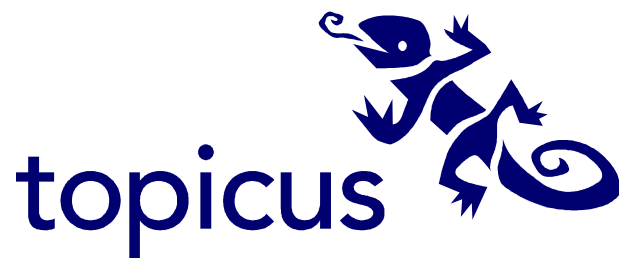


Entrepreneurship At Topicus



Supervision

University of Twente:

- J. de Leede
- J.C. Looise

Topicus:

- H. Romkema

Enschede, 10-06-2013

Master thesis

Yulia (Y.A.) Dudnik

Student number: 0051551

University of Twente

Faculty Management & Governance (MG)

Business Administration (BA)



Universiteit Twente
de ondernemende universiteit



Summary

The project described in this thesis was conducted to complete the study Msc Business Administration (BA) at the University of Twente. It is an applied research project that brings theoretical insights into an HR related challenge at Topicus.

Being a relatively young and rapidly growing organization Topicus is unavoidably confronted with various organizational challenges. Within this research the attention goes to the recruitment. In this case the focus lies on figuring out the identity of the employee, which would be most beneficial for Topicus to attract. In particular, the aim is to find out the actual importance of entrepreneurship as an essential part of the potential employee identity.

The need to pose the following research question is triggered by the way Topicus specifies the type of employee they wish to attract. This is because entrepreneurship is highlighted as the prominent quality to search in the potential employee and it is based on the strong opinion that it actually leads to the economic success of Topicus. As a result the following question arises:

“What is the relation between entrepreneurship and the economic success of Topicus?”

To answer this question two sub-questions are posed and entrepreneurship is approached both theoretically and empirically. *Theoretical elaboration* is done by:

- defining entrepreneurship,
- finding out how entrepreneurship is applicable, or related to individual and organizational levels,
- finding out how entrepreneurship could be measured.

Empirical elaboration on entrepreneurship covers:

- the description of several organizational components in relation to entrepreneurship at Topicus,
- the measurement of entrepreneurial competences at individual level among currently employed individuals.

Organizational success is another main element within the research question. It is defined, analyzed and brought in relation to entrepreneurship in order to answer the main question.

Researching whether entrepreneurship is present within the identity of the desired employee is done by applying the E-scan [DRI05]. It is a validated, competence based instrument which is specifically designed to measure entrepreneurial abilities of individuals. The outcome of this measurement at Topicus is used as main foundation to draw the conclusions about the degree of entrepreneurship actually existing at Topicus. If entrepreneurship is actually determinant for the prosperity of Topicus, then it should be evidently present among the current employee population. It is based on the argumentation that the main facilitator of entrepreneurship is the ‘entrepreneurship able’ individual.

The status of entrepreneurship at Topicus is also underpinned by the elaboration on how well the components of the organizational environment are arranged to facilitate, support and promote entrepreneurship within Topicus. It is about what we will refer to as finding out about the presence of entrepreneurship at the organizational level.

The results of the E-scan showed that the overall employee population at Topicus did not prove to be entrepreneurial as it was expected at Topicus. Also the entrepreneurship was not extensively and consistently present within the organizational components of Topicus. After combining the outcomes of researching both the individual and organizational levels at Topicus, we concluded that entrepreneurship is not as prominent as it is expected to be and thus cannot be seen as the main catalyst of success reached.



However entrepreneurship is an essential element within the structure and strategy of Topicus. It remains important, even if it is not proven to be fully determinative for Topicus' welfare.

Strategy and structure of Topicus are actually highly depended on the presence of entrepreneurs at Topicus. This is why it is advisable to keep promoting entrepreneurship. But it is not desirable to have entrepreneurs as the representatives of the majority of the population at Topicus. Topicus would benefit by spotting and developing the top potential entrepreneurial talent and by nurturing the IT professionals by creating organizational arrangements which are based on the preferences of this particular population.



Preface

The document lying before you is the thesis I wrote to finish my master phase of the study Business Administration (BA) at the faculty of Management and Governance at the University of Twente.

The project has been conducted for Topicus in order to give answers to organizational challenges they experienced. From Topicus guidance was given by Harry Romkema and Liesbeth Platvoet. Supervision from the University of Twente was given by Jan de Leede, Jan C. Looise and Maarten Riemsdijk. To all of my supervisors I would like to express my deepest gratitude for the help and enormous patience they have given me.

Moreover I would like to thank the employees of Topicus for their fellowship and their willingness to help me gather the relevant research results. Also my husband Leo Eijkelenkamp deserves my gratitude for being supportive and encouraging. Thank you all.

Enschede, June 2013

Yulia Dudnik



Contents

1	Introduction.....	6
1.1	Research Initiation, Purpose, Goal.....	6
1.2	Research question	7
1.3	Research method.....	8
1.4	Preliminary framework.....	9
1.5	Structure of the paper.....	10
2	Theoretical framework	11
2.1	Entrepreneurship.....	11
2.2	Entrepreneurship vs Intrapreneurship	11
2.3	Entrepreneurship and success	13
2.4	Entrepreneurship and Competency	14
2.4.1	E-Scan	14
2.4.2	Competency.....	14
2.5	Entrepreneurship and organization.....	15
2.5.1	Strategy and entrepreneurship	16
2.5.2	Structure and entrepreneurship	16
2.5.3	Culture and entrepreneurship	16
2.5.4	Innovation and entrepreneurship	17
2.5.5	HR and entrepreneurship.....	17
2.6	Definitive conceptual model.....	19
3	Research methodology	20
3.1	Qualitative method	20
3.1.1	Data collection and data analysis	21
3.2	Quantitative method	22
3.2.1	Data collection.....	23
3.2.2	Data analysis.....	24
3.2.3	Success.....	26
4	Topicus: entrepreneurship at organizational level	27
4.1	Mission.....	27
4.2	Strategy.....	28
4.3	Structure	29
4.4	Culture	33
4.5	Innovation	33
4.6	HRM.....	34
4.7	Other organizational settings and entrepreneurship at Topicus	36
4.8	Success; growth and innovation.....	39



5	Topicus: entrepreneurship at individual level	41
5.1	Suitability and goal of the measurement.....	41
5.1.1	Suitability.....	41
5.2	Results measurement	42
5.2.1	Result descriptives	42
5.2.2	Cronbach alpha.....	43
5.2.3	Outcomes statistical proofing theory.....	43
5.2.4	Estimating and Confidence intervals.....	45
5.2.5	Correlations.....	45
5.3	Summary Outcomes E-scan.....	46
6	Conclusions, Discussion and Recommendations.....	47
6.1	Conclusions	47
6.2	Discussion.....	49
6.3	Recommendations	51
7	References	52



1 Introduction

This research can be described as an applied research project that brings theoretical scientific insights into a specific organizational HR challenge at Topicus. In the document lying in front of you, the elaboration and results of the thesis are presented. The guiding principle of the thesis will be the theoretical research design.

In the forthcoming chapter various elements of this research will be presented:

- Research Initiation, Purpose, Goal
- Research Question
- Research Method
- Research Framework
- Structure of the paper

This chapter will be concluded by describing the “Structure of the paper” where the actual layout of the paper will be given.

1.1 Research Initiation, Purpose, Goal

In this section we will discuss how this research came about, its purpose and goal. This project is an applied research project that brings theoretical scientific insights into a specific organizational Human Resource Management challenge at Topicus. HRM is a broad subject and within this research it will in particular concern the recruitment theme as an identity establishment of the desired employee. The main interest is to find out the actual status of entrepreneurship as essential part of the employee identity.

Realizing, supporting and speeding up the growth could be seen as the original catalyst to initiate this research. At first sight, growth is something Topicus is being particularly successful in, as Topicus has been more than once appointed as one of the most rapid growing SME's in the Netherlands, and was number one in 2004 (<http://www.fast50.nl>). And still, the main problematic actuality at Topicus is their urgency to speed up attracting the desired type of employees.

The research is done in the time when the scarcity of the “right” type of employees available on the labor market was also accompanied by the HRM immaturity at Topicus. At the moment remarkable accomplishments are made in the professionalization of the HR structure, activities and methods.

The reason Topicus is interested in this matter lies in the fact that realizing the rapid growth is not just a matter of luxury. It is tightly bound to fulfilling the organizational goal and vision, and to effectuate the firm's structure and strategy. Further elaboration on organizational components comprising Topicus will be given later on in this paper.

HRM, recruitment in particular, and growth ambitions are the general motives which ultimately led to the curiosity around the entrepreneurship and questioning its actual presence and contribution for the vitality and success of Topicus.

Due to the applied nature of this research, the outcomes will be presented as conclusions on the actual status of entrepreneurship within Topicus, and recommendations will be given concerning the role of entrepreneurship at Topicus.



1.2 Research question

Now that an impression has been created related to the research origins and purpose, the research question and corresponding sub questions are to be introduced.

The main question within this research is formulated as;

“What is the relation between entrepreneurship and the economic success of Topicus?”

The need to pose this question arises from the high expectations and preference expressed by Topicus towards entrepreneurship. Also, by establishing the actual status of entrepreneurship present at Topicus, especially at the individual level, more clarity should be obtained concerning the employee identity.

Besides IT related knowledge and (analytical) skills of individuals, entrepreneurship is another major requirement posed by Topicus concerning the employee identity and organizational needs. Topicus is convinced that they need to keep attracting entrepreneurial gifted employees. And that entrepreneurship is already present within the firm as it is indispensable for the sake of their organizational strategy, structure and goals.

Elaborating on the relation between entrepreneurship and economic organizational success will not be included within this paper. Economic success at Topicus is approached as a fact, and within this research it is of interest to find out if it has been caused by the presence of entrepreneurship, as it is expected by management. By establishing evident presence of entrepreneurship within Topicus we can argue that it could actually be plausible that entrepreneurship contributed to the prosperity of Topicus reached in the past.

Establishing presence of entrepreneurship at Topicus will be done across two levels, organizational and individual. It will be done by elaboration on the following two sub questions:

- 1) How well is entrepreneurship represented at the organizational level?

To answer this question entrepreneurship will be approached and viewed at the organizational level. This means that a closer look will be taken at the way entrepreneurship is incorporated within Topicus as a firm. Several components of Topicus as strategy, structure, goals, HRM will be discussed in particular.

- 2) How well is entrepreneurship represented at the individual level?

Entrepreneurship able individuals are highlighted by Topicus as indispensable “key-elements” leading to the firm’s prosperity. In order to answer this question a validated instrument will be used to recognize entrepreneurship able individuals.

Establishing the status of entrepreneurship at individual level is central for this research as answering this question would also contribute to figuring out the identity of employees Topicus needs to attract.

- 3) To what extent is entrepreneurship contributing to economic success (at Topicus)?

To answer this sub-question a few theoretical insights on the relation between entrepreneurship and organizational success are given.

After this the results of the first two questions will be combined in order to answer this question. If the employee population, and organizational settings, will actually prove to be entrepreneurial according to the results of the measurements, than it will confirm expectations expressed by the management of Topicus that entrepreneurship actually contributed to the success realized by Topicus in the past.

To answer the main question the results of all the sub-questions will be combined and conclusions will be presented. Gathered insights will serve as a base for related recommendations.



1.3 Research method

Within this part an overview will be given of how the research was approached and conducted in terms of steps taken and methods used to answer the research question.

To answer the main question both sub-questions were answered and combined.

- Sub-question 1) was answered by describing entrepreneurship as actually present at the organizational level of Topicus. This information was obtained by means of conversations and interviews during the meetings with my mentors at Topicus: one of the owners and directors of Topicus, and the employee responsible for HR related activities. The description of entrepreneurship, as incorporated within the firm, is a product of general discussion on topics like the firm's strategy, structure, HRM and goals, as well as directly addressing the integration of entrepreneurship within Topicus. The obtained information was also accompanied by insights from scientific literature related to organizational components and entrepreneurship.
- Sub-question 2) is of main interest to the subject of this research. It is about revealing the status of entrepreneurship at individual level and taking the first step towards figuring out the identity of the employees. With other words, to figure out how valid the expectations of Topicus are about the importance of entrepreneurship within Topicus, it is necessary to establish who the employees Topicus attracts actually are. This question is answered by applying the validated, competency based instrument, called the "E-scan", to measure entrepreneurial abilities of an individual.

The E-scan is chosen since it is a validated instrument specifically designed to assess the qualities and capabilities, or competencies, of an (potential) entrepreneur. It is currently used by a Dutch bank while deciding to grant a loan or not. An interesting feature is that it not only gives a valid indication whether an individual is an entrepreneur or not, but it gives also an overview of separate constructs scores comprising the entrepreneurship.

- Sub-question 3) is about defining success (at Topicus) by identifying the relation between economic success and entrepreneurship especially as it is present within Topicus.



1.4 Preliminary framework

In this paragraph a conceptual framework will be revealed. It is a visual, schematic representation of theoretical constructs and variables which already have been introduced within the research questions. According to this model the relevant theoretical insights will be introduced and described within this research.

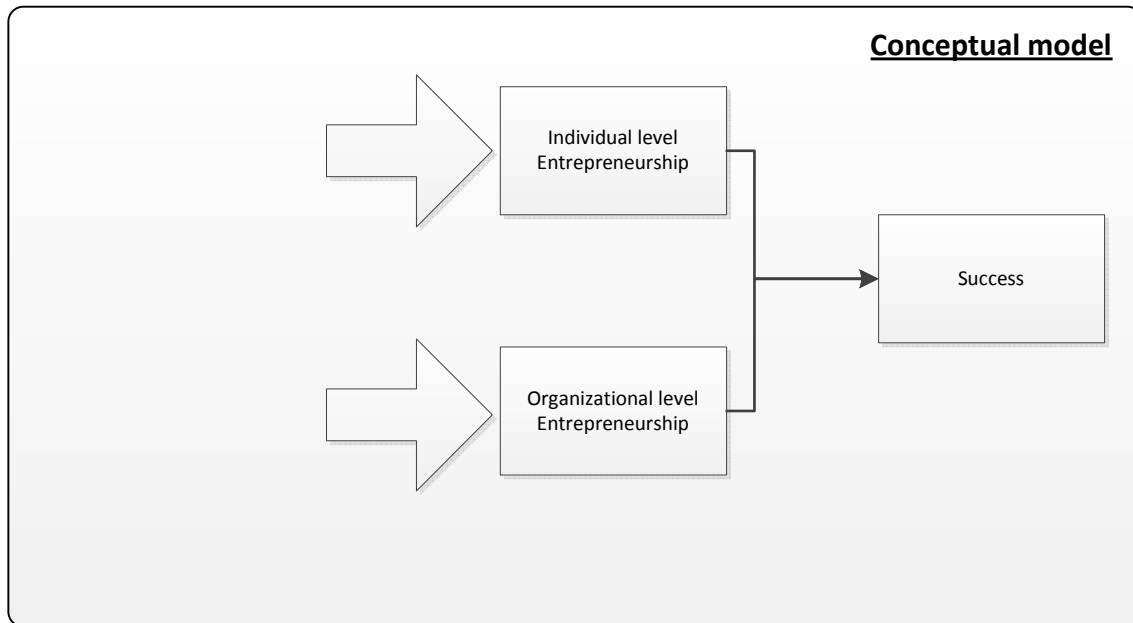


Figure 1 – Preliminary conceptual model

As a next step we will define the variables and elements, included within the research question and conceptual model, which are to be defined and measured.

