Thesis by ir. J.W. te Winkel

Growing Large while

Staying Small:
Spinning-off as an Organizational Strategy

POWERED BY TOPICUS

Cover

According to the Cambridge dictionary:

spin-off noun [C]

1. a product that develops from another more important product: The research has had spin-offs in the development of medical equipment.
2. a program or other show involving characters from a previous program or film: The stage show is a spin-off from a television program.

A spin-off therefore is not only a new organization, but it is also a by-product. The title page shows the logo of Topicus' Gifkikker, a beer created by Topicus. The Gifkikker is one of Topicus' by-products or spin-offs. Another spin-off is this thesis, which describes how Topicus grows large while it stays small.

Growing Large while Staying Small: Spinning-off as an Organizational Strategy

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of Master of Science at
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Summary

Growing large while staying small is the motto of the young innovative software house, Topicus. Topicus implemented this motto through separating its organizations when they become too large, by the use of spin-offs. Topicus is very successful with this organizational strategy. It has grown from two until nearly 75 employees and produced three spin-offs in eight years time. This success is not only realized by the organizational strategy, Topicus also developed a product strategy. This product strategy is focused on becoming a network integrator, by developing application services for all actors in a specific sector.

Nevertheless, both strategies are not explicitly designed for growth. In addition, these strategies are very different from strategies of other software houses and some problems arise when combining both. This research therefore examines the success of both strategies and improves it where possible.

This investigation starts with the creation of a theoretical background that explains the strategies' success and growth. Literature shows that through spinning-off: personnel is very motivated, an entrepreneurial climate is developed, a very flexible organizational structure is created, and it is a efficient way for entering immature markets. Because it is possible to transfer knowledge, the spin-off can become successful quickly. By developing applications for a specific network, Topicus optimizes the network and reduces the costs made by the organizations in it. In addition, an software house that develops applications for a specific network profits from knowledge, reusability, reputation, and the network effect. These advantages make it easier to sell applications.

With this background information, Topicus' development is analyzed. Topicus' history shows that all spin-offs started with qualified employees and a launching customer. In the spin-off's first year it continued working together with the parent. It shares the same building,

hires employees from the parent and acquires new projects with the parent. After this year, it is possible to separate entirely because new employees are hired and developed themselves, a first application is finished from which knowledge and/or software can be reused, and a reputation has been established. With this strategy, Topicus realized a unique advantage, the focused spin-offs, and several strategic assets, such as qualitative software. However, these successes come in danger when Topicus' organizations become too large, because it harms the entrepreneurial climate, agile programming becomes difficult, and the development of personnel slows down. Because employees tend to start for their own, when an organization becomes too large, a new spin-off will be created. Therefore, this process repeats and maintains itself.

In this research, an improved strategy is discussed. Topicus investigates new markets for optimization opportunities, on which it bases its spin-off decision. This investigation can be used to create an optimized network approach. When the spin-offs start with small projects that have reusable components, it enables quicker cash flows, needs fewer employees, and can easier attract new customers. This improvement is used for developing a new strategy. This strategy states that with every new customer the possibilities of spinning-off should be investigated, instead of waiting until the organization has grown until 25 employees. It is possible to spin-off if there is a motivated entrepreneur, the parent has several qualified employees available, sufficient financial capital is at hand, and the parent's network is not saturated. This new strategy is an improvement of the current one, because it stimulates organizational growth, opportunities are better thought over, reusability is improved, and applications are sold easier.

However, if Topicus would have applied this strategy from the beginning, it would not have led to much differences. This strategy would have postponed the separation of Finance, because Topicus did not have a network for itself at the time, and the separation of Healthcare in Care and Cure could have been realized yet, instead of beginning next year.

Preface

This thesis describes the final project of the master study Innovation Management, a track within Business Administration. This project is carried out for Topicus, an innovative ICT service provider in Deventer.

I was interested in Topicus because of my computer science background and a presentation I attended a few years ago in which Topicus' business concept and its innovative objectives were explained. After this presentation, I applied to Topicus for a graduation project for Computer Science. Unfortunately, this was blocked by the university because I needed to carry out an internal assignment.

To graduate for Business Administration I again applied to Topicus. Topicus came up with an interesting assignment within a week, which I accepted. Topicus' objective of this research was to see its success-factors on paper. This objective comes from the personal interest of my supervisors at Topicus and to explain to new personnel where Topicus stands for.

Topicus referred to the books about the success of Ikea and Google. It bought the books of these major innovators and I read them. I found them very interesting, and saw some remarkable similarities between the success of these innovators and Topicus. Because of this, I use some quotes in this thesis from the founder of IKEA and one of the richest men alive: Ingvar Kamprad.

With this chapter, I want to thank all the people who helped me with this project. Special thanks to my supervisors from the university, Daniel Moody and Chintan Amrit, for helping me with my thesis. Especially, the ideas concerning this research's objective, the provision of useful literature, and the coming up with the interesting closing, have really improved this report. Also, thanks to my supervisors at Topicus, Harry Romkema and Joost van Beek, for coming up with this research proposal, and the input and comments at this thesis. Last,

I want to thank all my colleagues for helping me with my English, Latex, and useful ideas.

Next week, a paper of this research will be submitted to the European Conference on Information Systems 2008. If this paper is accepted, possibly a trip to Ireland will be made next summer. If it is not accepted, this research is my last scientific contribution because December 1 I start working at Topicus.

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Johan Willem te Winkel

November 23, 2007

Enschede, The Netherlands
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Introduction

"It was our duty to expand. Those who cannot or will not join us are to be pitied. What we want to do, we can do and will do, together. A glorious future!"

Ingvar Kamprad - Founder of IKEA

Topicus is an innovative software house, which realized an exceptional growth. It is established by two entrepreneurs in 1999. Currently, it employs 75 people and has a turnover of 10 million euros. It realized this growth even throughout the bad tendency of the market.

Topicus accomplished this growth in a unique way. It develops application services in small and separate organizations. Its expansion is therefore characterized by the origination of three new organizations, Topicus Healthcare, Topicus Education, and Topicus Finance.

This strategy differs from the growth strategies of large it-organizations as, for instance, Google and Microsoft, which grow as one large organization. When these large software houses have the possibility to extend their business by acquiring other organizations they do not hesitate [Wirtz, 2001].

The objective of this research is to explain how this particular strategy made Topicus' so successful and improve this strategy even further. To do this, this chapter describes Topicus and its stated strategy more extensively. After this, the objective of this research is presented in the form of a main and several sub-questions. This chapter ends with an approach for finding an answer to these questions.

Johan te Winkel

1.1   Topicus

Topicus is an innovative ICT service provider in the sectors Finance, Healthcare and Education. It is specialized in supply chain integration, knowledge management, and process management for which it offers application services.

Topicus is very ambitious and currently very successful. It is founded in 1999 and employs approximately 75 people. It achieved high ranks in the Deloitte Technology Fast 50 for four years in row, and was number one in 2004. Compared to its competitors, such as Ordina and Getronics, Topicus is still a small software house. Those companies are 50 to 100 times as big. Growing is Topicus' main goal, which is reflected in its mission: "Becoming a major player in the software development market, but staying small in order to guarantee quality and service". Topicus fulfills this mission by serving several niches with small organizations. It believes that a small company is good for its culture, the manageability and that it can really specialize to its complex environment. Quality of the products is achieved by developing software through an agile process. This means that:

- Functionality of the product is described concisely in the design phase;

- This functionality is divided over project iterations of two or three weeks;

- A multi-functional project team realizes a prototype at the end of every iteration, because of this, the customer has insight in the process and problems can be identified in an early stage;

- Testing is carried out in an integrated way.

Software development is different from other things that humans make in three ways [Pressman, 2000]:

- Software is developed or engineered and not manufactured;

- Software does not wear out;

- Although the industry is moving toward component based assembly, most software continues to be custom built.

Software is similar to industries such as newspaper publishing, television broadcasting, and lecturing because of the the high fixed costs and low variable costs. Nevertheless software companies need to consider the costs of maintenance, marketing and serving different customers [Liebowitz and Margolis, 1999].

The resources needed for developing a software application are [Pressman, 2000]:

People: Different organizational positions, e.g.: manager, senior, and junior, and specialties, e.g.: analyst, developer, tester, are required for a project. Software development

is a complex job, therefore Topicus uses well educated employees.

Reusable software components: Using existing components can reduce the time and costs of developing a software application and improve the quality of the product because these components are often tested well. Reusing software is possible because it is easy to combine [Wirtz, 2001];

Hardware and software tools: Developing software applications requires computers with development tools.

Topicus' core business is developing services and creating applications for it. These services are delivered over a network on a subscription basis. This delivery model speeds implementation, minimizes the expenses and risks incurred across the application life cycle, and overcomes the chronic shortage of qualified technical personnel available in-house [Comptia, 2007]. Other tasks are outsourced as much as possible. For instance, the hardware for the applications is provided and maintained by Syconos. Topicus has a share in the organizations on which it depends.

Creating new organizations and outsourcing many activities increases the complexity of Topicus' organizational structure. Figure 1.1 and Figure 1.2 show the different organizations that are spin-offs of Topicus and the organizations to which Topicus out sources tasks.
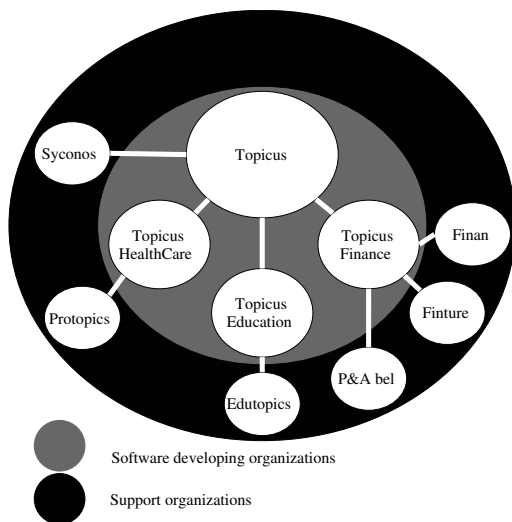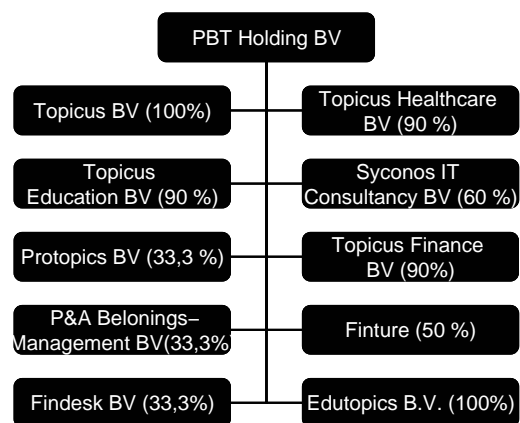

Figure 1.1: Topicus' organization structure

Figure 1.2: Topicus' organization chart

1.1.1   History

The particular way in which Topicus pursues its mission has grown from earlier experience. Before Topicus was started, two of its directors owned another software organization, Utopics.

Utopics started as a spin-off of the University of Twente. It was specialized in knowledge management, database technology, and reusable software. It created innovative IT-solutions for projects that were considered utopian by using proven techniques. It succeeded every time.

Utopics became very successful, and grew from 2 to 60 employees in six years. Nevertheless, Utopics' customers were not pleased with their dependence on such a small organization. Because of this, the owners sold Utopics to Ordina.

Ordina is a software company with at the time approximately 3500 employees. After the directors served several years as members of the board of directors of Ordina, they became frustrated by the bureaucracy of such a large company. Because of this, they left Ordina and started a new organization again in 1999, this was Topicus.

Topicus started in Enschede in the Netherlands as an advice agency. In 2001 it started developing software, just after the internet market collapsed and many dotcom companies went out of business. In the same period, it moved to Deventer because Deventer is centrally located in the Netherlands.

1.1.2   Topicus' Strategy

The past experiences of the directors resulted in two strategies. An organizational strategy focused on preventing bureaucracy and a product strategy focused on selling applications. These two strategies will be explained briefly.

Organizational strategy

Topicus' stated organizational strategy focuses on becoming a multiple niche player. It accomplishes this by creating organizations that are goal focused and innovative. According to Topicus to become an effective niche player, the ideal number of employees is 25. If the organization exceeds 25 it becomes a mature organization, which tends to lose its opportunism and requires professionalism in its management and policy. Therefore, Topicus wants to keep their organizations in the phases of pioneering and developing, which offers specific characteristics; it is for instance more flexible and can be lead by an ambitious entrepreneur. The goal attainment of such an organization is stimulated by letting some

employees participate in the different organizations. This form of participation is similar to a partnership, which is common in law firms, and inlines organizational goals with personal goals. However, this organizational form is difficult to steer. In this way, Topicus develops several organizations that can work together when possible, but which are all responsible for their own profit. The following points summarize how Topicus wants to become a multiple niche player:

- Create goal focused and innovative organizations. These are characteristics of pioneering and developing organizations, so the way to do this is by creating spin-offs;

- Stimulate goal alignment by offering employees shares in the corresponding spin-offs;

- Support other Topicus organizations when possible but every unit is responsible for its own profit.

Product strategy

Topicus' stated product strategy focuses on becoming a network integrator. Within a particular market, Topicus tries to attain a strategic position by performing projects for all actors in the chain. When the projects unite, Topicus has the possibility to make changes and therefore act as a director of the network. To enter a market Topicus develops a vision how it can optimize such a network. With this vision applications are sold. The development of the applications is done in collaboration with customers because projects need steering and customers want a specific solution. Nevertheless, customers are not interested in making large investments, but prefer to pay for use. Therefore Topicus provides the software in the form of a service. In this way, Topicus stays the owner of the application so it can be reused for other applications in the same network. The following points summarize this strategy:

- Develop a vision concerning the network;

- Try to develop applications for the entire network so optimization is possible;

- Develop applications in cooperation with customers;

- Sell them as a service and therefore stay the owner of the application.

1.2   Problem identification

The product and the organizational strategy of Topicus are developed independently. However, the relationship between both strategies is becoming more important.
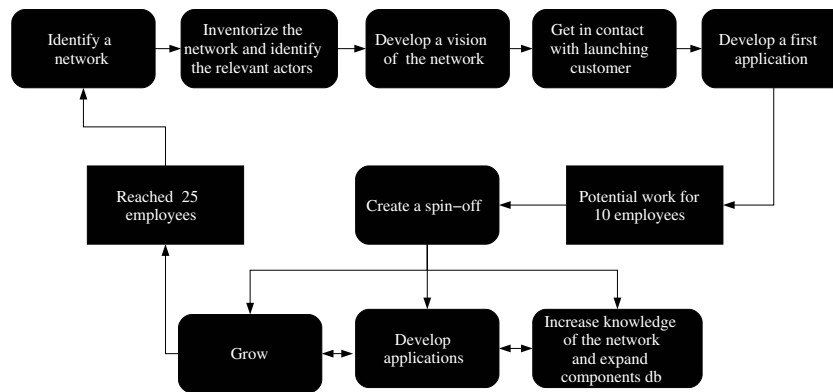
Figure 1.3: Topicus' development process

The objective of Topicus' organizational strategy is to stay manageable, retain its culture, and by this offer a qualitative service to its customers. Throughout the growth of Topicus, the spin-offs developed themselves toward particular niches for which they created applications. By focusing on a niche, new opportunities appear and therefore the Topicus spin-offs stay in the particular network. This shows that the organizational strategy interrelates with the product strategy, because they separate the organization to improve the focus on a network for selling applications.

The other way round, an application service provider offers applications to more then one company in order to earn as much money and attain as much control over the network as possible. Offering an application to more than one company requires a shared interest of both. This interest is the link between the companies in the network. Because the links are not always obvious, and developing applications for more than one company requires much resources, time, money, and knowledge, the project team's objective is to attain a strategic position in a particular network. Here again a link is seen between the product strategy, selling applications to more than one customer, and the organizational strategy, by focusing as a project team onto a specific network.

