

TNO Information and Communication Technology

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TNO white paper

Increasing the innovation performance of fixed-mobile operators

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Main messages

Many established multidivisional organizations struggle to keep up in the innovation race. This study therefore sought to determine how to enhance the innovativeness of fixed-mobile operators by means of synergetic cooperation between the divisions. Based on an extensive literature review and an interview-based case study of four incumbent fixed-mobile operators (Belgacom, KPN, Telekom Austria and Telenor), the following conclusions have been drawn.

For fixed-mobile operators, there is synergy to be gained with respect to innovation. A synergistic relationship between the divisions is a potential source of competitive advantage for fixed-mobile operators over mobile-only or fixed-only operators. The business environments of fixed and mobile divisions have grown more similar over the last five years, which has led to a higher willingness to cooperate and interact. The following areas are mentioned for which sharing information and coordination is beneficial:

- Product and technological knowledge and skills
- Customer and market knowledge
- Managerial knowledge and skills
- Coordinated partnering
- Strategy knowledge, to mutually challenge conventional wisdom.

However, trying to realize synergy is associated with cumbersome, time-consuming efforts, presumably resulting in dissynergy. The reason for this perceived dissynergy lies in the fact that the costs of realizing synergy are very visible (meetings, processes, cumbersome decision-making), while the benefit (increased innovation performance) is difficult to measure and relate to the efforts. This however does not mean the benefit isn't there.

Planned reorganizations may in the long run prove ineffective. Reorganizations create new organizational boundaries which in time will lead to similar problems as those that the reorganization was meant to solve.

Instead, softer means of coordination should be used to realize innovation synergy. Fostering personal networks, active job rotation programs, a culture that favours group interest over divisional interest and the presence of linking-pins are crucial. Other means that could be used are regular presentations on innovation, having project teams maintain web-logs and the implementation of an information system with information on (where to find) knowledge and innovation activities, accessible to all hierarchal levels.

A review of organizational roles and responsibilities is needed. Among the case companies, there is generally agreement on the roles that the various organizational layers should have with respect to innovation:

- Top management should create an awareness of the importance of innovation, provide guidelines for strategy and continuously challenge the status-quo.
- The corporate office should formulate and monitor the strategic guidelines, be outward looking for disruptive innovations and contribute positively to knowledge transfer between the divisional innovation activities. Business idea

competitions initiated by the corporate office (as implemented by Telenor and KPN) can develop into important drivers for joint innovation.

- Instead of just being implementers of top-down decisions, front-line management and the work floor should (be stimulated to) identify and pursue new opportunities and generally have the initiative with respect to (incremental) innovation as entrepreneurs.
- Middle management should be responsible for “removing bottlenecks that new, bottom-up initiatives may encounter” and act as a horizontal information broker to coordinate the work laterally among divisions.

Organizational diversity stimulates innovation, but at the same time bears the risk of reduced trust and cooperation. This paradox can be resolved by extensive use of multidisciplinary “Tiger-teams” (as used by Belgacom). Alternatively, the open innovation model allows operators to rely on external partners for innovation, avoiding the need to have all required expertise and diversity in-house. To be able to leverage organizational learning and avoid loss of knowledge to a supplier, **partnerships should be clustered and managed in groups**. For this, various categorisations are suggested in this whitepaper.

Strategic management control and entrepreneurial incentive schemes are key to achieving innovation synergy. All four fixed-mobile operators studied are mainly financially controlled. However, using financial controls leads to a reduced propensity of divisional management to entrepreneurial risk taking, long-term thinking and investments in innovation. Strategic controls are therefore preferable. Increasing competitive pressures and synchronization of the divisional business cycles will push fixed-mobile operators to adopt a joint incentive model. Innovation targets should explicitly promote cross-divisional synergy and knowledge sharing. Telekom Austria uses among others “perceived innovativeness” (measured in regular customer surveys) as performance indicator. Such a measure makes sense, because it is proven to be highly correlated to “innovativeness”.