- Individual level entrepreneurship**

The growth oriented entrepreneur is the type employee Topicus believes is responsible for success reached in the past and necessary for effective performance in the future. With other words, Topicus raises great expectations for a particular type of individual which fits most of the profile of the (growth oriented) entrepreneur. Entrepreneurship at the individual level will have to be measured by using an instrument to assess the actual presence of entrepreneurial abilities as an essential part of the current employee's identity.
- Organizational level entrepreneurship**

This concept concerns finding out if entrepreneurship is incorporated and utilized through organizational elements and processes as strategy, structure, innovation, etc. Firms may preach the importance of some ideas or concepts, like entrepreneurship in this case, but it only can become a reality if it is actually supported by the firm's elements and processes. Such constructs should be communicated well in terms of mission and goals, but it is even more important that it is visible to the employees at operational level. By answering the related research question an overview will be given of how well entrepreneurship is present at the organizational level.



- **Success**

Success can be approached and defined in various ways. In our case we speak about the organizational success which is expected to be an effect of the combination of individual and organizational entrepreneurial abilities and characteristics. Especially individual entrepreneurship is expected to be the main reason behind the success of Topicus. It is however not entirely about theoretically underpinning the validity of the relationship between entrepreneurship and organizational success. We will argue later on that success is too relative and context bounded in its nature to approach it strictly theoretically. Opinions, expectations and goals set by the firm are leading for this reason. It is mostly about finding out the actual presence of entrepreneurship at Topicus. If the presence of entrepreneurship will not be proven, we could reason that entrepreneurship must not be seen as catalyst of the success reached in the past. Thus, success within this research is success at the meso level, which is measured by the organizational financial prosperity and growth of the employee population [DRI05].

1.5 Structure of the paper

Based on the steps of the project guideline as described above, this thesis has the following layout:

- In chapter 2 a theoretical framework is introduced to offer theoretical support to the subject's which are central within this research.
- In chapter 3 we will explicate the research methodology applied to come up with reliable answers to our research questions.
- Chapter 4 describes Topicus in general and by highlighting the most relevant organizational elements in relation to entrepreneurship.
- Chapter 5 shows entrepreneurship within Topicus at individual level. The results of the measurement are presented in this chapter.
- Chapter 6 shows the conclusions, discussion and recommendations



2 Theoretical framework

In this chapter a theoretical framework is introduced to offer theoretical support to the subjects which are central within this research. The elements highlighted within the conceptual model will be defined and provided with theoretical background. The theoretical framework discussed in this chapter consists of the following parts:

- Entrepreneurship
- Entrepreneurship and success
- E-scan – a competency based measurement instrument. Applied to assess the presence of entrepreneurship at individual level at Topicus
- Various theoretical insights bound to the elaboration on organizational level in relation to entrepreneurship

2.1 Entrepreneurship

The notion of entrepreneurship is central within this research. We will start by introducing and defining it by leaning on scientific literature which fits the way entrepreneurship is approached at Topicus, and the context of this research.

The widely accepted definition of entrepreneurship is ‘the process of uncovering and developing an opportunity to create value through innovation and seizing that opportunity without regard to either resources or the location of the entrepreneur’ [ANT01]. However, within this research entrepreneurship will be defined by aiming at the entrepreneur as the catalyst of the process of entrepreneurship [DRI05].

Entrepreneurship within the economies is known as desirable phenomenon. Entrepreneurship is also considered to be advantageous to be incorporated within the organizational boundaries [DRI05]. Entrepreneurial individuals are expected to be catalysts of the new value creation, but how many entrepreneurs an organization need and how many of them it could actually manage?

Theoretically entrepreneurship can be present at different levels, corporate, divisional and operational, among the employees. Entrepreneurship could lead to the advantages at all the levels if it fits the organizational needs and capabilities.

Theoretically it would be most correct to use the term intrapreneurship in case of Topicus, because entrepreneurial activities actually occur within the existing boundaries of Topicus. But because of minimal differences between those concepts [DAV99], [HIT02] and high degree of professional and operational freedom given to those individuals at Topicus, we will mostly refer to individuals as entrepreneurs. The choice to use both terms interchangeably will be elaborated in the next section.

2.2 Entrepreneurship vs Intrapreneurship

We already have mentioned that within this research both theoretical findings on intrapreneurship and entrepreneurship will be applied. Within this section both constructs will be introduced and compared and the choice to use both the constructs will be clarified.

Research on entrepreneurs and their personal traits have often produced conflicting results. The possible explanation could be the fact that not all the entrepreneurs are homogeneous in nature. Especially the difference in degree of growth orientation is being appointed as a probable cause of confusion [SMI87], [BRO86], [BEG87]. The growth oriented entrepreneur is the one Topicus wishes to have and it is also the important element of the entrepreneurial approach made by Driessen in his E-scan, which we have applied at Topicus.



To be as correct as possible, using the relevant terminology, we need to mention intrapreneurship and intrapreneur as well. Intrapreneur can be defined as entrepreneur within existing organizations, and they closely resemble independent entrepreneurs [HIS90], [LUC97].

The ideal profile of intrapreneurs listed in decreasing order of priority [MEN07]:

Priority	Aspect
1	<i>Vision and creativity</i>
2	<i>Initiative</i>
3	<i>Internal motivation</i>
4	<i>Autonomy</i>
5	<i>Risk taking</i>
6	<i>Internal control</i>
7	<i>Commitment and persistence</i>
8	<i>Market knowledge/customer orientation</i>
9	<i>Knowledge of organizational structures and willingness to cross-functional borders</i>

A lot of the elements constructing the profile of the intrapreneur are found in the profile of the entrepreneur as it is demonstrated in the research of Driessen [DRI05]. Priority is given by the norm given to every aspect by Driessen:

Priority	Aspect
1	<i>Market awareness</i>
2	<i>Need for achievement</i>
2	<i>Need for autonomy</i>
2	<i>Social orientation</i>
2	<i>Self belief</i>
2	<i>Endurance</i>
2	<i>Creativity</i>
3	<i>Flexibility</i>
3	<i>Need for power</i>

Another reason to holding on to the term and notion of entrepreneurship is the process of entrepreneurship. An entrepreneurship able individual at Topicus is valued because of its ability to bring about the process of (technological) entrepreneurship. According to this arguing entrepreneurship inside organizations is driven by people who have deep knowledge of a critical technology and sufficient market knowledge to judge potential demand [COH02].



As we can see there are a lot of similarities between the elements belonging to the constructs. Definitions seem also to be rather identical. Some researches even propose that intrapreneurs can be defined as entrepreneurs within existing organizations, as they closely resemble independent entrepreneurs [HIS90], [LUC97]. There is also evidence that no clear-cut profile is available that could help to identify intrapreneurs, but many of them do share similar personality traits [DAV99], [HIT02]. As individual entrepreneurs, intrapreneurs come up with new ideas, take full advantage of opportunities and turn them into profitable new realities, push for change and develop creative responses in the organization.

However, there are some distinctive differences in regard to what motivates entrepreneurs and intrapreneurs. The prospect of attaining personal wealth through founding a business is an important source of motivation for individual entrepreneurs. In the case of intrapreneurship, by contrast, the employer will benefit a lot more from the financial revenues generated by the innovation developed through intrapreneurship than the intrapreneur himself. In exchange, the risk that an entrepreneur has to bear seems to be higher than that of an intrapreneur. If his or her business is a failure this often means heavy losses for the personal wealth of an entrepreneur.

To conclude we need also to mention that in case of this research conducted at Topicus the differences between the entrepreneurs and intrapreneurs could be ignored. Reasons to do so are the greater similarities versus slight differences between those constructs and the nature of this research where identified differences are not of direct relevance.

2.3 Entrepreneurship and success

Organizational success is mostly expressed in terms of profit and growth. Topicus also follows this reasoning and scores high on both of those “key measures” [AND09]. Measures as growth and profitability might not be always the best way to measure success, mostly because both are lagging indicators.

With other words, it will give only a superficial view of what is already happened. To have a more detailed and better overview it is advisable to expose underlying constructs which lead to the firm’s growth and greater profitability. Leading indicators could provide such an overview, after being balanced with lagging indicators we just mentioned. Leading indicators could vary from brand image to customer relationship and employee competence.

Entrepreneurship, as a kind of employee competence, could be appointed to be the leading indicator. Entrepreneur expected to have a “bottleneck” role in the realization of goals and strategy set by the firm, and to be the element which leads to competitive advantage. Such expectations, goals and ambitions stated by the firm, are actual determinants of how a particular firm should measure its success. With other words, it is a relative notion which depends on the opinion and direction set by higher management. This is why the firm’s expectations, goals and opinions should be taken seriously in defining success.

Next we will look at entrepreneurship as a catalyst of success. Various researchers emphasize the importance of entrepreneurship within the organizations and its role in organizational renewal, innovation, and the creation of new businesses [ANT01], [HOR02], [PIN85], [WAY00], [TIM90]. The widely accepted definition of entrepreneurship is ‘the process of uncovering and developing an opportunity to create value through innovation and seizing that opportunity without regard to either resources or the location of the entrepreneur’ [ANT01]. The process of value creation is probably the most tangible element within the prior definition. It is also a part of employee competence which is supposed to be directly related to the growth and profitability as expected within this research.



2.4 Entrepreneurship and Competency

In this paragraph we will discuss the E-scan, a competency based measurement instrument to assess the individual entrepreneurial ability. It holds a central part of theoretical framework within this research as it enables to test the status of (individual) entrepreneurship at Topicus, and helps to clarify the identity of the desired employee.

2.4.1 E-Scan

One of the major problems concerning entrepreneurship is the identification of the individuals who may found and grow the successful new firms. The investors are interested in such a thing because gifted entrepreneur have much bigger chances to succeed and make the risk of investment less risky [DRI05].

For this reason the E-scan is developed by Driessen [DRI05]. It is an instrument to directly and exclusively measure the entrepreneurial competencies of an individual. With other words it is an instrument which gives an answer whether an individual is an entrepreneur or not, by measuring a number of competencies which make an individual an able, or better sad successful entrepreneur. In this way the answer will be given to the question concerning the presence of entrepreneurship at individual level.

E-scan is a validated instrument which is developed according to the scientific insights and rules. It is assembled by gathering proven entrepreneur own criteria, researched and validated by other scholars. And it has been already empirically applied within the large, random population. It consists out of nine factors altogether defining the norm, or score, to appoint somebody as a successful entrepreneur.

The actual measurement proceeds as follows. An individual answers a number of questions belonging to the different competency constructs. After this the answers are converted into the separate scores for each element and an average score is calculated. The average score, alongside with the overview of the separate scores expressed through the spider diagram, serves to give a comprehensive impression concerning the entrepreneurial abilities of an individual.

E-scan have also an advantage of being a nuanced instrument which also gives indications for improvements to be made regarding individual entrepreneurship competencies, as it is visually expressed by means of spider diagram.

2.4.2 Competency

Because the E-scan is based on competency approach it have an extra dimension of attractiveness, as competency is a solid theoretical base to assess the individual professional identity. To underpin this statement and to introduce the E-scan properly a few remarks must be made about competency. Competency is an essential part of the E-scan, as assessment of whether an individual is an entrepreneur or not is done by judging based on variety of multiple entrepreneurial competency related constructs.

Competency defined by Spencer & Spencer [SPE93] has no major deviations from general scientific insights on this subject. The definition states:

“...underlying characteristics of an individual that are causally related to criterion referenced effective and/or superior performance in a job or situation.”

Competency models in general include knowledge and skills as well as traits and motivations, as all those elements are proved to be influential in order to “competently and successfully performing in a position” [BOY82], [SHU10].



As we introduced above the competency model in general exists of elements as motivation, traits, qualities and knowledge. Within the E-scan the focus is on the traits and qualities. But in the E-scan it is formulated as characteristics and capabilities. The reason to focus on those two elements lies in their tangibility, measurability. For this reason motivation is not included. Knowledge is something that can be easily assessed by means of a business plan or Curriculum Vitae. [DRI05]

Traits/characteristics are formulated as a construct composed out of several elements. Those elements are:

- need for achievement
- need for autonomy
- need for power
- need for affiliation
- endurance
- market awareness
- creativity
- flexibility

The extensive description of those elements is available within appendix A in the appendices document.

The superiority of competency based approaches or instruments could be revealed by analyzing counterparts. Counterparts of competency approach are aptitude and knowledge tests, and traditional job analysis frameworks. Those methods are also capable to reveal some relevant information concerning the necessary elements of the professional profile, but compared to the competency based models create less complete and sometimes even less reliable insights [MCC73].

Further, competency is based on the notion that “It is difficult, if not impossible, to find a human characteristic that cannot be modified by training or experience” [MCC93]. It gives this approach an open-end character and potential for being used in various ways and for various purposes.

To summarize, the reasons to turn to competency based methods are:

- Create a more complete view
- More reliable
- Applicable for multi purposes
- More suitable when the employee is central

2.5 Entrepreneurship and organization

Within this part we will introduce theoretical insights used to underpin arguing about presence of entrepreneurship at the organizational level. Organizational elements as its strategy, structure, HRM, physical environment, innovation and culture, and how the entrepreneurship is incorporated within those elements will be discussed. The idea is that entrepreneurship should be visible or detectible within those elements because it is meant and expected by management of Topicus,



2.5.1 Strategy and entrepreneurship

Strategy is seen as the core of organizational identity to lead and direct the organization [KAP92]. Strategy is an element which must be set properly in order to encourage engineers to take initiative as entrepreneurs; it is top management's task to communicate and shape the organization's vision, goals, and strategy [MCA02]. In order to trigger entrepreneurial activity strategy should be based on clear commitment to entrepreneurial initiatives. In this case it is for example preferable to have a strategy that aims at sustainable cultural change with regards to tolerance for failure. Strategy seems also to give a background support for innovative behaviour of the employees [MEN07], [NIC98].

2.5.2 Structure and entrepreneurship

According to Robinson [ROB] reduction of organizational hierarchy is important to promote entre (intra)preneurship. According to this notion it is necessary to eliminate organizational structures that obscure personal responsibility and homogenize individual actions. Having flat and flexible structures is a pre while chasing the healthy entre(intra)preneurial environment [MCA02].

There is also evidence that entre(intra)preneurship can profit of organizational units, such as R&D groups, that are totally devoted to creating new ideas for future businesses [GAL82]. By doing so, a garage-like atmosphere where people can rapidly and frequently test their ideas without the fear of failure would be reproduced.

Steering mechanisms, as a part of the organizational structure, which are based on the use of the goals and values of the organization to guide behaviour are also beneficial as facilitators of entrepreneurial behaviour. [MCA02].

2.5.3 Culture and entrepreneurship

Culture, the special world of meanings shared by a community, evolves as a dialectic process through interaction between leaders and their followers. Entre(Intra)preneurship occurs at the level of the organizational members, and to develop an intrapreneurial organization culture in engineering settings both intrapreneurial individuals and the organizational context are relevant. Leadership has a specific importance in the early development of organizational culture because managers/ leaders "create" the collectively experienced environment by providing it with meanings. When a company is set up, it is the founder who determines the culture through his or her personality and the setting of operating principles [MEN07]. It is especially important notion in case of upcoming of a new cell, or unit, as new leaders must guard preservation of the entrepreneurship favourable cultural environment.