The interrelation of both strategies can be seen in the development process of Topicus, which is used as a guideline for Topicus' way of growing. A vision is created when a new network is identified. Based on the potential of the network a decision is taken to spin-off or focus on the network with the current organization. When the organization becomes too big, a new network is identified. Figure 1.3 shows this process.

Throughout Topicus' growth some small problems have occurred with these two strategies. The managers of the spin-offs are controlled by the market, this makes them short-term focused. Furthermore, working with different companies makes it expensive to share resources, because internal transactions are taxed. Last, both strategies are not developed

with the intention to grow, but this is Topicus' objective and an explicit element of its development process.

1.2.1 Main-question

The development process shows the interrelation between the organizational and product strategy. This process has the objective to create successful spin-offs by focusing on a network and developing applications for all organizations in it. It seems like these strategies are the reason for Topicus' success, but there are some problems when combining both. Improving this process will be the main-subject of this research. The main-question of this thesis is:

How to setup successful spin-offs by striving to become a network integrator?

The research-question contains several terms that are explained next:

Spin-off: Topicus' mission is to grow by staying small, in order to deliver quality of service. This mission is pursued by creating spin-offs. There are different kinds of spin-offs and different stages in which the spin-off can be. These differences are classified by the dimensions, type of parent, initiative from, transfer, support of parent, and degree of independence. The form of spin-off that Topicus creates is classified as a corporate spin-off.

A corporate spin-off is the division of an existing company into one parent company and one or more independent spin-offs. Often the spin-off is the start of a new economic activity. In many cases, formal and informal relationships between parent and spin-off remain after separation [Tübke, 2005].

Success: Success for Topicus is similar to growth. However, to sustain growth the selling of software is required, which eventually needs to result in financial capital. As mentioned earlier, Topicus sells software applications. These applications are not off-the-shelf packages, but they are sold as a service. By selling a similar service to many actors in a network, the profit is maximized. However, with this business-model, the actual return on investment may take a long time.

Network: A network is often defined as a patterned relationship between actors, such as individuals, groups or organizations. Hakansson and Snehota [1995] take a broader view of a network, which also links between activities in chains and resource ties, which together comprise a business network. This suits the concept of a network for Topicus.

Network integrator: A network integrator is an entity that has the power to steer a net-

work. When Topicus made one or more applications for different organizations in a network, other organizations in the network often need to follow. This means that more actors in the network become dependent of Topicus, so Topicus' central position in the network increases [Groen, 2005]. However, becoming such an integrator means that you need to have a powerful vision about strengthening the network, in which several organizations from the network want to invest. The objective that Topicus has with network integration can best be defined as a combination of network integration and technological integration such as Muffatto and Payaro [2004] define both terms. Muffatto and Payaro [2004] define network integration as the coordination of relationships in supply networks through information networks, and technological integration as the ability to control many company functions with information systems that interact with other systems using similar communication protocols.

1.2.2 Sub-questions

Figure 1.4 shows the objective of this research in a graphical manner. It contains the organizational strategy and product strategy and shows that they influence each other. They are not developed with growth in mind but do affect Topicus' mission.

In this research we want to investigate if and how both strategies contribute to Topicus' mission and come up with an improved strategy that combines both and contributes to its growth. This new strategy is an answer to the main question. The sub-questions in which we are interested are:

1. **How does Topicus' organizational strategy stimulate growth?**

2. **How does Topicus' product strategy stimulate growth?**

3. **How can both strategies be combined so they stimulate growth?**

1.3   Approach

With the following approach, an answer to the main- and sub-questions is found:

- Create a theoretical background that addresses Topicus' strategies and can explain its success and growth;

- Describe Topicus' development from 1999 until now;

- Use the theoretical background to investigate Topicus' development;
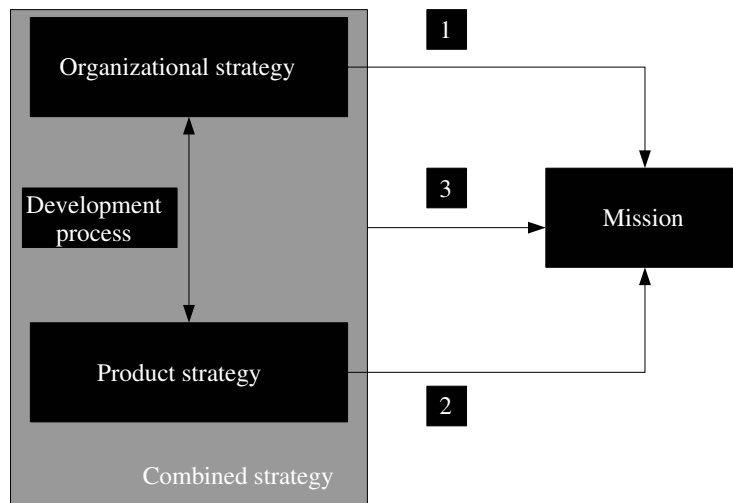
Figure 1.4: Objective of this research

- Create a new strategy that improves the current ones;

- Applying this strategy to the development of Topicus, and investigate differences.

This approach shows the objectives of the next chapters.

"Simplicity and common sense should characterize planning and strategic direction"
Ingvar Kamprad - Founder of IKEA

Topicus wants to become successful by applying an organizational and a product strategy. The first is characterized by the creation of several spin-offs. The second focuses on becoming a network integrator. Currently, Topicus is very successful, which is seen by its remarkable growth. However, both strategies do not focus on growth explicitly.

The first objective of this research is to explain Topicus' growth that is realized by both strategies. However, Topicus' growth is not optimal. There are some small problems with the integration of both strategies. The second objective is to improve both strategies, by creating a new one that is based on both. Intentions of this new strategy are to stimulate growth even further and to be feasible and focused on entering a new market.

This chapter discusses literature that will be used in this research. The first two sections identify literature that explains Topicus' growth and success. For both strategies theories are discussed that address its success, growth, and problems with growth. This results in different success and growth factors.

The new strategy will be based on the growth factors of both strategies as well as the spin-off process itself. This process covers general steps in the development process of a spin-off and is used as a basis for the new strategy. For filling in the general steps with the important growth factors, the past development of Topicus needs to be analyzed. For this, a few frameworks are discussed in the last section, as well as an optimization model.

2.1   Organizational strategy

Topicus developed an organizational strategy based on its negative experience with large organizations. With this strategy, it wants to become a multiple niche player. By creating spin-offs for different niches, Topicus tries to serve the niches efficiently.

A niche is a domain of unique environmental resources and needs [Daft, 1998]. According to Daft [1998] each new organization should find one that is sufficient to support itself. In early stages of the organization, this niche is often small, but may grow if the organization is successful. A niche is similar to a market segment, a group of customers that has a similar need. This need is different from the needs of other parts in the market [Johnson et al., 1988]. According to Johnson et al. [1988] the three main advantages of supporting multiple niches are:

- Efficiency gains from applying existing resources or capabilities to new markets and products or services, which is often described as economies of scope;

- Applying skills to new markets and products;

- Having a diverse range of products or services can increase market power.

In this section is described when a strategy based on spin-offs is successful, why spin-offs grow quickly, and how spin-offs come to an existence. Success and growth go hand in hand, but in this section, a distinction is made. Success is investigated by examining in which environment spin-offs can be successful, while growth is more internally focused, so what makes it that spin-offs perform well. The factors that contribute to this are used in the next chapters to analyze Topicus' situation.

2.1.1   Success-factors

In literature, spin-offs are often compared to organizations with a divisional-structure based on business units. An organizational structure based on spin-offs differs from a business unit structure through the absence of a corporate parent. Spin-offs are separate organizations themselves.

The corporate parent covers the levels of management above the business units. These management levels are not in contact with customers and competitors [Johnson et al., 1988]. Because of this, it is hard for the corporate parent to add value to an organization. Table 2.1 presents the value adding and destroying activities of it.

The objective of the corporate parent is to support business units with information and coordinates them. When an organization has a diversification strategy or focuses on a large

Value adding activities	Value destroying activities
- Envisioning the overall role of the organization; - Intervening within business units to improve performance or to develop their strategy; - Offer central services and resources to help business units; - Offer expertise that can be helpful to business units.	- Delaying decisions through bureaucracy; - Creating a financial buffer for the business units so they are not responsible for their results; - The diversity and size of organizations make it sometimes hard to see what their purpose is; - Hierarchies stimulate personal managerial ambition instead of value creation.

Table 2.1: Activities of the corporate parent [Johnson et al., 1988]

economy of scope, coordination and information costs may become a problem. The distance of certain activities to the company's core business as well as its strategic significance are therefore important factors through which is decided if the activities are carried out in a business unit or a spin-off [Tidd and Taurins, 1999],[Johnson et al., 1988].

In today's unpredictable and rapidly changing environment [Tidd and Taurins, 1999], organizations should focus on flexibility, which is also admitted by Mendelson [2000] and Nadler and Tushman [1999]. Mendelson [2000] and Nadler and Tushman [1999] describe conditions that make organizations flexible, Table 2.2. Both theories show that an organization should focus itself on a particular niche with a specific, front end, team, and/or department, and that culture should replace the organization's formal structure. An organizational structure based on spin-offs fits these conditions. Spin-offs are a way to derive a competitive advantage in a rapidly changing environment [Tübke, 2005].

Nevertheless, spin-offs are separate organizations, therefore they cannot share resources with each other easily, because transactions are taxed [Simon, 1996],[Tübke, 2005]. This makes it that a structure based on spin-offs is more similar to many small organizations than to one large organization. Because of this, it is responsive, flexible, organic, simple, niche finding, and lead by entrepreneurs, instead of being able to act globally, have a vertical hierarchy, be complex, be effective in a stable market and are lead by organization men such as large organizations [Daft, 1998].

Spin-offs therefore function very well when it focuses itself on an immature market. Such a market provides characteristics that fit the process of entrepreneuring. As markets are not optimized yet and organizations in this market want to attain a strategic lead, which means that they are interested in collaboration and networking. According to Garvin [1983] spin-offs can be seen as a form of market entry because:

Mendelson [2000]'s information age architecture:	Nadler and Tushman [1999]'s organization of the future:
• Awareness of information from the external environment; • A decision architecture based on the co-location of decision making; • Effective dissemination of information and knowledge; • Control of information overload through activity focus; • Extension of the architecture to a network of partners.	• Increase strategic clock speed; • Design structural divergence; • Promote organizational modularity; • Structure hybrid distribution channels; • Design metrical research and development; • Construct conflict management processes; • Organizational coherence; • Executive teams.

Table 2.2: Conditions of a flexible organization

- Entering an immature market is easier because a firm's production techniques are embodied in skilled capital instead of physical capital, and therefore products and processes still change quickly. High skilled people can still easily steal customers from competitors;

- Many markets permit firms to profit from not well known or understood segments with only few resources. Individuals working in this niche are more likely to identify opportunities. This makes it that spin-offs are seen as innovative organizations [Tidd and Taurins, 1999];

- The absence of a dominant product design makes it possible to compete on design rather than price.

2.1.2 Growth-factors

Accoring to Tübke [2005], Spin-offs have the advantage that they grow very quickly. He investigated factors that contribute to this growth. From his research can be concluded that there are two groups of factors: the availability of many resources and personnel motivation. These conclusions are supported by Enter [2006] and Eisenhardt and Bird-Schoonhoven [1990] who investigated new technology based firms.

Availability of resources

Spin-offs are organizations that are separated from a parent organization. Compared to new organizations spin-offs are supported with much capital from its parent. This capital can take on different forms.

Experience: The most important form is probably the knowledge that the founding team takes with from the parent, the team's previous experience and the different knowledge supported by the team;

Market position: The size of the spin-off compared to its parent insures a stable market position and resources;

Parent's business model: Much knowledge concerning the product is available if it is related to the parent's product. However, when production and distribution related resources cannot be separated easily this will become a problem;

Reputation: When the spin-off still cooperates with the parent for selling its product, it can profit from the parent's network and reputation;

Capacity to create partnerships: The quickest growing spin-offs were very good in establishing alliances and partnerships with a variety of actors. The parent and its network are easy partners of the spin-off.

These forms of capital show that a spin-off is more effective when its product is knowledge based. In this way, the spin-off does not have to create a new production system and it can easily transfer required resources.

Motivation

A spin-off is a separate organization and therefore the entrepreneur is the owner, or shared owner, of the spin-off. According to Simon [1996] people are more focused when the money at stake is their own. The ownership of a spin-off aligns the goals of the manager with the organization, which on average insures a higher performance than in manager-controlled firms. However, not all spin-offs are setup through the entrepreneur's wishes. Some spin-offs are pushed by the organization. Spin-offs started by the entrepreneur grow quicker.

Growth problems

Nevertheless, organizational growth creates problems. Parhankangas and Arenius [2003] examined the relationship of parent and spin-off in the post-separation phase. They concluded that there are three kinds of spin-offs, that all acted differently, being: spin-offs that

develop new-technologies, spin-offs that serve new markets, and spin-offs that are separated after a reorganization. The relationships of these spin-offs with their parents showed different behavior. A new market spin-off is characterized by the development toward a low relatedness and low integration.

Another problem that comes with growth is changing control. Swatman et al. [1990] describe in their research how growth affects an innovative software house, which is smaller than 30 employees, does not exist more than five years, and sells an innovative product.

The first two stages [Quinn and Cameron, 1983] and the problems developing into the third are:

Entrepreneurial stage: Is characterized from idea to software product, with one or a view men and often long hours of work are invested. The potential customers are somehow known which makes it possible to create a modular product. It is possible that a larger organization sponsors the development of the product. When the first products are sold the name of the company is known and sales will flow in faster and faster. However, at some time the organization needs to focus on different markets because the current one becomes saturated.

Collectivity stage: Is characterized by the movement toward a mature organization. The critical issue for a software house here is that market segments outside the specific area of the entrepreneur's expertise need to be addressed. The product needs to be extended horizontally or vertically, which raises the following problems:

- The entrepreneur is no longer an expert and therefore needs to learn to extract expertise from others;

- He/she needs to invest time in management issues, a formal organization structure is required for leading projects and activities need to be delegated;

- Employees lose the touch with the standard modular product. New segments require more adaptation, therefore not an immediate cash flow is generated. The focus is on sales and these adaptations, therefore maintenance and enhancements are often postponed;

- New employees are not motivated anymore by goal alignment of the organization;

To reach stage three the software house needs to overcome these problems. This requires corporate skills that can be learned, or attained through cooperation with another company. According to Swatman et al. [1990] a wise strategy for a software house is to avoid growth so these problems will not occur.

Partnerships

To complete this subsection a specific form of governance is discussed which is common in service firms: the partnership [Greenwood and Empson, 2003], because it offers similar characteristics as a spin-off. A partnership is very efficient for organizations in which knowledge is very important and it motivates important personnel [Greenwood et al., 2007]. Advantages of partnerships are:

- No external agency costs because ownership and control are not separated, control is carried out by colleagues;

- An employee may leave when he is not rewarded a fair share. A partner gets a share of the profit and therefore he will not leave with the important knowledge;

- Because the partner gets a share of the profit, he will try to communicate his knowledge to colleagues so the organization in total will improve;

- Lower status based costs because a partner has the trust of the organization and this increases the client's trust

- All partners have the same intentions and jointly decide over the use of the brand name [Lent, 1999],[Greenwood and Empson, 2003].

A partnership is different from a separate company, because it has no legal identity on its own, but it is an agreement between partners and therefore every partner is liable for the debts of the others. It is possible that a partner manages a separate department or team.

However, partnerships lose their attractiveness when the organization grows. When organizational heterogeneity, the degree of capital intensity, and the risks of litigation increase, the incentive of becoming a partner declines. Furthermore, in the Dutch legislature making someone a partner of a firm is seen as a reward, over which also tax needs to be paid [Greenwood and Empson, 2003].

2.1.3   Spin-off origination

Tübke [2005]'s research shows that there are several factors that contribute to the origination of spin-offs.

