ambidexterity that reveals the dynamics of exploration, exploitation, and their interplay with each other. The process model of ambidexterity connects the phenomenon to the broader Strategy and Structure evolution of the firm. The process model brings clarity to how exploration and exploitation take place in practice, how they are enacted, and how ambidexterity feeds into the strategic renewal of the company. The conceptualization of ambidexterity reaches across multiple levels of analysis and creates a process view of how the ambidexterity of activities materializes as ambidextrous outcomes and traces in the Realized Strategy of the firm. The Integrated Process Model of the interplay between Innovation Activities and Strategy and Structure (figure 29, page 146) opens the “black box” of ambidexterity by illustrating how Ambidextrous Activities lead to their envisioned outcomes.

The process model of ambidexterity addresses a substantial knowledge gap identified by prominent ambidexterity scholars. James March (2006) called for research that would clarify, how ambidexterity is enacted in order to shed light to the mechanisms of
organizational renewal. Gupta et al. (2006) pointed out that there is limited clarity on how the concurrence of exploration is achieved in practice. Raisch and Birkinshaw (2008) noted that multi-level analyses on how ambidexterity materializes in the organization are completely missing from the current body of research. Simsek et al. (2009) echoed these views by especially encouraging research to investigate the “intermediate steps in the causal chain between ambidexterity and its envisioned outcomes.” By referring to the comprehensive stock of scientific knowledge, the authors urged for research that explains the link between ambidexterity of activities and its outcomes (Simsek et al., 2009).

15.1.2. Conversion – the missing link between Ambidexterity, Innovation and Strategic Renewal

The study identified conversion as a central process that establishes a dialogue for reciprocal adjustment between exploration, exploitation, Strategy and Structure. The reciprocal adaption was found to be a necessary condition for creating radical or operationally remote innovations.

The study identified three conversion patterns that bring the outputs of exploration into the commercial realm of the company. The identified conversion patterns differ from one another in the mechanisms through which they interact with the broader Strategy and Structure development of the firm. The different interaction mechanisms confer different challenges in integrating with the firm’s the Strategy and Structure development. The rigidities in the coupling cause differences in Strategy and Structure development and in the latitude the innovation activity has. The reach of the innovation activities is affected by the intensity of interaction between the innovation activity, and the Strategy and Structure of the firm. The innovation activities, which are loosely coupled with the Strategy and Structure of the firm, can reach far beyond the traditional domain of the company. Thus, they have the capacity to craft innovations that are disruptive to the company. Tightly coupled innovation activities have the capacity to produce incremental innovations that sustain the Strategy of the company but are unable to reach beyond the traditional business of the firm. A reduced capability to align the Strategy and Structure development with the innovation activities increases the reach of the innovation activity increases. This implies that incremental, radical, and disruptive innovations introduce profoundly different dynamics to the business management of the company.

15.1.3. Three Fundamentally Different Innovation Patterns

Fine-grained Strategic schema and transparent coupling of the Strategy to a well-known market favor the creation of incremental linear innovations. A transparent coupling between the market and the Strategy facilitates a dynamic, responsive Strategy. The changes in the Strategy, in turn, drive changes to the fine-grained, efficiency-driven Structure of the organization. The innovation activities execute the fine-grained Strategy with the Structure.
The radical, i.e. *transforming* innovation activities benefit from the latitude they are given as well as their ability to alter the Strategy and Structure through their own cross-disciplinary iterative activity. This iterative activity takes place in the innovation project itself on a rather operational level. The ability to craft radical *transforming* innovations builds on the iterative working processes and collective ways of working. Sense making on a higher abstraction level is an essential element of the *transforming* conversion as it enables the creation of a new sense-making schema. The new sense-making schema, in turn, lays the foundation for profound, reciprocal adjustments in the innovation activity, Strategy and Structure. Profound adjustments in the Strategy and Structure are necessary to accommodate the creation of radical innovations. The *transforming* innovation activities benefit from an organizational Structure that facilitates the interactive coupling between the innovation activity and the Strategy and Structure of the company. It also benefits from the influential, diverse and experienced conversion team, which has the ability to work collectively and iteratively.

