



Industry Survival: The Case of the Twente Textile Industry

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Photo front page
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Part of the old textile factory 'Rozendaal' at the Roombeek in Enschede. Roombeek used to be the center of the textile industry in Twente. The Rozendaal building has been extensively remodelled and renovated and is now being used by the museum TwentseWelle. A museum that is dedicated to the history of Twente.

Note

For privacy reasons, the appendices were removed from the public report.

Executive summary

Products and industries go through life cycles. They both pass four phases: introduction, growth, maturity and decline. With every phase in the life cycle, other opportunities and threats occur. Every phase is different and will shape the industry in a different way.

Mostly, companies within an industry tend to copy each other's successful behaviour, which makes them more alike as the industry matures. The process of organisations becoming more and more similar is called isomorphism. Isomorphism mostly results in an oligopoly. To survive an industry, organisations must take four key themes into account: customers, innovation, corporate identity and finance. Within these four themes, this research identifies eight key factors for enduring success:

Customers

- Products/services need to be of good quality
- Consider external environment

Innovation

- Balance incremental and radical innovation; know when what type is needed.
- Diversification
- Balance exploration and exploitation; know when it is the right time

Corporate identity

- Envisioned future needs to exist (BHAG and vivid description of desired future state)
- Core ideology needs to be present (core values and core purpose)

Finance

- Conservative about finance

To test this model for enduring success and also the possibility of the presence of an innovative cluster three companies were included in the research. Three contrasting cases, based on decision to outsource production and the point of entry on the industry life cycle, were used. These factors were identified at the three case companies. Some factors were more obviously present than others.

Also the presence of an innovative cluster in Twente was tested. A cluster is a strong collection of geographic concentrations of interconnected organisations in a particular field or a particular industry that compete but also cooperate. Four groups need to be

present in order to claim the title of a cluster: direct competitors, important customers, suppliers and supporting organizations. These groups are present in Twente, however, since there is no sign of cooperation between the companies, there is no innovative cluster present. Within an innovative cluster organisations work together inside the bounds of a cluster, to produce innovations. However, in Twente there is a phenomenon that is called the Twente cooperation paradox: organisations do not cooperate unless it is absolutely necessary. This can also be observed in the history of the Twente textile industry. History of the industry and recent knowledge and events were combined in this research to explain why only some organisations survived the Twente textile industry. Resulting in the key factors for enduring success, which are present in all three case companies and might be applicable in other industries in other regions.

Foreword

“It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is the most adaptable to change.”

Charles Darwin

About two years ago I started my bachelor thesis with this quote from Charles Darwin. It has always been my belief that companies that are flexible and are willing to change, are likely to be more successful and have a greater chance of survival than inert and inflexible organisations. At the time I researched and analysed the organizational culture of an organisation in the Twente region. I could not have imagined researching such a large entity as the Twente textile industry at that point. This research was a challenge in many ways and I am very proud of the end result. Because of the limited time and space available, I am sure I have not done enough justice to the subject. There are so many stories about the Twente textile industry that it is impossible to encompass them all in one research or one book. I believe not all people in Twente are aware of the fact that we live in a region with such a rich history.

A lot has changed in the last 50 years. Many companies did not survive the industry when it started to decline; were they not adaptable enough to change? When applying Darwin's theory, not the strongest organisations survive, and also not the organisations that are most intelligent, but the organisations that are most adaptable to change. In other words, organisations that are able and willing to change, have a chance of surviving in a changing environment.

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Index of abbreviations

BHAG	Big, Hairy, Audacious Goals
NHM	Nederlandse Handels Maatschappij
PLC	Product Life Cycle
R&D	Research and Development

1. Introduction: the Twente textile industry, a dying cluster?

Human institutions can be explained by tracking their development over time. The features of the present cannot be understood unless they are seen in motion.¹ In other words, there is much to learn by looking to the past. Failures in the present can be avoided when examining organisational behaviour of the past. At present, the topic of clustering is very important². Therefore it can be useful to look at the past of the Twente region, where a very large textile cluster occupied the area during the 19th and 20th century. Especially with the recent developments at KLM Kleding in Enschede, looking at the past for success factors might be a good idea. This report will give an overview of the relevant history of the Twente textile cluster; this overview will be supported by a number of case studies and will result in a number of success factors. These success factors will be based on recent literature and on history.

In chapter 2, the theory is discussed that is needed to define the research area. The reader will find topics as the product life cycle, the industry life cycle, clusters and enduring success. These topics are necessary to give an answer to the research question: *Why did only some organisation survive the Twente textile industry?* This research question will be explained in chapter three, as well as the methodology behind the research. Chapter 4 is concerned with the case studies of the research. In this chapter the Twente textile industry as a whole will be discussed, as well as the three case companies: Twentse Damast, A.C. ter Kuile and WeVoTex. At the end of chapter 4 the three case companies will be compared based on the model that is devised in chapter 2. Supporting the contents of the research, some additional information on KLM Kleding is added to the report as well as information on the Prato region in Italy: a textile cluster that is still very active. In chapter 5 the research question will be answered based on the case studies of this research. Also the practical and theoretical contribution of research will be discussed.

¹ See Tosh (2008), p. 141.

² See Hospers (2005), p. 452.

2. Theory: enduring success and cluster life cycle theory to explain industry survival

2.1 Industry life cycles and shakeouts: resulting in oligopolies

2.1.1 Industry life cycles: the introduction, growth, maturity and decline of an industry

A young industry is populated by a few small organisations and the product price is very high. Entry then expands the number of organisations and each organisation produces more, so the output of the industry grows dramatically while the price declines. The output growth persists but the rate of growth is lower than the average growth of the organisations in the industry.³ Therefore some organisations must exit the industry and a ‘shakeout’ occurs: a sharp drop in the number of organisations in the industry.⁴ Considering the industry output over time, the industry life cycle can be graphically depicted, see figure 1.

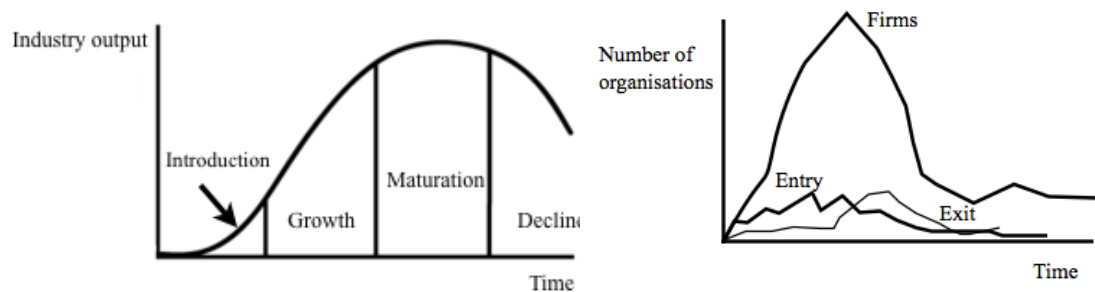


Figure 1. The industry life cycle, comparing industry output and number of organisations to time.

Many have tried to explain the shakeout. Some say it is the result of precipitating events, like major technological change, organisations that fail to innovate exit the industry.⁵ Others say it is the result of a gradual evolutionary process *shaped by* technological change.⁶ “The key idea of this theory is that larger firms earn greater profits from R&D, particularly process R&D, because they can embody their innovations in a larger level of output.”⁷ To gain the same competitive advantages, organisations must be very competent. With these competitive advantages, the barriers to entry will be higher and it will therefore be more difficult to enter the industry.⁸

³ See Jovanovic/MacDonald (1994), p. 322; and Klepper (1996), p. 564.

⁴ See Jovanovic/MacDonald (1994), p. 322; and Klepper/Graddy (1990), p. 28.

⁵ See Jovanovic/MacDonald (1994), p. 326; and Utterback/Suarez (1993), p. 2.

⁶ See Klepper/Graddy (1990), p. 41-42; Klepper/Simons (1996), p. 82; and Klepper (2002), p. 563.

⁷ See Klepper/Simons (1996), p. 82.

⁸ See Porter (2008), p. 81.