Contents

| | | |
|----------|--|-----------|
| 1 | Introduction | 5 |
| 1.1 | Situation..... | 5 |
| 1.2 | Complication | 5 |
| 1.3 | Question..... | 5 |
| 2 | Detailed findings | 6 |
| 2.1 | For fixed-mobile operators, there is synergy...with respect to innovation | 6 |
| 2.2 | However, trying to realize synergy is associated with cumbersome efforts..... | 7 |
| 2.3 | Planned reorganizations may in the longer run prove ineffective | 7 |
| 2.4 | Instead, softer means of coordination should be used to realize innovation synergy | 8 |
| 2.5 | A review of organizational roles and responsibilities is needed..... | 8 |
| 2.6 | Partnerships should be clustered and managed as groups | 9 |
| 2.7 | Diversity can be exploited with multidisciplinary teams or open innovation | 9 |
| 2.8 | Strategic management control and entrepreneurial incentive schemes are key..... | 10 |
| 2.9 | Other innovation-intensive industries may provide additional and useful lessons.. | 11 |
| 3 | Background information..... | 12 |
| 3.1 | Research design and methodology | 12 |
| 3.2 | References | 12 |
| 3.3 | Some other key readings | 13 |
| 3.4 | Affiliations of investigator | 13 |
| 3.5 | Contact information..... | 13 |

1 Introduction

1.1 Situation

The importance of innovation for a firm's performance is generally acknowledged. For, example, Somerlatte (2004) showed that companies achieving superior growth in terms of shareholder value and sales are in most cases the ones that also demonstrate the highest sustainable innovation performance.

1.2 Complication

Established companies are constantly threatened by new entrants applying new, potentially disruptive technologies and benefiting from their flexible organizations. Even though established multidivisional companies have substantial resources available, they often struggle to keep up in the race for the future. Apart from coping with the tension between exploration and exploitation, multidivisional organizations also have to deal with the dilemma between centralization and decentralization of their innovation efforts. Additionally, even though innovation thrives on diversity, diversity in case of diversification could lead to strategic misalignment. An example here is the failure of Sony to build on the success of the walkman in the age of digital music players, losing the battle from Apple due to the vested interests of Sony Music, its content division.

Incumbent fixed-mobile telecom operators struggle with similar issues. Lack of transparency in the organization results in a misalignment of innovation strategies, overlapping innovation efforts and a lack of coordination of the relations with external innovation partners.

1.3 Question

This study therefore sought to determine how to enhance the innovativeness of fixed-mobile operators by means of synergetic cooperation. The central question was:

Given a certain synergy potential in a multidivisional organization, how can interdivisional synergy with respect to innovation be realized?

Determining exactly which governance structures and which interactions are appropriate for realizing synergy with respect to innovation was the main focus. Based on an extensive literature review and an interview-based case study of four incumbent fixed-mobile operators (Belgacom, KPN, Telekom Austria and Telenor), this whitepaper summarises the answers that were found.

2 Detailed findings

In this chapter, the potential for innovation synergy within fixed-mobile operators is made plausible. Then, current efforts used by fixed-mobile operators to realize this synergy are described. The major part of this chapter identifies and describes measures that management can take to realize innovation synergy more effectively.

2.1 For fixed-mobile operators, there is synergy to be gained with respect to innovation

Although among the interviewees there is considerable disagreement about whether or not it is possible to realize synergy with respect to innovation, previous research is clear on this. Firstly, divisions in high-performing firms communicate more with each other than those in low-performing firms, and best practices are deployed with greater frequency across groups. Secondly, innovation performance depends on the frequency, density, and the quality of interactions within the organization. Even though different levels of interaction are appropriate for different companies at different stages of their life cycles, the fact that the business environments of fixed and mobile divisions have grown more similar over the last five years, leads to a higher willingness to cooperate and interact.