Leadership, and especially quality of leadership within every new cell, is an important issue. As it is stated, the leader is responsible, in collaboration with employees, for implanting the culture in his new cell. The deviations in culture which could have entrepreneurship disabling effect could stagnate the desirable cell division process, lead to high degree of employee turnover and negatively influence quality of cultural control etc. This is why it is important to develop and support new leaders with necessary qualities to be able to understand and maintain the culture at the new cell. [MEN07]

There will not be any intrapreneurship without action, effort and achievement that comes from the individuals themselves. However, the individuals have their professional background, and the surrounding cultural circumstances either give them support or even hinder the emergence of intrapreneurship. Studies often capture features related to individuals, but only the relational understanding brings the individual intrapreneur into the context. Networks, social capital, mutual trust, and cultural aspects all have impact on the becoming and being of an entre(intra)preneur [MEN07].



The idea that “Organizational climate and management that must support, foster and elicits people's innovation capacity, tolerates risk, and supports personal growth and development are all important” have been emphasized within the literature. On the company level, intrapreneurship needs to be supported by the organizational culture [MEN07].

Thus, intrapreneurship in organizations—and in engineering in particular—can be stimulated through the culture in which organizational practices are conducive of innovation and initiative. The ideals, values, norms and traditions of the culture can highly elicit individual intrapreneurial actions because work is experienced as meaningful and motivating. Intrapreneurial culture is nourished by leadership that gives meaning to the work done, and further, it promotes good interaction between the leaders and the led. If the leadership–followership relations are favourable, initiatives can fly further in the organization and stimulate intrapreneurship.[MEN07]

In general, given condition of intrapreneurship, the organizational cultural setting is highly crucial to encourage engineers to become intrapreneurs and, therefore, to provide a continuous stream of opportunities to try, experience and learn for change, renewal, and innovation. It is, at the same time, part and an expression of the present organizational culture and, therefore, an important lever to promote an intrapreneurship-friendly culture. As long as the aspiring intrapreneur experiences opportunities of self-determination, has freedom and autonomy to make decisions, can take action to exercise influence in his or her role, he or she can become an intrapreneur. [MEN07]

2.5.4 Innovation and entrepreneurship

“The ability to develop innovative new products is a source of competitive advantage and the creativity to generate new ideas for new products ...” [MCA02]. Innovation can be approached differently, as radical, incremental, solution based, etc. Presence of innovation within the organizations can be also expressed differently. Sometimes it is visible as R&D department or as the particular function. And in other cases it is an intrinsic part of organizational being and obvious part of everyday work. In this case it could be not directly visible to the outsiders. Which arrangement will serve the organization the most depends on specific needs and other characteristics of the particular firm.

We already argued before that innovation is inherent to the concept and welfare of entrepreneurship as it even partially defines it. In previous section on entrepreneurship and culture we also saw that innovation is particularly determinative in case of technical entrepreneurs [MEN07]. This means that presence of innovation within the organization will be approached as one of the conditions which have to be met in order to foster the entrepreneurial activities within the firm.

2.5.5 HR and entrepreneurship

Human resource management is another component of an organization which is directly related to the shaping the employee population:

“Firms profess that people are the source of their competitive advantage, whether they be technological experts, accommodating customer service experts, or visionary managers. At a time of unparalleled technological development, it is the human resources that paradoxically spell success or failure for all firms, and especially entrepreneurial ones.” [KAT00]

While most small businesses do not have formal HR departments, all firms have recruitment and HR policies, even if they are only implicit [ALD91].

Selection is estimated to be very important for small ventures [HOR90] and may even be the key component of overall effective management of a firm's human resources [HEN99]. Lack of qualified workers is a threat not only to their plans of young businesses to grow and expand, but more importantly as a threat to their very survival [MEH96]. Selection is based mostly on interviews [DES94], training experience, and education requirements for jobs.



Entrepreneurship could be attracted or shaped, and effectiveness of such a process could be supported by adequate HR practices and policies. We will discuss some HR related practices which could be advantageous for an entrepreneurial workforce.

- Recruitments and selection both are HR practices which are fundamental for shaping the employee population.

Underlying policies should be carefully thought out [CAR04], as it will serve as a base not only to insure the necessary skills and knowledge, but also for the cultural developments within the organization.

Entrepreneurship able employees could be in this case triggered by adequate message posed during recruitment activities. Having a clear profile of desired entrepreneurial employee will make selection process more effective and will increase the probability of actually attracting the “right type” of the desired (entrepreneurial) employee.

- Training and Development is another aspect to ensure the presence of the entrepreneurial workforce.

It is based on the idea that learning is the basic ability of every individual [MCC61], [BIS03]. It will obviously require highly developed and involved HR professionals.

Entrepreneurship able employees must be detected, approached and engaged in order to set and execute the development path which will fit as well employee as organization. Intangibility of such a process, and of the specific kind of the entrepreneurial employee as a result, is the way to create a unique competitive advantage, as it is very difficult to copy [BEC01]. In order to achieve such a situation a transition in mind set must be made from viewing HR as a cost center in which the cost minimization is the measure of success [KAP92].

Appraisal, compensation and benefits also could be approached as mechanisms to reinforce the entrepreneurship. Graham et al [GRA02] especially underscores the importance of multidimensionality of rewards within the entrepreneurial firm. Specifically, companies should pay for competencies that are aligned with their core ideologies [COL94].

Within this research entrepreneurship in relation to HR will be researched mainly based on the recruitment and selection activities. The underlying reasons are to be discussed in chapter 4.



2.6 Definitive conceptual model

Based on the information given in the previous paragraphs the definitive conceptual model is presented within this section.

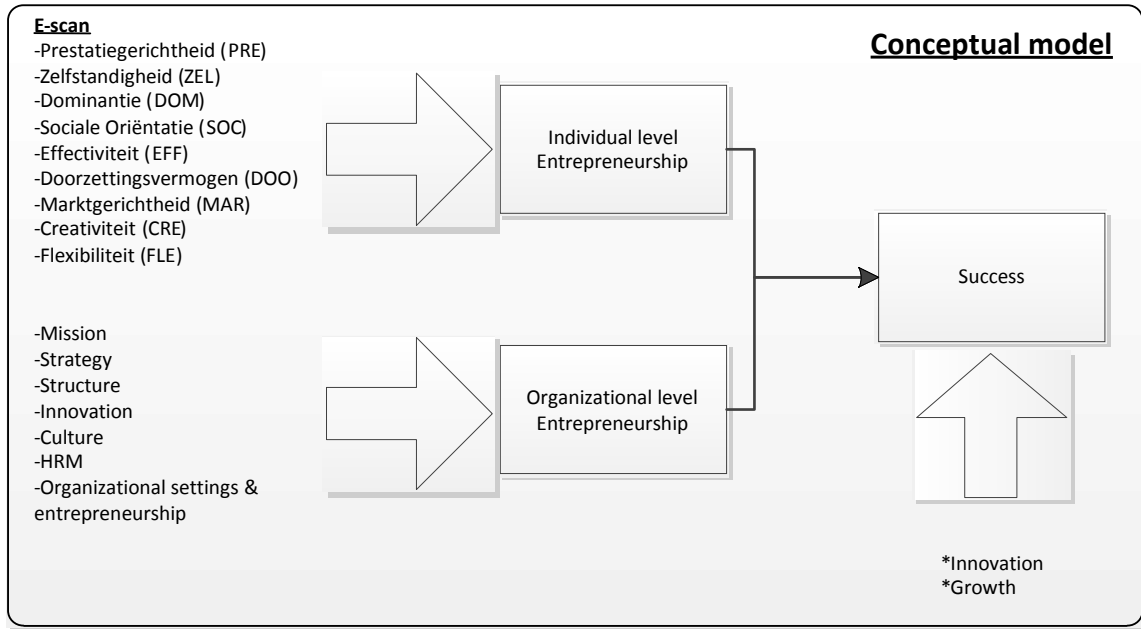


Figure 2 - Definitive conceptual model



3 Research methodology

In this part of the research we will explicate the research methods applied to come up with reliable answers to our research questions. Within this research both qualitative and quantitative research methods will be used. Qualitative research method is realized by several interviews and observations within Topicus. Quantitative research approach is realized by means of E-scan. Both methods of data collection and data analysis have their strengths and weaknesses, but combined they could provide us with fuller insights.

3.1 Qualitative method

Qualitative research method will be used to estimate the presence of entrepreneurship at organizational level at Topicus.

Operationalization

Organizational level will be represented by obtaining information about, and analyzing the organizational elements of Topicus as:

- Mission - questions are asked concerning the general direction, goals, ambitions and principals prevailing at Topicus
- Strategy – information by means of extensive interviews is gathered about the way the goals and ambitions are thought to be reached by Topicus
- Structure – structure of Topicus is sketched by introducing it as a topic and by asking the guiding questions. Especially its relation to the entrepreneurship is highlighted
- Innovation – innovation is viewed to have an impression about how the ability to realize gainful novelty is shaped at Topicus, and how it is actually visible and represented within the firm. It is done by means of interviews and also by means of observations among the employee population
- Culture – culture is viewed by the way leaders of Topicus described it and by the way individuals behave, communicate and dealing with their work.
- HRM – HRM is represented by describing the way recruitment and selection are approached at Topicus
- Other organizational settings and arrangements relevant for entrepreneurship – it is approached by viewing the organizational characteristics as:
 - o Characteristics of physical environment
 - o Degree of organizational hierarchy
 - o Availability of financial resources and rewards to promote the entrepreneurship
 - o Presence of direct superiors to promote and encourage the entrepreneurship
 - o Resource availability in terms of people, time, professional and managerial freedom

Those topics are described in detail and analyzed separately in chapter 4.



3.1.1 Data collection and data analysis

This information was obtained by means of conversations and interviews during the meetings with my mentors at Topicus; Harry Romkema the owner and directors of Topicus, and Liesbeth Platvoet, the employee responsible for HR related activities.

Also, some extent of the relevant information is obtained by observing the workforce in their daily work life and being able to address them if needed. It was particularly useful in order to get a fuller picture on subjects as culture and innovation.

A few firms own documents were also studied. One of them is the printed material on the subject of the firm's values, believes and ambitions also applied within this research.

However, the formal data collection and data analysis is done by means of several interviews as it is described below.

Description of entrepreneurship, as incorporated within the firm, is a product of discussion on topics as, for example, firm's strategy, structure, HRM and goals, as well as directly addressing integration of entrepreneurship within those elements.

In general two or three interviews were done per topic allowing room for feedback, concretization and discussion. In total ca 20 interviews were held.

Following protocol was held during the research on each topic:

- Interview 1

First interview was done by introducing the subject and asking to describe the current situation in relation to the topic discussed. Findings were noted and used to guide the following interviews.

For example, the elaboration on topic of HRM is started with general question; "How is HRM shaped within Topicus?"

Interviewees were given as much room as possible to describe the current situation concerning the topic.

- Interview 2

During the second interview the information gathered was studied, complemented with the insight from the relevant literature and divided into main sub-topics. Thus, the obtained information was also accompanied by insights from scientific literature related to organizational components discussed and entrepreneurship. Each sub-topic was separately discussed by asking a few questions. Questions concerned the (sub)topic itself as well as its relation to entrepreneurship.

For example, HRM was studied and discussed as a function, as it was present within the SME's, as how HRM could be approached as the strategic partner in business, as how it could support entrepreneurship, etc. This interview was done as a dialogue in contrast to the first interview.

- Interview 3

Within the third interview usually conclusions were made and discussed based on the information previously gathered. In this way it was attempted to create an overview on the subject which is as complete as possible.

The duration of the interview was approximately one hour. After those interviews a document concerning elaboration and description of the subject/topic was handled over to the interviewee(s) for approval.



3.2 Quantitative method

Measuring the presence at the individual level at Topicus is of main interest within this research. It is about revealing the status of entrepreneurship at individual level and about clearing up the identity of the employed employees. With other words, to figure out how valid expectations of Topicus are about the importance of entrepreneurship within Topicus is necessary to establish who the employee Topicus need to attract actually is, an entrepreneur or not?

E-scan is an instrument to directly and exclusively measure the entrepreneurial competencies of an individual. With other words it is an instrument which gives an answer whether an individual is an entrepreneur or not, by measuring a number of competencies which make an individual an able, or better sad successful entrepreneur. In this way the answer will be given to the question concerning the presence of entrepreneurship at individual level. E-scan consists out of nine factors altogether defining the norm, or score, to appoint somebody as a successful entrepreneur.

This question is answered by applying the validated, competency based instrument, the “E-scan”, to measure entrepreneurial abilities of an individual.

Operationalization

The following constructs are the elements which comprise the E-scan. Outcomes of measurement of those constructs are used to estimate the individual entrepreneurial competency:

Those constructs are:

- need for achievement – entrepreneurs are strongly goal oriented and do not avoid confrontations with others during this process
- need for autonomy – it is about need to make own decisions and to solve own problems
- need for power – entrepreneurs know what they want and have a strong desire to control, influence and direct others in order to reach the goal
- need for affiliation – entrepreneurs realize that other people and networks are needed to realize their ideas and goals. They are able to easily approach other people, but drive to do so is based on what is necessary to reach the goals
- endurance - it is about the ability to keep working towards the goal despite of setbacks and misfortunes
- market awareness – it is about recognizing and responding to the needs of customers and translate it into the operational activities
- creativity – it is about the ability to convert the problems into the new opportunities by approaching the matter from different points of view
- flexibility – it is about the adaptability of an individual. It can be described as ability to take a step back from the settled arrangements if the opportunity to do so is detected

Operationalization of the elements comprising E-scan is done according to the rules of scientific research and instrument validity is not going to be further questioned within this research. For more information one can consult the extensive description which is given within the appendix.



3.2.1 Data collection

Data collection was done by means of distributing E-scan based questionnaires. Questionnaires were sent to all currently employed employees of Topicus along with the motivation and explanation on the importance to fill in the questionnaire. The set-up of the measurement is to let a number of employees of Topicus fill out a questionnaire. The questionnaire consists of 74 questions divided over 10 variables.

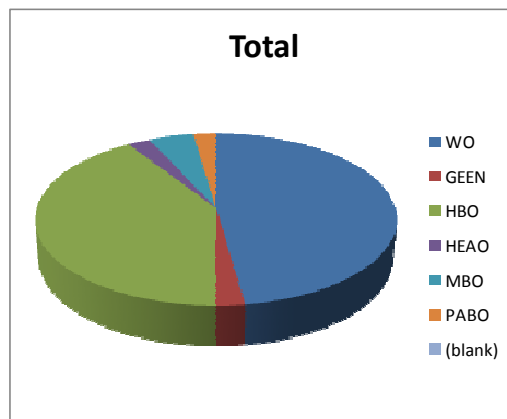
Population

A total of 44 persons within Topicus filled out the questionnaire. This population had the following characteristics:

Education:

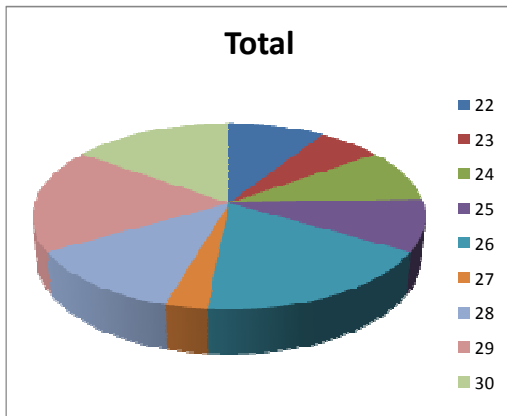
The majority of the population of Topicus is WO of HBO educated.