2.1.1.1 The product life cycle: introduction, growth, maturity and decline

Some organisations compete with each other to be the first to successfully invent, produce and market a new product.⁹ Many products experience cycles,¹⁰ the product life cycle represents the unit sales curve for a certain product, extending from the time it is first placed on the market until it is removed from the market.¹¹ Schematically, the product life cycle is a bell-shaped curve (see figure 2), which is divided into four stages: introduction, growth, maturity and decline.¹²

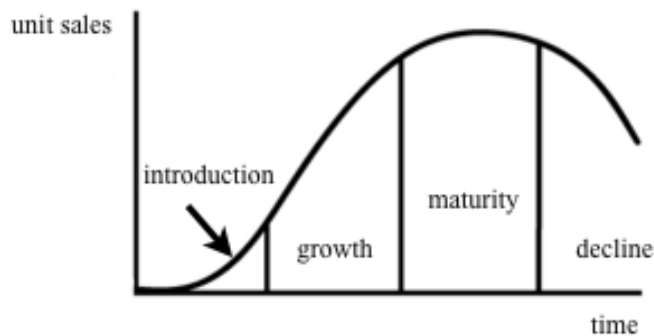


Figure 2. Product life cycle, based on Rink & Swan (1979).

Introduction is the period of commercialisation, where the product is first sold to customers until takeoff, the point of transition from the introduction to the growth stage.¹³ When a product is introduced, it is likely to be offering something new¹⁴, initiated by a radical innovation. During introduction there are few to no competitors¹⁵, sales are low and costs are high because there are not yet economies of scale. Also the price of the product is high.¹⁶ When a product is introduced to the market, producers usually are confronted with a number of critical conditions,¹⁷ which are related to producing new products and radical innovations. Radical innovations usually create great difficulties for established firms.¹⁸

Growth is the period from a new product's takeoff, until it slows down in sales.¹⁹ During the growth phase there is an increasing numbers of entrants, and therefore competi-

⁹ See Segerstrom/Anant & Dinopoulos (1990), p. 1077 and Schumpeter (1994), p. 32.

¹⁰ See Segerstrom/Anant & Dinopoulos (1990), p. 1077.

¹¹ See Rink/Swan (1979), p. 219.

¹² See Rink/Swan (1979), p. 219.

¹³ See Golder/Tellis (2004), p. 208.

¹⁴ See Slack et al. (2007), p. 72.

¹⁵ See Slack et al. (2007), p. 72.

¹⁶ See Blythe (2006), p. 399 and Jovanovic/MacDonald (1994), p. 322.

¹⁷ See Vernon (1966), p. 195.

¹⁸ See Henderson/Clark (1990), p. 9.

¹⁹ See Golder/Tellis (2004), p. 208.

tors.²⁰ While more competitors enter the market, the price will be lower because their development costs were lower (they have something to copy).²¹ Also there will be different versions of the product available and the most recent entrants account for a disproportionate share of these product innovations.²² The rate of product innovation is high and market shares change rapidly.²³ Shankar et al. showed several advantages organisations may experience when entering the market during the growth stage.²⁴

Maturity is the stage from the point where the sales slow down until the sales begin a steady decline.²⁵ During the maturity phase there is a stable number of competitors and the competition will be at the highest level.²⁶ During this phase, the price will be lowest and there will be several versions of the product.²⁷ Some early competitors may have left the market and the industry will most likely be dominated by a few larger organizations.²⁸

Decline is the period of steadily decreasing sales until a product is taken off the market.²⁹ The number of competitors will decline. There might be a residual market, but unless a shortage of capacity develops, the market will contribute to be dominated by price competition: costs will be kept as low as possible and the profit comes from remaining sales.³⁰

According to Christiansen et al. a product life cycle does not have to be a single occasion. Some products go through multiple life cycles, because they come back in fashion again (example is the Egg-chair).³¹ An understanding of the product life cycle is useful when introducing a new product, or when adapting an innovation.

2.1.1.2 Stages in the innovation life cycle in relation to the product life cycle

There is accumulating evidence that supports the idea of a prototypical life cycle of industries.³² Usually this industry life cycle is described as also having four phases: introduction, growth, maturity and decline.³³ The industry life cycle is quite similar to the product

²⁰ See Slack et al. (2007), p. 72.

²¹ See Blythe (2006), p. 400 and Jovanovic/MacDonald (1994), p. 322.

²² See Klepper (1996), p. 565.

²³ See Klepper (1996), p. 562.

²⁴ See Shankar et al. (1999), p. 273-275.

²⁵ See Golder/Tellis (2004), p. 208.

²⁶ See Slack et al. (2007), p. 72 and Blythe (2006), p. 400.

²⁷ See Blythe (2006), p. 400.

²⁸ See Slack et al. (2007), p. 73.

²⁹ See Golder/Tellis (2004), p. 208.

³⁰ See Slack et al. (2007), p. 73 and Blythe (2006), p. 400.

³¹ Christiansen et al. (2010), p. 801-803.

³² See Audretsch/Feldman (1996), p. 253.

³³ See Verreynne/Meyer (2010), p. 403.

life cycle (also graphically, see figure 2 again), with the difference that the industry life cycle describes what happens to the industry, instead of what happens to the product and the organizations producing this product. Parts of the industry life cycle, what happens to the competitors within the industry, have already been described above.

A young industry is populated by a few small organisations.³⁴ During the introduction and growth phases of the industry, industries are often seen as attractive because of the lack of competition, as described in the product life cycle, competition is at its peak during the maturity phase³⁵. During this stage, it is likely that organisations will be proactive, risk taking and innovative.³⁶ These characteristics are important because usually, “in a new industry, it is less likely that practices that led to past success would be useful to the firm”³⁷. Mostly, no singular product design or concept dominates the industry yet. Organisations “experiment with the product design in short production runs, making significant modifications after observing consumer response”³⁸.

In the maturity and early decline phases of the industry cycle, competition intensifies even more as still more competitors move onto the market.³⁹ In this phase, organisations are most likely to be successful when they take market share from competitors.⁴⁰ While “the industry evolves towards the mature and declining stages, the product design becomes more standardized and uniform, and the premium attached to technological superiority recedes”⁴¹

2.1.2 Oligopoly trough shake out: tendency to homogenisation

The shake out phase of an industry will almost always result in an oligopoly.⁴² Many organisations exit the industry during the shakeout. Resulting in only a few surviving firms.⁴³ In the first stages of the life cycle, organisations display considerable diversity in approach and form. But when the organisational field matures, there is an inexorable push towards homogenisation.⁴⁴ Plants within the same narrow defined industries use very similar pro-

³⁴ See Jovanovic/MacDonald (1994), p. 322.

³⁵ See Slack et al. (2007), p. 72 and Blythe (2006), p. 400.

³⁶ See Verreynne/Meyer (2010), p. 404.

³⁷ Verreynne/Meyer (2010), p. 404.

³⁸ Agarwal/Audretsch (2001), p. 24.

³⁹ See Verreynne/Meyer (2010), p. 404.

⁴⁰ See Verreynne/Meyer (2010), p. 404.

⁴¹ Agarwal/Audretsch (2001), p. 24.

⁴² See Klepper/Simons (2000), p. 733.

⁴³ See Nederlof (1997), p. 39.

⁴⁴ See DiMaggio/Powell (1983), p. 148.

duction techniques and differences between plants tend to persist over time. Production techniques shift over time as the technologies of individual factories change. The process of selection or differential factory growth favours some factories and their production techniques over others. And as factories enter and exit the industry, they introduce and eliminate technological heterogeneity.⁴⁵

The concept that best captures the process of homogenisation is isomorphism. “Isomorphism is a constraining process that forces one unit in a population to resemble other units that face the same set of environmental conditions.”⁴⁶ Organisational characteristics are modified so they fit the environmental characteristics.⁴⁷ According to Hannan and Freeman, natural selection is the reason that some organisations do not survive.⁴⁸ When the external environment of an organisation changes, the internal environment of the organisation also has to change. When the internal environment cannot or will not change, the organisation will not survive and will be forced to exit.

2.1.3 Surviving the industry: using different approaches for industry survival

2.1.3.1 Technological advancement as key for industry survival

In an attempt to explore how an industry evolves, Yamamura et al. performed a case study of the motorcycle industry in Japan from 1948 to 1964. Their study resulted in some determinants of firm survival.

Technological advancement is a major determinant of firm survival.⁴⁹ It is important for many reasons, increasing quality and efficiency and decreasing costs. Technological advancement will lead to a changing market structure, leading to the formation of an oligopoly.⁵⁰

The size of an organisation has effect on survival. Organisations that exit the industry are smaller than organisations that survive the industry. “The effect of the initial firm size on the subsequent growth is negative but insignificant in the first period, positive and highly significant in the second period, and negative and significant in the last period. These results indicate that, compared with the periods when imitation is important, larger

⁴⁵ See Rigby/Essletzbichler (2006), p. 66.

⁴⁶ Hawley (1968), p. 328-337.

⁴⁷ See DiMaggio/Powell (1983), p. 149; and Hannan/Freeman (1977), p. 939.

⁴⁸ See Hannan/Freeman (1977), p. 940.

⁴⁹ See Yamamura et al. (2005), p. 183.