Developing disruptive innovations with the *experimenting* approach builds on the ability to connect the innovation activities to the Strategy and Structure of the company, as needed. The intermittent coupling provides latitude for the innovation project to venture into genuinely unexplored domains. Yet, the intermittent coupling facilitates the development of rudimentary Strategy and Structure alongside the act of innovating. The market experiment builds on the rudimentary Strategy and Structure. The experiment verifies the Strategy and Structure assumptions to the degree required for the continued business operation in the new field. Given the low maturity level of Strategy and Structure and the foreignness of the new market, the disruptive innovations are likely to face unexpected market conditions. The company has to respond to those conditions with a newly established pre-mature Structure. This puts the ambidexterity and agility of the top management to the test. In terms of entrepreneurship, the capability to create disruptive innovations benefits from individual entrepreneurship, which challenges the status quo. The championing that connects the activity intermittently to the Strategy and Structure of the firm is instrumental in creating innovations that represent a disruption to the operational tradition of the firm. Moreover, the ability to take and tolerate associated risks and provide complementary resources to the innovation activity are necessary conditions for the creation of disruptive innovations. This study argues that the market and structural dynamics of the disruptive innovations put the ambidexterity and commitment of the corporate management to the harsh test of praxis.

15.1.3.1. *Entrepreneurship Reflects the Dynamics of Innovating*

In analyzing the ambidexterity of activities, the study uncovered the characteristics of entrepreneurial agency driving the innovation activities. The characteristics differ by the pattern of innovating.

The *linear* innovation activities are favored by individual, competitively aggressive, conformist and risk averse entrepreneurship, which somewhat imitative. The entrepreneurs of *linear* activities work through established fine-grained processes without challenging them.

The *transforming* innovation activities benefit from the proactive, collective entrepreneurship of a versatile team. The team works through processes and modifies them when necessary. In the *transforming* pattern the entrepreneurship is balanced in its risk taking.
The *experimenting* innovation activities are driven by individual entrepreneurship that has the ability to engage diverse new actors in the act of innovating. Ultimately, the *experimenting* innovation activities develop into dispersed entrepreneurial acts, which create a comprehensive innovation and rudimentary Structure in a broad operational sphere.

The “Business Champion’s” role is instrumental in connecting the *experimenting* innovation activity to the Strategy and Structure development of the firm and in sharing the substantial risks of proactively committing resources to a new field.

### 15.1.4. Three Strategic Context Determination Process Models

The extensive theorizing about the interplay between the innovation activities and the Strategy and Structure produced a detailed view of three conversion processes (figures 31-34, pages 148-150) and how they interact with the Strategy and Structure of the firm. The process views of the conversion add to the understanding of how entrepreneurial innovation activities influence the Strategy and Structure of the firm through a Strategic Context Determination process. Effectively, those conversion processes are parallel sub-processes of the Strategic Context Determination process. The operational relatedness of an innovation activity reflects to the innovation pattern, which in turn reflects to the interaction between the entrepreneurial innovation activity and the Strategy and Structure of the firm. In Burgelman’s (1983a, 1984) framing of Corporate Strategy as an outcome of Induced Strategic actions and Autonomous Strategic Action (figure 8, page 26), the *linear* innovation activities fall into the induced category and *experimenting* into the autonomous category. The *transforming* innovation activities fall between the induced and the autonomous categories as they mold both Strategy and Structure while innovating.

### 15.1.5. Conceptualization of ‘Transforming’ Innovation Activities

The identification and detailed characterization of the *transforming* pattern makes a novel contribution to the scientific discourse about the processes of interaction between the entrepreneurial activities and Strategy and Structure development of the firm. The *transforming* pattern complements the dichotomy of autonomous and induced activities (Burgelman, 1983a, 1984) by introducing a category of semi-autonomous activities. Through continuous dialogue with the Strategy and Structure, the *transforming* innovation activities are in a reciprocal, adaptive relationship with the Strategy and Structure of the firm. The logic of this reciprocal, adaptive interaction resonates well with the metaphor of Strategy as Guided Evolution (Lovas and Ghoshal, 2000).
15.1.6. The Escalating Uncertainty Raises the Importance of Senior Management Actions