Synergy is a potential source of competitive advantage for fixed-mobile operators over mobile-only or fixed-only operators. Even though the open innovation model may reduce the intrinsic advantage that multidivisional companies have when it comes to innovation, the fact that tacit¹ knowledge is difficult to share across market boundaries may make the remaining advantage sustainable. In literature and the interviews, the following areas are mentioned for which sharing information and coordination is beneficial:

- Product knowledge: for example, it is felt that the mobile division can benefit from the fact that the fixed division has more knowledge of complex products and solutions (e.g. for the business market). On the other hand, Fixed can profit from Mobile's knowledge on handheld devices.
- Customer knowledge: by combining the partial insights that both divisions have of the customer's telecom needs, fixed-mobile operators can offer more attractive, bundled services and a one-stop shopping experience. Such cooperation may however be subject to regulatory restrictions. In any case a customer-centric approach requires propositions that are beyond the scope of a single division (especially so for the business market).
- Managerial knowledge and skills: best practices with respect to managing content partners and the innovation processes itself, customer-driven innovation, managing growth markets (past experience of mobile that is now applicable to new business areas of the fixed division) or managing saturating markets (the other way around), managing roaming agreements etc.
- Coordinated partnering: besides sharing best practices with respect to partnering, a close coordination and joint approach towards partners makes the company a more interesting partner for other innovating companies. This can result in a central position in the overall innovation network, which according to previous studies is key to the innovativeness of companies.

¹ Tacit knowledge is knowledge that is hard to share because it cannot be codified. It can only be transmitted via training or through personal experience

- Technological knowledge and skills: most importantly, the evolution towards IP-based networks and services offers significant potential for synergy and facilitates communication and cooperation. Other areas include new developments such as RF-ID tags, digital TV etc.
- Market knowledge: sharing knowledge on mutually relevant market developments such as the trend of fixed-mobile substitution versus fixed-mobile convergence, and the trend of increasing individualization (which Mobile has more experience with) will benefit both divisions.
- Strategy knowledge: established operators such as incumbent fixed-mobile operators generally suffer from a certain kind of group think and blindness for significant, disruptive new developments. By confronting each other with strategic visions and insights, the dominant logic within each division can be challenged, forcing management to think beyond its divisional context.

2.2 However, trying to realize synergy is associated with cumbersome, time-consuming efforts, presumably resulting in dissynergies

In this study, interviewed managers emphasized the cost side of actually realizing the synergy potential, as it is associated with formal processes, long meetings, cumbersome and time-consuming decision-making, and complex reorganizations. There seems to be the assumption that these costs do not outweigh the benefits as mentioned before. However, two counter-arguments can be made:

- For management, the costs of realizing synergy are very visible and tangible (meetings, processes, cumbersome decision-making), while the benefit (increased overall innovation performance) is difficult to quantify and measure. This however does not mean the benefit is not there. Moreover, it seems that an indirect, self-enforcing effect (more communication and interaction lead to mutual understanding, more trust, then willingness to share information and more information exchange, and ultimately a higher innovation performance) is being overlooked.
- There is a lot of causal ambiguity regarding the issue of communication and interaction on one hand, and innovativeness on the other hand. This ambiguity obscures beneficial effects.

2.3 Planned reorganizations may in the longer run prove ineffective

Planned reorganizations (i.e. changing from a fixed-mobile alignment to a consumer-business market alignment) create new organizational boundaries which in time will lead to the same problems as those that the reorganization was meant to solve, even though they are likely to temporarily create a dynamics that indeed will facilitate more linkages and thus more synergistic innovation. This point can be illustrated by a recent quote from Steve Ballmer (CEO Microsoft): “everyone likes to differentiate between business and consumers, but I don’t see the difference really. Most people are people”. It is not unlikely that a business-consumer convergence trend will develop following the current fixed-mobile convergence trend. Note that besides the consumer-business and fixed-mobile organizational axes, a third axis exists: national-international. For instance, Telenor and Telekom Austria, the most internationalized of the four case companies, primarily focus on achieving synergy between their national and international mobile units.