⁵⁰ See Yamamura et al. (2005), p. 177.

firms tend to have greater momentum to grow in the period when new innovations are introduced.”⁵¹

The importance of the quality of products increases over time. Quality is also (mostly) related to organisational growth. Furthermore, formal research activities are important in the later phase of quality improvement.⁵²

2.1.3.2 Innovation and experience as keys for industry survival

Also Klepper examined the survival of organisations to determine if there are common forces governing the distinctive evolution. Klepper analysed firm survival in four U.S. industries (automobiles, tires, televisions and penicillin) that share two features: after initial growth in the number of organisations, a shakeout occurred, and the industries evolved to be oligopolies.⁵³ The patterns that were observed are the following:

In all four industries earlier entrants had sharply higher survival rates to older ages.⁵⁴ Also, prior experience confers competitive advantages through R&D.⁵⁵

Technological change is the key force shaping the influence of the time and entry and pre-entry experience on firm hazards. Each leading organisation in the four industries had dominance of innovation.⁵⁶

2.1.3.3 Enduring success: exploit before explore, diversification, remember mistakes and be conservative about change

Christian Stadler did an extensive research on the oldest and most successful organisations in Europe. He compared the companies with less successful companies that were comparable in industry, age and country. This study resulted in four main findings, which Stadler calls: the four principles for success. Organisations that have applied these four principles have been rewarded with exceptional long-term performance gains.⁵⁷ The four principles will be discussed below.

Exploit before you explore. Successful organisations chose exploitation efforts over exploration initiatives. Exploration was not neglected but the organisations all emphasised exploiting the existing assets and capabilities before exploring new ones. Successful or-

⁵¹ Yamamura et al. (2005), p. 183.

⁵² See Yamamura et al. (2005), p. 183.

⁵³ See Klepper (2002), p. 37.

⁵⁴ See Klepper (2002), p. 56.

⁵⁵ See Klepper (2002), p. 57.

⁵⁶ See Klepper (2002), p. 56.

⁵⁷ See Stadler (2007), p. 64-65.

ganisations do not innovate their way to growth, but they grow by efficiently exploiting the fullest potential of existing innovations.

Diversify your business portfolio. Diversification works only if the diversifying company can exploit economies of scope by combining related businesses. Single business organisations do well on the short-term but not on the long-term. Successful organisations are adaptive and diversify their supply bases, products, customers and geographic markets.

Remember your mistakes. Successful organisations keep remembering past failures in order not to repeat them. This helps motivate employees and inspires them to act in ways that ensured success in the past and to not repeat unsuccessful behaviour.

Be conservative about change. Successful organisations only went through radical change at very selective moments and they do so very cautiously.⁵⁸

2.1.3.4 Preserve core: progress in all other areas

“Companies that enjoy enduring success have core values and a core purpose that remain fixed while their business strategies and practices endlessly adapt to a changing world.”⁵⁹ Collins and Porras did research on the enduring success of companies such as Hewlett-Packard, 3M, Johnson & Johnson, Procter & Gamble, Merck, Sony, Motorola, and Nordstrom. Their main conclusion is that organisations should know what they can change and what not. The core values and core purpose of an organisation should not be changed. According to Collins and Porras organisations with a strong vision have a greater chance of survival. They define vision as having a core ideology and an envisioned future.

A core ideology is the core values of an organisation and the core purpose. It does not matter what the values are, as long as an organisation has them and does not change them. The core purpose is the organisation’s reason for existence; this should be more than just making money. A purpose should at least last 100 years, and should therefore not consist of statements on current product lines because they can change. Practices and strategies should change over time but the core ideology should always remain the same. The core ideology of an organisation should be discovered, not created.⁶⁰

The second part of the vision is the envisioned future. This consists a 10-to-30-year audacious goals plus a vivid description of what it will be like to achieve that goal. In their research Collins and Porras discovered that visionary companies often use bold missions.

⁵⁸ See Stadler (2007), p. 67-71.

⁵⁹ Collins/Porras (1996), p. 65.

⁶⁰ See Collins/Porras (1996), p. 66-67.

Collins and Porras call these missions BHAGs (Big, Hairy, Audacious Goals). A BHAG needs to be clear and compelling. It serves as a unifying focal point of effort and acts as a catalyst for team spirit. The BHAG is a clear finish line, it should be clear when the goal has been achieved. This motivates people; it is tangible, energizing and gives focus to the organisation. In addition to the BHAGs a vivid description of the envisioned future is needed. This is a vibrant, engaging, and specific description of what it would be like to achieve the BHAG.⁶¹

The main conclusion here is that organisations must preserve their core, but must stimulate progress in all other areas.⁶²

2.1.3.5 The living company: strong corporate identities

De Geus studied 27 organisations that were, at the time, a hundred years or older. The oldest company in the study was the 700 year old Swedish company Stora. De Geus calls the surviving companies: living companies. The study resulted in 4 personality traits that could explain the longevity of the companies.⁶³

Conservatism in financing. The companies were very cautious with their money. They always had enough spare cash; this allowed them to govern their own growth and evolution because they did not rely on other parties.

Sensitivity to the world around. The living companies were all able to adapt themselves to the changing external factors. In order to do so, an organisation must be aware of what is going on in the world and react on possible changes.

Identity awareness. Corporate identity is important, employees need to feel as a part of the whole and the whole needs to be more than the sum of all its parts.

Tolerance of new ideas. An organisation must be willing to change when necessary and realise that new business might not be in any way related to the existing business⁶⁴

These are the four traits from the essential character from the living companies. These traits will lead to specific steps managers can take to contribute to the traits and to the success of the company. Manager should value people, not assets, managers should loosen steering and control and shape the human community. Furthermore, organisational learning is very important in a changing environment and should be stimulated⁶⁵

⁶¹ See Collins/Porras (1996), p. 73-74.

⁶² See Collins/Porras (1996), p. 76.

⁶³ See De Geus (1997), p. 52.

⁶⁴ See De Geus (1997), p. 53-54.

⁶⁵ See De Geus (1997), p. 55-57.

2.1.4 An aggregated model for industry survival: achieving enduring success

When comparing the conclusions from the authors discussed above, a few similarities can be discovered. They may phrase it different but the underlying issues are corresponding with each other, see figure 3.

Yamamura	Klepper	Stadler	Collins/Porras	De Geus
Technological advancement ⁶⁶	Technological change ⁶⁷	Conservative about change ⁶⁸	Know what to change ⁶⁹	Tolerance new ideas ⁷⁰
		Exploit before explore ⁷¹		
		Diversification ⁷²		Sensitivity to world ⁷³
Organisation size ⁷⁴				
Pre-entry experience ⁷⁵	Point of entry ⁷⁶			
				Conservative finance ⁷⁷
Product quality ⁷⁸				
	Experience ⁷⁹	Remember mistakes ⁸⁰		
			Strong corporate identity ⁸¹	Identity awareness ⁸²

Figure 3. Conclusions on enduring success compared.

⁶⁶ See Yamamura (2005), p. 184.

⁶⁷ See Klepper (2002), p. 57.

⁶⁸ See Stadler (2007), p. 71.

⁶⁹ See Collins/Porras (1996), p. 66.

⁷⁰ See De Geus (1997), p. 54.

⁷¹ See Stadler (2007), p. 65.

⁷² See Stadler (2007), p. 68.

⁷³ See De Geus (1997), p. 53.

⁷⁴ See Yamamura (2005), p. 175.

⁷⁵ See Yamamura (2005), p. 177.

⁷⁶ See Klepper (2002), p. 58.

⁷⁷ See De Geus (1997), p. 53.

⁷⁸ See Yamamura (2005), p. 173.

⁷⁹ See Klepper (2002), p. 58.

⁸⁰ See Stadler (2007), p. 70.

⁸¹ See Collins/Porras (1996), p. 67.

⁸² See De Geus (1997), p. 54.

In the first three rows, the conclusions about innovation and change are represented. Every author agrees that change and innovation are important. Collins and Porras add that it is important to know what to change and Stadler adds that it is important to know when to change.

The longer it takes for an organisation to change, the greater the chance of exit will be.⁸³ Hannan and Freeman conclude that structural inertia is the reason why some organisations are not able to move quickly.⁸⁴ This inertia can be caused by internal structural arrangements and by environmental constraints.⁸⁵ Organisations must be flexible and able to innovate and change quickly when necessary. This approach, the focus on innovation as the base for competition and survival is very Schumpeterian. The Schumpeterian approach centralises innovation, through which new processes and new products can be developed at lower price and that have a large value for the customer.⁸⁶

In the fourth and fifth row are organisation size and point of entry. These issues are proven in certain industries but are not picked up by research on organisations that have enduring success. The same goes for product quality, which is important but maybe a bit obvious and self-evident. The sixth row considers financial conservatism, although not all authors considered this in their research, it is most likely to be of influence. De Geus also focussed on old companies in his research that achieved enduring success. He included only companies in his research that achieved extraordinary success.⁸⁷ The seventh row considers experience. This issue is addressed by a research done in certain industries, but also by a research focussed on organisations that have enduring success. In the ninth and last row corporate identity is shown, this is considered important by two authors.