The study went beyond the original research inquiry by discovering the significance of the Structural and market uncertainties to the business management challenges of the company. Through analyzing and theorizing uncertainties associated to innovations, (figure 36, page 155) the study created an insight into the root cause of the dramatic escalation of uncertainty as the company moves outside its traditional business domain (figure 37, page 157). The dramatic leap stems from the combined effect of external market uncertainty and internal Structural uncertainty. The leap in the uncertainty and pre-maturity of the Structures call for holistic improvisation in the large organizational sphere, and thus set high demands on the ambidexterity and agility of the top management team.

15.2. Contributions of the Study

The study amended the scientific body of knowledge with the following contributions:

1) **The study described how ambidextrous activities take place and are enacted in practice.** Thus the study addresses the knowledge gap posed by March (2006), Gupta (2006) and Simsek et al. (2009). The description reaches across multiple unit of analysis levels, and thus alleviates the shortcoming of ambidexterity literature identified by Raisch and Birkinshaw (2008).

2) **The study produced an Integrated Process Model of ambidexterity of activities, outcomes, and their effects to the Strategic renewal of a company and thus addressed the substantial deficiency in ambidexterity conceptualizations (figure 29, page 146). This contribution resonates well with Simsek et al.’s (2009) urge to investigate the intermediate steps in the causal chain between ambidexterity and its envisioned outcomes.

3) The study highlighted conversion process as the mechanism of performing reciprocal adaption of Innovation activity, Strategy and Structure.

4) **The study identified three conversion process patterns**, through which the outcomes of exploration feed into strategic renewal of the company. Identified patterns enabled a fine-grained analysis of the processes of ambidexterity, as well as a Strategic Context Determination Process.

5) The study created a detailed description (figures 31-34, pages 148-150) of alternative sequences and sub-processes of Strategic Context Determination process, and thus addressed knowledge gaps identified by Burgelman (1991), and Lovas and Ghoshal (2000).

6) The study extended the applicability of Burgelman’s (1983a, 1984) Evolutionary Framework of the Strategy-Making Process model (figure 8, page 26) to the businesses in gradual transformation by discovering the category of transforming innovation activity and by defining how it interacts with the Strategy and Structure.
15.3. Suggested Further Research

This research represents an inductive process study, which is strong in identifying patterns in the eclectic organizational phenomenon reaching across multiple units of analysis. Such inductive methods of research are effective in mapping the patterns in the causal chains. The transferability of the findings of an inductive research can only be reasoned.

A salient future research topic would be to verify the transferability of the Integrated Process Model and conversion process patterns, either with a multiple case study research of product business companies, or with a deductive research of a relatively high number of organizations.

Another plausible research project would be to conduct an inductive process research, or a multiple case study research in a different industrial setting. The interplay between the innovation activities and the Strategy and Structure in a service company would be likely to yield complementary findings to the Integrated Process model and conversion process patterns identified in this research.

The *transforming* innovation pattern begs to be analyzed in a more versatile research setting to confirm its existence outside of the case company. The *transforming* innovation pattern should be conceptualized in more specific terms to determine whether it is semi-autonomous, semi-induced or a category of its own. This research stream should specifically analyze the exchange of knowledge in different layers of abstraction in the Strategy discourse, as well as in the development of Structure.

A fourth research avenue that complements the present study, is an examination of the co-existence and interplay of ambidextrous innovation activities and large scale externally driven change initiatives. The ambidextrous innovation initiatives of the present research can be characterized as organic, bottom up innovation activities. The companies are increasingly operating in interdependent ecosystems where no single organization is in a position to drive innovations with its organic efforts alone. The organically initiated innovation activities inevitably co-evolve with the induced systemically complex change programs. The mechanisms through which the externally motivated induced change programs alter the Realized Strategy and Structure are under-examined. In the same vein, the co-existence and reciprocal interplay of induced change programs and organic ambidextrous activities have not been examined.
DISCUSSION - THE PRACTICAL IMPLICATIONS