2.4 **Instead, softer means of coordination should be used to realize innovation synergy**

The first association of synergy with processes, meetings, and reorganizations is not complete. Other, “softer” means to achieve synergy could be used. Frishammar *et al.* (2005) note that managers should focus on encouraging personal communication and information exchange through collaboration; impersonal communication seems to have a detrimental effect. Fostering personal networks, active job rotation programs, a culture that favours group interest over divisional interest and the presence of linking-pins, are crucial. Such softer means are also more suitable for sharing tacit knowledge, which cannot be documented, or exchanged in formal meetings. In practice however, it seems that such means are hardly used.

An additional “harder” means of coordination that could be used is to regularly organize open lectures, freely accessible presentations on innovation held by employees, or to have project teams maintain web-logs to inform the organization of ongoing activity. Also, the implementation of an information system that makes available to all hierarchal levels information on (where to find) knowledge and innovation activities is advisable. The challenge is however to keep such a system up to date. Also, its usage should be actively stimulated, e.g. by coupling it to a company-internal messaging and presence service which includes a knowledge and activity profile of each employee.

2.5 **A review of organizational roles and responsibilities is needed**

Generally speaking, there is not one best way of organizing with respect to innovation. Regarding disruptive innovations and major new business areas, there is agreement about having a centralized unit to initiate such developments. Such a unit is in a better position to spot new, external developments, and will experience less political obstacles that may arise when innovations go against vested interests. With respect to incremental innovation, a more decentralized approach is preferable. According to Bartlett *et al.* (1990), reciprocal interdependence between the divisions helps to deal with the dilemma of centralization (efficiency) and decentralization (effectiveness).

There was considerable agreement between theory and practice with respect to the roles that the various organizational layers should have with respect to innovation:

- Top management should create an awareness of the importance of innovation, illustrate this by communicating appealing examples and provide general guidelines for strategy. Also, top management should continuously challenge the status-quo.
- The corporate office should formulate and monitor the strategic guidelines, be outward looking (for disruptive ideas and M&A opportunities), behave like a venture company and contribute positively to knowledge transfer by acting as nerve centre among divisional innovation activities. It should focus on “strategic technology management” (Coombs and Richards, 1993) to:
 - o analyze the structure of the overall knowledge portfolio,
 - o ensure that a competence is known and available to other potential users in the group,
 - o identify competencies which straddle business, and strengthen them through horizontal linkages (e.g. establish personal networks or set-up joint project teams,
 - o consider the overall technology portfolio and representing this in the broader strategic management process of the company,

- play a contributory role in the establishment of external collaborative technological linkages with other firms and universities.

New business development activities initiated by the corporate office, such as business idea competitions (as implemented by Telenor and KPN), can develop into important drivers for joint innovation.

- Instead of just being implementers of top-down decisions, front-line management and the work floor should (be stimulated to) identify and pursue new opportunities and generally have the initiative with respect to (incremental) innovation as entrepreneurs. Barriers should be lowered, for example by introducing a website for collecting new ideas as Proximus did with its www.roomforideas.be website.
- Middle management should be responsible for “removing bottlenecks that new, bottom-up initiatives may encounter”, act in a liaison capacity to coordinate the work laterally among divisions (horizontal information broker), and act like a champion to these initiatives by “selling new ideas to top management”.

2.6 Partnerships should be clustered and managed as groups

To avoid e.g. failure to leverage organizational learning or unintended loss of knowledge to a supplier, innovation partnerships should be clustered and managed in groups. In general, the interviewees feel that only more strategic partnerships should be coordinated on corporate level whereas operational partnerships should be dealt with on divisional level. An alternative way to group partnerships and allocate their coordination is to set up innovation-sourcing channels, i.e. manage the relationships as groups. Five types of external innovation channels can be mentioned (Linders *et al.*, 2003) and should be managed as groups:

- buying innovation on the market (universities, private research labs),
- investing in innovators,
- co-sourcing; companies sometimes band together to share costs e.g. in the form of consortia, or joint ventures,
- community sourcing, tapping into loosely connected communities of sophisticated users (the Japanese mobile operator NTT DoCoMo for instance employs this to expand the information it distributes over its i-Mode service),
- re-sourcing, in which own research staff is supported by contracting with outside suppliers for on-demand talent and innovative new tools.