Organization's size: Working in small organizations is more similar to entrepreneuring than working in a large organization, because of the lack of resources, less formality, direct customer contact, and focus. When a small organization grows, employees will tend to begin for themselves. Furthermore, limited career perspective will stimulate entrepreneurs to separate;

	Spin-off	New organization	BU structure	Partnership
Focus on different niches	+	-	+	+
Flexibility: Corporate parent, Joint problem solving	+	+	-	-
Resource sharing: Tax	-	-	+	+
Sharing Knowledge	+	-	+	+
Motivation	+	+	-	+
Offering shares: Tax	+	NA	-	-
Liability	+	+	-	-
No need for organizational skills	+	+	-	-
Give up a unit	+	-	-	-

Table 2.3: Spin-offs vs other organizational forms. A + is a possibility in the particular model, a - is something that is hard, and NA is not applicable to the model

Vibrant environment: When the environment offers many opportunities, entrepreneurs are inclined to focus on some themselves;

Disagreement with the parent: Reorganizations and differences of opinion create unsatisfied employees who are tended to leave. In addition, the cutback of resources or not willing to invest in new opportunities will stimulate people to start on their own. Especially, if they can find resources to develop the opportunity;

Parent's attitude toward entrepreneurship: The parent can fund internal start-ups, when they create a synergy with the parent and the parent believes in the start-up team [Parhankangas and Arenius, 2003];

Organizational culture: The organizational culture affects how opportunities are perceived and to which extent entrepreneurs are given space for action.

Possibility of competitive advantage: When an idea has a possibility to create an advantage without many investments, people will make this decision more easily.

2.1.4 Spin-offs compared to other organizational forms

In the preceding sections, spin-offs are compared to new organizations, organizations based on a business unit structure, and organizations with a partnership governance model. The possibilities of these different models are presented by Table 2.3. If these possibilities are advantages depends on many factors, for instance the organization's environment.

2.2   Product strategy

Application service providing is described as a new form of outsourcing. By use of an application service provider outsourcing is shifting from a one-to-one relationship toward a one-to-many relationship over the internet or through a VPN connection. Application service providers offer new opportunities for small and medium organizations to use an ERP and other vertical and horizontal applications. Application service providers make it possible to rent an application [Currie and Seltsikas, 2001].

Topicus' product strategy is focused on becoming a network integrator. Groen [2005] defines a network as a patterned relationship between actors, such as individuals, groups or organizations. Gadde, Huemer, and Håkansson [2003] expand this with links between activities and resources. Liebowitz and Margolis [1999] state that a network is some interaction between the parties: literal or notional. These authors all have different views of a network, but they all consider a network to be a connection of actors with a relation between different dimensions.

An important property of a network is that it can be owned [Liebowitz and Margolis, 1999]. Topicus wants to become an owner of different networks, by creating applications for all actors in a network and therefore attaining a strategic position in it. When applications unite, Topicus has the possibility to make changes and therefore act as a network integrator.

Becoming a network integrator covers two important steps. First, a network needs to be entered. Second, the influence over the network should be expanded, secured, and exploited. Literature addressing both phases is discussed next.

2.2.1   Entering a network

Entering a network requires the selling of an application to an initial customer. The social systems theory assumes that organizations will have the tendency to optimize gratification. This means that organizations will strive to improve themselves [Groen, 2005]. If Topicus develops an application that will improve the organization, the organization will buy the application.

Topicus develops applications for an entire network. By examining literature, several improvements and techniques to realize these improvements for organizations and networks are found, being:

- Cost reduction through identifying cost drivers and redundant activities by value chain and value configuration analysis;

- Replacing activities with virtual activities;

Primary	Supporting
Inbound logistics	Firm infrastructure
Operations	HRM
Outbound Logistics	Technology development
Marketing	Procurement

Table 2.4: Value chain activities

- Creating new customer connections with the virtual value chain;

- Improving response time by rearranging tasks and objects with the natural and contrived chain and upward and downward integration, or by improved customer contact with the virtual value chain;

The techniques are explained in the following paragraphs:

Value chain analysis   The concept of Porter's value system traces products from original producer to ultimate consumer [Porter, 1985],[Priem et al., 1997]. The value system is made up from different organizations in the supply chain that all are defined as a sequence of activities. This sequence of activities, which contributes to the company's competitive advantage, is called the value chain. The activities can be classified as primary or supporting [Smith and Rupp, 2002]. Table 2.4 shows the activities.

By analyzing activities and the functions they support, redundant activities can be identified. Furthermore when costs and assets are assigned to the activities, activities that are to expensive and therefore subject for improvement can be detected. Through value chain analysis it therefore is possible to reduce costs made by a company [Smith and Rupp, 2002].

Value configuration analysis   Stabell and Fjeldstad [1998] extended Porter's value system with two different value models, being: the value shop, an organization that mobilizes resources to help customers, e.g. a hospital, and the value network, which is an organization that facilitates a network relationship between its customers, e.g. a bank. These new models change the value chain analysis into value configuration analysis, which is an approach of the firm level's competitive advantage, because decomposing the firm into strategically important activities makes it possible to analyze its cost and value.

Natural and contrived value chains   O'Sullivan and Geringer [1993] explain how business performance can be improved by changing how the value chain works. Their framework is based on Porter's concept of the value chain, and emphasizes its stages or business

actions, and interrelationships or interdependencies between these stages. They propose to develop a natural, the optimal value chain, and a contrived value chain, the actual chain.

The natural value chain is created by setting out objects against actions in a matrix. To be operating optimally, actions needing or modifying knowledge about an object must occur directly after the action that identifies that the object exists. Actions should be carried out in the same order as the objects are identified. By rearranging the rows and columns this is realized. This optimization increases the reaction time to changes or problems.

Virtual value chain   The virtual value chain is also an extension of the theory of Porter [1985]. Porter [1985] considers information to be a supporting element in the value adding process, while Rayport and Sviokla [1996] state that it is possible to create value with information by carrying out the activities: gather information, organize it for customers, select what is valuable, package it, and distribute the information.

According to Rayport and Sviokla [1996] adopting value adding information processes covers three stages:

Visibility: Information technology makes it easy to attain information about the physical steps in the value chain. This information can be used by managers to plan, execute, and evaluate results;

Mirroring capability: When the infrastructure for visibility is available, managers can evaluate what physical activities can be replaced by virtual activities, in such a way that they perform more efficiently and or effectively;

New customer relationships: Through information systems companies can create virtual relationships with its customers, for instance to get feedback or improve marketing.

By applying the five value adding activities at every link/task in the chain, a "value matrix" is created that allows organizations to identify customers' wishes more effectively and fulfill them more efficiently.

Downstream and upstream integration   Liu and Hsieh [2005] performed a value chain analysis for the TFT industry in Taiwan. In their research, they used two techniques to improve the value chains response to market wishes, upward and downward integration. These concepts are similar to Porter [1985]'s upstream and downstream integration:

Upstream integration: The organization will share information with its suppliers. Sometimes it is better to outsource activities of reception and storage to them.

Downstream integration: The organization will cooperate with its customers in outbound logistics and it will directly deliver to the customers and retailers.

These techniques all try to improve the workflow, and therefore focus on activities performed in organizations and on a larger scale in networks. Value chain analysis, value configuration analysis, natural and contrived value chain, and upward and downward integration, are not techniques that require the use of an information system. However, an information system makes it possible to exchange information between activities and use it in activities more easily. Therefore, the use of information systems in combination with these techniques may result in better-optimized networks.

2.2.2   Becoming and staying the owner of a network

Becoming an owner of a network does not only require an application that improves an organization and in which the organization wants to invest, but the application should also be *better* than existing applications.

Better means that the application improves the organization more than another application, so it offers a higher quality, and the price difference is not excessive [Liebowitz and Margolis, 1999]. Nevertheless, in the software industry these two factors are not always decisive. To sell software, the network effect is also an important factor on which customers base their decision, and therefore this is also covered by *better*.

A product is subject of the network effect, if the number of users influences consumers. For instance, the use of a standard with many people offers the benefit of synchronization, people base their purchase decision on the market share of a standard. An example of this is the choice for the video standard *VHS* over *Video2000*. More people used the VHS standard which made it easy to exchange tapes. Therefore, new customers chose this standard even while the Video2000 standard is considered superior.

Liebowitz and Margolis [1999] investigated the creation of monopolies in the software market. They analyzed several cases where it seems like market working did not function as it should and therefore the best product did not survive. According to Liebowitz and Margolis [1999] winners in the software market can rapidly grow, because software is subject to instant scalability. When a product enters a market first, the characteristics of a network make it hard to drive out the product. The characteristics of a network are:

A network can be owned: Owning a network is similar to having a strategic position in the network. When a network is owned, the owner can protect its network by reducing compatibility. For instance, *MS Word* documents could only be read and changed by *MS Word* for a long time. To exchange documents other users also needed *MS Word* and to stay using older documents you need to stay using *MS Word*;

A network profits from an increased size of demand: More customers means that the production costs are shared by more people. Because the costs of reproducing a product

in an instant scalable market are very low, the price of the product can decrease with more customers.

Because of this, a software product that is not qualitatively the best product can create a monopoly by entering the market first and obtain a market share of nearly 100% through instant scalability. If the best product arrives first, it does not need to attain the entire 100% share to become the number one standard.

If a software developer wants to drive another product of the market, it may try to temporarily alter its sales, by pricing below cost, providing deals to large customers, or e.g. invest in advertising. Nevertheless, this is unsustainable in the end.

To become an owner of a network with a software application it is important to be the first at the market, have a qualitatively good application, and the price of the application is not excessively high. To stay the owner of a network switching needs to be hard for the customer and the difference in quality and price of the application compared to its competitors needs to be preserved.

There are several ways to reduce the price or improve the quality of a product, for instance by hiring well-trained employees. However, the creation of software for entire networks offers a particular advantage, being: improved reusability of software components. By reusing components prices can be reduced, quality is improved and speed to market increases. Creating software for a network makes it possible to reuse components because in a network homogeneous actions are carried out. According to Pressman [2000]:

> *"An application that is constructed for 30-50% from reusable components will improve productivity with 25-40%."*

Pressman [2000] explains that there are three kinds of software components which are seen as resources and should be considered for use when a new application is developed:

Off-the-shelf components: Existing software, which is open source, can be bought from another developing company, or is developed for an earlier project. These components are ready to use and well tested, therefore organizations should use them. Even, if the organization needs to pay for these components, because it will be in general more expensive to develop them yourselves again.

Full-experience components: Existing specifications, designs, code, or test data developed for past projects that is similar to the software that needs to be created for a new project. Developers of the organization developed these components and therefore have much knowledge concerning them. Making changes for reusing it in a new project is relatively easy to do and therefore the risk is acceptable.

Partial-experience components: Existing specifications, designs, code, or test data devel-
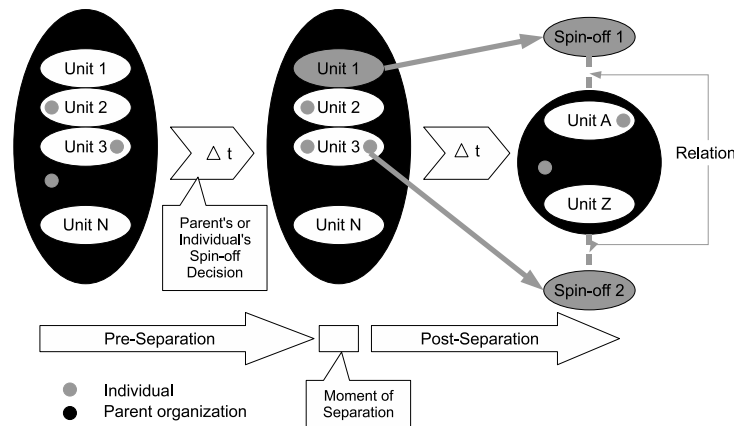
Figure 2.1: The spin-off process Tübke [2005]

oped for past projects that is similar to the software that needs to be created for a new project. However, the developers only have limited experience with the development of these components. Modifications are therefore risky. To reuse these components the difference in costs between reinventing and redesigning the component should be analyzed first.

However, to create a library of components that can be applied in multiple applications, first a domain analysis needs to be carried out. Domain analysis contains the following steps:

- Define the domain to be investigated and extract object oriented and non-object oriented items from the domain;

- Categorize the extracted items;

- Collect a representative sample of applications in the domain;

- Analyze each application in the sample for possible reusable objects [Pressman, 2000].

2.3   Development process

In Chapter 1 is concluded that there is a relation between Topicus' organizational and product strategy that becomes clear in the development process, Figure 1.3. A Topicus' organization focuses on a new market when it employs approximately 25 people and starts the spin-off when it thinks it is possible to extract work from the network for approximately ten employees. Nevertheless, there are problems with the current development process. Therefore, this section focuses on literature for creating a new and optimized strategy. This new strategy is based on the current strategies, because Topicus is successful with it.

The current development process covers the steps that are seen in Tübke [2005]'s spin-off process, Figure 2.1. The pre-separation phase covers the steps in which Topicus focuses on a new network until it decides to spin-off. The spin-off step is the same as the separation phase in which resources are divided. The last phase is the post-separation phase in which the spin-off loses connections to its parent and develops its idea, which covers the steps growth, application development, and knowledge development. Topicus' current development process starts over again when it approximately employs 25 people. This also needs to be covered by the new strategy. The new strategy therefore needs to address the following questions:

Pre-separation: When is it possible for a Topicus organization to split?

Separation: How should the resources be divided between parent and spin-off?

Post-separation: How should the spin-off develop in order to become a network integrator?

Split again: When is the effectiveness of a spin-off over?

Focusing on these different steps and the corresponding questions of the spin-off process will result in an overall approach how a spin-off can be made successful.

Finding an answer to these questions is done in two ways. First, Topicus' current process is analyzed by which the success-factors relevant for the different phases are identified. Second, this process is optimized by combining resources more effectively. With this information, a new strategy based on the spin-off process is created. Literature used for analysis of the current process and the combination of resources is discussed in the next subsections.

2.3.1 Analyzing Topicus' development process

In the preceding sections, possible success-factors of Topicus' strategy are discussed. The next chapter describes Topicus' development from its start until now, in which some of these factors are seen. The important factors need to be identified and taken up in the new strategy.

4S Model

The first theory used is Groen [2005]'s 4S model. This theory is based on the social systems theory [Parsons, 1964] which considers that an organization needs sufficient levels of four different sources of capital in order to be viable. These sources of capital are: strategic, economic, cultural, and social. It states that different levels are required in different phases of the entrepreneurial process, which covers the phases: opportunity recognition,

preparation, and exploitation [Veen and Wakkee, 2004]. These steps are similar to the ones in the spin-off process. Recognition is the identification of an opportunity and therefore similar to the pre-separtion phase. The preparation step is similar to the separation phase, because both consider the attainment of capitals. However, the emphasis of the spin-off process is on transferring resources from the parent, while in the entrepreneurial process the entrepreneur needs to attain this. The development process is similar to the post-separation phase because both focus on the exchange with the market. The spin-off process distinguishes itself from the entrepreneurial process through the initial resources available. However, Groen [2005]'s research also focuses on knowledge intensive entrepreneurship, which is characterized by initial knowledge and therefore similar to spinning-off. With the 4S model, it is possible to come up with a set of resources that are needed in the different phases of the spin-off process.

Resource development pathway

Nevertheless, the 4S model only states that *sufficient* levels of capital are needed. To know if resources are sufficient, the development path of Topicus' resources needs to be determined.

For this, Brush et al. [2002] propose the "Resource development pathway". With this tool the patterns or pathways of resource building can be analyzed which is important for efficient, effective, and timely management of resource building and therefore wealth creation. The resources are set out against their:

Complexity: Highly complex resources can become a unique advantage;

Application to the production process: Utilitarian resources are applied directly to the production process, and instrumental resources are used in a flexible way to attract other resources.