Considering the information depicted in figure 3, an aggregated model can be formed based on the agreed on elements for enduring success, see figure 4 on the next page.

⁸³ See Hannan/Freeman (1984), p. 160.

⁸⁴ See Hannan/Freeman (1984), p. 163.

⁸⁵ See Hannan/Freeman (1977), p. 931.

⁸⁶ See Jacobs/de Man (1995), p. 13-14.

⁸⁷ See De Geus (1997), p. 50.

Key factors for enduring success
Balance exploration and exploitation; know when it is the right time
Balance incremental and radical innovation; know when what type is needed
Diversification
Consider external environment
Core ideology needs to be present (core values and core purpose)
Envisioned future needs to exist (BHAG and vivid description of desired future state)
Products/services need to be of good quality
Conservative about finance

Figure 4. Aggregated model considering enduring organisational success.

These issues are all issues a single organisation can consider or must consider when it wants to have enduring success. There is also an option that considers cooperation between organisations as the way to success: clustering.

2.2 Clusters: definitions, advantages, disadvantages and competition

2.2.1 Cluster: a strong collection of related organisations in a small geographic area

Clusters are a strong collection of geographic concentrations of interconnected organisations in a particular field or a particular industry that compete but also cooperate.⁸⁸ Four groups need to be present in order to claim the title of a cluster: direct competitors, important customers, suppliers and supporting organizations (like universities and unions).⁸⁹ The organisations in a cluster must be linked in some way; the links can be horizontal or vertical.⁹⁰

In the horizontal dimension are organisations that offer similar goods (or services) and in the vertical dimension are organisations that offer complementary goods (or services). The horizontal dimension can play an important role in the early stage of cluster formation and specialisation.⁹¹

⁸⁸ See Porter (1998), p. 78.

⁸⁹ See Schiele (2003), p. 27.

⁹⁰ See Martin/Sunley (2003), p. 10.

⁹¹ See Bathelt et al. (2004), p. 36.

Most participants in the cluster are not direct competitors (vertical dimension) but serve different segments of industries. But they share many common needs, opportunities, constraints, and obstacles to productivity.⁹²

‘Clustering is the process of development of locally rooted value-creating systems.’⁹³ Several organisations at each step of the value chain agglomerate in a certain geographic area while serving a larger market.⁹⁴

The organisations in the cluster continually change and therefore the boundaries of the cluster continually evolve. Technological and market developments (discontinuities) give rise to new industries and create new linkages, or alter the present market.⁹⁵ ‘Drawing cluster boundaries is often a matter of degree and involves a creative process informed by understanding the linkages and complementarities across industries and institutions that are most important in a particular field.’⁹⁶ Equating a cluster with a single industry misses the crucial connections organisations have with other industries and institutions that strongly affect competitiveness. The geographic scope of clusters can range from a single city to a region or an entire country. Also foreign organisations can be part of the cluster.⁹⁷

Despite the elaborate definitions of what a cluster is, it is difficult to trace clusters in practice because all industries ultimately depend on each other. The elasticity of the cluster concept makes it difficult to determine where a cluster begins or ends.⁹⁸ The linkages and complementarities define the boundaries of a cluster across industries and institutions that are the most important to competition. Although clusters often fit between political boundaries, this does not have to be the case.⁹⁹

2.2.2 Cluster life cycles: development, expansion, maturation and transition

‘Clusters develop in a dynamic process and move from one state to another.’¹⁰⁰ It seems logical that clusters follow the same life cycle as the industry they are in, however, empirical studies have showed that cluster life cycles and industry life cycles are different from one another.¹⁰¹ The stages in the cluster life cycle are development, expansion, maturation

⁹² See Porter (2000), p. 18.

⁹³ Steinle/Schiele (2002), p. 850.

⁹⁴ See Steinle/Schiele (2002), p. 850.

⁹⁵ See Porter (2000), p.18.

⁹⁶ Porter (2000), p. 17.

⁹⁷ See Porter (2000), p. 17.

⁹⁸ See Hospers et al. (2009), p. 287.

⁹⁹ See Porter (1998), p. 79.

¹⁰⁰ Van Klink/De Langen (2001), p. 452.

¹⁰¹ Menzel/Fornahl (2010), p. 206.

and transition, see figure 5.¹⁰² The movement through the cluster life cycle is not performed by the cluster but by the actors that together form the cluster. The cluster life cycle is the result of the activities and the evolution of the actors inside the cluster.¹⁰³

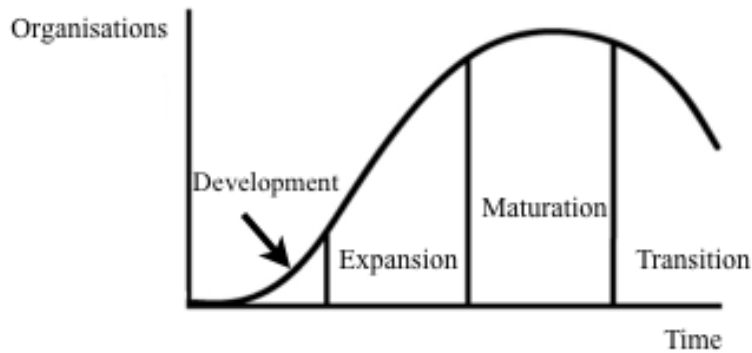


Figure 5. Cluster life cycle, number of organisations during the time the cluster exists.

As mentioned earlier, the cluster life cycle and the industry life cycle differ from one another. At the beginning of an industry life cycle, there will be no distinct concentration of organisations visible. Some small agglomerations may occur but the (small) number of organisations in a new emerging industry is geographically dispersed.¹⁰⁴ As the industry grows, clusters begin to emerge.¹⁰⁵ In the beginning of the cluster formation, clusters grow more strongly than the rest of the industry; this is due to a self-reinforcing cycle. “(...) The concentration of the industry increases in younger stages and the prevalence of clusters decreases in mature stages (of the industry life cycle).”¹⁰⁶ This is graphically depicted in figure 6.

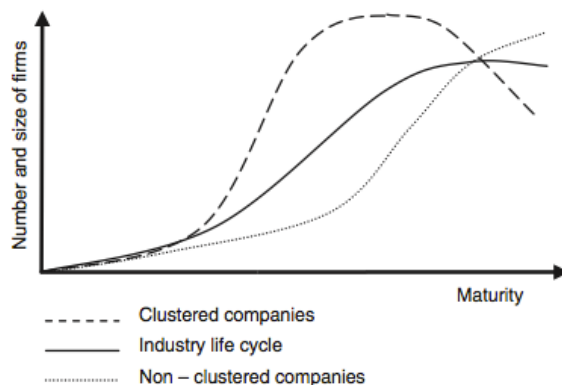


Figure 6. Clustered and non-clustered companies during the industry life cycle based on Menzel (2010).

¹⁰² See Van Klink/De Langen (2001), p. 453.

¹⁰³ See Menzel/Fornahl (2010), p. 212.

¹⁰⁴ See Menzel/Fornahl (2010), p. 207.

¹⁰⁵ See Klepper (2007), p. 136.

¹⁰⁶ Menzel/Fornahl (2010), p. 208.

2.2.2.1 Emerging clusters: difficult to form, even more difficult to detect

An emerging cluster is hard to detect, and sometimes an emerging cluster can only be described in hindsight.¹⁰⁷ An emerging cluster is actually not a cluster (yet).¹⁰⁸ During the development stage of the life cycle, a new market opportunity is challenging firms to develop products to serve the new demand.¹⁰⁹ Another reason could be unusual, sophisticated, or stringent local demand. Or the prior existence of supplier industries, related industries, or even entire related clusters provides reasons for new clusters to develop. Clusters can also arise from one or two innovative organisations that stimulate the growth of many others.¹¹⁰ Also, 'a clusters roots can often be traced to historical circumstances'¹¹¹.