Investing in innovators (venturing) and co-sourcing (for which achieving a central position is important) are better coordinated at corporate level, whereas the other groups should be left to the divisional level. Such a categorisation into five groups facilitates learning. Interviewees for instance indicated to experience difficulties when interfacing with small innovative players, whereas partnering with vendors and universities was considered fairly straightforward. Recognizing the differences between such partnerships is a first step in learning to deal with them in different, more appropriate ways. A third way of dealing with the coordination of partnering is by distinguishing between partnerships serving the business market and partnerships serving the consumer market (coordinated by the respective departments). A case study into companies that deal with partnering in such alternative ways would allow more insight in this matter.

2.7 Diversity can be exploited with multidisciplinary teams or the open innovation model

Diversity has a somewhat paradoxical characteristic when considered in the light of synergistic innovation. Diversity clearly is a driver for innovation and offers

potential for synergy by giving an organization the possibility to exploit differences in skills and knowledge. At the same time, it complicates the realization of synergy as it can lead to distrust and reduced socialization. Belgacom Group Strategy is successful in dealing with this dilemma by using multidisciplinary “Tiger-teams”, temporary project teams consisting of members of Group Strategy and the divisions. Another way of dealing with this paradox would be to heavily rely on the open innovation model. The more an operator can rely on external partners for its innovation, the less need there is to have all required expertise and diversity in-house, which leaves a more homogenous and focused organization.

2.8 Strategic management control and entrepreneurial incentive schemes are key

Multidivisional organizations have a natural tendency to rely on financial controls (i.e. objective financial performance measures, controls and incentive systems). In highly diversified companies it is simply impossible to assess performance based on strategic controls (i.e. more subjective modes) since that would require operational knowledge of all businesses (Hoskisson, 1993). However, the flip-side of using financial controls is a reduced propensity of divisional management to entrepreneurial risk taking, long-term thinking and investments in innovation. Subjective and strategic controls are preferable, as they do not lead to opportunism and dysfunctional behaviour. Oddly, all four fixed-mobile operators studied are mainly financially controlled, even though they are highly *related* diversifiers. Financial control would not be needed in that case, and only brings the mentioned disadvantages. Top management of fixed-mobile operators should use their operational knowledge of the telecom business to avoid steering on financial controls. It has access to information which is more abundant and of superior quality than that available for external capital markets. Using this strategic, subjective information allows corporate managers to outperform the capital market, which is essential to compensate for the corporate overhead of a multidivisional company. Concluding, using strategic controls, based on richer, more subjective performance data, would improve synergistic innovation.

Increasing competitive pressures (*forcing* the divisions to join forces) and synchronization of the divisional business cycles (*allowing* the division to join forces) will push fixed-mobile operators to adopt a joint incentive model instead of the current separate targets and incentives leading to internal competition (for instance with respect to fixed-mobile substitution). In any case, innovation targets should explicitly promote cross-divisional synergy and knowledge sharing (e.g. by introducing a “Not invented here, but I did it anyway” award).

Telekom Austria uses among others “perceived innovativeness” (measured in regular customer surveys) as performance indicator. Such a measure makes sense, because it is proven to be highly correlated to “innovativeness”. Also, if a company is perceived by the market as being innovative, it is also seen as an attractive innovation partner, resulting in a central position in the innovation network, which in turn increases innovativeness.

Most interviewees state that the innovation process should not be heavily formalized, and prefer a lightweight process and entrepreneurial model. Such an entrepreneurial model requires clear incentives for innovative initiatives on work floor level, but also a suitable culture (with room for mistakes, little hierarchy and willingness to take risks).