With this pathway, a resource path for a successful spin-off is deduced.

Resource pyramid of value creation

Not only the path of resource development is interesting but also the efficiency of combining and using the resources, which is done with the resource pyramid of value creation [Brush et al., 2002]. At the base of this pyramid are generic resources, materials, or stocks that are controlled by the firm and easily accessible when sufficient financial resources are available. Combining these resources creates capabilities that enhance the organization's capacity to deploy resources for a specific purpose. Capabilities involve interactions among resources that allow the company to perform activities more effectively and efficiently. When capabilities become crucial for the organization's mission and its performance and they are

performed well, they become core competencies. Collections of core competencies that the organization performs outstanding and better than its competitors are strategic assets. When these strategic assets are valuable, rare, inimitable, and non-substitutable, they become a unique advantage for the organization.

This pyramid shows three things:

- Topicus' advantages over its competitors;

- When the efficiency of combining resources decreases, which is a suitable moment for separating;

- Resources, which are complex but not a unique advantage, are subject of improvement.

2.3.2 Optimizing Topicus' development process

In Chapter 4 becomes clear that Topicus created a unique advantages over its competitors, but it also created a few core competencies that have the potential to become a strategic asset or maybe even a unique advantage. Realizing this is possible by using the vision, which is developed in the pre-separation phase, as a development pathway through which Topicus wants to become the owner of a network. Now, the vision is only used for selling products and examining the potential of the market.

With the theory of Baldwin and Clark [2000] it is possible to improve the efficient use of resources. According to them, it is possible to create a fit between the organization's environment and its production system, because the design and the design process are fundamentally isomorphic. Because of this, a particular task structure is created in which tasks of the design process are mapped to people. This task structure influences the way people work together and creates a specific pattern of knowledge in an organization. Because a software application can be setup in a modular way, it is possible to create an entire application with many people in a sequential process.

A task structure therefore is a design of a program for an entire network, just for one organization. The vision is used to create a global task structure, which defines the sequence of the development of software modules. It is possible to optimize this development sequence, so fewer resources are needed in this process.

2.4   Conclusion

This chapter discussed background literature concerning Topicus' organizational and product strategy as well as literature for analyzing Topicus' development process and optimizing it with the purpose of creating a new strategy.

Topicus' organizational strategy realizes different spin-offs for handling different niches. This chapter shows that spin-offs are successful in an information intensive and rapidly changing environment. Spin-offs are therefore a suitable way for entering immature markets. Nevertheless, it is hard to share resources with spin-offs because transactions between them are taxed. An organizational structure based on spin-offs therefore functions as a group of small organizations. However, spin-offs start with more resources than an independent organization, because knowledge and skills can be transferred very easily. This makes it that spin-offs grow quicker than new organizations and personnel motivation makes it that spin-offs outshine business units. Nevertheless, growing with a spin-off also raises problems, spin-offs tend to lose the connection with its parent, and control needs to change in the same rate. When this is not managed, personnel may lose its motivation and/ or the quality of the product may decrease.

Topicus' product strategy focuses on becoming a network integrator. Network integration is separated in a process of entering a network and becoming the owner of it. Entering a network requires an optimization of existing processes of an organization or a network. Optimization is realized by reducing costs, improving response time, creating new connections to customers and/or virtualizing activities. Creating software for a network has several advantages. A network can be owned therefore it is hard to steal customers from a settled organization. Through the network effect, it is often the case that the product becomes more valuable when more people in the network make use of it. Furthermore, by creating software for a network a large scale can be realized with little effort, through reuse of software. Reusing software makes it possible to reduce prices, improve quality and speed up production.

The objective of this research is to develop a new strategy that uses the preceding two as a basis, combines their success-factors, and solves problems with them. Because the new strategy will be based on spin-offs, the spin-off process functions as a basis for the new strategy. Which factors need to be taken into account by the new strategy will be analyzed with the 4S model. This model states, that in all phases of the process sufficient levels of four different capitals need to be available in order to be viable. However, this model does not show the development path of the important resources, which will be analyzed with the resource development pathway. This pathway shows the complexity of the resources and therefore this can be used to identify advantages. This is done with the resource pyramid. Resources that are complex but not a unique advantage are subject for improvement. In

the next chapters will be seen that the reusability of software is not optimal, for which the task-structure is used. The information found with these models is used in this research to create the new strategy.

3

The Past

"What is good for our customers is also, in the long run, good for us"
Ingvar Kamprad - Founder of IKEA

This chapter shows Topicus' development from 1999 till now. First, it discusses Topicus as a whole. After this, the creation of the spin-offs and the way the spin-offs try to become a network integrator in a specific niche will be explained. Then, Topicus' own role is presented which is a little different from that of the spin-offs. Last, Topicus' upcoming spin-off is discussed.

3.1   General facts

Two people started Topicus in 1999. Its first two years, Topicus focused on advising organizations. In its third year Topicus developed its first application for Gelink, a financial service provider. After this application, it carried out many projects in three sectors: finance, healthcare, and education. Just recently, it started the development of its first application for the healthcare-insurance sector. Figure 3.1 shows an overview of the important projects Topicus carried out in these sectors, and when the spin-offs are created. Applications that are colored reused the preceding application with the same color, for instance Parnassys is an adaptation of the general practitioners' system. The starting dates of the projects approximately match the dates the development of the applications started. Therefore, often an introductory phase is carried out before them. This figure shows that Topicus carried out more and more projects at the same time and that it realized a continuity of projects first over the sector and later on in the different sectors. When it carried out two projects in a particular sector and it finished one or more projects in the same sector it separated.

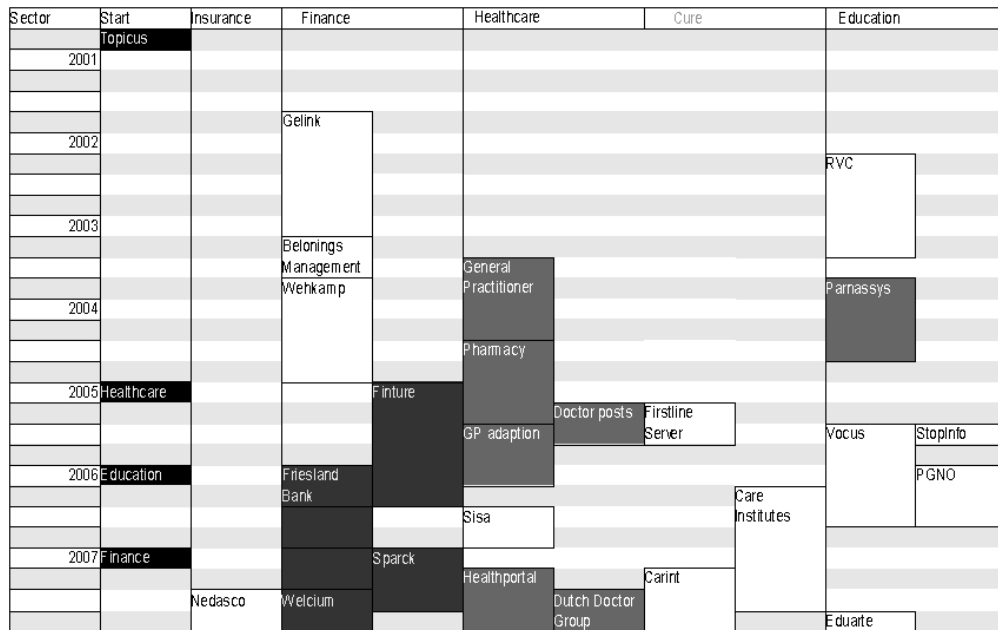| Sector	Start	Insurance	Finance	Healthcare	Cure	Education	
	Topicus						
2001							
			Gelink				
2002						RVC	
2003							
			Belonings Management	General Practitioner		Parnassys	
2004			Wehkamp				
				Pharmacy			
2005	Healthcare		Finture				
				Doctor posts	Firstline Server	Vocus	StopInfo
				GP adaption			
2006	Education		Friesland Bank		Care Institutes		PGNO
				Sisa			
2007	Finance		Sparck		Carint		
				Healthportal			
		Nedasco	Welcium	Dutch Doctor Group		Eduarte	

Figure 3.1: Project Overview

In the period Topicus exists, it grew rapidly. Now, the Topicus' organizations together employ 72 people without its trainees, Figure 3.2. The figure shows that whenever a new spin-off is created, 1-2005, 1-2006, and 1-2007, the employee growth rate doubles. In this period its revenue developed in the same way, from 50K until nine million over 2005 Figure 3.2 [1]. The revenue over 2006 is an expected number. Profit numbers are not publicly available and the owners of Topicus are not willing to share them, therefore these numbers are not discussed in this research.

At Topicus, the two most occurring jobs are business analysts and software developers, approximately 90% of its employees. Because Topicus hires so many new employees, they created courses for both jobs. The last 10% of the employees is covered by three directors, one secretary, and a graphical designer all employed at Topicus itself.

The development of personnel is depending on the motivation and capacities of the individual. However, it took the current senior developers and senior project leaders approximately two till three years to become one. The entrepreneur of Topicus Finance is the only entrepreneur that started without previous experience. He begun mid 2001 and started Finance end 2006. Therefore, it took him approximately five years to develop himself.

Topicus stimulates activities with the spin-offs. Every month Topicus produces a newsletter,
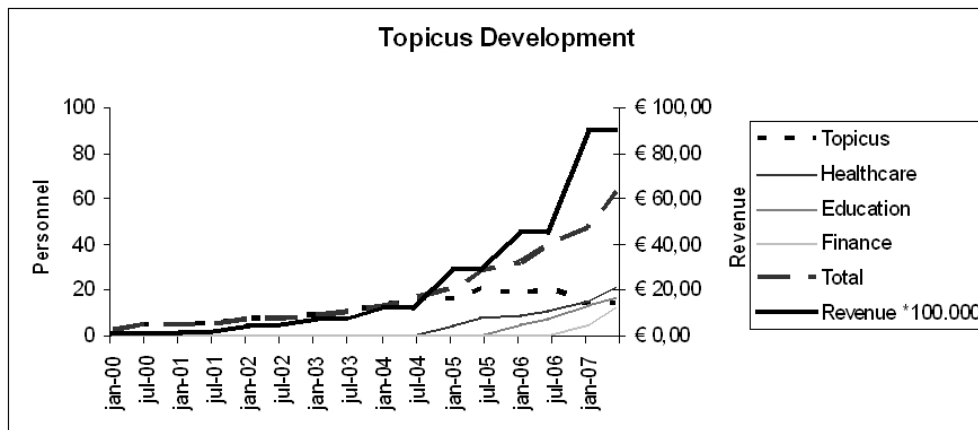
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[1]http://www.fast50.nl

Figure 3.2: Topicus' revenue and personnel development

in which new employees can introduce their selves, current projects are described and some funny stuff is published. The first Thursday of the month Topicus organizes a drink in the center of Deventer and it frequently organizes other parties. At Wednesday, it offers the possibility to play squash. Last, it brews its own beer.

Not only activities are organized for Topicus as a whole. Contacts with new customers are made often as Topicus. This is partly the result of the support of the directors for finding new customers.

3.2   Topicus Healthcare

Beginning 2004, Topicus created its first spin-off, Topicus Healthcare. The launching customers for this new organization were the family doctors. Topicus was selected for this application because of the resemblance with the system created for the financial sector. Network integration, securing of information, and process steering are also applicable in the Healthcare sector. Because Topicus already had experience with such applications, it could avoid problems it faced earlier.

Topicus Healthcare started with four employees. In its first year, it was located in the same office as Topicus. Late 2004, it moved to a new building 100 meter further on because the location became too small. At its start, it used employees from Topicus for carrying out projects.

The customers for whom Healthcare created applications are:

Family doctors: General practitioners used a standalone MS-DOS application. By offering
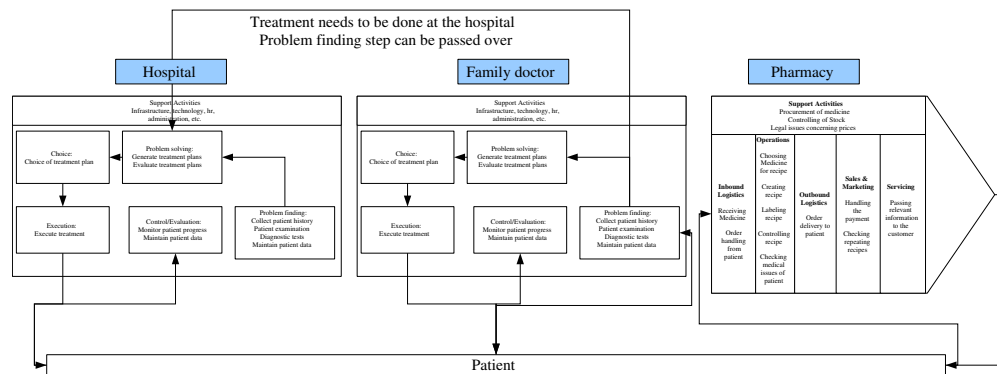
Figure 3.3: Piece of the healthcare value system

an application as a service, the application and the information in it are maintained by a partner of Topicus. With the application doctors can view patient information everywhere internet is available, and it supports the possibility to share patients with others.

Pharmacies: An application for pharmacies. It is possible to integrate this application with the family doctor's system, so doctors who also practice the function of a pharmacist can work with just one.

Doctors Posts: After these two systems, Healthcare developed an extension of the family doctors system for doctors posts. This system shares the patient records of the doctors that are joined at a specific post with the doctors that have service that weekend.

Regional caretakers platform: Healthcare built an application that integrated pharmacies, family doctors, and doctors posts of a region. This platform makes it possible for all joined workers to use the patient records. This system is already prepared for countrywide developments.

Care institutes: An application for nurses from nursing homes that keeps track of patient records.

Local governments: An application that functions as a national signaling system for local governments. This system should make it possible to connect different institutes with the purpose to control children and young adults. When more then one institute has a record of a person, he or she will be tailed.

With these applications, Topicus Healthcare realizes a vision that centralizes the patient and connects all care takers. This vision is shown partly by Figure 3.3. However, Topicus does not offer an application for hospitals.

Topicus uses the value system approach of Porter [1985] for describing the workflow of an

• Less consults needed. • Reduction of administrative tasks; • Less correction handling needed through better fit of information system with procedures. • Handling of important appointments; • Tracing of decisions;	• Relevant management information, e.g. requesting of repeating recipes. • Improved sharing of patients; • Direct communication with relatives; • New medicines can be communicated directly.

Table 3.1: Improvements Healthcare realized in the sector [Topicus, 2007].

organization and its network. It divides different tasks of the workflow into atomic actions that are combined into application services. With this vision, it wants to realize two forms of optimization:

- Duplicate activities are now performed just once, such as the problem finding activity. When a general practitioner examines a patient, it is not needed anymore that the same tests are performed at the hospital. Nevertheless, at the moment Healthcare created a system for just one curer, the family doctor;

- Some activities are virtualized, such as the sharing of the patient's record, and the communication of a prescription between doctor and pharmacy.

In many of these systems, Healthcare reused the following components:

- Authorization;

- Authentication;

- Content management;

- Medication guarding;

- Patient record;

Most of these components are developed for the general practitioners system on which many of Topicus' Healthcare systems are based. This is possible because the information of a patient is the same for all systems. However, the system for the care institutes is not developed in Java but in .Net. Because of this, there are no components reused in this application, only knowledge.

Table 3.1 shows the improvements Topicus realized in the Healthcare sector.

3.3   Topicus Education

Topicus Education is created beginning 2005, in the same way as Topicus Healthcare. It is an offspring of Topicus, it started with four employees, it shared its first office with Topicus for approximately its first year and it used some employees of Topicus in that year. When Education moved to its new office some Topicus employees moved with it, because they preferred the Education sector over the Financial world. One of the reasons for this is the different programming language used. After its first year, it employed 12 employees, Figure 3.2.