The research revealed ambidexterity to be a holistic and eclectic organizational learning phenomenon that cuts across layers of organization and abstraction. In the corporate context, ambidexterity brings the discoveries of exploration to the commercial realm of the company. The study captured the ambidexterity phenomenon on three ‘presentation layers.’ Ambidexterity was identified in actions and in their concrete outcomes. Thirdly, ambidexterity left observable traces to the realized Strategy of the firm. Each ‘presentation layer’ of ambidexterity needs to be managed individually. However, the study argues that the key factor in making ambidexterity productive is the purposefulness of the continuum throughout these layers. The identified innovation patterns represent alternative continuums from ambidextrous activities to their envisioned outcomes.

The study pointed out that identified innovation patterns differ from one another by the practices through which the innovations are created and interact with the firm’s Strategy and Structure. Moreover, the study brought to light the fact that that the entrepreneurial agency can be distinguished by its pattern of innovating.

Leading such diversity of actions, actors, and interaction mechanisms calls for holistic understanding of the overall industry context, where the action takes place, as well as the mechanisms through which the actions get enacted and lead to persistency in the organization.

In understanding the overall industry context, the primary goal is to create an educated view of the dynamics of the strategic changes in the industry and reflect that to the innovation practices of the company. In particular, a justified view of the balance of power between emergent and systemic changes in the industry is a critical consideration for developing and focusing innovation practices within a company. Generally, the ambidexterity conceptualization follows a grass roots pattern. It assumes change and progress to be emergent. Ambidexterity builds on the notion that organizational learning takes place through exploration and exploitation of individual actors. The individual actors work in interdependent configurations that are connected to the rest of the organization through processes and networks. The novel discoveries of exploration are diffused through a relatively self-organizing, organic set up. The logic of emergence in the ambidexterity conceptualization matches poorly with the demands of systemic quantum changes. Addressing the systemic complexity of quantum changes calls for induced orchestration, which forcefully subordinates the dispersed actions of the individuals.

Clearly, the strength of ambidexterity conceptualization is in understanding dispersed learning and discovery of novel ideas. This study analyzed and described the processes through which those dispersed learning activities lead to innovations and persistency in the organizational evolution. The matrix on the next page translates the key insights of the study to applicable management principles.

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4 Innovations
5 Such as innovations and traces in the Realized Strategy of a company
<table>
<thead>
<tr>
<th>LINEAR</th>
<th>TRANSFORMING</th>
<th>EXPERIMENTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRATEGY</td>
<td>Explicit – Fine grained Strategy connected to market</td>
<td>Missions – Flexible Strategy connected to innovation activity</td>
</tr>
<tr>
<td>STRUCTURE</td>
<td>Efficient – Division of tasks - Compartmentalized</td>
<td>Mindful – Across abstraction levels - Collective</td>
</tr>
</tbody>
</table>

Table 14  Principles to lead ambidexterity of actions and their outcomes and strategic effects.

16.1. Leading Linear Innovation Activities

Enforcing the creation of incremental innovations builds on efficiency driven innovation processes that are tightly coupled with the Strategy and Structure of the company. The efficiency driven innovation processes do not have a feedback loop to the Strategy and Structure of the company. Hence, a transparent link from the market to the Strategy development of the company is a central mechanism for securing plausible Strategy, Structure and innovations in this working mode. Continuous monitoring of market developments enables justified modifications and amendments to the Strategic schemata of the company. The modifications in the schemata, in turn, reflect the changes in Structure of the company. The Structural changes concern primarily the
fine-grained working process of the company. The innovation activities induce the Structure and Strategy of the company.

Explicit strategic targets and tight progress monitoring favor the performance of linear innovation activities. Competitively aggressive individual entrepreneurship resonates well with this mode of innovating. Given the fine-grained schemata and the strict division of the work, the established processes of the linear innovation pattern work on codified, explicit knowledge. The fine-grained strategic schemata and the governance principles of the explicit knowledge are the underlying levers that set the dimensions for incremental innovations.