Row Labels	Count of Opleiding:
WO	21
GEEN	1
HBO	18
HEAO	1
MBO	2
PABO	1
(blank)	
Grand Total	44



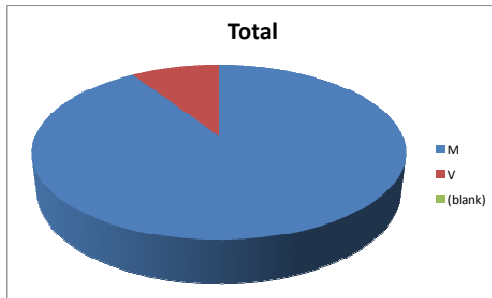
Age:

The majority of the employees is aged below 31. A total of 44 persons within Topicus filled out the questionnaire. In the figure below a pie diagram is shown from age 22 to 30. This is the majority of the population (33 out of 44).





Gender:
The majority of the employees is male.



Function:
The largest part of the employees has a function as either analyst or developer.

Row Labels	Count of Huidige fun
afstudeerder	2
analist	13
celleider	7
designer	3
helpdesk	4
Office Manage	1
ontwikkelaar	12
Stagiair	1
(blank)	
directeur	1
Grand Total	44

3.2.2 Data analysis

To make sense out of gathered data statistical analysis was applied. Each individual was asked to answer a number of questions belonging to the different competency construct. After this the answers are converted into the separate scores for each element and an average score is calculated. The average score, alongside with the overview of the separate scores expressed through the spider diagram, serves to give a comprehensive impression concerning the entrepreneurial abilities of an individual.

Hypotheses were formulated and available data was processed by means of statistical analysis. The outcome of those activities served as a foundation within research to come up with conclusion.

In appendix B it is shown more extensively how the measurement has been performed and how the data was collected. How the statistical analysis was conducted to get to the right conclusions will now be discussed. The method and choices that have been made to perform the analysis in relation to the measurement will be made clear.



Statistical analysis

As indicated before, the necessity of performing the measurement is to judge the hypothesis that has been stated. To make the decision whether the hypothesis should be accepted or rejected, it is important to identify whether the results as found with the measurements are a coincidence or are really the cause of effect. Therefore it is very important to analyze the results thoroughly. To give a well-founded answer to this question the statistical proving theory is being used. It consists of the following plan of 8 steps [POO02]:

- 1) Formulate the model of probability
- 2) Formulate the zero hypothesis H_0 and the alternative hypothesis H_1 in terms of the parameters of the model of probability
- 3) Formulate a good test statistic in terms of the occurring random variables
- 4) Give the distribution of probability of the test statistic under (the border of) H_0
- 5) Calculate the value of the test statistic
- 6) Define the critical value(s) and give the critical area or calculate the p-value
- 7) Formulate the conclusion whether to reject H_0 at the given level of significance
- 8) Give the conclusion

In the results of the analysis $\alpha=0,05$ was chosen as the level of significance. By choosing a small α , a mistake of the first order (reject H_0 , when H_0 is true) is not easily made. Because of that the statement "Reject H_0 " becomes a strong statement [MOO02].

The model of probability is also the basis for the proofing theory, as always in statistical analysis. The model of probability describes the actual situation and therefore should be formulated correctly in the first steps of the plan. In the following paragraph the set-up of the measurement and the used model of probability are being explained.

The set-up of the measurement is to let a number of employees of Topicus fill out a questionnaire. The questionnaire consists of 74 questions divided over 10 variables.

For every question a score 1 to 7 can be given. This will result in an average score per variable. As discussed earlier the conversion of the 7 point Likert scale is made to 10 points scale. Based on those scores an entrepreneur profile is being made. This will show whether an employee is an entrepreneur or not.

Norm

The goal is almost trivial, namely knowing in what extent employees can be considered entrepreneurs. This should indicate whether Topicus functioning according to expectations of management.

Possessing entrepreneurial talent at Topicus is undoubtedly important, as for example structure and strategy are closely woven with the entrepreneurship oriented individuals.

In the measurement, the wish is to determine whether an employee is an entrepreneur or not.

The **assumption** that will be researched:

"An employee of Topicus has at least the norm score to be considered an entrepreneur according to the model of Driessen"

Employees who's individual score is below the norm score of 7,8 cannot be identified as an entrepreneur. With proper training this may alter for some employees. In future research this might become visible.

The hypothesis as stated above will be investigated in this measurement. How this exactly is being done is described in the paragraph about the design and analysis of the measurement.

**The hypothesis**

The hypothesis is be formulated as:

The hypothesis:

“An employee of Topicus has at least the norm score (of 7,8) to be considered an entrepreneur according to the model of Driessen”

The average norm referring to an entrepreneur has been chosen to be the value “7,8”, just like described in the model of Driessen. Row 13 “Entrepreneur” (“Ondernemer”) will show for every employee whether he/she can be depicted as an entrepreneur or not.

Estimating and Confidence intervals

In the hypothesis has been stated that an employee has at least the minimal average score and thus enough entrepreneurial competencies to be depicted as an entrepreneur. When our analysis would show that the hypothesis cannot be accepted, than we still won't have an answer to the magnitude of the entrepreneurial abilities at Topicus. The confidence interval can assist in this matter. In this case a confidence interval will give an answer about the expected average entrepreneurial score. The parameter p is being estimated and therefore an interval with a certain reliability is being given [MOO02]. This will be shown in the next coming paragraphs where the acquired results are presented.

3.2.3 Success

Success is another element which is a part of research model within this thesis. Operationalization of success is approached based on the theoretical insights, but most of all it is based on the insights, objectives and ambitions made by higher management of Topicus.

In our case success will be estimated by analyzing and placing the following constructs:

- Growth - Growth is approached in this case simply as increase in the number of employees employed by Topicus
- Innovation – innovation is approached as ability of the firm to realize the gainful innovative solutions or operational enhancements

Entrepreneurship, both at individual and organizational levels, is central within this research. It is because entrepreneurship has a “cause” roll, and both the growth and innovation are supposed to be a logical “effect”.





4 Topicus: entrepreneurship at organizational level

In this section we will describe Topicus at organizational level by highlighting the most relevant organizational elements in relation to entrepreneurship. The main purpose of it is to give a reader an overall impression of Topicus, as organization, and to create an overview of how well the entrepreneurship is present within the strategy, structure, culture and HRM as it is found during the research time.

Topicus, is an interesting case because of the alternative way the firm is organized, especially compared to other existing IT firms. Topicus presents itself as an innovative warehouse and distinguishes itself by its alternative structure, strategy, culture, products and philosophy. The ambitions of Topicus are mainly directed to realize growth and innovation. Absolutely “not done” within this firm are the bureaucratic activities and elements of hierarchic order. Topicus serves their small and large customers by offering IT solutions in a form of SaaS (software as a service). Ambitious and divergent style of Topicus is also represented within its mission.

4.1 Mission

The mission of Topicus is to become “the largest” IT player being constructed of “small cells/organizational entities”. Besides becoming a leading and well known IT organization, while keeping the advantages of small sized organizations, following ambitions are expressed through the mission statement:

- 1) Topicus want to be taken seriously by other actors in the environment. This means that the firm seeks to find a way to manifest themselves as a weighty player. Expanding the size of the organization, coupled with becoming well-known within the broad environment, are wishes which are being pursued. It is driven by the fact that the ability to deliver high qualitative and innovative products is not always enough to get the job and having a position to negotiate.

Topicus chooses to use the cell structure to keep the clarity, open and unrestraint communication and cooperation, and informal and friendly atmosphere. But in the context of creating strong organizational image, the cell structure is especially a mean to realize the prominent presence of the firm within diverse, multiple number of market niches. This explains the idea behind the “Growing large by staying small” slogan of Topicus. In such a way the benefits of two different extremes are expected to be reached. However it is important to keep in mind that extra attention must be paid to the fact that also this “formula for success” could have negative implications.

- 2) Topicus wants their employees to be taken seriously. This means that Topicus strives to offer their potential and currently employed IT professionals an exceptional career and professional growth opportunities. How exactly this is arranged will be further discussed in the part about the structure of Topicus. This idea emerges from the fact that Topicus sees IT employees as a young category of professionals struggling with the lack of a “career path” tradition. IT professionals do not seem to have a generally established career development system, as for example juridical or medical specialists do. Topicus wishes to distinguish themselves from other employers who’s policy, Topicus believes, is mainly about exploiting and exhausting the IT specialists. Topicus is also aware that IT professionals themselves generally seem to comply with the established order. By offering their employees some kind of career system, Topicus expects to be able to attract, develop and keep their IT specialists. Within Topicus IT professionals are seen as valuable resources with potential which can be triggered by support and stimulation. According to Topicus it is the main condition in realizing the growth, welfare and to contribute to firm’s continuity. The remark must be made that this positive way to see and approach the employees at Topicus still must be translated into the tangible steps to realize those objectives.



- 3) The third notion is about achieving prosperity and growth through being a multiple niche player. By continuously detecting and conquering various market niches Topicus strives not only to expand their market share, but also to spread and promote their image and philosophy. Becoming a multiple niche player is the way of Topicus to realize their objectives that are closely bound and supported by their strategy and structure.

Next we will take a closer look at the organizational elements of Topicus.

4.2 Strategy

The organizational strategy of Topicus is based on a “spin off” idea to become a multiple niche player. Their strategy is their way to realize the objectives introduced within the mission of Topicus, the growth.

Right now, after 11 years of existence as Topicus, they have realized over 7 spin offs. The spin offs at Topicus are addressed as cells, and the individuals running them called cell leaders, who’s description closely resembles description of entrepreneurs.

Origination of a new cell, as well as cells daily management, meant to happen as organically as possible, with minimal interference of leading directors and founders of Topicus. With other words, a leader of a new cell is given much of entrepreneurial freedom in decision making as well as in other activities related to the daily management of the cell.

The challenge arising from the wish of Topicus to stay small while growing through reapplying spin off process is the ability to reproduce the healthy “Topicus DNA” without too much negative mutations. Spinning-off or cell-division strategy is an effective way to ensure motivated personnel, developing the entrepreneurial climate, creating of a flexible organizational structure, and being efficient in a way for entering immature markets. Because it is theoretically possible to transfer knowledge, the spin-off can become successful quickly.

The product strategy of Topicus is to become the network integrator, by developing application services for all actors within a specific sector. This process is meant to be realized within as many sectors as possible. By becoming a network or chain integrator Topicus is able to detect and seize new opportunities for business. Their chain partners, within a specific chain, would in their turn be able to profit from joint, or common “work space” and more efficient collaboration. [WIN07]

Both organizational and product strategy are growth oriented, but as in case of every organization they require nurture, support and some extent of flexibility to adapt to new possibilities and challenges. For example rapid developments and changes in size and life stage of the firm are elements which need to be paid attention to.

Strategy content chosen by Topicus is given a lot of thought and effort. However it is the effective strategy implementation which will actually lead to success [HUS95]. The relevance of the HR is the fact that successful strategy implementation is driven by strategically focused workforce, especially in the knowledge intensive firms as Topicus.

Strategy and entrepreneurship at Topicus

Tolerance for failure does not have to mean that a firm must support every entrepreneurial initiative. But a step backward could be made from the “waterproof” requirements formula being applied by Topicus while starting a new cell. The employees need to feel that, if they take risks and it fails, they will be supported and backed by top management and that the case will be handled fairly. Strategy gives this background support for innovative behaviour of the employees [MEN07]. The risk taking seems not be welcome at Topicus since all the risks related to entrepreneurship are being minimized as much as possible. Innovation appears to be an important element within entrepreneurship and as entrepreneurship self need to be promoted through different channels within the firm. Topicus articulates the entrepreneurship through mission, strategy and structure but the question remains if it is concrete enough to reach the pragmatic technical professionals.



Thus, the growth oriented strategy of Topicus, which lean on the multiple niche conquering through the creation of the multiple entrepreneurial entities, must be supported through all the parts in the value creation process. As strategy is to grow by conquering multiple niches within the IT related market space, the concept of the entrepreneurial leaders is relevant within this context. Another important aspect of Topicus (product) strategy is to become the network integrator. This is also only realisable by separately conquering the separate pieces of the chain with eventual goal to own as much as possible of it. Again, this aim is only realizable through the cells offering adequate services to those separate segments. Human capital at Topicus, and especially entrepreneurship able individuals are in this case literally of strategic importance .to serve the niches effectively through the growing amount of cells.

4.3 Structure

The main facilitator of the growth process is the structural arrangement within Topicus. The initial (cell) structure equals the growth model which is build out of three phases. Each cell have to pass those three phases before becoming mature enough to facilitate the spin-off and thereby growth at Topicus.

With other words, Topicus is an organization which is built of network of autonomous cells, each serving a specific market niche. After passing all the three phases the cell is expected to reach the size of 25 employees and ready to release a small group of professionals who are ready to initiate and manage the new cell. Further on, we will introduce the growth model which equals the organizational cell structure at Topicus:

- Phase 1 – pioneer/entrepreneur phase
Overall characteristics: flexibility, opportunism, 5-7 employees
- Phase 2 – restart
Overall characteristics: growth till 15 employees, one layer of management
- Phase 3 – maturity
Overall characteristics: need for professionalism, serious management structure, consistency in policy and overall direction, declining opportunism, growth till maximum of 25 employees.

Every phase need a leader with specific traits. Especially the fact that entrepreneurial leader will not be able to function effectively within the third phase is being emphasized. It is expected that pioneer will bring disturbance and disbalance into the group.

The ambition is to have an organization where goal orientation and innovation are leading drivers. Those ambitions would not be achievable within large, bureaucratic organization, with associated structure etc.

Previous experiences of the founders proved that size of 25 employees is optimal to serve the targeted niche. However, recently Topicus is confronted with growing amount and magnitude of demand, making the current cell size too small to fulfill those orders. This will be discussed in the part about “The Bus”, a new structural layout of Topicus in order to adapt to the current developments.

Based on the description of the spin-off oriented structural blueprint to ensure and facilitate growth, we can state that Topicus is heavily dependable on the entrepreneurial leader to move through the three phases. Realizing entrepreneurship is also based on the thought that it must emerge organically. Topicus expects their specialists to be independent and proactive concerning the development of own identity and realizing own ambitions and professional progress.

Thus, structure is especially of importance when combined with characteristics of the desired employee, in our case entrepreneurial IT professional.



The success behind this structure is not just a result on the spin-off concept. Several authors also plead for the importance of the structure being based on flexible, responsive, niche focussed and culturally controlled mechanism [NAD99]. In case of Topicus especially interrelatedness between the structure, (organizational) strategy, mission and culture is noticeable.

Especially the culture manifested at Topicus is the element which proved to be strong control and steering mechanism. By this, culture, along with manageable size of cells, replaces the need for incorporation of centralization, hierarchy and bureaucratic concepts to keep separate parts of Topicus glued together.

Without the current cultural foundation a lot of coordination, communication and control problems would arise which are often seen within the spin-offs or other flexible and autonomous separated structural constructs [MAN00].

The splitting process

We already mentioned that in contrast to the traditional division process, Topicus follows the organic process by dividing itself into independent organizational entities, which are named cells at Topicus.

Organic process stands for triggering division process by prosperity and fruitfulness of the mother cell. Another trigger for this process is the ambition, competencies and insights of the potential entrepreneur and the detected business opportunity he or she wants to exploit. Mother cell is in this case the cell which reached a maximum size of 25 employees due to the success in operating a particular market niche by realizing a particular IT solution. As soon as the cell matures the switch in leadership takes place. The entrepreneurial leader will give place to the leader with managerial talents and capabilities. Division of the mother cell at Topicus is not just driven by the size of it, but it implies that where is a new opportunity available on the market which can be seized. Again, the maximum size of 25 employees per cell is chosen to keep the cells manageable, even by young leaders, to keep it innovative and not dependent on the intensive support of administrative body. Presence of the administrative departments, or secondary functions, within the organization is avoided by Topicus due to the association with the hierarchical and bureaucratic systems.