Just as the healthcare sector, the education sector tries to improve its professionalism, for instance tasks are differentiated and support activities are shared between institutes. The first project Topicus realized in the education sector was an application for the ministry of OC and W. This application supports the automatic request for extra care for students from colleges and it manages the entire requesting process. The second project in this sector was an application for elementary schools, Parnassys. This was followed by a project for colleges, Vocus. Vocus was the first project Topicus Education carried out as a separate organization. The elementary schools and colleges pay a fee per student for the use of these systems. In the meanwhile, Topicus Education developed several small applications. Just recently a large new project for the MBO-sector is started.

Unfortunately, the student information administered at an elementary school, a college, and a MBO is very different. A student at the elementary school is in a class, and he only receives grades from one teacher. This is simple and therefore as a basis for this application, the family doctor's system is used. However, a college student, has different teachers, follows different courses, has a different schedule, etcetera. Because of this Vocus is redesigned from scratch. For the MBO application Vocus will only be used as a framework, all its modules are redeveloped. For developing these applications, knowledge of the finished systems is used not the components.

The education sector is just as the healthcare sector regionally orientated, because a student finds a school in his neighborhood and goes to a nearby college. However, there are some major software suppliers in this sector, every school decides for itself which software it wants to use, which takes a very long time, and this sector does not have much to invest. This makes it that after three years Parnassys has a market share of just 7% and after one year Vocus has a share of 5%. Parnassys' share is still growing and it is expected that it can realize a 20% share eventually. Vocus' share however is stable. By extending these applications, Education tries to attract more customers.

Topicus is the only software provider that offers an application for the elementary schools and the colleges. However, because there are different software providers that have different

market shares for the different forms of education, Topicus does not profit from connecting both systems. The colleges and elementary schools are not willing to invest in an application together. It is more likely that a general platform, supported by the government, is created to which all applications will be connected.

3.4 Topicus Finance

The last spin-off that Topicus created is Topicus Finance. Topicus Finance is started January 2007 with five former Topicus employees: two senior business analysts, two senior developers and an entrepreneur who is the shared owner of Finance. With the four senior employees, Topicus Finance has the possibility to start two projects. A project's minimal requirements are: one experienced business analyst or project leader and developer, and four or more junior developers. In the first month of its existence, it hired two new employees: a senior project leader and a junior developer. In the following four months, Topicus Finance hired a junior business analyst and three junior developers. Now, Topicus Finance employs 11 people but it is still looking for qualified personnel.

The launching customers of Topicus Finance were the Friesland Bank and Finture. For the Friesland Bank it developed with employees from Topicus Finance and Topicus a front/mid-office system. This was not the first application developed for the Friesland Bank. For Finture, an integrated platform for intermediary and financial service centers is developed. Right after the split-up Topicus Finance started another project for Sparck, a mortgage provider for people with a registration at the BKR. The system of Sparck is based on Finture. Topicus Finance separated modules from Finture and sells them as a library. This application is built with six until eight employees from Finance and Topicus. At the moment, it is still working on all projects and soon it starts with a new project for another financial service provider.

In the Healthcare example, upward and downward integration is not seen. Topicus Finance applies upward integration in its intermediary systems, such as Finture. Finture is an organization, which combines mortgage providers and intermediaries. The system that Topicus developed for Finture offers administration support for intermediaries. In the past, the intermediaries needed to store this information themselves. Finture also offers downward integration. Intermediaries have now the possibility to evaluate if customers are qualified for a mortgage or insurance themselves and therefore they can directly sell it. In the past, this acceptance needed to be evaluated by the provider. This also suits the concept of the natural value chain, because the sales meeting and sale itself are now closer together.

In the next few months, Topicus Finance separates entirely, because it does not need to hire any employees from Topicus anymore and it will move to a new location, also in a reach of

100 meter.

3.5 Topicus

After three spin-offs in three years time, Topicus is now focusing on a new sector, the care-insurance sector, which is privatized last year. These changes in legislature want to realize an efficiency improvement in this sector, which enforces new cooperations and an improved information infrastructure. The care-insurance sector is closely related to the finance sector, because there are several organizations that offer both mortgages and insurances. The organization for which it works now, is such an organization. Topicus attracted this customer through its reputation that it has in the financial sector. It started with this project June 2007.

Topicus now employs two senior developers, five junior developers, one senior analyst and one junior analyst. All were hired by Finance until the new project started. This makes it that this separation was a little different that the preceding ones. At the moment, six are working on the new project and two are still supporting Finance.

Figure 3.2 shows that Healthcare and Finance were created when Topicus employed 14 software engineers, Education was created when it employed 16.

3.6 Topicus Care and Topicus Cure

Topicus in total employs 72 people now. The next spin-off is planned in January 2008 where Topicus Healthcare will split in Topicus Care and Topicus Cure. Topicus Cure shall focus on the primary-line-helpers, for instance the family doctors and doctors' posts and will keep most of the resources. Exploiting and maintaining the current products will therefore be a responsibility of Cure. Topicus Care shall focus on second-line-care, such as the nursing homes for which Healthcare nearly finished its first application. This will be the innovative unit and will be setup by the entrepreneur and director of Healthcare.

3.7 Conclusion

Topicus' history shows that it is now divided in four organizations: Topicus, Healthcare, Education, and Finance. The major shareholders in these organizations are Topicus' directors. However, the entrepreneurs of the different spin-offs have some share of their own in it.

Healthcare and Education are entirely separated from the other organizations, but contact between all is still close. This is realized by hiring employees from each other, the many parties Topicus' organizes, and by acting as one organization to its clients. Furthermore, Topicus has a small support staff, which is a part of Topicus itself. Other Topicus organizations pay for Topicus's support, so it is a form of a corporate parent, on the other hand it is a profitable organization itself.

Topicus' created three spin-offs for the sectors: healthcare, education, and finance. Topicus started in the financial sector, but saw that the application it created for this sector was also well applicable to the other sectors. Because it got more and more assignments, it grew rapidly. At the time, it carried out its second project for the Healthcare sector it decided to create a spin-off. The creation of the spin-offs showed several similarities:

Launching customer: All the organizations of Topicus split-up in the time it carried out a project for the concerning sector. This project is the launching customer for the spin-off. Because the particular project was already preceded by one or more projects in the same sector, Topicus' believed in the spin-off's right of existence.

Post separation phase of approximately half a / one year: The post separation phase that Tübke [2005] describes as the last step in the spin-off process concedes approximately half a year. All three spin-offs shared the same office and hired employees of Topicus in this period. In this way new employees are sought and they have time to prepare theirselves;

Qualified employees at its startup: Topicus' spin-offs not only start with a launching customer and the possibility to hire employees from the parent for a while, but they are also provided with three or four qualified employees and of course the entrepreneur, which starts the company. With these employees, it has sufficient qualified personnel for carrying out two projects at a time and therefore a continuity of projects is realized;

Resources of the parent: Topicus is the parent of the three spin-offs. It is thinned out three times with employees and customers but stayed the owner of many software applications.

Nevertheless, the sectors are all very different. This makes it hard to become a network integrator in some, because software is for instance difficult to reuse. At Topicus therefore not always software is reused, but because of their experience it can develop new applications quickly.

The Present

This chapter investigates the current success of Topicus. This is done by analyzing Topicus with the theories explained by Chapter 2. In that chapter background literature that addresses Topicus' organizational and product strategy is identified. The support of factors that contribute to its success are investigated in this chapter. For this, information from Chapter 3 and Section 1.1 is used. When the important factors are known, the moment they become relevant and the relations between them are examined. In literature is found that support of different factors in the different phases of the development process makes a spin-off successful.

4.1 Organizational strategy

In Section 2.1 literature addressing Topicus' organizational strategy is discussed. The specific section is divided in three parts: when is a strategy based on spin-offs successful, what makes it that spin-offs grow so quickly and how do spin-offs come to an existence. The next sections present how the literature is applicable to Topicus.

4.1.1 Success-factors

Topicus' focuses on the healthcare, education, and financial sectors. Focusing on different niches makes Topicus' environment complex. This in combination with a highly skilled

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workforce and working with complex and rapidly developing technologies, requires a flexible organization according to Nadler and Tushman [1997], George and Jones [2002] and Daft [1998].

[Mendelson, 2000] and Nadler and Tushman [1999] propose several conditions that create a flexible organization. These authors state that organizations need to focus itself on a particular niche with a specific, front end, team, and/or department, and that culture should replace the formal organization.

By using spin-offs, Topicus supports both principles. Spin-offs are separated based on customer and product knowledge. Topicus' spin-offs only focus on selling and developing applications. Other activities such as maintenance are outsourced. The managers of the spin-offs are partly owners and take most decisions on their own. Some decisions are discussed with the employees and the directors. Internal contact is close through direct personal contact, e-mail, and msn, just as customer contact through agile programming. In marketing spin-offs work together, but they also compete with each other on several areas, for instance personnel.

Culture has replaced formal control at Topicus. Everyone is free to fill in its job as he likes, e.g. working hours, whenever he carries out his tasks. When anyone does not fulfill his job it will be noticed by his team. Group cohesion [George and Jones, 2002] is stimulated by the team size, 6-8, the small size of the spin-off, which can therefore be seen as a large team, and by offering a performance bonus based on the performance of the spin-off and not on the performance of Topicus as a whole. The entrepreneurs themselves are controlled by the market and therefore handle in their own interest. Nevertheless, the time horizon of the manager is not entirely the same as that of the spin-off. Some of Topicus' applications have a long return on investment because it gets a monthly fee for it, and the entrepreneur is the person who also starts the new spin-off. In the case of Topicus Healthcare, a new spin-off is planned in 2008 and just started in 2005. The entrepreneur will lose some of its say in the spin-off but he still has shares in the parent and he will still profit from it, but it seems hard to let the spin-off go. The new manager of the parent is rewarded along its performance. In this way, Topicus stimulates the long-term handling of the entrepreneur. Therefore, at Topicus there is not any form of hierarchy that fulfills direct control.

It is hard to realize such a flexible organization with an organizational structure based on business units, because co-location of decision-making is worse through the existence of a corporate parent. The few positive aspects of the corporate parent: envisioning the whole organization, intervene when needed, offer central services, and offer expertise, are carried out by Topicus itself. Topicus' directors are employees of this division and are the main shareholders of the spin-offs.

With a structure based on spin-offs, it is hard to share resources because internal trans-

actions are taxed. Topicus' spin-offs use two kinds of resources from its parent, software and personnel. The European legislation states that associate ownership of software can be attained when organizations improve or extend a product. By doing this, eventually the spin-off does not have to pay tax for using the software anymore. However, in for instance the education sector knowledge is reused instead of software, which is not taxed. Using personnel from other spin-offs is reduced as much as possible. Only directly, after separation this is common at Topicus. Spin-offs need to hire their own personnel as quick as possible. For the use of support personnel, who are employees of Topicus Innovative, the spin-offs pay, but they are not used often. When these resources are not shared, Topicus probably needs to hire them from another company, which is much more expensive.

Spin-offs are effective in immature-niches, on which Topicus' mainly focuses itself. Topicus creates applications for the Healthcare and Education sector. It also creates applications for the financial sector because it has much experience in it. Nevertheless, this sector is less immature.

4.1.2 Growth-factors

Section 2.1 shows that there are two reasons why Spin-offs grow quickly: availability of resources and motivation.

Available resources The last section showed that a spin-off after separation makes use of personnel and buys some software components from its parent. These resources are starting resources, which offers a spin-off a head start compared to a new and independent organization. However, there are other forms of capital transferred from the parent. The parent invests in the spin-offs, just as the entrepreneur. The entrepreneur is an experienced employee and takes with him one or two senior business analysts and two senior developers. The entrepreneurs that started the spin-offs already managed projects in the specific sectors for Topicus. The size of the spin-off, but more important a launching customer, insures a stable market position for the new spin-off. The spin-offs are also a software house similar to its parent. Therefore, software development techniques and the parent's business model are copied. A Topicus' spin-off profits from its parent's reputation as well as its connections.

Motivation A spin-off is considered as an opportunity by Topicus' personnel. The entrepreneur starts the spin-off himself and becomes responsible for it. Because his own money is at stake, he is very motivated. The other founding team members get more responsibility, because new employees are hired without or with little experience. Topicus itself only stimulates entrepreneurship and facilitates it, but it does not create the spin-offs.

Growth problems   Topicus avoids growth problems by splitting before the second stage is entered. In this way, it profits from the characteristics of the first stage: lots of ideas, entrepreneurial activities, little planning and coordination, formation of a niche, and centralization of power in one person. Approximately 30 employees, software products for different markets, and an extension of the core product vertically or horizontally in the network, characterize the second stage of a software company. In this stage it is not only hard to manage the number of people but also to contain the grip on the product [Swatman et al., 1990]. Nevertheless, splitting an organization means a division of resources. Resources, such as qualified personnel, need to be available to make a success of the new spin-off. Topicus needs to watch out that it does not want to grow quicker than it can attract or develop important resources.

Partnership   The partnership is a governance form effective in motivating knowledge workers, and therefore it supports some of the advantages of a spin-off. Nevertheless, it has more disadvantages than spin-offs.

- In principle, partners can make their own decisions and therefore co-location of decision making is better than in the business unit structure. However, in practice when the organization grows, often a kind of corporate parent is created in which senior parents take place that decides over the organization's future, which again reduces its flexibility.

- Furthermore, this form of governance solves the tax problem that is created by the spin-off structure, but it also creates a new one. Offering someone shares of a company is seen as a reward and therefore tax has to be paid over it.

4.1.3   Origination

Topicus states that it starts a new spin-off when an organization reaches 25 in order to overcome bureaucracy. In practice, it created its spin-offs when it employed 14 or 16 software engineers. By doing this, it directly stimulates the spin-off process, because working in small organizations is more similar to working in a new than in a large organization. Topicus stimulates entrepreneurial behavior and therefore many employees are looking for opportunities, which results in an entrepreneurial culture. The support of the parent and the possibility to take much capital along, make it that a spin-off can create a competitive advantage quickly, and therefore it is not such a big risk for an entrepreneur.

4.2 Product strategy

In this research is presumed that a customer will buy an application if it improves its business. In literature, different optimization possibilities are found that are applicable to Topicus' applications.

- Through better alignment duplicate activities in a network are reduced, for instance the problem finding step at the hospital.

- Downstream and upstream integration through in sourcing activities that were carried out by a number of organizations themselves, such as by Finture.

- Information that was paper based is now virtualized, for instance the recipe of the general practitioner.

With these optimization techniques, Topicus creates a vision for an entire network. It then tries to contact a first customer for which some of the optimization techniques are applicable. By reusing existing software, it is possible to create the new application quickly. Because organizations in a network perform similar actions, Topicus creates new reusable components from this initial application. These new components are used to sell more applications in the same sector and therefore to become the owner of a network. When Topicus establishes a large market share, it is nearly impossible for competitors to enter the market.

Through the connection of organizations in a network, the network effect of the application is stimulated and a dependability of the organizations to Topicus is created.

Network effect: By connecting the family doctors to the pharmacies and the doctors' posts, Healthcare offers extra functionality to the family doctors. This additional functionality improves the quality of the product, because it makes it possible to share patient records. The more care- providers and/or takers are interconnected the bigger the value of the product will be, the network effect. In this way, Topicus can stimulate the selling of its product. These increased sales makes it possible to lower prices because the spreading of the product is not expensive, economies of scale. Furthermore, it can reuse components in this sector therefore the development costs are shared over all these organizations.

Dependability: The dependability of organizations to Topicus makes it possible for Topicus to integrate the network because actions can be virtualized, upward and downward integrated, and passed over. This dependability makes it hard for these organizations to change to another application. When a family doctor quits using Topicus' system it should convert its information to another standard, which is an expensive task, and it loses the connection with the other organizations connected to Topicus' system.