16.2. Leading Transforming Innovation Activities

The aim of the transforming innovation is to transform and add value to the ongoing business. The powerful and diverse transformation team is in the center of the stage in this pattern of innovating. The transformation team is transparently connected to the market and to the explorative and exploitative activities of the company. The team acts in the domain set by the Strategy, and has the mission and mandate to take the Strategy and Structure of the company forward through the process of innovating. In order to achieve its aims, the team synthesizes a broad set of inputs from exploration and exploitation and makes sense of the situation on a higher strategic level. The team creates new sense-making schemata and working ideas about required structural modifications. In line with their transforming aim, the team innovates and drives changes to the Strategy and Structure of the company.

The performance of transforming innovation activities is favored by a strong and influential transformation team that has positive team dynamics, iterative working practices, the ability to make sense on the higher abstraction level, and the ability to modify the Strategy and Structure of the company. Proactive, collective, and mindful entrepreneurship resonates with the challenges of this innovation environment. In the organizational reality a transforming team is surrounded with an ethos that advocates conformance and cohesion. In order to counter that, the team needs an inspiring mission, encouragement toward risk taking, and an articulated mandate to make alterations in the Strategy and Structure of the company.

In leading the transforming innovation activities, the key considerations are 1) to configure an influential and able transforming team, 2) to help the transforming team perform its challenging task and 3) to facilitate the interplay between the innovation activity and the Strategy and Structure development of the organization. The work should be led with a clear and inspiring mission statement that drives the activity while still leaving room for interpretation and creativity. The team should be diverse and have a transparent and mutually receptive relationship with the Strategy and Structure development of the unit. In practice this implies that transforming innovation activities benefit from having a transforming unit that shares the mission to progressively develop the Strategy and Structure of the company. In line with this, the transforming activities also benefit from the flexible strategic schema that is receptive to the changes driven by the transforming team. Also, in the conformist and cohesive organizational reality, the leadership of the company should encourage and support risk taking within the transforming team. The clearly articulated mandate to alter the Strategy and Structure of the unit helps the team overcome organizational inertia in driving the changes.
The study pointed out that effective transforming innovation activities craft substantial alterations to the Strategy and Structure of a company. Given the limited change adoption capacity of any organization, the number of transforming initiatives at any point in time should be kept reasonably low. A low number of strong transforming activities can renew the Strategy and Structure of the company, while a high number of weak transforming activities may simply hamper the efficiency of the linear innovation pattern. The top management team of a company has a crucial role in identifying strategic areas for business transformation. By using structural means and articulations of the Strategy, the leadership of the company can initiate and foster transforming innovation activities in those key areas of business transformation.

16.3. Leading Experimenting Innovation Activities

The experimenting innovation activities are risky businesses. The resource commitments have to be made pro-actively by using scarce understanding of the potential new business. The role of a “Business Champion” is central to enabling necessary proactive decision-making. The “Business Champion” understands the merits of the initiative sufficiently to draw reasoned conclusions about the viability of continued exploration in the field. The continued exploration, driven by an individual entrepreneur, produces rudimentary schema for judging the business opportunity. The rudimentary schema of potentially disruptive innovation tends to be insufficient and too ambiguous for the formal decision-making of an established company. The “Business Champion’s” advocacy is instrumental in getting the required approvals for the market experiment.

By supporting the innovation activity, the “Business Champion” develops his personal entrepreneurial commitment to the initiative, which in turn is instrumental for securing persistent support and mentoring to the project. The “Business Champion” supports the experimenting activity by helping the team to access complementary resources. He also provides his own expertise to the innovation initiative. The “Business Champion” connects the activity to the operational business and coaches the team in developing its configuration in line with the evolving innovation challenge. The “Business Champion” works in tandem with the entrepreneur of the innovation initiative.

The experimenting innovation initiatives are favored by the persistent entrepreneurship of an innovator and the availability of a credible and influential “Business Champion”. The corporate attitude towards risk-taking is a central organizational property influencing the “Business Champion’s” and the entrepreneur's ability to initiate the experiment. The distribution of complementary resources determines whether the experimenting activity is favored by an integrated or a divisional corporate structure. However, the availability of such complementary resources is a necessary condition for a successful experimenting innovation activity.