Based on the description of the structural blueprint to ensure and facilitate growth we can state that Topicus is actually dependable on the entrepreneurial leader to move through the three phases. After that is the cell mature enough and need a leader with managerial qualities.

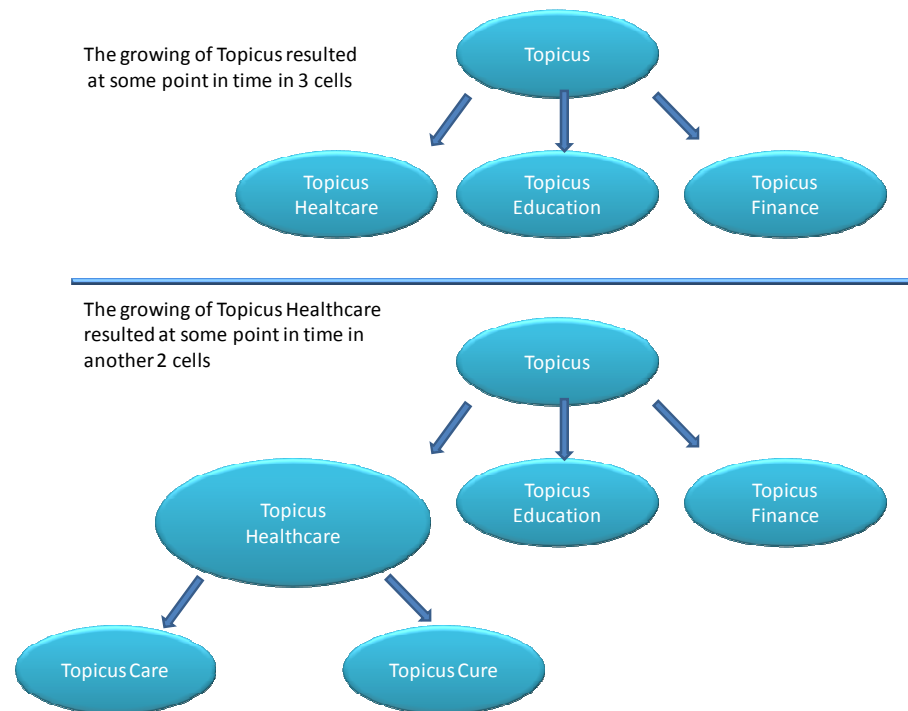


Figure 3 - Growth by dividing cells



The “Bus”

The “Bus” is the name given to the developments concerning the recent structural changes within Topicus. Those changes are not meant as a total transition from one structural construct to another. It is rather an expansion of the current cell structure. This structural expansion is an addition to the original cell structure to support the needs and requirements of the growing and maturing organization. The “Bus” is based on idea of introducing a centrally managed, hierarchical, organizational arrangement with presence of the chain of command and formal procedures to follow.

The structural transition process of high-tech small firms is not unusual [BAR02], but contrast with the original way to organize work at Topicus by means of cultural control, shared values and loose organizational features is noteworthy. Especially due to the wish of Topicus to keep the concept and arrangements own to the cell structure, making coexistence of highly different structural concepts reality at Topicus.

The reasons to take this step are plural. We will describe it in terms of advantages which are being sought out by Topicus.

The first, most basic argument is of facilitative nature. Topicus have grown explosively fast and at the moment it is a large entity which is built of a lot of autonomous business units. Autonomous is however also synonymous for separate, and due to scale of it, the management of Topicus as whole became challenging and quite complex. Thus the first reason to chase this idea, is to have a basic way to shape the work arrangements which will keep large organizational body clear, ordered and manageable.

Second reason to pursue this structural adjustment is related to the meeting the needs of the employees within Topicus. Topicus for its largest part is built up of the young professionals. As the organization matures, grows and evolves, so do the interests, needs and expectations of the employees involved. In this case the organically arranged cells had to offer too limited possibilities for the career growth and development of an individual. The main perspectives to become an entrepreneur or manager of the cell are simply not feasible/achievable for the majority of IT professionals employed at Topicus. The “Bus” is therefore expected to provide the mechanisms and means to realize the employee interests in terms of professional career progress and financial benefits.

Another purpose of the “Bus” is to serve Topicus in creating a fast way to attract large amount of IT professionals. By incorporating the organizational structure, which also can manage and utilize the medial degree of individual talent, Topicus strives to meet the amount of growing interest in the services of the firm. By this Topicus widen its wishes and expectations towards the desired employee profile and becomes for a part an organization which is able to welcome and nurture various kinds of IT talent.

The “Bus” could be also of help to strengthen the retention intentions of employees within Topicus. As Topicus wishes to enlarge its workforce, firm also cannot afford to lose too much of their currently employed IT specialists. The retention will be supported by meeting the career opportunity within Topicus available to a much bigger part of current employee population than within the cell structure. So the employees in need of arrangements concerning their career and beneficial progress would not be directly obliged to look for it elsewhere. Bureaucratic and more traditional structure makes the realization of the professional progress more feasible to much larger part of the Topicus employees by introducing the communicational clarity on the possibilities available within Topicus and much higher diversification of career opportunity available.

Diversification of the structural arrangements is expected to bring a lot of advantageous consequences for Topicus. However one remark can be placed. As the original cell structure still to be kept at Topicus, the coexistence of highly contrasting structural systems must be managed carefully. Especially when the employee making the transition from the innovative and empowered cell environment into the more formal, hierarchic and tight work arrangement.





The recent changes are clear in their necessities and advantages sought, but the risks are also well known:

“...potential benefits of altering a company's deeply held values and longstanding practices have to be traded off against the significant risks that such changes often entail, in terms of undermining internal routines and external relations...[BAR02]”

With over words it is a gamble worth trying due to the changes in internal and external needs and expectations.

This structural diversity will be kept in mind within this research. But the recommendations given still will concern cell structure environment and the entrepreneurship.

After examining the mission, strategy and organizational structure of Topicus, we stated that those aspects are (inter)related. The desire of Topicus to attract the entrepreneurship able employees seems actually to be related to the way the strategy and structure are shaped. It is actually arranged to realize the objectives set by the firm. With other words where is need to further investigate the desire of Topicus to attract entrepreneurship gifted employees as being key to the success of Topicus.

Structure and entrepreneurship at Topicus

As it has already been discussed, structure at Topicus is based on the principle of division of the whole organization into separate, high degree independent, highly empowered and relatively small organizational entities. In contrast to the traditional division process, Topicus follows the organic process by dividing itself into independent organizational entities. Presence of the administrative departments, or secondary functions, within the organization is avoided by Topicus due to the association with the hierarchical and bureaucratic systems. Structure of Topicus based on the cell division can be seen as flat and flexible one, which is a pre while chasing the healthy intrapreneurial environment [MCA02].

But structure at Topicus is not just flatter and more flexible one. As good as no staff will be found at Topicus, except a few secretaries and two specialists responsible for financial administration. By totally avoiding the staff support also advantageous effects could be spoiled/lost. For example, intrapreneurship can profit of organizational units, such as R&D groups, that are totally devoted to creating new ideas for future businesses [GAL82]. By doing so, a garage-like atmosphere where people can rapidly and frequently test their ideas without the fear of failure would be reproduced. This is just an example of advantage which can be created by the secondary functions and is not of the direct use to Topicus.

Work pressure is high at the new cells, where are a few organizational support mechanisms, which can support and make entrepreneurship occur and develop smoothly. HR function support could reduce the amount of workload placed on the cell leader. And support as coaching of the new entrepreneur in terms of supporting the idea, sharing the professional and marketing knowledge, will give entrepreneur greater chances to succeed. Individuals as supporters do not necessarily need to be the direct superiors, but they probably should be as high as possible in the corporate hierarchy, so they can support the intrapreneur by assigning necessary resources to his project [MEN07].

At Topicus this could be used to increase the communication within the firm about support possibilities concerning entrepreneurship activities and that there is appreciation for entrepreneurial behaviour. Senior management plays an important role in determining whether or not the organization supports intrapreneurship—largely because they have the power to make things happen. Making a stated and working strategy for innovation [MEN07], In order to leave the people free to innovate, they must use the goals and values of the organization to guide behaviour—not rules, procedures or reward and punishment [MCA02]. Topicus is at its very best by steering and controlling based on culture, goals and values. Furthermore, listening is a big part of the top manager's job of encouraging potential intrapreneurs. The leaders should constantly walk around asking questions, 'looking under the rocks', doing what is unexpected [FROH98]. Also, a participative style of leadership should be lived, enabling employees to take part in.





A lot of the recommendations we just mentioned are incorporated in Topicus being. But the cell leaders could reach even more prosperity and develop their cell more efficient by getting some basic support out of management. If owners would be able to dim their dislike or aversion towards the tools and mechanisms available from hierarchic and bureaucratic systems, Topicus could profit more as whole. The organizational climate and management that fosters intense working relations between the people, that elicits people's innovation capacity, tolerates risk, and supports personal growth and development are all important. Therefore, investment in leadership, social development and secondary functions is needed at Topicus [MEN07]. It is for example emphasized by Veenker (Veenker et al, 2004a/b that for example engineers from Dutch companies think their innovative freedom and capacity is better incorporated by larger companies with a R&D budget.

4.4 Culture

Culture within Topicus could be seen as a basis component which keeps the firm together and heads pointing in the same direction. It is understandable due to the fact that the overwhelming majority of employee population is represented by Information technology professionals with lots of similarities as age, gender, education, experience, and general interests.

Also the culture seems to be as organic and “natural” as the strategy and philosophy of Topicus aims to be. The shape of the current atmosphere at Topicus is based on the friendship like relationships among the employees, equality and mutual support if needed.

The degree of professional freedom and delegation of professional authority is high, but restricted by work load and work pressure.

Culture and entrepreneurship at Topicus

Topicus possess a strong and organic culture. It is secured and raised on the basic principle of homogeneity of the employees employed within the firm. It means that the overall majority of the professionals working at Topicus are very similar in their background as engineers, are of almost the same age, same position and same opportunities. Whereby the principles of equality are strongly developed and appreciated by the members of Topicus.

Social aspect at Topicus can be appointed as important, maintained and valued by the founders as well as by the employees.

4.5 Innovation

By elaborating on the concept of innovation we will sketch what is innovation actually is at Topicus. Within this research we will lean on the following view that innovation is “The ability to develop innovative new products is a source of competitive advantage and the creativity to generate new ideas for new products ...” [MCA02].

Innovation can be described at Topicus as: incremental innovation and innovation driven by customer requirements. It is a part of every day job without any extra support in terms of financial, time or other available resources.

It is also innovation which usually won't require any huge investments as It will be appreciated and paid by the customer which contracts the firm. However, solution based innovation might be difficult to realize. Especially matters as gathering of the requirements and making sense of them could become more of a guessing process [MCC93].

Whereby, the process of product development is done in close cooperation with the customer. The outcome of the process is appreciated by the customer as a solution that covers the necessities of the customer by realizing them according to the simple, effective and innovative standards. The culture of mutual respect and close, intensive cooperation between analyst and developers also contributes to the success of the outcome.



Innovation in this sense appear to be the concept which is expected to develop on its own without any other resources except the knowledge and insights of the employees at Topicus.

Innovation and entrepreneurship at Topicus

Innovation can be described at Topicus as: incremental, based on searching of the solutions which are customer requirements driven, and it is a part of every day job without any additional financial resources.

Solution based innovation means that good ideas generally follow the search for solution required by customer self. It is safe kind of innovation due to the realizing a process or bringing out a product which is already approved by the customer. It is also innovation which usually won't require any huge investments as it will be appreciated and paid by the customer which contracts the firm.

At Topicus an effective way to realize the solution based innovation is ensured by the nature of the engineers employed. Those are high educated professionals already trained for working effectively [FAY05]. They are able to sense and specify the wishes of the customer due to their capabilities to think conceptually and in terms of systems, believe in the laws of physics, and have respect for technology, computations, materials, and designs.

Innovation do not seems to be directly related to the concept of entrepreneurship at Topicus. High educated IT professionals and nature of IT profession are the actual sources of innovation realized within this firm. But the idea behind the structural arrangements as possibility for the young IT professionals to become an entrepreneurial unit leader at Topicus is obviously desirable. Such leaders will remain the carriers and advocates of kind of innovation which seem to lead Topicus to the realized success. In this way entrepreneurship will actually support and trigger the kind of innovation desired by Topicus.

4.6 HRM

Human resource management is another component of an organization which is directly related to the shaping the employee population. Next we will discuss some facets of HRM which are most relevant within this research as well as most visible at Topicus. In this case whose are selection and recruitment practices exploited at Topicus.

Selection

The operational responsibility for the recruitment and selection activities lies in hands of leaders and some of the employees at Topicus. The hiring by unit leaders together with one another employee is also very effective as it involves aligning the applicant competencies with organizational values and culture rather than aligning basic knowledge, skills, and abilities with minimum qualifications for the job" [HEN99]. This seems to be the most optimal way to acquire the employee who will not only be valuable for his skills and abilities, but also will fit the cultural organizational profile. This implies however that members of Topicus involved in the hiring process must have an up to date understanding of the organizational values, objectives and the current professional necessities.

Normally new employees at Topicus are being selected and attracted according to following criteria:

- Education - High educated IT professionals
- Analytical skills - Analytical skills, tested based on the given assignment
- Estimation of the person and organization fit
- Absence of (relevant) work experience - preferably coupled to the absence of formal work experience
- Age - Young age
- Teamwork oriented
- Communicational skills
- Innovation and knowledge share orientation
- Ability to fit the current cultural atmosphere



A few remarks must be made on some of the points listed above. For example the fact that experience of the employees is being avoided at Topicus. It is a conscious choice, based on the opinion that previous experience of IT specialists is disadvantageous for them. Disadvantageous if it concern the ability to realize innovative behavior, and the general ability to fit into cultural and professional environment of Topicus. Also the fact that an employee with experience is more expensive to attract is relevant. But structural avoidance of experienced employees is also being followed due to the strive to attract a specific kind of individual.

New employee have to be adequately communicative (speak the language of existing workforce), being contagious carrier of new knowledge, insights and ideas, and Topicus DNA (values, norms and ambitions). Also abilities to understand and relate to the organizational constructs and being teamwork oriented are equally important.

If we again take a look at the selection criteria used at Topicus, we could notice actual indispensability and cruciality of the technical professionals. This opinion can be also elaborated based on the “core competence” view introduced by Hame and Prahalad [HAM93].

If we are to analyse the kind of skills or competencies within Topicus which lead to the creation and sustaining of the competitive advantage the following picture will arise:

Core competency within Topicus [HAM93]

- Up to date technical knowledge and skills (competencies) of technical IT oriented graduates enable Topicus to provide benefits to customers
- The competencies of the technical professionals necessary to create innovative and customer requirements based IT solutions is not products specific
- The core competency is unique as it is an combination of professionals freedom and equality based cultural atmosphere at Topicus plus the up to date knowledge and skills of the young IT graduates
- The competencies of the young IT professionals could be seen as source of opportunities for the future if it will be managed properly. For example by means of training and development

Based on this view we can conclude that especially technical (IT) professionals are the type of employee most necessary to attract.

Topicus appears to be effective in their basic, mostly implicit arrangements around the selection process of the employees. Till now on, they are being able to select the right employee type, professionally wise as well as suitable to fit in the overall atmosphere of the organization. It probably also implies that Topicus creates a very homogeneous employee population, sharing most of their general characteristics, skills, knowledge and interests.