Consequently, links are established and a new value chain is constructed. The clustered organisations need each other for their products and services and develop strategic relationships. Organisations' cooperative activities in this stage include research and development, the development of cooperative routines and standardisation of cooperative practises and production methods. In the development stage the availability of local know-how and resources is important for success and it attracts new organisations to the cluster and it enhances the competitiveness of the organisations within the cluster.¹¹² Another success factor is a demanding home market. Critical demand stimulates new product development and better production methods. The availability of resources, know-how and critical demand attracts new entrants to the cluster.¹¹³

Emerging clusters differ from other parts of the industry on two points. The first is in the organisations in the cluster, one or more organisations offer a lasting vision for a new local technology path. The second point is the local environment. Certain conditions are a given in the environment, e.g. a strong scientific base of political support, these conditions give the emerging cluster the potential to reach a critical mass.¹¹⁴

¹⁰⁷ See Menzel/Fornahl (2010), p. 208.

¹⁰⁸ See Menzel/Fornahl (2010), p. 225.

¹⁰⁹ See Van Klink/De Langen (2001), p. 452.

¹¹⁰ See Porter (1998), p. 84.

¹¹¹ Porter (1998), p. 84.

¹¹² See Van Klink/De Langen (2001), p. 452.

¹¹³ See Van Klink/De Langen (2001), p. 452.

¹¹⁴ See Menzel/Fornahl (2010), p. 225.

2.2.2.2 Expanding the cluster: competition through collaboration

Unlike an emerging cluster, the boundaries can be defined now.¹¹⁵ Growth of existing organisations, a high number of start-ups and therefore a strong increase in employment, characterise a growing cluster.¹¹⁶ During the expansion stage, the organisations in the cluster are successful on the home market and seek to expand by entering new markets. ‘Once a cluster begins to form, a self-reinforcing cycle promotes its growth, especially when local institutions are supportive and local competition is vigorous.’¹¹⁷ A growing cluster signals opportunity and attracts new organisations (just as in an industry life cycle). Furthermore, cluster growth is stimulated by the access to specialized information, institutions, public goods and the better access to employees and suppliers.¹¹⁸ Organisations will try to orient themselves toward the growth centre of the cluster. A shakeout of organisations that are at the edge of the cluster further decreases heterogeneity. This narrows the cluster boundaries even more; this growing density of organisations and institutions in the cluster increasingly creates opportunities for more collaboration.¹¹⁹

The growing density of companies and institutions within the boundaries of the cluster increasingly creates possibilities for innovation networks or customer–supplier relations and forms a specialized labour market.

In the expansion stage, collaborative activities include research and development, education and marketing (necessary for entering foreign markets). The collective activities focus on refining the production process and enlarging the product range (incremental innovations). In this stage economies of scale become very important and this can lead to cooperation to develop even more collaboration in the form of a shared infrastructure (physical, information or knowledge infrastructure). In this stage, local resources and know-how remain important but are completed by the availability of risk capital. Risk capital is important for the success of the cluster because expansion needs to be financed.¹²⁰

¹¹⁵ See Menzel/Fornahl (2010), p. 226.

¹¹⁶ See Menzel/Fornahl (2010), p. 226.

¹¹⁷ Porter (1998), p. 84.

¹¹⁸ See Porter (1998), p. 84.

¹¹⁹ See Menzel/Fornahl (2010), p. 24.

¹²⁰ See Van Klink/De Langen (2001), p. 453.

At some point the cluster stops growing and adjusts to the industry average, although at a higher productivity level. This is caused by the ongoing exit of organisations from the cluster and because the cluster becomes more focussed.¹²¹

2.2.2.3 Maturation of the cluster: established networks as a result

The maturation stage of the cluster life cycle represents a mature cluster with an established set of products and a stable pattern of production and sales. Also the interaction between the different actors in the cluster is stable. ‘Coalitions have been formed and collective actions focus in keeping the status quo in the cluster.’¹²² Cooperative activities still include education, marketing and research and development. During this stage, the competition in general is very fierce, the organisations in the cluster compete for orders to keep their market position (also observed in the industry life cycle). A few of the organisations in the cluster are likely to have developed a dominant position based on turnover and knowledge-base. Some might choose to leave the cluster at this point. Clusters in the maturation stage are at risk for disintegrating because of a global orientation. On the other hand they are at risk of missing new developments because of a local orientation.¹²³

A cluster in the maturation stage shows the same characteristics as the respective industry, no higher growth nor a significant decrease in the number of organisations or employees can be observed.¹²⁴ “The various competencies of the companies are made accessible by dense and established networks.”¹²⁵ And thus, knowledge becomes available for every organisation in the cluster. Making it easier for organisations to copy successful behaviour. When organisations copy successful behaviour, they will become more homogeneous. More on this topic can be found in paragraph 2.3.4.

The maturity stage ends when the cluster becomes too homogeneous and the (...) “decreasing diversity in an exhausted trajectory causes a decline”.¹²⁶ A cluster can also reach the transition stage because of changes in the market. The market might decline, move, and demand different capabilities. Changing strategies of one or a few dominant organisations may also cause disintegration. Another possibility is that a new heterogeneity

¹²¹ See Menzel/Fornahl (2010), p. 226.

¹²² Van Klink/De Langen (2001), p. 453.

¹²³ See Van Klink/De Langen (2001), p. 453.

¹²⁴ See Menzel/Fornahl (2010), p. 227.

¹²⁵ Menzel/Fornahl (2010), p. 227.

¹²⁶ Menzel/Fornahl (2010), p. 227.

arises (e.g. by a radical innovation on macro level) and that the cluster takes a step back on the life cycle, resulting in a new growth phase.¹²⁷

2.2.2.4 Transition: lost for good or revival of the cluster

In the transition stage the number of new entrants is very low and the number of organisations and especially employees decreases due to failures, mergers, and rationalisations. Also, relationships between organisations fall apart and the cluster is confronted with instability.¹²⁸ A good example of a declining cluster is the old industrial region the Ruhr Area in Germany.

Despite of the decline of the cluster, competition can still be fierce. This competitive pressure can lead to a high innovation rate. However these innovations (...) arise within the existing and exhausted technology path and the cluster is negatively locked into its previously successful development path”.¹²⁹ The reason for this lock in is that the regional trajectory is exhausted and the long existing closed and homogeneous networks disable the cluster to renew its self. A declining cluster has lost the ability to be diverse and therefore heterogeneous and is no longer able to adapt to changing environmental conditions.¹³⁰

The transition stage can end in three different manners. The first is that the cluster follows the cluster life cycle and declines and ceases to exist. The other two possibilities have to do with an increase in heterogeneity. The existing development path can be renewed, resulting in new but related technologies. The last option is that at the end of the transition phase a transition is made to completely different fields. This implies that completely new actors will enter the cluster. There are a lot of radical innovations necessary for such a change and it is most likely that the new actors are also located in the same geographic area but in different fields.¹³¹ When adopting these new technologies, the cluster life cycle can start all over again.

¹²⁷ See Menzen/Fornahl (2010), p. 227.

¹²⁸ See Van Klink/De Langen (2001), p. 453-454.

¹²⁹ Menzel/Fornahl (2010), p. 227.

¹³⁰ See Menzel/Fornahl (2010), p. 227.

¹³¹ See Menzel/Fornahl (2010), p. 228.

2.2.1 Cluster advantages: being more innovative and effective

2.2.3.1 Increasing productivity by clustering

Locating inside a cluster instead of outside a cluster can have many advantages. Participating in a cluster allows organisations to be more productive. Organisations within a cluster have better access to means needed for carrying out their activities than organisations located outside a cluster.

A well-developed cluster also provides efficient means for obtaining other important inputs, for example a specialised supplier base. This will lead to lower transportation costs, minimises the need for inventory and thereby lowering inventory costs, eliminates importing costs and delays and it will also make good service easier, e.g. when something needs to be repaired.¹³² There are other ways in achieving these advantages regarding supply costs, but this almost always concerns formal alliances that bring their own problems. Other options are vertical integration¹³³, early supplier integration¹³⁴, or being the preferred customer¹³⁵ or (when you are a supplier) being the preferred supplier.

Under certain conditions, as originally suggested by Hotelling, organisations gain market share when moving closer to their competitors.¹³⁶ This gain may end when new competitors enter the cluster or if the organisations in the cluster react to this unwanted competition.¹³⁷

Inside the cluster, labour market pooling exists. ‘Geographical concentration of firms in the same industry (or in closely related ones) creates a pooled market for workers with the same skills, helping to cope with the uncertainty related to business cycles and unemployment.’¹³⁸ A cluster reduces the risk of relocation for employees and therefore it is more attractive, and it will be easier to attract talented people from other locations.¹³⁹

Organisations in a cluster have (better) access to specialised information. An extensive knowledge base about the market, technical and competitive information accumulates in a cluster and members have access to it.¹⁴⁰

¹³² See Porter (1998), p. 81.

¹³³ See Klein et al. (1978), p. 301.

¹³⁴ See Schiele (2006), p. 927.