However, the possibilities that software offers are not always applicable to Topicus:

Instant scalability: The applications of Topicus are spreadable for low-costs, but selling applications quickly is hard in for instance the Healthcare sector. There are many competitors, and products require a relatively large fee. For instance, the cost of using the Family doctors system are approximately 2000 euros for installing and another 2000 per year for using it [Vlug and Mosseveld, 2004]. Therefore switching between software suppliers is expensive.

Software reusability: Topicus does not always create separate modules that can be reused easily, but often waits until it is needed for the second time. In addition, it often chooses not to reuse components but only knowledge, which already makes it easier to create a similar application.

Because switching is expensive, it is hard to enter a market with a new product when organizations are yet supported. A market that is dominated by a specific product can only be unlocked by offering a product for a much lower price, sell the product to central organizations in the network, and / or advertise allot. However, through the dependency and network effect it is hard to excel Topicus' products and compete on price is not easy, because of the high switching costs and the relatively cheap applications of Topicus. However, selling a product to a centralized organization in the network that is incompatible with other systems is always possible when not an entire network is covered. For instance, Topicus Healthcare does not have an application for Hospitals.

What is important for Topicus is that when it enters a market it should try to create systems for the entire network as quickly as possible. This will result in an additional quality through the network effect and a large market share locks customers in because the switching costs are relatively high. Therefore, if Topicus wants to become an owner of a network it should reuse many components and start developing with an application that requires the least work. This needs to be considered when a new network is selected.

This section mainly focused on the healthcare sector to which network integration is well applicable. However, Table 4.1 shows that the different networks Topicus is in have very different characteristics. In the education sector, it is much harder to become a network integrator, because reusing software is difficult, there are many competitors and few of them have a much larger market share as Topicus, and there is not much money available in this sector. Topicus therefore creates different applications for different networks in different ways. However, some things can be generalized. Topicus sells applications through the business improvements they realize with the optimization of the network and organizations in it. By creating custom-made applications by using agile programming, it realizes custom-made software. It tries to reuse software as much as possible, but only if the customer is interested in it. It always reuses its knowledge that it developed by creating applications

	Healthcare	Education	Finance
Immature	+	++	+-
Stability	+	++	+-
Size/number of actors	+	++	+
Dependability actors	++	+-	+
Money	+-	-	++
Same basic object, e.g. Patient	++	-	+
Reuse	+	-	++
Competition/ Market share	+-	-	+

Table 4.1: Different sectors and their characteristics. A + is a possibility as a network integrator, a - is a possible problem

for the same sector. In this way, problems are avoided, and therefore it still realizes quickly qualitatively well applications. Topicus profits from the reputation that is created when it satisfies a customer. Focusing as a software developer on a specific network therefore offers the advantage to reach a large number of customers with minimal investments.

4.3   Development process

The last two sections showed why Topicus' strategies independently are very effective. This section will identify which factors are important in which phases of the development process, how these factors influence each other and to which forms of capital they contribute from the 4S model. According to Groen [2005] when all capitals are supported the organization can become successful. This information is used in the next chapter for creating a new strategy.

Pre-separation

The decision to spin-off or not is now based on the potential of a network. Evaluating the potential of a network requires the following steps:

- Describe connected actors of a customer;

- Investigate optimization possibilities of the network;

- Investigate the optimization possibilities for the organizations;

- Examine software components resource base for reuse;

- Determine which application can probably be developed as quickest and cheapest;

- Contact the customer of the specific application;

Step three is hard to carry out precisely and therefore done more extensively in cooperation with the customer. However, it is possible to create a global idea. With such an idea, it is possible to determine the value that can be extracted from the network. With the optimization techniques, the organization's process and / or the network's process can be improved. Techniques for improving such a process focus on reducing cost drivers, removing duplicate activities, and improving reaction time. It is possible to express these optimizations in for instance the e^3Value model [Gordijn and Akkermans, 2003]. By estimating the value of a cost-driver as well as the number of times a cost-driver is carried out, the actual cost reduction for the network is assessed.

With a simple calculation, the potential profit of the network is estimated. If the freed amount of money minus the switching costs of the customers is larger than the development costs, which is the time invested added by the investment to buy reusable components and hiring employees from the parent, Topicus should enter this network. If the parent's network is saturated it is possible to focus as a whole organization on this network. When this is not the case and enough resources are available, the organization should split up.

To setup a new spin-off several resources need to be available:

Financial: Sufficient financial capital needs to be available for developing a first application. This capital comes from the initial investments of the parent, the entrepreneur, and a launching customer. Also the expected capital that can be distracted from the network is important in this phase;

Social: If the current customer is a central organization in the network, it offers connections to potential new customers;

Strategic: An entrepreneur needs to be motivated to start a new spin-off;

Cultural: The entrepreneur, a senior business analyst, and two senior developers need to be expendable at the parent.

Separation

The objective of this phase is to separate from the parent. In the last subsection required resources are already discussed, which are therefore also the starting resources of a new spin-off. However, in this phase the new spin-off starts developing an application as a separate company. Therefore, it now has to hire employees and software from the parent, copies the development methods from its parent, and needs to find new customers, which it does in combination with the parent. Figure 4.1 shows this schematically.

This figure shows resources that are set out against their complexity and their applicability to the production process. Starting resources that are available are therefore financial resources, experience and (potential) customer(s). Financial resources are mainly used to buy hardware, pre-developed components and hire new employees. This makes it that financial resources are simple and instrumental. For other software houses, it is impossible to attract complex software components, that are not freely available, but through the relation with the other Topicus organizations, this is possible for a spin-off. The software components are therefore rated fairly complex, because open-source components can be used freely and are available for all organizations, but Topicus' components are only applicable for Topicus' organizations. In the development phase, the spin-off hires personnel from the parent, while new projects are brought in. Bringing in new customers is done in cooperation with the parent, because this requires senior business analysts. In this phase, the spin-off hires employees from the parent to finish the initial application.

This makes the following resources important in this phase:

Financial: Sufficient financial capital needs to be available for developing a first application. This capital still comes from the initial investments of the parent and entrepreneur, and / or an existing customer. Also the expected capital that can be distracted from the network is important here;

Social: If the current customer is a central organization in the network, it offers connections to potential new customers. By developing the first application, the dependability of the network to the spin-off is increased. Furthermore, cooperation with the parent for contracting new customers is important;

Strategic: The entrepreneur started the spin-off and takes motivated personnel with him.

Cultural: The entrepreneur, senior developers, and a development approach are available. Junior employees, hardware, and software components are hired, in order to finish the first application.

Post-separation

This phase is started, when the dependencies between parent and spin-off are limited. This limitation is possible because the spin-off finished one or more applications, and therefore several capitals did develop. These capitals are:

Extension of the software database & knowledge concerning the network increases: The spin-off has its own database of components and becomes a shared owner of the components of its parent and does not have to pay so much for using them anymore;
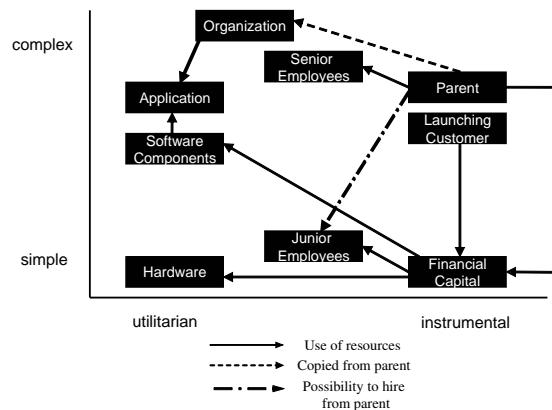
Figure 4.1: Resource Development Pathway in the Separation Phase

Sufficient employees are available & employees developed themselves: Through hiring new employees the spin-off does not have to hire them anymore from the parent. The number should be at least twelve because the spin-off needs to be able to work on two projects at a time;

Brand awareness in the sector: Topicus finished a first application that improves its reputation in the network.

In Figure 4.2 these developments are shown. The exploitation of a network is a cyclical process, which reinforces itself with every new application. This builds up the possibilities to become a network integrator. The resources are:

- The brand becomes more aware;

- Quality of the product increases;

- The employees develop themselves;

- Reuse becomes easier and therefore the product cheaper.

These positive results make it easier to attract new customers. Because of this support of the parent becomes less important. Especially, the brand awareness in the sector is important in this phase, because this is a form of social capital, which replaces the social capital of the parent:

Financial: The network and customers still need to bring in sufficient financial capital for developing applications;

Social: The spin-off cooperates less with the parent, but profits from its own reputation through the successful development of a first application. It still looks for new customers that preferably have a central position in the network. In this way, the spin-off
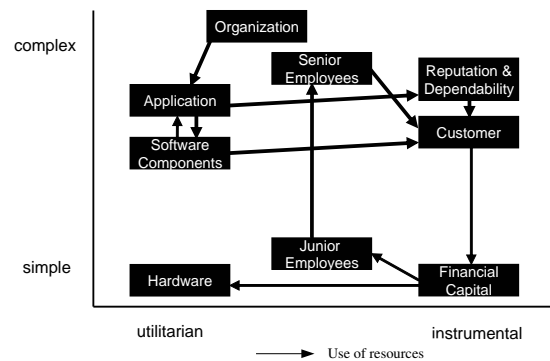
Figure 4.2: Resource Development Pathway in the Exploitation Phase

extends its strategic position in it;

Strategic: The entrepreneur and personnel are very motivated;

Cultural: The entrepreneur, senior developers, and a development approach are available. Junior employees are employees of the spin-off and do not need to be hired anymore. The first junior employees are developing themselves already. The spin-off creates its own reusable set of software components. Hardware is hired.

Split again

Figure 4.3 shows the combination of Topicus' important resources and their form of advantage over its competitors. As seen, a few resources can be attained by other software houses easily. These resources are called generic resources. Topicus uses the following resources efficient and they are crucial for its mission: create dependence for actors in a network, reusable software components, knowledge of founding team, agile programming, and training employees. With these resources, agile programming, and an organizational strategy based on spin-offs it has the possibility to create qualitatively good and cheap software.

Figure 4.3 shows that the spin-offs are a unique advantage that Topicus has over its competitors. This advantage affects the core competencies, agile programming and development of personnel and the strategic asset qualitative software. How the spin-off influences these capabilities will be discussed now:

Agile programming: Applications are created in a sequential process in which the customer has its say. Normally, this is at the end of a period, but because of the work in small groups, the developers are often in direct contact with the customer. When the groups become too large it is impossible to let the developers call the customer themselves. Furthermore, a larger division of the program is needed so developers
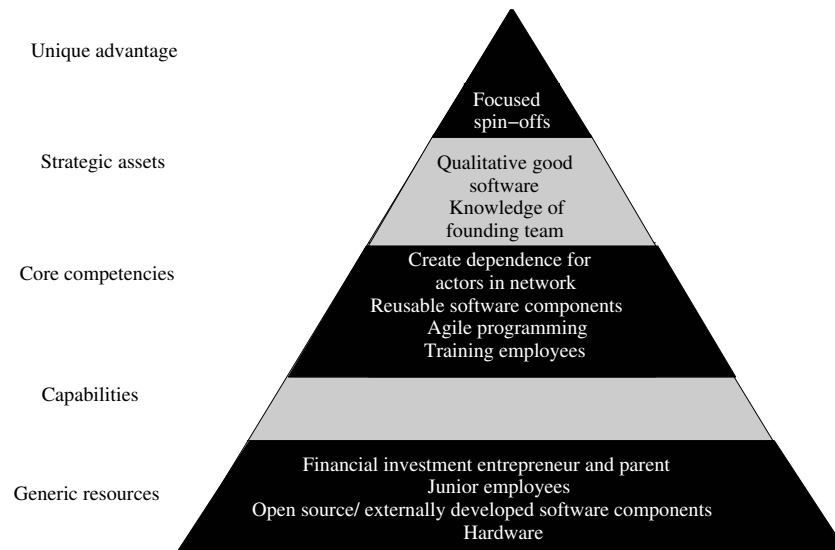
Figure 4.3: Resource Pyramid of Value Creation of Topicus

can work in parallel on the program. This requires increased coordination between the customer and the developers something that does not fit the agile programming concept;

Development of personnel: Working in small teams makes the tasks of the employees broader and challenger. It is impossible to depend only on the entrepreneur. In small organizations, new employees need to figure things out themselves. Furthermore, when there are many senior employees, projects become to expensive because of high salaries, and much disputes will occur;

Qualitative software: Because agile programming becomes harder, the quality of the applications will reduce.

From this can be concluded that the organization should not become too big. This does not have to become a problem, because the entrepreneurial climate at Topicus stimulates spinning-off, Section 4.1.3. Keeping the organizations small will reinforce spinning-off, and a new spin-off stimulates the growth of employees. Therefore, it should not be the question when Topicus needs to split, but when it is possible to split? In this case the organization will stay small and grow quicker. Nevertheless, this requires the splitting of resources, which will be a limiting factor.

4.4   Conclusion

This chapter evaluated the success of both strategies through reflecting it with the background literature and investigating the support of four important sources of capital in the spin-off's development process.

The organizational strategy is effective in three ways. First, by spinning-off Topicus creates a flexible organization that is very focused and therefore suitable for developing applications for immature sectors. Second, its spin-offs are very successful and grow quickly because they start with many resources and with very motivated personnel. Third spinning-off is stimulated by working in small organizations and stimulating an entrepreneurial climate. With this strategy, Topicus and its spin-offs grow quickly when they focus on immature markets. Nevertheless, this strategy is resource intensive. Using resources of different spin-offs is hard. Therefore, this will be the restricting factor in this process. Especially the development of employees takes time.

Topicus' product strategy focuses on becoming a network integrator. Developing applications for an entire network makes it possible to reuse software and knowledge, so development costs and time are reduced, the network effect is stimulated and dependencies are created. The level of reuse depends on the sector of activity. A patient has the same characteristics for a general practitioner as for a pharmacy. However, a student of the elementary school requires different administrating information than one at a college. In addition, the way programs are sold and the form of the networks is very different. Therefore, different applications are created. Topicus' product strategy, however, is successful again because of three reasons. First, employees of particular spin-offs have much knowledge concerning the specific networks. Often software is reused but when this is not possible, the experience with past applications makes it possible to build a new application quickly. Second, it creates custom-made software for a low price. Third, creating applications for a network stimulates the reputation in a particular sector.

With the 4S model, the different resources and their relation in the different phases of the spin-off process are analyzed. This analysis shows that in all phases all forms of capital are supported. According to Groen [2005] this means that the spin-offs are viable in all stages. By splitting-up, Topicus created a unique advantage over its competitors. Nevertheless, Topicus' growth will slow down when the spin-offs become too big. Figure 4.4 shows the relation between the different resources in the different phases of the spin-off process.

	Financial		Social				Strategic			Cultural							
	Available	Expected	Parent	Reputation	Position	Dependibility	Motivation Entrpreneur	Motivation Personnel	Entrpreneur	Senior employees	Junior Employees	Agile programming	Software components	Applications	Hardware
Decision	V	V			V		V		V	V			V		
Separation	V	V	V		D	D	V	V	V	V	H	V	H	D	H
Exploitation	V	V		V	D	D	V	V	V	V	V/D	V	V/D	D	H
Split															

V= needs to be available
H= needs to be hired
D= needs to be developed

Figure 4.4: 4S Model applied to Topicus

The Future

"We have to still develop the Ikea group. We need many billions of Swiss francs to take on China or Russia."
Ingvar Kamprad - Founder of IKEA

The last chapter investigated Topicus' success by analyzing its organizational and product strategy as well as its development process, in which both strategies interrelate. This investigation showed that Topicus' strategy is very successful because the creation of spin-offs offers Topicus a unique advantage. However, it also shows that the unique advantage is not optimally exploited. This chapter introduces first an improvement to Topicus' resource base. After this, a new strategy is proposed which covers Topicus' best practices as well as the improvement. The new strategy is a decision model for the spin-off process.