Recruitment

Topicus is not the only firm having difficulties with recruitment. Researchers appoint those difficulties as being caused by a number of factors, own to small firms in general:

- Limited financial and material resources [HAN84]
- Lack of legitimacy as an employer-of-choice [WIL00]

In case of Topicus those factors are being accompanied by a shortage of the available, just graduated, highly educated IT employees. Also, Topicus does not offer arranged development opportunities in terms of specific trainings or development paths programs, and the rewards and benefits offered to the general employee population are being rather average.

HR activities at Topicus are in the hands of an HR professionals. The costs of hiring the HR professional are being made, but it is advantageous due to the constraints in time and resources available to the leaders of the specific organizational unit [CAR04], [KLA00].



Until now Topicus was able to realize the growth mostly by applying sporadic or ad hoc recruiting strategies [HEN99]. Topicus attempted to reach and trigger their potential employees by releasing a self-produced radio commercial, placing billboards at train stations near relevant educational establishments, and by using media as monsterboard and youtube. Besides that, Topicus is usually present at career events for IT students, and offers the possibility for IT students to conduct their (final) thesis projects at the firm. Recently a new business establishment was being opened, located very closely at two main educational establishments where the large portion of Topicus employees are coming from. The name of the new establishment is Topicus Mobile Excellence Centre Enschede and it serves to introduce the possibilities available at Topicus by means of innovative projects, (temporary) job opportunities and thesis subjects related to notions of mobile technology.

As we already appointed, the HR tasks may have a negative effect by interfering with managerial and employees responsibilities that are directly related to revenue production [COO99]. But most of the recruitment means used by Topicus are convenient, inexpensive and controllable. Recruitment investments such as the Mobile Excellence Centre is a appropriate way to accompany the incremental and ad hoc recruitment activities and will contribute not only to the enhancing the legitimacy of the Topicus among their target potential employee population. In addition it also will serve as the source of innovative insights, publicity and strengthen the collaboration with the educational establishments.

After approaching the recruitment and selection process at Topicus leaning on the theoretical insight, we can state that recruitment and selection processes are not managed differently or extremely poorly, if it is compared to average small business entities. The selection process at Topicus seems to work just fine, and it is currently supported by some formalization of requirements and by spreading among the involved employees the organizational up to date needs and traits. It is been argued what competency based instruments are very helpful for those purposes.

Recruitment does not immediately seem to be in need of major adjustments, as the way it has worked until now have also a lot of advantages and fits the principles of Topicus. The question remains if greater time and resources investments in recruitment will result in the ability to find and trigger the IT professionals faster and efficiently. The need to make some greater recruitment investments along with the incremental and cheap recruitment activities seemed already to be recognized by Topicus.

Major structural changes, or better called as structural expansions, are unfolding right now at the Topicus. However the recommendations of this research will mainly concern the old situation as the cell structure will not disappear. It will function as the entrance environment for the young highly educated gifted professionals who are always have been searched and attracted at Topicus. The facts and some comment on the recent major changes will be given later on.

4.7 Other organizational settings and entrepreneurship at Topicus

It is not yet proven that entrepreneur is actually the key employee type responsible for success at Topicus. By discussing following issues we will make an overview of how Topicus actually appear in its ability to realize and support entrepreneurship.

One more remark is to be made before we proceed. The research of Menzel et al [MEN07] is about the factors necessary to facilitate the intrapreneurship within an organization. But as we argued before the terms of entrepreneurship and intrapreneurship will be used interchangeably within this research. The existing differences are deliberately neglected as they are appointed as irrelevant within this research.

Research appoints five organizational factors as important to facilitate and support the intrapreneurship. It is based on the empirical evidence gathered at 156 Dutch firms [MEN07].



We will apply those elements as a way to explain why the strategy based on spinoff idea does work at Topicus. But to consider which of presented factors/elements could be improved to realize more intrapreneurship within the firm and to precisely sketch the organizational environment at Topicus. First, we will discuss the elements as they are specified by scholars, and after this we will apply them in case of Topicus.

1. First, element is the physical environment as physical nearness, or proximity, to stimulate the mutual cooperation between the actors. Equally important is that it implies clear goals, strategies and tasks.
2. Second element stands for the reduction of organizational hierarchy and bureaucracy to enable intrapreneurship promotion.

More specifically it emphasizes importance to eliminate organizational structures that obscure personal responsibility and homogenize individual actions. The main objective should be to promote communication and knowledge sharing (knowledge transfer) and idea generation within the organization and across disciplinary borders

3. Third point appoints that top management must encourage successful intrapreneurship by making human and financial resources available and allocated, such as rewarding engineers for intrapreneurial action, irrespective of a possible failure under the slogan: *Never a shot, always a miss.*
4. Fourth, both would-be and active intrapreneurs need advocates. These are key stakeholders—not necessarily direct superiors—who support intrapreneurs with their broad experience in conducting projects, corporate politics, and professional knowledge. Their main task should thus be the coaching of the intrapreneur.
5. Fifth, intrapreneurship requires resources in terms of people, time and room to manoeuvre. Intrapreneurship cannot be created from a vacuum. Individual talent and potential are highly valuable resources for an organization.

If we look at those elements and apply them to the current situation at Topicus following remarks concerning the situation within the cell structure construct could be placed:

1. First, physical environment. Proximity is met as a condition in general. Topicus is situated in a few different, in general full of character buildings. This minor physical separation of the whole firm is based on the idea to have an image and feel that is more similar to the juridical or medical professional societies and not to resemble the usual ICT housing within the large buildings which may appear as hierarchical and reserved. The company is divided over the different buildings on the base of the different cells and especially different branches, niches those cells serve. Within the cells, which belong to a specific niche, and thus within the same building, the physical nearness of all the members is arranged by the homely like layout of the relatively small building and small amount employees per cell. As the result everybody know each other and knows there to find a colleague with piece of expertise or advise they need. Open door policy and culture are set to promote equality. Topicus employees generally share same level of education and same age, same possibilities, same interests (if some event is being organized outside the working hours, a lot of people actually show up). Plus informal way to dress and to address one another, regardless the position and function within organization, seem to give Topicus high score on proximity as enabler of intrapreneurship. The fact that the organization as whole is separated by working at different locations do not directly seems to bring the score of proximity down, as all the buildings are located very close to each other.



Proximity could seem have a very high score in the case of Topicus. But the point of having the high score on this variable is especially the aim to remove the obvious barriers in communicating with each other to get things done smoothly in order to ensure and support the intrapreneural activity. One aspect of work organization at Topicus could pose a threat to realizing the intrapreneural activity. As work load, work pressure, immature reward mechanisms (no hard criterion is available to reward employees intrapreneural behavior) and still not optimal use of communication messages about the intrapreneural possibilities within the Topicus, bring intrapreneural behavior to background. This point is not only essential due to the intrapreneural behavior, but also is related to realizing innovation.

2. Second, the reduction of organizational hierarchy and bureaucracy is important to promote the intrapreneurship. Topicus is a firm which to be designed to equal the total exclusion of hierarchy and bureaucracy. Hierarchy and bureaucracy in this case are about “organizational structures that obscure personal responsibility and homogenize individual actions of professionals employed”. In theory the structure of Topicus is designed to be the opposite to the hierarchical and bureaucratic systems. The promotion of open, continuous communication and knowledge sharing (knowledge transfer) and idea generation within the organization and across disciplinary borders is also on priority list of Topicus. At the first site Topicus is also directed to meet those requirements. But work load, work pressure, as well as shift of Topicus towards reusable software components and repeatability of certain work procedures and software production tools, could eventually keep this aspiration only theoretical.

As a result, due to the work load, IT professional would not have any room to pursue the intrapreneurship or other development paths. Personal responsibility and professional freedom, as elements of professional empowerment, are realized in great extent at Topicus. But both the work load and work pressure could put a restrain on the breaking through of the potential entrepreneurial talent.

Another point of concern is the way the hierarchical and bureaucratic systems are being approached. Those systems are obviously well known as “organizational structures that obscure personal responsibility and homogenize individual actions of professionals employed”. Operating according to the full sense of those systems would probably make Topicus collapse. But they also can be approached as a way to create order in time of chaos, by organizing tightly and creating stability and sense of clarity. Topicus could also profit from some of the tools, principles and support mechanisms which those systems offer. It could be especially appropriate to apply in the case of the organizational support of the mature cell in the exploitation phase.

This will be used in the conclusion, also relevant to describe the idea of moving to setting the Bus structure as a way to mature the organization and to meet the needs of the maturing employees.

3. Third requirement stresses the importance of encouraging successful intrapreneurship by top management and making human and financial resources available and allocated. This means that engineers, in our case IT professionals, must be encouraged, supported and rewarded for intrapreneural action, irrespective of a possible failure. *Never a shot, always a miss*. The nature of intrapreneural activity at Topicus is quite low in risk as the only way to start the cell is the availability of the market and specific customer to exploit the opportunity. The resources allocated for the new intrapreneural activity available are physical location to run the new cell, small group of professionals extracted from a mother cell and basic financial accounting support. Rewards for intrapreneural action is present at Topicus, but only in the stage when an intrapreneur have proven himself and already operating an existing cell.





Pre-intrapreneural rewards which serve to discover/detect and motivate and intrapreneural activity and talent have not been given particular attention yet. This means that encouraging, triggering the intrapreneural actions and developing of the potential intrapreneurs is not being fully exercised at Topicus. Thus we could conclude that this element could be improved.

4. Fourth, both potential and active intrapreneurs need advocates. These are key stakeholders—not necessarily direct superiors—who support intrapreneurs with their broad experience in conducting projects, corporate politics, and professional knowledge. Their main task should be coaching the intrapreneur. This is similar to the discussion we have had above. It seems that mostly active intrapreneurs getting attention and support within Topicus, leaving potential intrapreneurs behind. Also it seems that Topicus could appoint and educate more “key-stakeholders” to recognize, develop and support both potential and existing IT-intrapreneurs. Again we must note that this requirement is met poorly.
5. Fifth, “intrapreneurship requires resources in terms of people, time and room to manoeuvre. Intrapreneurship cannot be created from a vacuum. Individual talent and potential are highly valuable resources for an organization is a statement often placed within the research.. Those statements again emphasize the importance to support the intrapreneurship resource wise, to continuously trigger and motivate it and to not forget to pay attention to both, actual and potential intrapreneurs. It sounds similar to the notions we just discussed within the previous points. It again shows that Topicus is on the right path, but need to extent their view and efforts to reach the entrepreneurial effects they wish for.

The overall impression estimated following the above classification is not entirely positive. It is also because there is some sense of redundancy between the points, especially concerning the fact that intra/entrepreneurship could strongly profit of effects realized by investment, resources, support, nurture and attention from senior management and key-stakeholders.

Right now it seems that especially structure, culture and philosophy at Topicus is in a good shape and is something that till now contributed to the creation and prosperity of a few entrepreneurs. But Topicus definitely possess room for improvement, mostly concerning detection of potential entrepreneurs and nurturing and supporting the potential and active entrepreneurs.

If not given any attention, the shortcomings in recognizing, nurturing and supporting potential intrapreneurs could bring the advantages realized by adequate structure and organizational strategy to decline.

4.8 Success; growth and innovation

Within this part we will discuss how success is actually tangible and visible at Topicus.

Financially wise Topicus obviously dealing with prosperity. Actual financial reports are not available, but it has been made clear by the management that all the units realize substantial profit, with minor exceptions, as in the case of the new units in very beginning stage of their life cycle. But even in such a case, units do not deal with (great) loses, as every unit must start their existence based on the available contractually bounded customers.

Previously, within chapter 4, we already approached innovation as element which is expected to be the catalyst of the organizational success at Topicus. We stated that innovation seems to be rather monotonous and unilateral. However such technological incremental innovation, alongside with creativity concerning development of the new products to serve the new market niches, is considered to be the major driver of success.



In general we can state that every unit delivers at least one new product to serve the needs of a particular customer within the particular niche. Realization of those products is based on the up to date knowledge of just graduated IT professionals, supported by the guidance of a bit more experienced colleagues and leaders of Topicus.

Sub-products often come from the development process of the main product and deeper investigation of the needs within the particular niche.

If we approach the innovation within Topicus as a sum of technological solutions and process optimization based on the requirements which are posed by a particular customer/niche, with a new product as an outcome, the innovation is more than evident. In general 4 main products in a year are realized.

Growth can be expressed in similar way. Based on recent developments, firm's growth is approximately 4 units in a year. General headcount is at the moment over 350 employees.



5 Topicus: entrepreneurship at individual level

As described in chapter 3 a measurement has been performed to see whether or not Topicus has employees that have entrepreneurial capacities. By performing the measurement by means of the E-scan, conclusions are to be made about the presence of entrepreneurship at individual level. This chapter will present the layout and outcomes of this measurement. The following will be discussed:

- Suitability and goal of the measurement
- The acquired results

5.1 Suitability and goal of the measurement

Why was the measurement important? What goal should be reached by conducting the measurement? These first questions will be answered in the following paragraphs.

5.1.1 Suitability

We chose the instrument of Driessen as it is an instrument developed to directly and exclusively measure the entrepreneurial competencies of an individual [DRI05]. With other words it is an instrument which gives an answer whether an individual is an entrepreneur or not. In this way the answer will be given to the question on the cruciality of entrepreneurship at Topicus.

Thereby it is a validated instrument which is developed according to the scientific insights and rules. And because it is based on competency approach it have an extra dimension of attractiveness as competency is a solid theoretical base to assess the individual professional identity. It is a way to classify and assess the individuals by 'criteria sampling' instead of general (intelligence) tests. 'Criterion sampling' means that testers have got to get out of their offices and go in to the field where they actually analyse performance into its components. "If you want to test who will be a good policeman, go find out what a policeman does." [MCC73] The instrument made by Driessen is assembled by gathering existing proven entrepreneur own criteria, researched and validated by other scholars and it has proved itself within the large population.

There is however one remark which has to be made due to the consistency of terminology and conceptualization used within this research. It concerns the earlier discussion on how to classify the employees Topicus wishes to attract to facilitate new opportunities. The discussion concerned two specific types which most fitted the given description, entrepreneur and intrapreneur. At the end we chose to use the terms interchangeably. But as the given description of the desired employee most fitted the image of entrepreneur, except the fact that degree of independence is much higher in case of entrepreneurship, we chose to use the instrument which will give us an idea if the expectations of the owners of the firm concerning entrepreneurship are in line with the reality. This is why we chose for the E-scan which could estimate the amount of the entrepreneurial talent actually present at Topicus. Besides, if the outcome will establish the expectations of Topicus as a presence of a high amount of (potential) entrepreneurs, we will be able to say that firm is capable in facilitating intrapreneurship as well.

Another benefit arising from the use of the E-scan is the fact that this instrument could be of greater use besides assessment and identification purposes of the employee population at Topicus. This statement is based on the view that "It is difficult, if not impossible, to find a human characteristic that cannot be modified by training or experience" [MCC93]. Topicus have already proven before that they can support the conversion process from technical specialist into the cell leaders. This is another relevant point for our discussion, concerning the applying of the E-scan.





Whatever results might show concerning classification of individuals at Topicus, the fact stays that they all are gifted IT professionals, or more generally stated technical specialists, engineers, as they are selected as such ones. By following the statement, also adopted by McClelland, that it is possible to shape a lot of human characteristics by paying attention and directing their development, making it also possible to use the information gathered through the E-scan to estimate which elements could be upgraded to foster the successful entrepreneurial activity at Topicus. This could be done by comparing the profile of successful entrepreneur with the profile of the professionals employed at Topicus, and look which elements could be enhanced. Thus, entrepreneurs or not, the instrument will give us insight in how to approach the population in general, training and development wise, and to directly detect how individual entrepreneurs could be upgraded for efficient entrepreneurship.