¹³⁵ See Ellegaard et al. (2003), p. 347.

¹³⁶ See Hotelling (1929), p. 53.

¹³⁷ See Baptista/Swann (1998), p. 527.

¹³⁸ Baptista/Swann (1998), p. 527.

¹³⁹ See Porter (1998), p. 81.

¹⁴⁰ See Porter (1998), p. 81.

A cluster generates positive externalities that are related to the transmission of knowledge between nearby organisations; these knowledge spillovers are beneficial for the cluster.¹⁴¹

‘A host of linkages among cluster members results in a whole greater than the sum of its parts.’¹⁴² Complementarities come in many forms; also complementarities can make buying from a cluster more attractive for customers. Buyers can see more sellers in one single trip; all organisations are located in each other’s proximity.¹⁴³

Members of a cluster have (better) access to institution and public goods. Investments made by governments or by other public institutions can enhance an organisation’s productivity.¹⁴⁴

Private investments are often made collectively because members of a cluster recognise the potential for collective benefits.¹⁴⁵

‘Local rivalry is highly motivating.’¹⁴⁶ Organisations want to look good, comparing to other organisations in the cluster. Clusters make it easier to measure and compare performance because every organisation in the cluster shares the same general circumstances.¹⁴⁷

2.2.3.2 Increasing ability to innovate by clustering

Organisations within a cluster are more innovative than others because organisations in a cluster benefit from agglomerating economies such as nearby suppliers attaining efficient scale¹⁴⁸, direct observation of competitors¹⁴⁹ and the availability of collective knowledge in the cluster¹⁵⁰. Organisations within clusters also benefit from network-based effects, i.e. enhanced social interaction¹⁵¹

Customers are a good source for ideas for innovation¹⁵², when locating near key-users and establishing customer services, organisations can exploit these information flows from customers better and cheaper than outside the cluster.¹⁵³

¹⁴¹ See Baptista/Swann (1998), p. 527; as well as Tallman et al. (2004), p. 262.

¹⁴² Porter (1998), p. 81.

¹⁴³ See Porter (1998), p. 83.

¹⁴⁴ See Porter (1998), p. 83; and Tallman et al. (2004), p. 262.

¹⁴⁵ See Porter (1998), p. 83.

¹⁴⁶ Porter (1998), p. 83.

¹⁴⁷ See Porter (1998), p. 83.

¹⁴⁸ See Scott (1992), p. 265-275; and Breschi/Lissoni (2004), p. 614.

¹⁴⁹ See Burt (1987), p. 1288; and Harrison et al. (1996), p. 235.

¹⁵⁰ See Tallman et al. (2004), p. 259.

¹⁵¹ See Bell (2005), p. 287.

¹⁵² See Thomke/Von Hippel (2002), p. 76.

¹⁵³ See Baptista/Swann (1998), p. 527.

Innovation is easier to achieve within a cluster: organisations in a cluster can experiment at lower cost, clusters have the capacity and the flexibility to act rapidly and because of the different organisations within the cluster, there are lots of sources for innovation are present, also collaboration for innovation is easier inside a cluster.¹⁵⁴

2.2.3.3 Existing cluster provides sound base for new business formation

Locating inside an existing cluster can be favourable on many different levels. The relationships inside a cluster and the possible proximity of important customers, suppliers and institutions, not to mention the existing infrastructure, can lead to low barriers of entry for entrepreneurs.¹⁵⁵ Below the main advantages besides the ability to innovate more effectively and productivity, are named.

- A reason for firms to cluster is to take advantage of the strong local demand, particularly that of related industries.¹⁵⁶
- When located within the cluster, it is easier for customers to find the organisation, therefore customer search costs are lower, and this is especially the case for small businesses selling differentiated goods.¹⁵⁷
- Locating in a cluster allows for the provision of traded and non-traded inputs specific to the industry in a greater variety and at lower costs than outside the cluster.¹⁵⁸
- Within an established cluster, a good physical infrastructure is already present (motor-, rail- and waterways).¹⁵⁹
- Organisations have the chance to become more profitable than similar organisations that are not in a cluster.¹⁶⁰
- Organisations in strong (manufacturing) industrial cluster grow faster than organisations that are not in a cluster. This is not automatically true for all industries but generally speaking it is true for manufacturing industries.¹⁶¹

¹⁵⁴ See Porter (1998), p. 83.

¹⁵⁵ See Hospers/Beugelsdriek (2003), p. 385.

¹⁵⁶ See Baptista/Swann (1998), p. 527.

¹⁵⁷ See Baptista/Swann (1998), p. 527.

¹⁵⁸ See Baptista/Swann (1998), p. 527.

¹⁵⁹ See Baptista/Swann (1998), p. 527.

¹⁶⁰ See Steinle et al. (2007), p. 236.

¹⁶¹ See Beaudry/Swann (2009), p. 422.

2.2.4 Combining competition with cooperation: possible succesfactor

2.2.4.1 Porter's diamond: analyzing cluster hardware

What makes a cluster different from other types of cooperation is that location plays a crucial role. Porter modelled the effect of location on competition trough four interrelated influences, see figure 7.

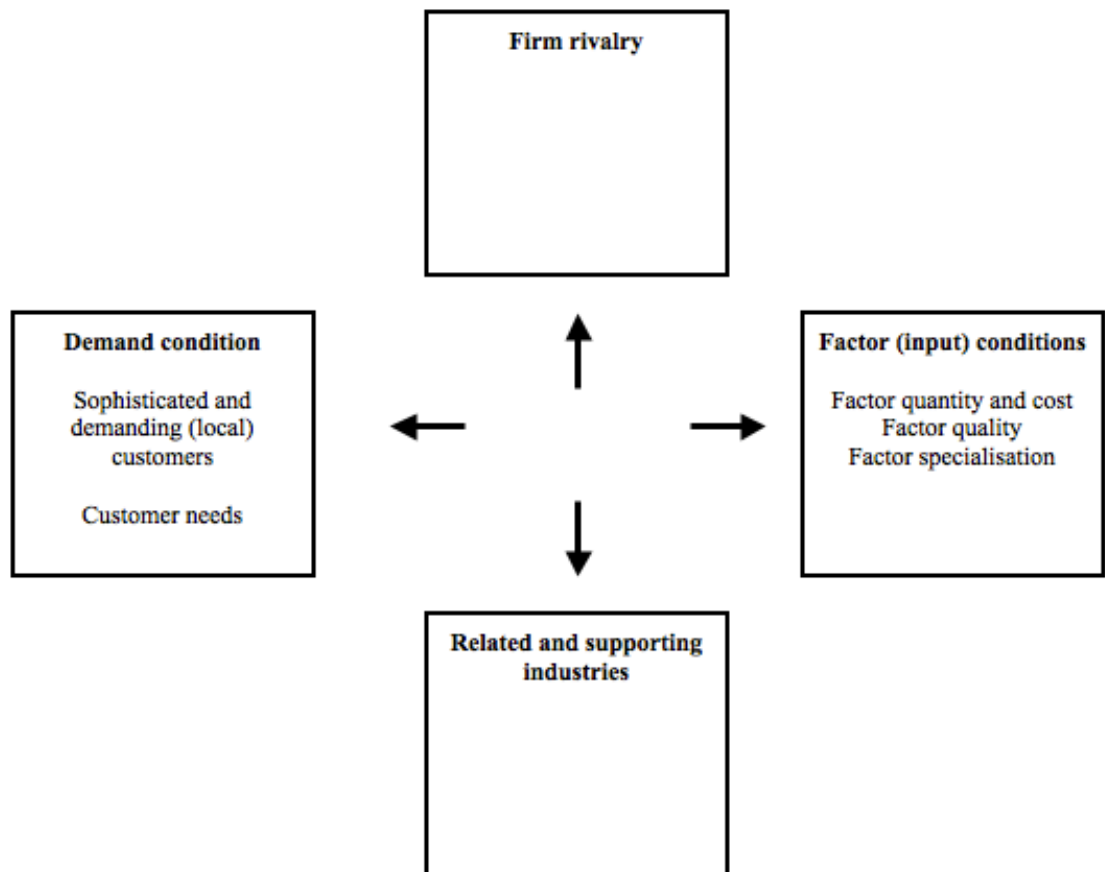


Figure 7. Sources of locational competitive advantage, based on Porter (2000).