Turning an experiment into a continued business assumes ambidexterity and a commitment to the innovation by the top management team of the company. The new business is unlikely to materialize as conceptualized in the experiment. The unexpected discoveries of the market realities and internal capabilities are likely to force the company to improvise with a newly created, pre-mature structure. Improvising with such a pre-mature structure calls for hands-on participation from the very top management of the organization. Moreover, the business case of a new business is ambiguous, risky and debatable. In such circumstances, giving up is a compelling
option. Without senior management exhibiting persistent commitment, ambidexterity, and agility, the creation of new innovative businesses is likely to fail in the execution phase.

16.4. How Ambidexterity Materializes on the Operational Level

The *linear, transforming* and *experimenting* activities appear substantially different on the operational level. The working styles of individuals, social configurations, and the principles of knowledge management reflect the dynamics of the innovation pattern.

Conformist, efficiency oriented action is best suited to support the innovation activities in line with the *linear* innovation pattern. The tasks are compartmentalized into focused entities that have developed their specialized expertise. The interaction between these entities takes place on fine level of detail and assumes sophisticated practices for managing explicit knowledge. The overarching organizational configuration is established and specialized. This implies that the majority of the roles are specialist roles. The specialist roles are seldom filled with ‘boundary spanners’.

Collective, mindful, influence seeking, and creative working styles are central elements of the mind-set in the *transforming* innovation pattern. Given the high degree of interdependencies between the actors and the iterative nature of the conversion process valuable virtues in this innovation landscape include mature social skills and the ability to settle for the common good. A *transforming* innovation builds on novel combinations of old and new knowledge, and entails cognitive processing on multiple abstraction levels. Hence, intellectual processing contains a mixture of explicit and tacit knowledge. The diversity of functional backgrounds, working styles, and social styles is a critical factor in a successful *transforming* innovation activity. Boundary spanning is a central capability in the *transforming* teams.

*Experimenting* innovation activities call for independent and intellectually curious entrepreneurs. The active exploration of domains in the proximity of the strategic discourses of the company is the starting point of the progress. Opportunity judgment made by the independent entrepreneur is central for building an entrepreneur’s personal commitment to the envisioned undertaking. An entrepreneur’s ability to engage actors from the same organizational level, and from higher levels, is critical. This engagement enables the undertaking to extend its sphere of influence and to maintain its intermittent connection with the Strategy and Structure development of the company. The *experimenting* activities are likely to take a long time. The “Business Champion” is in a crucial role, as he keeps the undertaking connected to the Strategy and Structure development of the company. Also, his personal commitment carries the activity through potential abrupt organizational changes, which are likely to take place during a drawn out undertaking. The entrepreneur’s ability to develop a faithful working relationship and substantive dialogue with the “Business Champion” is critical for the *experimenting* innovation activity to succeed.

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6 Processes, practices, and conceptual frameworks
16.5. Active Middle Management Enables Evolutionary Departure from the Tradition

The middle managers have an active role in the transforming and experimenting innovation patterns. In the linear pattern, the middle managers are primarily focused on setting tangible targets for the projects, enforcing the processes, and monitoring the progress. In the linear pattern, the mind-set of the middle management is rather bureaucratic.

In the transforming, pattern a relatively self-organizing configuration of influential middle managers collectively develop a judgment regarding the innovation opportunity. Participation in the process of making an entrepreneurial judgment about the opportunity develops managers’ personal commitment to the undertaking. The commitment spreads with the managers across the organization and enables interdependent but self-organizing implementation in the large sphere of the organization. The committed constellation of middle managers interacts with the Strategy and Structure development of the company. The interaction with the Strategy and Structure facilitates reciprocal adaptation in Strategy, Structure, and Innovation activity. Without active execution by the influential middle managers the transforming activity could not achieve its renewing aim.