The instrument of Driessen is especially suitable to evaluate entrepreneurial talent at Topicus because it especially concerns the qualities of the entrepreneurial talent in the beginning of the entrepreneurial activity. This conclusion is made due to the fact that it is developed as a tool to support the decision makers at the bank while figuring out to grant a loan or not. Besides estimating the degree of entrepreneurial talent at Topicus the instrument developed by Driessen could be also used to review and assess the entrepreneurial potential while selecting and developing employees.

5.2 Results measurement

In this part the results of the measurement and the analysis as shown in the previous paragraphs will be discussed. First of all we will look to the result descriptives. Moreover in this part attention was given to analysis of the Cronbach alpha. Further the statistical proofing theory and the confidence intervals are then being presented. After that we will look at the correlations.

5.2.1 Result descriptives

From the results the following descriptives were being found for every variable:

Variable	Mean	Std. Deviation
Prestatiegerichtheid (PRE)	7,0	1,0
Zelfstandigheid (ZEL)	5,9	1,0
Dominantie (DOM)	5,7	1,3
Sociale Oriëntatie (SOC)	6,7	1,3
Effectiviteit (EFF)	7,1	0,9
Doozettingsvermogen (DOO)	7,4	1,2
Marktgerichtheid (MAR)	6,3	1,2
Creativiteit (CRE)	6,9	1
Flexibiliteit (FLE)	6,3	0,9
Total average	6,6	0,7

The descriptive statistics are of special interest, since it is a measure of the dispersion of a set of data from its mean. The more spread apart the data, the higher the deviation. The standard deviation in case of separate variables is considered to be low. In average it concerns a standard deviation score around 1,1, and on the 10 point scale it is considered to be low. This means that the scores on different variables are homogeneous.



5.2.2 Cronbach alpha

Cronbach alpha performed by means of SPSS is used to assess the internal consistency. It gives answer to how closely a set of items are related as a group. A "high" value of alpha is often used as evidence that the items measure an underlying (or latent) construct.

Cronbach's alpha is to be conducted on the entire survey instrument (all subscales combined) and on each individual subscale. In appendix I all the results for the different subscales are given in detail. A reliability coefficient of about .70 or higher is considered "acceptable" in most social science research situations.

Scale	N of Items	Cronbach's Alpha
PRE	10	.682
ZEL	9	.754
DOM	9	.866
SOC	7	.766
EFF	9	.656
DOO	8	.832
MAR	9	.814
CRE	10	.680
FLE	5	.234
All subscales combined	76	.915

In the table we see that the value of FLE is low with its score at .234. By examining the exclusion of some of the questions for this variable we saw how the Cronbach's Alpha is affected. The way it is actually done is presented within the appendices. The Cronbach Alpha of .693 is then reached. This will be seen as acceptable within this research as it reaches very closely the acceptable borderline value of 0.70.

5.2.3 Outcomes statistical proofing theory

In this paragraph the statistical proofing theory with the normal distribution as the model of probability will be discussed. How the statistical analysis would be performed is discussed in chapter 3. The results of the measurement are visible in the table in appendix F. In the table below it is shown how many employees got a score in a certain range. In the table in the row "Entrepreneur" ("Ondernemer") is given how many employees are seen as an entrepreneur. It is done according to reaching or exceeding the score of 7.8 as given entrepreneurship indicator score established by Driessen. The results will serve as input for testing the hypothesis with the 8-step plan.

Score	Number of employees
3,7-4,6	0
4,7-5,6	3
5,7-6,6	23
6,7-7,7	16
7,8 >	2
Total	44



When elaborating the 8-step plan it is necessary that the hypothesis is presented adequately to be examined. The hypothesis that was stated in the beginning of this chapter is for the convenience once more shown below:

The hypothesis:

“An employee of Topicus has at least the norm score (of 7,8) to be considered an entrepreneur according to the model of Driessen.”

The average norm referring to an entrepreneur has been chosen to be the value “7,8”, just like described in the model of Driessen. Row 13 “Entrepreneur” (“Ondernemer”) will show for every employee whether he/she can be depicted as an entrepreneur or not.

The wish we can derive from this is:

The minimal average score of an employee of Topicus is at least w.

- Where $w=7,8$;

The expectation stated within the alternative hypothesis: H_1 , namely μ is $\geq 7,8$. With other words, *“An employee of Topicus has at least the norm score (of 7,8)”*

H_0 therefore becomes, μ is $< 7,8$. The hypothesis H_0 is what we want to reject. If that will be the case, that will be a strong statement. Accepting H_0 is a weak statement. Other important parameters for the plan are:

- Sample size (number of observations) $n=44$;
- Level of significance (onbetrouwbaarheidsdrempel) $\alpha=0,05$;

Now this information is clear and described, the T-Test is being conducted using SPSS. The results are shown below:

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
GemScore	44	6,5895	,66952	,10093

The mean of 6,59 was calculated over the 9 variables as shown in paragraph 5.4.1. It is the average score of the entrepreneurial measurement at Topicus.

One-Sample Test

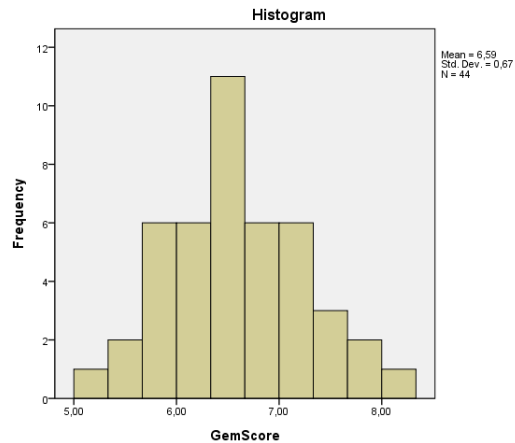
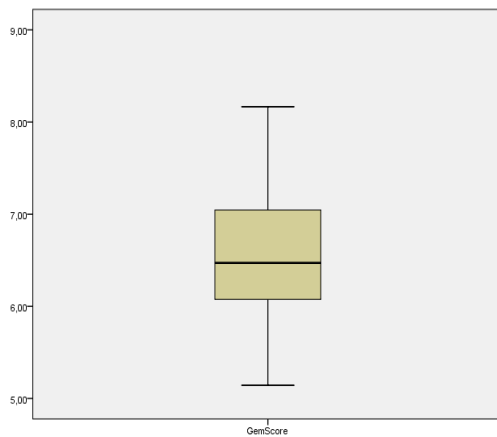
	Test Value = 7.8					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
GemScore	-11,993	43	,000	-1,21046	-1,4140	-1,0069

In appendix G the hypothesis is examined manually by the 8-step plan with the normal distribution as the model of probability. The same result is being retrieved as shown with the help of SPSS: *There is insufficient proof to state (with a level of significance of 5%) that the employees of Topicus can be considered entrepreneurs.*



5.2.4 Estimating and Confidence intervals

The previous paragraph made clear that the stated hypothesis could not be accepted. Nevertheless to make sensible comments we will turn to confidence intervals. This gives us the possibility to say something about the expected score that can be found for the employees. With other words, how the employees at Topicus actually score on the entrepreneurial competencies. The parameter μ will be estimated and then an interval with a certain confidence will be given (see also Appendix H).



As can be seen, with a level of reliability of 95% the score of the employees lies between 6,39 and 6,79 which is far below the average norm of 7.8. The diagram on the left is the box plot. In descriptive statistics, a box plot is a convenient way of graphically depicting groups of numerical data through their five-number summaries: the smallest observation (sample minimum), lower quartile (Q1), median (Q2), upper quartile (Q3), and largest observation (sample maximum).

One remark must be made about visual presentation of the plots shown above. The entrepreneurial scores are represented on the 10 point scale, but SPSS displays only restricted scores value range. Instead of starting with an one as minimum value until 10 as the highest value score the value score range was given starting with 5 and ending with a nine.

5.2.5 Correlations

In the following table the correlation among the variables was calculated with SPSS Pearson Correlation Coefficients. It seems that not all the correlation coefficients are significant. All the variables except 'Flexibility' have a significant correlation with the average entrepreneurial score. The entrepreneurial score seems to be mostly shaped by all the variables except flexibility.



Correlations

		Prestatiegerichtheid	Zelfstandigheid	Dominantie	Sociale Oriëntatie	Effectiviteit	Doorzettingsvermogen	Marktgerichtheid	Creativiteit	Flexibiliteit	GemScore
Prestatiegerichtheid	Pearson Correlation	1									
Zelfstandigheid	Pearson Correlation	,371*	1								
Dominantie	Pearson Correlation	,407**	,191	1							
Sociale Oriëntatie	Pearson Correlation	,482**	,254	,541**	1						
Effectiviteit	Pearson Correlation	,514**	,534**	,184	,369*	1					
Doorzettingsvermogen	Pearson Correlation	,545**	,309*	,120	,355*	,411**	1				
Marktgerichtheid	Pearson Correlation	,433**	,463**	,262	,611**	,485**	,340*	1			
Creativiteit	Pearson Correlation	,421**	,197	,362*	,382*	,317*	-,051	,455**	1		
Flexibiliteit	Pearson Correlation	-,095	,038	-,127	,023	-,003	,083	,119	,197	1	
GemScore	Pearson Correlation	,740**	,596**	,577**	,766**	,668**	,573**	,766**	,584**	,193	1

*. Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

5.3 Summary Outcomes E-scan

Before we move on to the conclusion and recommendations of this thesis, first the results of this chapter will be summarized shortly in this paragraph.

- Quantitatively wise there seemed to be no statistical significance for the evidence that the stated hypothesis could be accepted. Thus there is insufficient proof to state (with a level of significance of 5%) that the employees of Topicus can be considered entrepreneurs.
- By means of confidence interval we could say a bit more; with a level of reliability of 95% the score of the employees lies between 6,39 and 6,79 which is quite far below the average norm of 7.8.
- Population at Topicus is highly homogeneous
- All the variables except ‘Flexibility’ have a significant correlation with the average entrepreneurial score.
- The Cronbach alpha reported signs of internal inconsistency concerning construct “Flexibility”. The items of construct “Flexibility” seem not to measure an underlying (or latent) construct. Together with the correlation results on “Flexibility”, we can state that it seem to be weak construct as it is appear within this research.

The outcomes of this measurement point out that the majority of the employees at Topicus are in fact not entrepreneurial as they are expected to be. The majority of the employees employed must be approached as technical professionals, as this type seems to represent the majority of the employee population at Topicus.



6 Conclusions, Discussion and Recommendations

Within this chapter we will come up with the conclusions, discussion and recommendations based on the results of the analysis and measurements conducted within this research.

6.1 Conclusions

Conclusions are presented by systematically giving the answers to the research questions stated within this research.

1) How well is entrepreneurship represented at the individual level?

Entrepreneurship able individuals are highlighted by Topicus as indispensable “key-elements” leading to the firm’s prosperity, or success. In order to answer this question a validated instrument has been used to recognize entrepreneurship able individuals.

The most important finding we made by means of the E-scan is that the employee population at Topicus is not as entrepreneurial as it is expected to be. The E-Scan, based on statistical analysis, showed that probably only a fraction of the IT professionals employed at Topicus could be appointed as entrepreneurs. The overall majority seemed to lack the qualities developed enough to be directly qualified as an entrepreneurial leader.

Based on the outcomes, we saw the following manifestations:

- Employees generally are of the same age
- Employees belong to the highest IT educational segment in the Netherlands
- Employees were graduates of the similar technical IT related study/education
- Employees generally have no prior work experience
- Employees generally have ambitions in terms of making a career progress at Topicus

An interesting detail is that most of the employees expressed their future ambitions in terms of promotional titles used at Topicus. This could be seen as signs of employee satisfaction and their wish to stay employed at Topicus. But it also can be a sign that the majority of employees have ambitions that exceed their current position and responsibilities. We can also carefully conclude that employees are actually aware of the firm’s structure and existing growth path.

Also it seemed that the small group of employees at Topicus, who actually filled the position of the entrepreneurs, also known as cell leaders, were persons of higher age, with a professional technical (IT) background, prior experience, and some of them are at the moment moving to the realization of more cells to lead.

Taken all together the outcomes of the quantitative research showed that the employee population of Topicus is highly homogeneous. This conclusion is not surprising at all, since the qualitative research showed that recruitment activities, and especially selection criteria and processes, would probably lead to such an effect. A lack of formal communication and the absence of the HR function and support in the past showed not to be that influential for this matter. It could be explained by the fact that Topicus exclusively searched for IT professionals, and the selection process is actually held by the employed IT professionals themselves.

This conclusion could theoretically have negative implications for radical innovation. It is researched that the greatest radical innovations are a result of collaboration within groups build of highly diversified professionals. However such a group seemed also be able to lead to the greatest failures as well. Those insights also clarify the fact that innovation reached by Topicus is mostly incremental.



2) How well is entrepreneurship represented at the organizational level?

To answer this question entrepreneurship is approached and viewed at the organizational level. It is done by taking a closer look at the way entrepreneurship is incorporated within Topicus. Conclusions are made based on observations and interviews on topics as strategy, structure, goals, innovation and HRM.

We saw that entrepreneurship is closely related to the mission, strategy and structure of Topicus as it is revealed by the higher management. Within the research we elaborated that adequate culture, physical environment, and a high degree of professional empowerment, are enablers of entrepreneurship. Besides the positive effects those aspects have for entrepreneurship, it is also proved to be positively related to foster the realization of innovation and keeping the overall atmosphere pleasant for technical individuals employed. It is established that policies and ambitions concerning the cultural climate, innovation and empowerment, titled as professional freedom and room for creativity, were carefully thought out at Topicus. Policy wise those elements, as well as the firms mission, strategy and structure, can be considered to be a solid base for entrepreneurship at Topicus. However, entrepreneurship seemed to be less visible within the daily life of the organization. Some policies and practices were not aligned and sometimes even contradicting. For example, empowerment and room for innovation were often obstructed by work load and work pressure.

To be able to fully exploit the mentioned advantages, entrepreneurship and its enablers need to become better integrated also within the practices at Topicus. For example, to foster and enhance technological entrepreneurship an organization needs:

- Embrace culture, lean on culture, communicate via culture etc.
- Support creativity
- Enhance and embrace a good relationship between a leader and his subordinates
- Tune your rewarding system to innovation, creativity and intrapreneurial efforts
- Communicate the intrapreneurial demands, possibilities and benefits (not only financially but also the overall learning and growth path as a specialist, as a serious investment in the individual career and professional progression). Communication based on realistic possibilities will foster the better and honest, open relationship between the leader and the subordinate [MEN07]

That way it would become more visible to the employees and it could lead to advantages like innovation, growth and thereby it will lead to the success.

3) To what extent is entrepreneurship contributing to economic success (at Topicus)?

To answer this sub-question organizational success is approached as a relative notion which depends on the opinion and direction set by an organization.

Entrepreneurship, in this case especially the kind of employee competence, has been appointed to be the leading indicator of success at Topicus. An entrepreneur is expected to have a “bottleneck” role in the realization of goals and strategy set by the firm, and to be the element which leads to the creation of the competitive advantage.

The idea was that if the employee population will actually prove to be entrepreneurial according to the results of the measurements, then it will confirm expectations expressed by the management of Topicus that entrepreneurship actually contributed to the success realized by Topicus in the past. After applying the E-scan and performing the statistical analysis the conclusion has been made that the employee population at Topicus did not proved to be entrepreneurial as expected. The success of Topicus is still a fact, due to its growth and financial prosperity, but based on this research entrepreneurship does not seem to be the main cause of it.



The main question of this research as described before is:

“What is the relation between entrepreneurship and economic success of Topicus?”