Factor inputs are tangible assets such as physical infrastructure, to information, the legal system and, universities that all organisations can use in competition.¹⁶² “ To increase productivity, factor inputs must improve in efficiency, quality, and (ultimately) specialization to particular cluster areas. Specialized factors, especially those integral to innovation and

¹⁶² See Porter (2000), p. 20.

upgrading (e.g., a specialized university research institute), not only are necessary to attain high levels of productivity but also tend to be less tradable or available from elsewhere.”¹⁶³

The context for organisation strategy and rivalry is concerned with the type and the intensity of local competition. “Most competition, if present at all, comes from imports. Local rivalry, if occurring at all, involves imitation. Price is the sole competitive variable, and firms hold down wages to compete in local and foreign markets.”¹⁶⁴ To become a more advanced economy, vigorous local rivalry needs to be developed. Rivalry must shift from competition based on low wages, to competition based on low total costs. This requires organisations to be more efficient and give customers better service. Ultimately, competition must evolve from cost to include differentiation. Competition must shift from imitation to innovation.

Demand conditions have much to do with the fact if organisations can and will move from imitative, low quality products and services to competing on differentiation.¹⁶⁵

These four factors form are interconnected. Each factor is affected by the other factors. ‘The simultaneous presence of all factors and the bi-directional interdependences between all determinants lead to an environment that promotes the formation of clusters. According to the diamond-model the particular success of firms in clusters largely relies on externalities.’¹⁶⁶

These four factors can be seen as the ‘hardware’ of the cluster: it is one part of the analysis. The diamond represents the potentially synergetic organisations and the associated externalities. In addition, the culture of an industry agglomerations as well as the behaviour of its members towards each other, the ‘software’ of the cluster, play an important role.¹⁶⁷ This will be discussed in the next subparagraph.

2.2.4.2 Innovative milieus: analysing cluster software

The theory on innovative milieu complements Porters diamond by describing and explaining an ideal interaction level within an agglomeration. (...) The cooperative and competitive behaviour between the localized actors provide a basis for taking advantage of the potentials arising from the cluster’s structure.¹⁶⁸ An innovative milieu is (...) the set, or the

¹⁶³ Porter (2000), p. 20.

¹⁶⁴ Porter (2000), p. 20.

¹⁶⁵ See Porter (2000), p. 20-21.

¹⁶⁶ Steinle, Schiele/Mietzner (2007), p. 237.

¹⁶⁷ See Steinle, Schiele/ Mietzner (2007), p. 236.

¹⁶⁸ Steinle, Schiele/Mietzner (2007), p. 238.

complex network of mainly informal social relationships on a limited geographical area, often determining a specific external ‘image’ and a specific internal ‘representation’ and sense of belonging, which enhance the local innovative capability through the synergetic and collective learning processes.¹⁶⁹

This theory shows that the mere presence of actors in a region is not sufficient to achieve innovative results. To achieve innovative results, the actors must have intensive interaction with each other and therefore taking advantage of the proximity.¹⁷⁰

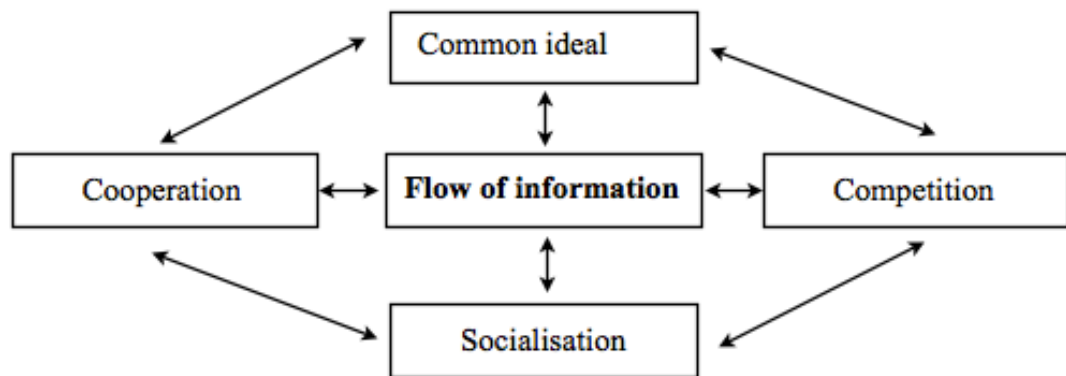


Figure 8. Linkages within an innovative milieu. Based on Steinle et al. (1998).

The innovative milieu has three characteristics. First, actors in an innovative milieu are both competing and cooperating. Their interaction contains elements of both. Second, the local milieu is characterised by a specific set of material elements (infrastructure), immaterial elements (knowledge) and institutional arrangements (legal framework). Together these elements constitute a complex web of relations within the innovative milieu. Third, the interaction between the actors in the innovative milieu will lead to collective learning processes and improves the ability of the actors to cope with changes in the environment.¹⁷¹ The innovative milieu is graphically depicted in figure 8.

2.2.4.3 The innovative cluster: combining cluster software and hardware for an integrative approach

‘The innovative cluster reflects an innovation and productivity boosting system of several organizations, their direct competitors, highly sophisticated and anticipatory key custom-

¹⁶⁹ Camagni (1991), p. 3.

¹⁷⁰ See Steinle, Schiele/Mietzner (2007), p. 238.

¹⁷¹ See Hospers/Beugeldijk (2003), p. 386.

ers, a specialized supply chain, as well as cluster-specific institutions (structure) whose success results from an intensive flow of information between its actors that are linked within a cooperative and competitive milieu (interaction).¹⁷²

The innovative cluster approach is a tool for analysis, giving further information of a cluster's characteristics. An organisation can be isolated or it can be part of a simple agglomeration in the form of a diamond structure (where no further collaboration is present) of an organisation can be a member of an innovative cluster where structure and interaction both are fully developed.¹⁷³ A fully developed innovative cluster will graphically take the form of figure 9.

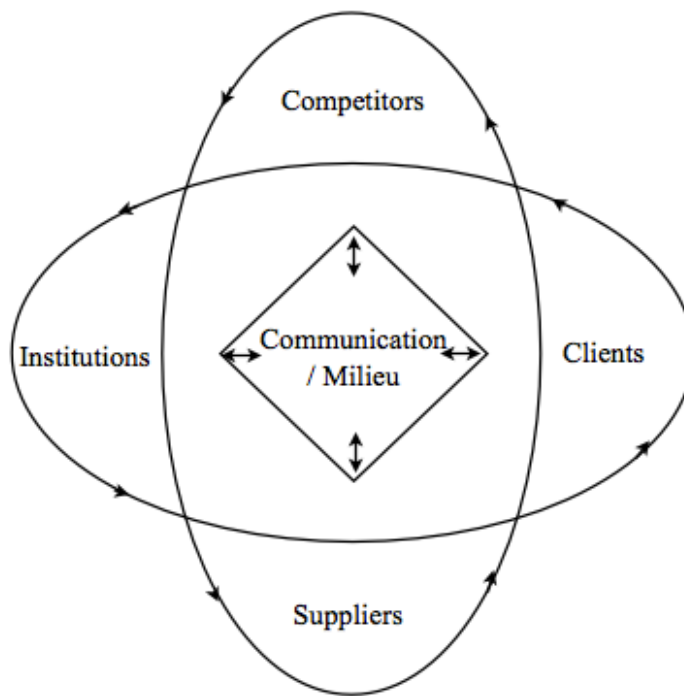


Figure 9. The innovative cluster. Adapted from Steinle et al. (2007).

2.3 Surviving the cluster: combining industry lifecycle theory with cluster life cycle theory.

For the analysis (...) 'of a regional agglomeration the claim to reflect both the structure of the agglomeration and the interaction taking place between its actors has an important consequence: it is proposed to operationalise the hardware and the software of a value-creating

¹⁷² Steinle et al. (2007), p. 239.

¹⁷³ See Steinle et al. (2007), p. 239-240.

system along six dimensions of analysis.’¹⁷⁴ These dimensions are the four factors that need to be present in a cluster, competitors, important customers, suppliers and institutions. Innovation and relationships need to be added as a dimension, explicitly considering the communication and interaction that is taking place in a value-creating system.¹⁷⁵ The reactions of surviving organisations and organisations that did not survive can be analysed using these six dimensions, resulting in two extremes of what to do and what not to do, considering the six dimensions for cluster analysis. In the following figure, the reactions of both successful and unsuccessful organisations to the six cluster dimensions are stated.

Cluster dimension	Successful organisation	Unsuccessful organisation
Competitors	- Compete but also cooperate	- Only compete
Suppliers	- Close collaboration, working on innovations together	- No collaboration
Customers	- Using customers as innovators (resulting in market based innovations).	- No collaboration, not paying attention to needs (resulting in technology based innovations).
Institutions	- Close relations in order to create better circumstances (e.g. infrastructure, politics)	- No relations
Innovation	- Exploit - Diversify - Open innovation - Carefully planned radical innovation at very selective moments.	- Explore - Focus on single business - Closed innovation - Too much (radical) innovations (short term successes) or to less innovation.
Relationships	- Close relationships with cluster members, sharing knowledge	- No external relationships

Figure 10. Actions and reactions of successful and unsuccessful organisations.