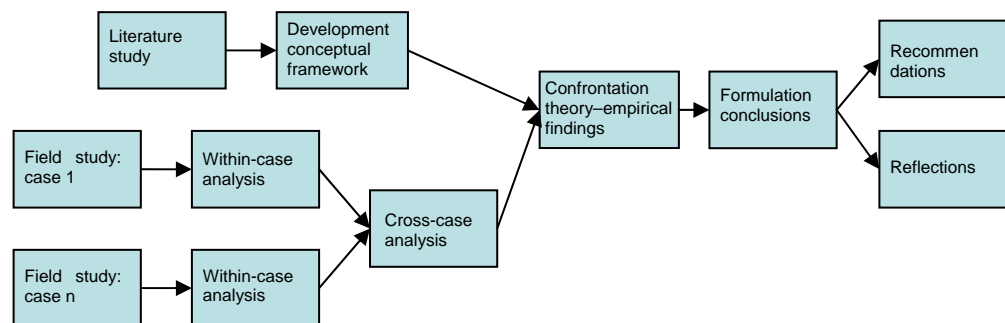
2.9 Other innovation-intensive industries may provide additional and useful lessons

This study has only focused on fixed-mobile operators in order to avoid generalizing when it is not justified. However, it may be worthwhile to look at other innovation-intensive industries. Just as operators are carrying out fixed-mobile convergence initiatives to increase the synergy between their main divisions, Philips for example has recently initiated the OnePhilips program, which is also about removing Chinese walls between the divisions and “unlocking synergy”. Studying this case could give interesting new insights that are also applicable to fixed-mobile operators (although generalizing the results should be done with care).

3 Background information

3.1 Research design and methodology

Corporate innovation performance is the result of numerous intertwined factors. It is not feasible to isolate precisely the contribution of synergy on innovation performance in a quantitative and objective manner. Therefore, a qualitative, subjective approach has been used in the form of an interview-based multi-case study design as reflected in the figure below. By use of existing theory and the replication logic of the multi-case design the validity of the findings is enhanced.



The theoretical part of the study was based on an extensive review of academic literature from the field of Strategic Management and Innovation Management. More specifically studies on diversification and corporate synergy, innovation-drivers and how to measure innovation, and on innovation in large, multidivisional, established and/or post-modern organizations have been reviewed, totalling over 100 references. Based on this literature study, interview guidelines were developed. The case study was largely interview-based. Interviewees were selected for their division-wide or group-wide overview on the matter of innovation. In most cases, interviewees fulfilled positions such as Director Strategy and New Business, Director Innovation, Manager Innovation or Director Technology Strategy. As much as possible, the managers responsible for innovation from Group, from Fixed and from Mobile level were interviewed. Four organizations participated:

- Belgacom Group, Belgacom Fixed Line Services, Proximus
- KPN Corporate Center, KPN Fixed Division, KPN Mobile Division
- Telenor Group, Telenor Nordic Fixed
- Telekom Áustria Wireline, Mobilkom

These companies had been selected because of their similarity in terms of size, market position and R&D expenditures. In total, 14 managers were interviewed

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3.4 Affiliations of investigator

This study was conducted by Bart-Jan Sweers, business consultant at TNO Information and Communication Technology and affiliated to the RSM Erasmus University:

- About RSM Erasmus University (www.rsm.nl): As one of the world's top business schools, RSM Erasmus University is a centre of excellence and innovation for management education and research. Continuing tuition in the fundamentals of business with the latest in global knowledge and best practice, RSM Erasmus University offer an array of degree and executive education programmes – empowering individuals to succeed amid the complexities of modern international commerce and become the business leaders of tomorrow.
- About TNO (www.tno.nl): TNO is a not-for-profit knowledge organization for companies, government bodies and public organizations. TNO's mission is to make scientific knowledge applicable in order to strengthen the innovative capacity of business. The daily work of some 5,000 employees, of which 350 are working in the field of ICT, is to develop and apply knowledge. TNO provides contract research and specialist consultancy. Also, TNO tests and certifies products and services, issues an independent evaluation of quality, and sets up new companies to market innovations.

3.5 Contact information

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