We saw that entrepreneurship is closely related to and necessary to realize the mission, strategy and structure of Topicus. However, there is no evidence to support the notion that entrepreneurs are representatives of the majority of the employees at Topicus. This implies that entrepreneurship can't be seen as the main reason and condition to be accountable for the success accomplished by the firm. However entrepreneurship is an essential element within the structure and strategy of Topicus. It remains important, even if it is not proven to be fully determinative for Topicus welfare.

6.2 Discussion

Within this part a few topics are to be discussed which appear interesting and relevant after answering the research questions.

- What is more important, entrepreneurship at the individual level or entrepreneurship at the organizational level?

After researching how well entrepreneurship is represented within both the individual and organizational levels we concluded that entrepreneurship seems to be partially well incorporated within the organizational level at Topicus. It is especially the case concerning the principles of the mission, strategy and structure as expressed by the higher management. However, entrepreneurship seemed to be less visible within the daily life within Topicus.

Outcomes on entrepreneurship on the individual level were less positive. The presence of entrepreneurship was not proved to be the case for the majority of the employee population. According to the results after applying the E-scan, only one of the 44 employees from the research population could be identified as an entrepreneur.

But what is actually more essential for Topicus to possess, entrepreneurship at an individual level or entrepreneurship at the organizational level? The notion that the majority of the employees at Topicus could be appointed as an entrepreneur has to be rejected. An organization cannot exclusively exist and be operated by entrepreneurs only.

But foundations of entrepreneurship at the organizational level are shown to be advantageous at the organizational level. The positive effects and organizational arrangements which come with an entrepreneurial environment are of influence on innovation, creating room for creativity and professional freedom, fostering opportunity seeking, value creating behavior et cetera. Thus, even if not every employee at Topicus needs to be an entrepreneur, an entrepreneurial environment is still advantageous within Topicus.

- If not entrepreneurs, who else?

Entrepreneurs are important within Topicus. But it is not the type of employee whose skills enable Topicus to provide particular benefits to its customers [HAM93]. At the moment the majority of the employee population at Topicus is represented by IT professionals, and it is plausible to expect that they are of greater importance in the realization of prosperity reached by the firm. Seen the current success of Topicus, core competence and wish to become the leading innovative warehouse, this conclusion is not surprising.

Thus, it would be adequate to approach the (potential) employees for what they actually are – IT professionals. What they can and must become is another question which must not be neglected. To realize the strategy of Topicus and to further build on the structure of Topicus, the firm needs the desired entrepreneurs. But instead of bringing this issue into the domain of recruitments and selection it is seem to be better to bring it under the responsibilities of training and development. With other words it could be better to approach the need of entrepreneurial leaders by investing in converting the gifted technical professionals in capable entrepreneurs.



Beneficial effects will appear at both sides, Topicus as a firm as well as for individual employees. Topicus will get a unique employee type with competencies necessary for the realization of strategy and structure, and employees will be able to enlarge the scope of competencies which make him/her highly competitive on the employment market.

Of course not every IT professional would have the ambition and capacities for such a development path, but those who will, could be of great service to the organizational growth and wealth. It is also obvious that such a professional will require a special approach in managing their development, rewards, career and other organizational arrangements in order to keep them interested, committed and satisfied with their work, responsibilities and work environment.

- Flexibility

According to the results of the measurement of individual entrepreneurship, employees at Topicus seemed to lack on flexibility as a quality of a successful entrepreneur. Flexibility as it is approached within the E-scan is based on the adjustment ability of an individual. Results showed that employees at Topicus in general lack this quality.

Few types of argumentation can be introduced to interpret this phenomenon:

- The first kind of argumentation arises from the fact that in case of Topicus we are actually dealing with the concept of intrapreneurship. Entrepreneurial leaders need to operate in a setting where they also have to consider conditions, strategy and room to maneuver given by the higher management.
 - Topicus proves to be very successful as a firm. Financial stability and growing market share could lead to the tendency to dictate the course of action.
 - The last argumentation is about the fact that we are dealing with the top level IT professionals delivering complex, high level technological products. It is plausible that their nature as technical specialists and restrictions placed by the complexity of the methods and products make it nearly impossible to continuously follow the requirements of the customer or niche as a leading driving force behind the product.
- How to get enough entrepreneurs?

The probability that IT professionals are actually the key element in the realization of success at Topicus is high. Still, the necessity is detected within the firm's structure and strategy to possess enough entrepreneurial talent. But how much entrepreneurs would be considered enough?

The situation where every employee within the particular cell is an entrepreneur is unrealistic and even undesirable. Growth of such proportions is hardly manageable and could have negative implication for the company's performance, culture and governance. To ensure the realization of Topicus' structure, by the means of the "cell dividing" process, we can state that one entrepreneur per cell, or unit, is the minimum number. Two entrepreneurs out of 25 employees could be more optimal by bringing the element of competition into the organizational being and enlarge the chance of success in finding and developing new opportunities.

Those questions and elements discussed could also serve as the foundation for future research. Topicus is a hard growing organization and further growth is still an ambition. Topicus pays attention to the developments within the organization as innovation has already been researched at Topicus and HR is being given the deserved attention.

The success of Topicus is undeniable and the firm proves to be on their way in conquering the national market. At the moment it seems that the ongoing exponential growth and increasing market share are the main outcomes which could overwhelm the firm.



6.3 Recommendations

In this paragraph recommendations are introduced concerning the way entrepreneurship could be approached, pursuing the consistency between policies and practices at Topicus, innovation and IT professionalism and the role of the HR.

- **Entrepreneurship:** Entrepreneurship was not proven to be the main catalyst of organizational success at Topicus. But it is still an important component which is also contributed to the welfare reached by Topicus. The idea to have as much of entrepreneurial individuals as possible is not desirable as we have argued before. Still the realization of the structure requires an amount of entrepreneurship able individuals.

In order to recognize and develop the entrepreneurship able individuals, Topicus could profit by creating adequate (HR) arrangements. For example, starting with the selection process and through the performance appraisal the potential entrepreneurs need to be recognized, triggered and developed. This is specially the case concerning entrepreneurship at the divisional level, or at the unit level as it is called at Topicus.

- **Communication:** Communication around the perspectives of becoming an entrepreneur at Topicus must in this case become more realistic and need to be intensified towards the individuals which are already detected as potential entrepreneur.
- **Development:** Development activities and arrangements of the potential entrepreneurs could be approached as a total training program in order to create entrepreneurial able individuals who are prepared to fill in the position of the entrepreneurial cell leader. But entrepreneurship and especially the constructs which suppose to comprise the successful entrepreneur could be also partially implemented within the employee population of Topicus. It is especially the case for the traits and abilities like market awareness, creativity and flexibility. Not only the potential entrepreneurial employees would profit from it but, as it is also contributory for the sake of innovation, also the majority of the IT professionals and Topicus as whole would benefit from it.
- **IT professional:** It is emphasized that IT professionals within the environment which is regulated by the egalitarian culture of Topicus and professional freedom, are actually the main source of success realized by Topicus. It is important to understand that the recruitment message and organizational arrangements must be built on the preferences of this particular population. As population of Topicus matures it is especially relevant to keep the general population, which is unable or unwilling of entrepreneurial career perspectives, engaged and satisfied with their work environment.
- **Ensuring consistency between policy and practice:** Topicus is shown to have the mission, strategy and structure which are distinctive, ambitious and beneficial for their employee population. Great career perspectives, innovation, empowerment are the main characteristics of it. It could be beneficial to strengthen those principles by making them more visible and clearly present within the organization.
- **Culture:** Culture is proven to be important for Topicus. It is a component which is determinative for a pleasant and fruitful work environment, as well as being a (cost) effective control mechanism. A high growth rate is definitely the indicator of success. But in order to keep the cultural settings at Topicus as beneficial as it have proven to be before, the new employees need to be properly educated about the values and behavioral ethics within Topicus. It is also advisable to spread the new employees among different unit cells. By this the high concentration rate of the new employees will be avoided and the new comers will be prevented of developing of any divergent sub-cultures.



7 References

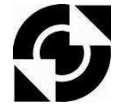
- [ALD91] Aldrich H., Von Glinow M. A., 1991, International perspectives on entrepreneurship research, vol. 18, p233–253 - *“Business starts-ups: The HRM imperative.”*
- [AND09] Anderson C., 2009. Business Process Management, Marketing Plan and Strategy. *“Ten Leading Indicators of Organizational Success”*, <http://www.bizmanualz.com/blog/ten-leading-indicators-of-organizational-success.html>.
- [ANT01] Antoncic B., Hisrich R.D., 2001, Journal of Business Venturing 16 (5), p495–527 – *“Intrapreneurship: construct refinement and cross-cultural validation.”*
- [BAR02] Baron J.N., Hannan M.T., spring 2002, California management review Vol. 44, No. 3, *“Organizational Blueprints for Success in High-Tech Start-Ups; lessons from the Stanford project on emerging companys”*.
- [BEC01] Becker B, Huselid M., Ulrich D., 2001 *“The HR scorecard, linking people, strategy and performance”*, Harvard business review press
- [BIS03] Bishop, K. (2003). Training and entrepreneurship: A partnership whose time has come. Paper presented at the Academy of Management, Seattle, WA.
- [BOY82] Boyatzis R., 1982, *“The Competent Manager: A Model for Effective Performance”*, New York: John Wiley and Sons.
- [CAR04] Cardon M.S., Stevens C.E., 2004, Human Resource Management Review 14, p295–323 - *Managing human resources in small organizations: What do we know?*
- [COH02] Cohen A.R., 2002, Babson Entrepreneurial Review – *“Mainstreaming corporate entrepreneurship: leadership at every level of the organization.”*
- [COL94] Collins, J.C., and J.I. Porras. *Built to Last: Succesful Habits of Visionary Companies*. New York: HarperCollins, 1994
- [COO99] Cook M. F., 1999, New York: American Management Association – *“Outsourcing human resource functions.”*
- [DAV99] Davis K.S., 1999, Journal of Engineering & Technology Management 16 (3/4), p295–327 – *“Decision criteria in the evaluation of potential intrapreneurs.”*
- [DES94] Deshpande S.P., Golhar D.Y., 1994, Journal of Small Business Management 32(2), p49-56 - *HRM practices in large and small manufacturing firms: A comparative study.*
- [DRI05] Driessen M., 2005, Entrepreneur consultancy - *“E-Scan Ondernemerstest, Beoordeling en ontwikkeling ondernemerscompetentie”*
- [FAY05] Fayolle A., Ulijn J.M., Degeorge J.M., 2005, Entrepreneurship Research in Europe: Outcomes and Perspectives. Edward Elgar, Cheltenham, p227–255 - *“The entrepreneurial and innovative orientation of french, german and dutch engineers: the proposal of a european context based upon some empirical evidence from two studies.”*





- [GAL82] Galbraith J.R., 1982, *Organizational Dynamics* 10 (3), p4–24 - *“Designing the innovating organization.”*
- [GRA02] Graham M. E., Murray B., Amuso L., 2002, *Managing people in entrepreneurial organizations*, 5, p107-145, Elsevier Science Publishing - *“Stock-related rewards, social identity, and the attraction and retention of employees in entrepreneurial SMEs.”*
- [HAM93] Hamel G., Prahalad C., (1993), *“Strategy as stretch and leverage”*, *Harvard Business Review* 71 (2), 75-84
- [HAN84] Hannan M.T., Freeman J., 1984, *American Sociological Review* 49, p149–164 - *“The population ecology of organizations.”*
- [HEN99] Heneman H.G., & Berkley R.A., 1999, *Journal of Small Business Management* 53–74 - *“Applicant attraction practices and outcomes among small businesses.”*
- [HIS90] Hisrich R.D., 1990, *American Psychologist* 45 (2), p209–222 - *“Entrepreneurship /intrapreneurship.”*
- [HIT02] Hitt M.A., Ireland R.D., Hoskisson R.E., 2002, Blackwell Publishers, Oxford – *“Strategic Entrepreneurship: Creating a New Mindset.”*
- [HOR90] Hornsby J.S., Kuratko D.F., 1990, *Journal of Small Business Management* 9–18 - *“Human resource management in small business: Critical issues for the 1990s.”*
- [HOR02] Hornsby J.S., Kuratko D.F., Zahra S.A., 2002, *Journal of Business Venturing* 17 (3), p253–273 - *“Middle managers perception of the internal environment for corporate entrepreneurship: assessing a measurement scale.”*
- [HUS95a] Huselid M.A. (1995), ‘The impact of Human Resource Management practices on turnover, productivity, and corporate financial performance’, *Academy of Management Journal*, 38 (3), p. 635-672.
- [HUS95b] M. Huselid, B. Becker, “High performance work systems and organizational performance”, paper presented at 1995 Academy of management annual meeting, Vancouver, August 1995
- [KAT00] Katz J., Aldrich H., Welbourne T.M., Williams, P.M., 2000, *Entrepreneurship Theory and Practice* 7-10 - *Issue on human resource management and the SME: Toward a new synthesis.*
- [KLA00] Klaas B., McClendon J., Gainey T. W., 2000, *Entrepreneurship Theory and Practice*, 107–124. – *“Managing HR in the small and medium enterprise: The impact of professional employer organizations.”*
- [LUC97] Luchsinger V., Bagby D.R., 1987, *SAM Advanced Management Journal* 52 (3), p10–13 – *“Entrepreneurship and intrapreneurship: behaviors, comparisons, and contrasts.”*
- [MCA02] McAdam R., McClelland J., 2002, *Technovation* 22 (2), p113–121 - *“Sources of new product ideas and creativity practices in the UK textile industry.”*
- [MCC73] McClelland D.C., 1973, *American Psychologist* - *Testing for competence rather than for “intelligence”.*
- [MEH96] Mehta S.N., 1996, *Wall Street Journal* B-2 - *“Worker shortages continue to worry about a quarter of small businesses.”*





- [MEN07] Menzel Hanns C., Aaltio Iiris, Ulijn Jan M., 2007, *Technovation 27 - On the way to creativity: Engineers as intrapreneurs in organizations.*
- [MIN90] Miner John B., 1990, *Journal of Business Venturing 5*, p221-234, Elsevier Science Publishing - *Entrepreneurs, high growth entrepreneurs and managers: contrasting and overlapping motivational patterns.*
- [MOO02] Moore D.S., McCabe G.P., 2002, Academic Service, Schoonhoven – *“Statistiek in de praktijk”*
- [NAD99] D.A. Nadler and M. Tushman. The organization of the future: Strategic imperatives and core competencies for the 21st century. *Organizational Dynamics*, 28(1):45–60, 1999.
- [PIN85] Pinchot G., 1985, first ed. Harper & Row, New York - *“Intrapreneuring: Why You Do Not Have to Leave the Corporation to Become an Entrepreneur”*
- [POO02] Poortema K., 2002, Universiteit Twente, Enschede - *Statistiek voor BIT*
- [SHU10] Ho, Shuk Ying and Frampton, Keith (2010) "A Competency Model for the Information Technology Workforce: Implications for Training and Selection," *Communications of the Association for Information Systems*, Vol. 27, Article 5
- [SPE93] Spencer, L. and S. Spencer (1993) *Competence at Work: Models for Superior Performance*, New York: John Wiley and Sons.
- [WAY00] Wayna H. Stewart Jr., Carland J., Watson W., 2000 - *Entrepreneurial goal orientation: a comparative exploration of U.S and Russian entrepreneurs.*
- [WIL00] Williamson I. O., 2000, *Entrepreneurship Theory and Practice 27–42* – *“Employer legitimacy and recruitment success in small businesses.”*