Also in the experimenting innovation pattern, the senior middle managers play an instrumental role, as they intermittently bridge the experimenting activity to the Strategy development of the company. With their broad experience base, the middle managers mentor and otherwise support the entrepreneurial actors of the experiment. The middle managers’ entrepreneurial mind-set and willingness to take risks are crucial enablers to the experimenting activities. Also, their commitment and advocacy to the activity is necessary for carrying the activity through the organizational changes that are likely to take place during the time span of the experimenting activity. This study suggests that the resilient commitment of the middle managers can be best achieved if they participate in the early process of judging the business opportunity.

16.6. Ambidextrous and Persistent Senior Management Transforms Business

The further away from the operational tradition of the firm the innovation is, the higher the associated uncertainties and systemic complexities are. Operationally remote and potentially disruptive innovations put the ambidexterity, agility and persistency of the management team of the organization to the test of praxis. First, creating innovations that represent disruption to the organization requires bold risk taking in initiating the experiments. Second, establishing an effective and committed “championing” relationship with the experiment requires a genuinely interested senior executive to participate intensively in the process of making the entrepreneurial judgment of the new business opportunity. Third, to keep the experimenting activity connected with the Strategy and Structure development of the company requires time, attention, and thought from the “Business Champion”. And finally, turning an experimental innovation into a sustaining business requires creative and improvising hands-on management from the management team as a whole. In particular, complex business initiatives require action on a broad front. The management team’s educated and relentless learning and improvisation is required to turn disruptive innovations into sustaining new businesses. The “Business Champion’s” advocacy is simply not enough to create a holistic new business.
In case of transforming innovations, the top management team plays a critical role of selecting the transforming initiatives on strategic grounds. Given the limited change adoption capacity of any organization, only a few initiatives can be given the leeway to modify the Strategy and Structure of the company. A few strong transforming activities can profoundly renew the company, whereas excessive amount of mediocre transforming activities just deteriorate the short-term performance of the organization. As previously discussed, the transforming activities call for the purposeful entrepreneurial agency of the middle managers. The ability to execute along the lines of transforming patterns assumes availability of such entrepreneurial middle managers. Developing an entrepreneurial mind-set and a stock of entrepreneurially oriented managers requires a continuous organization-wide push towards an entrepreneurial way of working. The entrepreneurial middle managers need to be led with bold mission statements that leave room for creativity and innovation. Because the activity led by the mission statements shapes and augments the Strategy and Structure of the organization, a reciprocal leadership is a necessary condition in the transforming innovation pattern. Establishing a truly reciprocal relationship between the entrepreneurial innovation activities and Strategy and Structure is challenging on the corporate level. Having a transforming business unit alleviates difficulties in building reciprocally adaptive relationships between action, Strategy and Structure.

Despite the fact that experimenting and transforming innovation patterns are instrumental in renewing the company, the bulk of the innovation activities of an established company take place in the linear fashion. In the linear pattern the act of innovating does not have the capacity to renew the Strategy and Structure of the company. In this operational mode, the renewal of the Strategy builds on a transparent connection to the market. Observed or anticipated changes on the market trigger a renewal in the Strategy, which in turn leads to modifications in the Structure. In a sense, the strategic learning of the company is separated from the innovation activities in this mode of working. In light of the findings of this research, the linear mode works effectively in an established market. Also, the ability to address exogenous quantum changes may be favored by the induced change sequence where the strategic sensitivity to the exogenous changes (Doz and Kosonen, 2009) enables the creation of a holistic Strategy that drives comprehensive adjustments to the Structure, and where the action induces Strategy and Structure.

16.7. Leading the Portfolio of Innovation Activities

The portfolio of renewing activities in the company is optimally defined by taking into account the dynamics of external ecological forces and the change capacity of the organization. The optimum balance between induced and emergent change activities in the organization reflects the dynamics of the changes in the business landscape, as well as the strength of the influence the company has on the future of its business landscape. Profound, externally driven changes in the industry and the reactive stance of the company favor the induced approach. In contrast, in the dispersed business landscape where the company enjoys a powerful position, the company is better positioned to create novel innovations with ambidextrous approaches. Optimally, the mix of linear, transforming and experimenting innovation activities is matched to the external ecological forces, as well as to the strategic position and ambitions of the company.