5.1 Improving Topicus' resource base

The resource pyramid, Figure 4.3, shows that spin-offs are a unique advantage. This is because spin-offs are a unique way to enter a new market and creating an organizational structure based on spin-offs is very complex. However, more resources make it easy to become a network integrator in a new market: reusable software, knowledge and therefore experienced employees, reputation, and connection/dependability with actors in the network. Section 3.7 shows that not all these resources are just as effective in every network, but they need to be considered when Topicus wants to enter a new sector. By combining these resources with the vision into a unique development pathway, the use of them is optimized and so a new unique advantage is created. Now, these resources are used independently.

In Chapter 4 is concluded that the spin-off should focus first on the applications that it can finish as quickest, or from which it can reuse the most. In this way, a small program or many components can be reused. These applications are in general cheapest for the customer, and therefore easier to sell. Through the network effect and a possible price reduction for a new customer, the application is sold easier. This can also be seen as a reinforcing cyclical process.

With the theory of Baldwin and Clark [2000], Section 2.3.2, it is possible to create a development pathway. According to them, it is possible to create a fit between environment and the organization's production system, because the design and the design process are fundamentally isomorphic. The design is now seen as a specific application for a particular customer, but it needs to be seen as an application for the entire network. According to Section 4.3, it is impossible to predict all wishes of the different customers but a global idea of the requirements of this system can be created. In this way, a particular task structure can be created in which tasks of the design process are mapped to people. This task structure influences the way people work together and creates a specific pattern of knowledge in the organization. Because a software application can be setup in a modular way, it is possible to create an entire application with many people in a sequential process. A particular global task structure is therefore seen as a global design of the program. By focusing on the entire network, it is possible to identify important and reusable components. It is impossible to specify the precise applications without cooperation of the customer. This means that a component is never reusable in total. A different customer wants a different interface and makes use of a different workflow. In software, it is possible to separate these elements from the basic functionality of the program, which makes it easy to customize the reusable components. The development of reusable components or modules needs to be prioritized. An example of a task structure that is applicable to the software development process is an interconnected process, which provides inputs to a sequential process, called the design-and-manufacturing process.

Figure 5.1 shows the current and improved taskstructure of Topicus. The figure shows that when Topicus enters a network, the initial design phase is shorter, but it cannot predict the actual size of the projects and the reusable components. This means that Topicus probably starts with project1 and does not separate the modules well. The separated components should contain reusable functionality for the network, while the interface and workflow components should be created in cooperation with the customers. The improved figure shows a longer initial design phase, but less customization to the reusable components and a smaller starting application. The design phase covers the development phases, because it can be done in parallel. At the start of the development of a new application, the designers and developers work together. In the improved process, the first application is also finished earlier which means that the cash flow starts earlier and less employees are needed. When
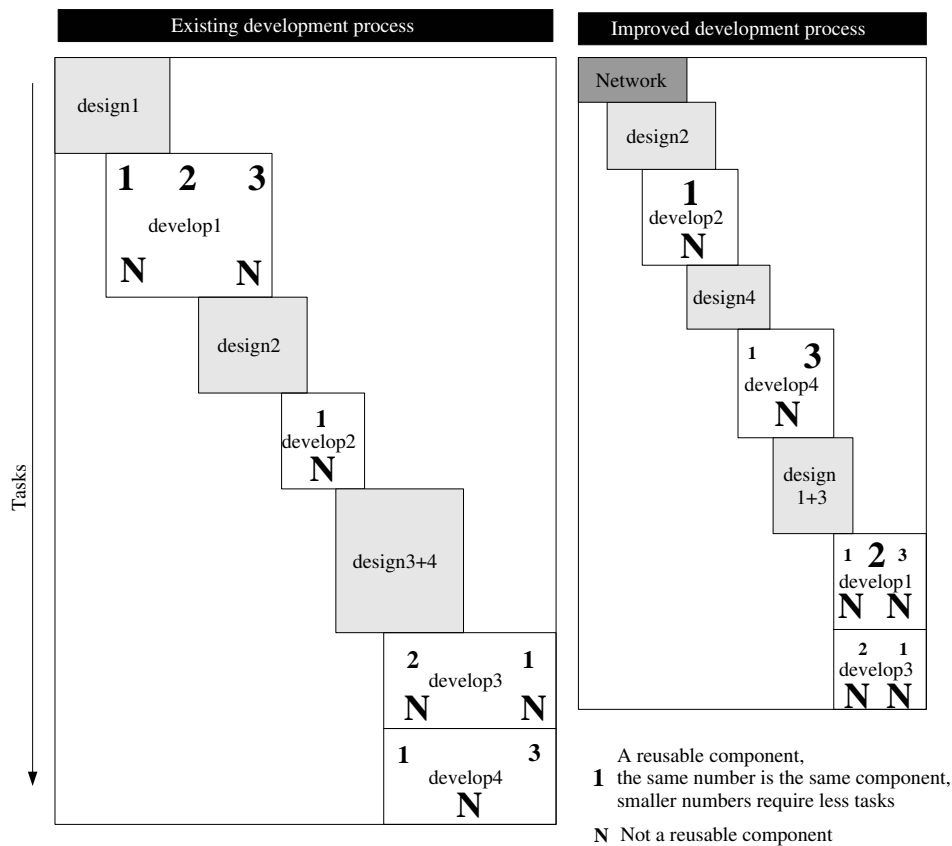
Figure 5.1: Different development strategies

the second project starts, the reusable components should only be adjusted minimally and therefore the new project can be finished earlier just as its design in which the reusable components are only considered minimally. Following projects will also profit from this larger initial investment.

5.2 Creating a new strategy

By using the analysis of the last chapter and the improved use of resources, it is possible to come up with an improved strategy that combines the organizational and product strategy. It is seen that the spin-off process is split up in four stages: pre-separation, separate, post-separation, and split again. These stages are seen in the original model of Topicus, and the first three stages are also addressed by Tübke [2005]. The original model stated that the decision should be based on the potential of the network, then resources are separated, and last the network is exploited. When the number of employees reaches 25, Topicus needs to

look for a new network.

The last chapter showed that the decisions in the spin-off process are very similar or not relevant. It was expected that in the decision stage, the opportunity is evaluated and a decision would be made to spin-off or not. While in the separation phase, the resources are divided by the parent and spin-off. However, it is seen that the decision should be based on the potential of the network as well as the available resources. This makes the separation very straightforward.

Furthermore, in the preceding chapters is concluded that staying small stimulates spinning-off, and spinning-off stimulates growth directly, because employees need to be hired. Therefore the question when to split again is the same as when should a new spin-off be created.

In this way, the process becomes cyclical and restarts itself. Topicus should always look for new opportunities to spin-off. If the resources are sufficient, for the parent and for the spin-off, it should separate. Because of a lack of employees and projects, it is impossible for the parent and the spin-off to go their own way directly, therefore they rely on each other for a while. When there are sufficient resources, the organizations need to separate entirely.

The process

In the new strategy, the trigger for spinning-off is therefore a new customer. Every new customer is a potential launching one. Before Topicus evaluates if it is, it first needs to examine its current resources, because this is easier than to investigate the customer's network potential. Two important resources should be considered in this stage: employee diversity and financial capital. Topicus can split an organization when it can carry out three projects, which means 18 or more employees, and that there are four senior developers, three business analysts, and an entrepreneur. With these numbers, it is possible for the entrepreneur to create a spin-off and take two senior developers and one business analyst with him as well as the new customer, and the parent can still perform two projects. The financial capital that needs to be available should be sufficient to hire a few junior developers, buy reusable software components from the parent, and pay tax over these transactions. A substantial part of this financial capital can come from the customer, but the parent and the entrepreneur himself should invest the other the surplus. Furthermore, the parent should investigate if the network it is focusing on itself still has the expected potential, otherwise the parent should focus on the new network itself.

When this is the case, the entrepreneur should investigate if the network has potential. Potential means if the investments in the applications for the network: people's time, buying of components, the tax payment over both, and switching costs of the customer, are out weighed by the improvements to the network. Potential networks are immature networks

that are not supported by a standard product, or networks that are subject to change because of new legislature. In addition, the network strategy should be developed. This strategy is mainly based on the questions, what are the reusable components, which components can be bought, and which applications can be sold as quickly as possible. Because this potential is not everlasting, a global expectation of the potential growth of the network should also be considered. If the expectancy is that the network can support two project teams, 12 employees, the organization needs to spin-off.

When a spin-off is created, it needs to attract employees as quickly as possible, because hiring employees from the parent is expensive. However, the organizations need to realize that attracting new customers in a new market is stimulated by a good reputation, which comes to an existence after the first project is finished successfully. Therefore, the business analysts should first focus on attracting a new project for the parent, and then try to attract a new customer for the spin-off. Attracting this customer is probably hard because the first project is not entirely finished yet, therefore Topicus should consider a discount if needed. When a second customer, so the third project, for the spin-off is attracted it is possible to separate entirely. At this stage, the organization should have approximately twelve employees and made its investments in the software components base of Topicus, so it does not have to pay for using it anymore.

After this, the spin-off comes into a cyclical process, which intensifies itself. The spin-off made a reputation, through more standard products the price falls and quality improves, and the employees are becoming more experienced. This means that it should become easier to attract new customers. In this stage, the spin-off needs to consider separation with every new customer. Figure 5.2 shows this strategy.

Differences with the original strategy

There are several differences between the original process described in Figure 5.3 and the proposed process in Figure 5.2. These differences are:

Consideration off all relevant resources: In the original model the decision to spin-off or not is only based on the network potential. This network potential was vague and is now better predictable. In the new process, all relevant resources are addressed.

Trigger: In the old process when the organization reaches 25 employees, it would start looking at new networks. Finding and entering a real new network is hard because knowledge of a new network is not available and reusing software is not possible. If a new customer starts this process and the focus will be on its connected network, Topicus profits from reputation, reusing software components, and knowledge of the employees;
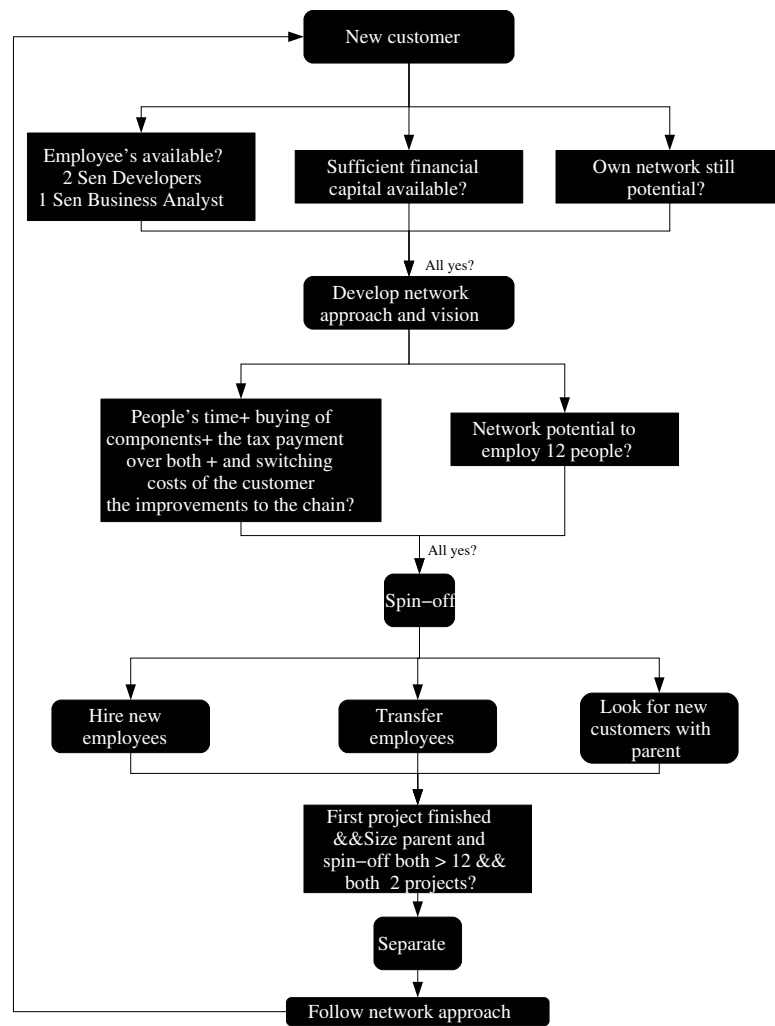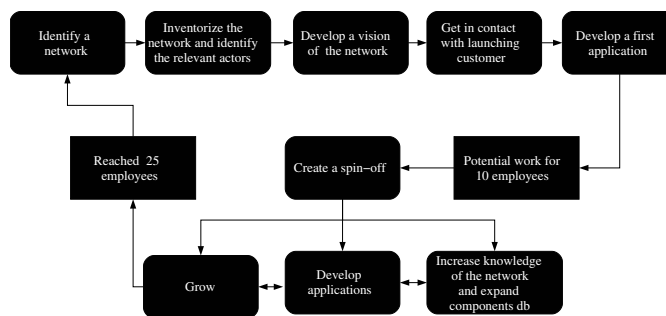
Figure 5.2: Topicus' new decision framework

Figure 5.3: Topicus' original decision framework

Spinning of earlier: When Topicus spins-off earlier, the smaller firm size will stimulate the entrepreneurial climate and therefore this process will start itself again. When Topicus waits with focusing on a new network until it employs 25 people, the spin-off is possibly created when it grew until 30 and the actual separation will become even later. Spinning off stimulates organizational growth positively, therefore this change will speed up Topicus' growth.

Develop a network approach: In the original strategy, Topicus selects a network but does not figure out a concrete path to enter the network.

Cooperation with parent: The importance of the cooperation in the post-separation phase is emphasized. Many of the resources a spin-off has are coming from the parent. The spin-off needs to have sufficient time to perform two projects and build a reputation before coming to stand alone.

5.3 Conclusion

In this chapter, a new strategy is created that optimizes and combines the organizational and product strategy. Optimization is done by combining important resources for entering a new market. Topicus now reuses software when it is possible and it attracts customers that are interested in Topicus, but there is no line in it. By creating a development path before a network is entered, reusable components can be created and Topicus can start with smaller projects, which means that it generates a quicker cash flow and it needs fewer employees for carrying out projects.

With this in mind, a new strategy is created. The new strategy is initiated by a new application for a potential customer. With the new customer, the organization should first look at its current resources for evaluating if it is possible to separate. If this is the case Topicus should investigate the network and develop an approach when the network offers enough potential. Then a new spin-off should be created. After this, new projects should be brought in and when sufficient employees are available, the organizations can separate entirely.

This new strategy has the advantages that it considers all resources, is based on the right trigger, and spins-off earlier, which shall result in a quicker growth.

Looking Back

"IKEA is not completely perfect. It irritates me to death to hear it said that IKEA is the best company in the world. We are going the right way to becoming it, for sure, but we are not there yet. "

Ingvar Kamprad - Founder of IKEA

In the last chapter a new strategy is developed which combines the current organizational strategy and the product strategy, and improved the current process. This new strategy is different from the old development process, because it considers all relevant resources, is started with a new project, spins-off earlier, develops not only a vision but also a network approach, and emphasizes the importance of the cooperation with the parent. The objective of this chapter is to show the application of this new strategy to Topicus' past, which is described in Chapter 3. This history showed Topicus' employee growth and its important projects that have been carried out. Because the new strategy's decision to spin-off or not is based on the available employees and financial capital, and the potential of the new network that a customer offers, it is possible to look back at these decisions.

6.1 Topicus Healthcare

A few years ago, the healthcare sector started to professionalize. One of the results of this professionalization was the investment into the IT-infrastructure. Topicus profited from these improvements by first creating a system for the general practitioners followed by other applications for instance for the pharmacies.

Topicus Healthcare separated when Topicus employed 14 software engineers and it was de-

veloping its second application in which it could reuse nearly the entire general practitioners application. Other actors in the network all needed to have an application that supports a *Patient Record*, and not many actors in it were already supported.

Separating with 14 employees is early, because it is then hard to carry out three projects at a time. However, Topicus employed approximately eight senior software engineers: four business analysts and four developers. Before it separated entirely Healthcare hired five new employees and Topicus itself four. This makes it that all important capitals are supported in the pre- and separation phase.

Now, Topicus carried out several projects in this sector. The project Topicus did for the general practitioners was the largest application so far. According to this research, to enter a market successfully it is easier to start with a small project. However, because Topicus succeeded to create a qualitative application for the practitioners, Topicus' build up a great reputation in this sector. Furthermore, the general practitioner has a central position in this network and its application functioned as a base application for many of its later systems. The applications that did not reuse this system, reused the developed knowledge. Important for entering this market was that the general practioners were interested in an application while others were not yet.

Through the problems with ownership rights, it is easiest to separate while developing a first application in a sector. However, at the time Topicus started developing the general practitioner's system it only employed 8 software engineers. It was therefore impossible to separate at that time.

6.2   Topicus Education

Topicus Education separated after it carried out a few projects in the sector, a year after Healthcare separated. This was possible because Topicus hired a few experienced employees and some employees that started at Topicus as junior already had two years time to develop themselves.

In the educational sector it is harder to become a network integrator as in the healthcare sector. However, the educational sector is very immature and offers some large institutes. These institutes do not have financial capital to invest directly, but they are willing to pay a fee per student. Topicus already realized a cash flow from the elementary schools and the new application for colleges covers 45.000 students. Because of this, the spin-off was supported by financial capital at its start through the elementary school's application and in the future through both. Furthermore, both applications are still under development because an extended functionality will increase the demand even further.

Because both clients are at a central position in the educational sector, Topicus realized a cash flow from this sector, and it had several senior employees available that were experienced in this network and motivated to start a new spin-off, all capitals were supported and it was a right decision to separate. Nevertheless, it is hard to profit from the position and the reputation in this network, therefore it is hard to grow in this sector and attract new customers. Education did realize this by attracting MBO schools but it is not easy to survive in this network.

6.3 Topicus Finance

The financial sector was the first sector for which Topicus created an application. Beginning 2007 Topicus setup a spin-off for this sector, after it created Finture. Its launching customers were the Friesland Bank and Sparck in which it could reuse software from Finture.

Creating Finance was possible because Topicus still employed sufficient qualified and motivated employees, its total number of software engineers increased till 14 again, Topicus built up a name in the sector, it had a base application, and it received a cash flow from the Friesland Bank.

Nevertheless, the parent did not have a network for itself anymore. Therefore, the decision to split was not in-line with the new strategy. Sharing resources between organizations is expensive and Topicus needed to hire out all its employees to Finance until it found a new network. Finance's base software was already developed by Topicus, so Finance needs to share much of its profit with Topicus, and because it already was very well known in this sector the number of project offers grew rapidly, therefore it now even hires employees from Education. Because Finance got so much job offers Topicus accepted a project that is on the edge of the financial and healthcare-insurance sector: Nedasco.

6.4 Topicus

The new direction of Topicus is promising because it is a large sector and legislature in it changed last year. This resulted in many cooperations between organizations. This sector is a part of the financial sector, so Topicus profits from its reputation. Nevertheless, the software is different and it does not have much knowledge of insurances yet. Furthermore, it does not have two business analysts and therefore it now hires one from Finance. In the new strategy, parent and spin-off work together until both have two assignments and by this guarantee continuity.

However, Topicus is financially seen the strongest, it already employs nine people and the effect of something new stimulates motivation. This makes Topicus the most qualified organization to look for a new network. But it could have focused earlier on customers from a different sector.

6.5   Topicus Care and Topicus Cure

Beginning 2008, a new spin-off is planned. Healthcare will be separated in Care and Cure. Cure will focus on the first line helpers for which Healthcare created most applications, Care will become a new innovative organization, which will focus on the second-line care. Care is therefore the next spin-off.

Topicus Healthcare employs 20 software engineers and just started its second project in the Care sector. It was impossible to separate Healthcare in the time of its first Care assignment, because it then just employed ten employees. However, at the time of its second assignment, it employed 19 employees from which eight of them worked for two years or more at Topicus. Because, financial capital and a reputation in the sector were already available, it was possible to separate at the beginning of its second project in this sector.

6.6   Conclusion

This chapter evaluated the application of the new strategy to Topicus' history. This showed that the decision to spin-off Finance is not in line with the new strategy, because the parent did not have a new network yet. This resulted in some difficulties that are accommodated with the support of other Topicus' organizations. Furthermore, it was possible to separate Care and Cure earlier.

The separation of Finance is an example of the important role Topicus' personnel fulfills and therefore the entrepreneurial climate at Topicus. Topicus employed an entrepreneur with much knowledge of the particular sector. This is why a spin-off is created when another customer with a similar request comes by. It is also a reason why Topicus Education separated before Finance, because at that moment an entrepreneur, qualified employees and a large project were available for the education sector.

Therefore, this history backs-up the new strategy that personnel, financial capital and a new customer should drive this process. This new customer should be found in a related network so Topicus profits from available knowledge and its reputation. In the same way as Topicus found its new network. However, it is also seen that the availability of all-important resources at one moment is hardly ever the case.

<div style="text-align: right; font-size: 3em;">7</div>

Discussion

> *"Our idea is to serve everybody, including people with little money."*
> Ingvar Kamprad - Founder of IKEA

I n this research Topicus' success is evaluated. This success is realized by an organizational and product strategy and resulted in a remarkable growth. In this chapter, our research is summarized, the application and limitations of our findings are explained, and the scientific contribution is discussed. It ends with some final remarks.

7.1   Conclusion

Topicus is a software developer with a unique strategy. With this strategy, it realizes an exceptional success, which is rewarded with a first position in the *Deloitte Technology Fast 50* in 2004. Topicus' strategy is twofold, an organizational strategy that is characterized by spinning-off, and a product strategy based on application service providing. The result of this strategy is that Topicus is now divided in four different organizations that work closely together but all focus on a different niche. This is a different strategy than that of other IT-organizations that grow as one.

The initial objective of this research was to explain Topicus' success. However, after a short analysis was concluded that both strategies connect in the development process, and that this development process has the same goal as Topicus' mission: to grow quickly, while both strategies are not focused on it. In the case of Topicus, growing is similar to success and therefore the objective of this research is to find an answer to the following question: **How to setup successful spin-offs by striving to become a network integrator?**

To answer this question, first both strategies are evaluated in order to identify the factors that contribute to the current success and growth. After this, an integrated strategy is developed that stimulates growth even further.

How does Topicus' organizational strategy stimulates growth?

Topicus' organizational strategy created a very flexible organizational structure, based on focused spin-offs, with motivated personnel, and without a corporate parent so the entrepreneur makes the decisions. This organizational structure is inline with Topicus' strategy, which focuses on becoming a multi-niche player, and its environment. This strategy is controlled and maintained by Topicus' existing culture. Because spin-offs start with much experience, sufficient financial capital, and a long separation phase in which the spin-off profits from the parent, the spin-off's success is almost guaranteed. These success-factors are also the factors that contribute to the growth of the spin-off. However, not only success-factors stimulate growth, but also the spinning-of itself. A spin-off needs to pay tax over transactions with its parent, therefore sharing of personnel is stopped as quickly as possible which requires the attraction of new personnel. The spin-off decision is stimulated by the entrepreneurial climate.

How does Topicus' product strategy stimulates growth?

Topicus' product strategy focuses on developing software applications that are offered to different customers over the internet. This offers the advantages that customers are not responsible for maintenance and Topicus stays the owner of the product. By creating applications for an entire network, Topicus has the possibility to optimize the network, and reach many customers in it with relatively little effort.

Topicus sells its applications because they reduce the current operation costs and improve the flexibility of organizations through several optimization techniques. Because of this, organizations are willing to invest in Topicus' applications and therefore Topicus can enter a market. Through creating qualitative software quickly, which is possible because it has much experience, reuses existing software and applies agile programming, Topicus can attain a large market share rapidly. When Topicus has a large market share, the network effect is stimulated, which will result in increased demand. Because it is also hard for customers to switch, it is hard for competitors to enter a market in which Topicus is settled. However, the same reasons make it hard for Topicus to enter a market that is already supported with an application.

The application of this strategy is very dependent of the specific characteristics of the sector.

The network's size, the possibility to reuse software, the competition, and the money in the network influence the success of this strategy.

How can both strategies be combined so they stimulate growth?

A new strategy is created that combines both strategies in order to setup a successful spin-off. This strategy is based on the success-factors of the two.

The combined strategy requires an extensive evaluation of a network that is connected to a new customer of Topicus. It is, however, easier to start with examining the available resources: employee situation and financial capital, followed by the current network's saturation. Then the new network's potential should be considered. This is done by investigating the existing software components and the size of the potential projects, which will result in a project sequence. This sequence makes it possible to work with fewer employees, create a quicker cash flow, and have a clear objective for the entrepreneurs. Based on this information the decision to split or not should be based. This sequence is the proposed development pathway for a network. When the organization is split, parent and spin-off need to work together until both are viable.

This strategy has some advantages over the original strategies: growing is stimulated, software reusability is improved, opportunities are better thought over, and therefore customers are easier attracted. This strategy reinforces itself, because with every customer the possibility of spinning-off is evaluated, the entrepreneurial climate drives employees to spin-off and the network effect stimulates the selling of applications.

However, when this strategy would have been used from the beginning, not many differences would have been realized. Care and Cure could have been separated already instead of beginning next year. Furthermore, the strategy does not agree with the decision to split Finance from Topicus, because Topicus did not have a new network yet. However, for creating a spin-off, it was the right moment. Through the entrepreneurial climate, Finance was created. In the future, it probably is wise to look for a new direction earlier.

Evaluation

To become a successful network integrator as a spin-off requires several resources:

- A new customer that has a connection to a new network, which offers the opportunity to become a network integrator. This opportunity depends on the possibility to attain a large market share, to reuse software, and profit from a reputation;

- A motivated entrepreneur, a business analyst and two experienced developers;

- Sufficient financial capital;

- The support of the parent until the spin-off build up a reputation and hired new employees to carry out two projects.

When these resources are available and with the support of the parent, the spin-off is actually a mature organization already, which makes it nearly impossible not to succeed.

Topicus created a very successful strategy based on application service providing and spinning-off. Through application service providing it becomes possible for many organizations to adopt a custom-made application that in the past was much too expensive. Furthermore, these organizations also did not have the capacity to maintain the applications themselves, which is not needed now. A small organization or spin-off does not have the resources to control a developed market and compete on price with off-the-shelf packages, but it can create custom applications for a low price quickly. The integrated approach, shown by Figure 5.2, improves both strategies because it requires less resources in order to grow.

Topicus does not have the objective to act global, but focuses on small niches in the Netherlands. The focus on these niches explains the different strategy than that of the large it-organizations. They focus on customers all over the world and present them personalized offers. By combining organizations, better offers are made. Combining is possible because integration is easy through digitalization, and deregulation forces organizations to specialize. Topicus strategy is focused on the customers or groups of customers that are not served by an off-the-shelf package but require a customized application.

7.2   Recommendations

In this research a new strategy is developed. This strategy states that Topicus should spin-off whenever it is possible, and that both organizations should work together until they both can function well without support of each other. This strategy considers all relevant factors that need to be taken into account in the spin-off process, as well as its optimal values for spinning-off. The important factors are:

- Employee diversity;

- Financial capital;

- Potential of the current network;

- Potential of the new network.

By using this strategy in the intended way, Topicus should reach its maximum speed of growth. Nevertheless, the application of this strategy in the intended way will be difficult,

because all resources for splitting up are probably not available at the right moment, competitors already act, or the vision is not decisive.

Probably, selling the first application, in the intended way of the network approach, is the most difficult task to realize. The network approach investigates reuse of software and the size of the applications. This approach results in a development path that requires the least resources and therefore is the cheapest and the quickest to fulfill. Because of this, the applications can be sold for a lower price when this approach is followed. However, the question is, does this aimed customer want to invest?

This new strategy therefore shows many insights in the current processes of Topicus, but it probably is hard to apply strictly. Therefore, we propose just to consider this strategy whenever a new customer is contacted.

At the moment, it still is possible to see a new customer as a potential launching customer for a spin-off, but eventually Topicus will need to focus onto an entire new market, if it wants to keep growing as it does now. Nevertheless, there are not many immature networks anymore and Topicus does not have much knowledge about different networks. Therefore Topicus needs to stay informed about changes in legislature, because this can create new opportunities. Changing legislature often results in splitting or combining organizations, in which Topicus is specialized. For instance, the energy sector will be divided in organizations that generate, transport, deliver and sell energy. Now, some organizations carry out all these actions themselves, which makes it hard to start a new organization in this market. When organizations are split and new organizations will be started, information needs to be shared between organizations in this network, from which Topicus can profit.

7.3   Limitations and future work

Topicus created a well thought out strategy, which this research slightly adjusted. Because this was a research of only six months, it is possible that there are more factors important for Topicus' strategy. Furthermore, a longer history offers more information. The current information was a little scarce, because only three spin-offs are created until yet. In addition, through Topicus' division in small organizations, it does not have many obligations. For instance it does not have to make its profit numbers public. The directors were not willing to share these numbers so they are not considered in this research. There are other aspects of this strategy that could be deepened out a bit more that all consider Topicus as a whole:

- Licensing and sharing resources between different Topicus organizations are now taxed. It could be useful to investigate if it is possible to reduce the tax payments. This investigation can be done from a legislature point of view, but also by investigat-

ing shared tasks between organizations and reducing and/or optimizing them.

- Topicus created a large software library with small functional components, however the use of the database is limited to small functional components, while the applications Topicus' develops are alike. Reusing components can probably be optimized;

- This research did not prove the actual efficiency gains in software development. It showed that Topicus created a very good environment in which motivated employees can really develop themselves and that it develops qualitatively high software through agile programming. However, it did not show that there occur fewer problems than in other sofware houses. Investigating other techniques for improving the software development process, such as testing, can improve Topicus' efficiency further.

- Information sharing between spin-offs can be improved. At the moment, new research is often discussed in the meetings between the entrepreneurs and in a yearly workshop, however not all new findings are discussed then. Possibly, an internet forum with best practices can reduce duplicate research.

7.4 Theoretical contribution

This research contributes to literature in two ways:

Corporate spin-offs: This research area is not extensively examined and therefore many papers used in this thesis are from the field of university spin-offs. University spin-offs are often focused on the exploitation of one technology. Corporate spin-offs are offsprings of an organization that, according to existing literature, often does not fit the organization's main objective.

Topicus' development shows that the first project of the spin-off often was a large share of the work of the organization the spin-off splits from, but with just a slightly different focus. Because of the entrepreneurial climate and the possibility for employees to make a career step, a spin-off is created. This is not such a risky step because there is much support from the parent. At Topicus, the employees see the creation of a spin-off as an opportunity. Therefore, it is something positive, instead of negative as often seen in literature.

Organizational design: In this research is discussed that a partnership is a governance form that is very effective for rewarding knowledge workers. Through spinning-off, Topicus rewards the entrepreneurs in a similar way as the partners, but without the problems that are a result of the partnership form.

7.5   Topicus' opinion

Topicus read this research and commented upon it. According to it, this is an interesting thesis that will be considered for its further development. In the opinion of its directors, a new critical point will be reached next year, being: 100 employees. The directors expect that it will be a challenge to grow on after that point, in which this research can really help them. Nevertheless, Topicus is familiar with many of this research's recommendations. Under the surface, some things do happen already, but were not considered as so important, until today.

7.6   Concluding

In this research is stated that a competitive advantage is inimitable. Therefore, a right question might be, if this research endangers Topicus' competitive advantage. To our opinion, it does not. This strategy is based on the initiatives of its personnel that is stimulated by the entrepreneurial climate. It is impossible to change an existing organizational climate into an entrepreneurial one, because it requires the right people and small organizations. This climate therefore needs to be developed from the beginning. This makes it that only new organizations can apply this strategy.

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