The management levers that define the extent to which organic ambidextrous activities craft the Realized Strategy are the choices regarding how proactive, cohesive, and organic the company aims to be. As figure 38 on the next page summarizes, the
management choices along the lines of leader vs. follower, top-down vs. bottom-up decision making, organic knowledge creation vs. acquisition of knowledge, single business vs. multiple business units, and homogeneous processes vs. dispersed actions, set the tone to a company’s internal selection environment. With those choices, the management of the company can tune the internal selection environment to resonate with the dynamics of external ecological forces.

Figure 38 The holistic model of Strategic Context Determination process.

The internal selection environment, together with the external ecological forces and the company’s will and ability to respond to those forces influence how the ambidextrous entrepreneurial innovation activities lead to Strategic Outcomes and persistent traces in the Realized Strategy of the firm.

Overall, the productive effect of ambidexterity builds on a purposeful enactment in the organizational reality. Fixed management principles fall short when giving guidance on how to lead ambidexterity. Leading ambidextrous activities for the strategic benefit of the company calls for awareness of the strategic challenges of the company and the regularities of ambidexterity.

On the corporate level, the strategic sensitivity, resource fluidity and leadership unity resonate well with the challenges of turning ambidexterity into innovations and strategic renewal within the company. A holistic understanding of the processes, by which the ambidextrous innovation activities create innovations and renew Strategy

7 The principles of Strategic Agility (Doz and Kosonen, 2009)
complemented with the principles of Strategic Agility, enable the company to harness its organic innovation potential to full. Recognizing the merits of linear, transforming and experimenting innovation pattern respectively and applying them accordingly enables the company to optimize its activity portfolio in line with its Strategic challenges. A specific understanding of the regularities and critical success factors in each innovation pattern helps to foster their productive and renewing effect. The Integrated Process Model of ambidexterity provides a conceptualization for actualizing ambidexterity to the Strategic benefit of the company.

Finally, achieving the full innovation and renewal potential of ambidexterity assumes that the actors of the organization strive for the benefit of the company. Such determined, altruistic behavior is best achieved in an organizational context characterized by high levels of discipline, stretch, trust and support (Ghoshal and Bartlett, 1994). Fostering these positive leadership attributes is not black magic. Tangible management actions are integral in creating a positive organizational context for innovating (Ghoshal and Bartlett, 1994).
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APPENDIX 1  THE THEMES AND QUESTIONS OF THE INTERVIEWS

The Themes and Questions of the Interviews
18.08.2009/ Seppo Laukkanen

Background information of interviewee:
- Age
- Education
- Professional background (Overall, at Nokia)
- Competence strengths
- Professional networks (At Nokia, overall)
- Personality characteristics and working style

Innovation Project:
- What was done?
- How were the targets set for the assignment?
- How were the targets articulated?
- Did the targets evolve and how?
- How was the assignment defined?
- How was the specification set or how did it evolve?
- How was the way of working defined?
- Main phases of development? The overall innovation process?
- How the selected way of working supported was supported by the organization, working traditions and availability of resources?
- Commercial effect of the project?
- Strategic impact (position, learning, technology asset) of the project?
- Key inventions and novel things implemented by the project?
- The sources of key inventions? Where did they come from?
- How did the inventions evolve/develop during the project? Main challenges?
- How did the integration take place? Main Challenges?
- How was complementary business system created?
- Critical Success factors of the innovation project?
- In general terms, how do you see, what are the success factors of innovation initiative?

How was the assignment organized and governed:

Project team
- Structure of team
- Management practices
- Ownership of resources
- Main strengths and challenges

Innovation networks
- Sources of innovation
- Deployment networks
- Management practices
- Main strengths and challenges

Leadership and governance
- Project team
- Networks
- Executive owners
- Managing upwards and horizontally
- The order of importance of above from the viewpoint of success of assignment
- Main strengths and challenges in leadership and governance

**Strengths and weaknesses arising of multinational presence?**

- Geographical presence
  - Project
  - Innovation networks
  - Deployment networks
- Strengths and opportunities arising of the presence
- Weaknesses and challenges arising of the presence
- How was the physical distance managed?