¹⁷⁴ Steinle et al. (2007), p. 240.

¹⁷⁵ See Steinle et al. (2007), p. 240.

3. Methodology: researching the Twente textile industry and the possibility of a cluster

3.1 Research questions and research goal: why only some organisations in the Twente textile industry survived

The Twente region was very important for the textile industry. There was already some activity in the region when the Belgium uprising in 1830 occurred. Because of the uprising, the Netherlands lost important textile cities as Ghent and Bruges therefore King Willem I sought a new location for the Dutch textile industry (producing finished cotton from the overseas colonies). He chose Twente and the region became the most important Dutch region regarding the textile industry.¹⁷⁶ Cities like Almelo and Enschede grew out to be large cities because of the textile industry. 52 percent of employment in the industry in Twente was in the textile industry in 1960. In 1960, 24 percent of the total employment was in the textile industry. In 1915, this was 31 percent. Now, only names of streets, parks and squares remember the times of mass production of textiles in Twente. And although some of the old companies still exist, the textile society has disappeared.¹⁷⁷ But why do still some of the companies exist? What did these organisation do different from their competitors?

A recent study by Hesselink (2010) renewed the interest in the Twente textile sector but this study only examined the organisations by itself not as a coupled system. But when that many organisations establish themselves within a small geographic area, there might be a (innovative) cluster present. To investigate if there was a cluster present and if this had any influence on firm survival combined with the first question asked ‘why do some companies still exist?’ the following research questions are formed:

- How did the Twente textile industry evolve?
- Was there a cluster in the Twente textile industry?
 - o What type of cluster?
- What are the differences between successful and unsuccessful organisations?
- Were clustered companies more successful than companies that were not in the cluster?
- What did the remaining organisations do to survive the industry?

These questions should help answer the main research question:

¹⁷⁶ See Benneworth & Hospers (2007), p. 784.

¹⁷⁷ See van Waarden et al. (1987), p. 7.

Why did only some organisation survive the Twente textile industry?

This is an explanatory research question. Explanatory research focuses on *why* certain things happen.¹⁷⁸

3.2 Examining the Twente textile industry: qualitative methods and techniques

First, a theoretical framework needs to be drawn up, focusing on factors for firm survival, industry life cycles and cluster. These theories can be tested on reality. De Vaus calls this theory testing. A theory testing approach always begins with theory and uses theory to guide what observations to make.¹⁷⁹ A problem here is that the researcher will be too much guided by the theory and does not have an open mind. It could be that the theory is not as elaborate as the empirical observations.

To examine the Twente textile industry a few factors need to be identified. To study the remaining organisations of the Twente textile industry, these remaining organisations need to be identified as well as the organisations that did not survive. For indentifying the organisations that did not survive, a historical analysis is necessary. A historical analysis is very suitable for an explanatory research question.¹⁸⁰ This is an unobtrusive research method where social units are researched over time and in comparison with one another.¹⁸¹ Unobtrusive research contains methods of studying social behaviour without affecting it. These methods can be qualitative or quantitative.¹⁸²

The timeframe will be from 1800 until 2011. Because the textile industry was brought to Twente in 1830, this way the effects of this can also be observed.

The research method here will be case studies, these are in-depth examinations of a single instance of a social phenomenon.¹⁸³ Case studies are also very suitable for an explanatory research question.¹⁸⁴ The method used for interviewing will be qualitative interviewing. A qualitative interview is based on a set of topics that will be discussed in depth.¹⁸⁵ The topic

¹⁷⁸ See Babbie (2007), p. 90.

¹⁷⁹ See De Vaus (2001), p. 6.

¹⁸⁰ See Marshall/Rossman (1989), p. 78.

¹⁸¹ See Babbie (2007), p. 338.

¹⁸² See Babbie (2007), p. 319.

¹⁸³ See Babbie (2007), p. 298.

¹⁸⁴ See Marshall/Rossman (1989), p. 78 and see Yin (2003), p. 1.

¹⁸⁵ See Babbie (2007), p. 306.

here is very clear: why did this organisation survived and others not, all questions will revolve around this topic. Qualitative interviewing can be structured, semi-structured or unstructured questioning.¹⁸⁶ During the pre-empirical stage of the research, theories/reasons for survival will be found, but maybe the case organisation did something very different. It is therefore important to use semi-structured interviews. There are certain things that need to be known, but it is also useful to let the interviewee express his/her-self, because one might hear some interesting things. This is also under scribed by Hall and Hall (2004): A semi-structured interview is explanatory in nature and often it is not clear in advance what is relevant or irrelevant for the study¹⁸⁷. This fits this research very well.

To support the interviews many literature has been used. There are many authors that have researched single organisations and this information can be used to support the answers given by the representatives of the remaining textile organisations. Also data from archives from the different municipalities is used to support the cases, as well as data from the archives from the Historisch Centrum Overijssel.

To identify all organisations that have ever existed in Twente, the archives from the different municipalities in Twente are used, the archives of the Historisch Centrum Overijssel and the Oudheidkamer Overijssel but also different books.¹⁸⁸

Different sources were used to create an image that is as accurate as possible. Unfortunately, there is data missing on 25 organisations. These organisations could therefore not be included in the research because it was not clear when they existed exactly.

3.3 Case studies for explanatory research

3.3.1 Case selection: using age and decision to outsource as criteria

There are 15 surviving companies that originated in Twente and perform or performed spinning, weaving or finishing activities. Organisations that did not, at one point in time, perform spinning, weaving or finishing activities were not incorporated in the research. Most companies started with one activity but expanded to incorporate the whole production process. Gamma Holding sold Texoprint, the Twente based textile factory, in 2000 and plays no part in the research. Palthé is no longer a textile company, the company

¹⁸⁶ See Hall/Hall (2004), p. 117; DiCicco-Bloom/Crabtree (2006), p. 314.

¹⁸⁷ See Hall/Hall (2004), p. 117.

¹⁸⁸ See de Vries (1989); Van Schelven/Mandemakers (1993); Bolk et al. (1982).

changed its core business, and is now the largest dry cleaner in the Netherlands. Palthé started as a factory that dyed textile (finishing company). The company is also not longer based in Twente.

Therefore, there are 13 companies that could possibly be included in the research, see figure 11.

Company name	Based in	Started
Koninklijke Nijverdal-Ten Cate	Nijverdal	1704
Blyco Textile Group	Enschede	1801
Twentse Damast-, Linnen- en Katoenfabriek	Losser	1813
S.I. Zwartz	Oldenzaal	1835
Van Heek Textiles	Enschede	1859
Frankenhuis & Zonen	Haaksbergen	1885
Amefird	Nijverdal	1917
Schipper Textiles	Enschede	1919
WeVoTex	Enschede	1920
A.C. Ter Kuile	Enschede	1923
Hatefa	Haaksbergen	1949
Ames Europe	Enschede	1963
Permess	Goor	1964

Figure 11. Surviving textile companies that are available for the research.

Klepper mentions in his research that companies that enter the industry earlier have higher survival rates than companies that enter the industry later.¹⁸⁹ Also Horvath et al. conclude that organisations that enter an industry at a later stage, they are more likely to exit earlier.¹⁹⁰ But also other authors support the theory that the point of entry influences firm survival.¹⁹¹ These are reasons to organise the sample in terms of point of entry. In paragraph 4.1 the industry life cycle of the Twente textile industry is pictured. The phases introduction, growth, maturity and decline can easily be distinguished. These phases will function as a selection method for the cases. The introduction phase of the textile industry in

¹⁸⁹ See Klepper (2002), p. 56.

¹⁹⁰ See Hortvath et al. (2001), p. 1046.

¹⁹¹ See Argyres/Bigelow (2007), p. 1335; and Thompson (2005), p. 27; and Giarratana/ Fosfuri (2007), p. 911.

Twente stops in 1830, then the growth phase starts, from 1831 until 1920. From 1921 until 1960 the industry is in the maturity phase. The decline phase started in 1961. There are no companies in the sample that started during the declining phase, because for this research enduring success is a key factor and these companies that started after 1961 are relatively young and therefore slightly less interesting for this research because they did not ‘survive’ the most difficult times of the industry for the simple reason that they did not exist yet. Therefore the following classification is devised, see figure 12. According to Hesselink, outsourcing is a success factor for surviving the textile industry.¹⁹² Twentse Damast produces some of its products in-house and outsources the rest of the production, WeVoTex outsourced all production and A.C. ter Kuile produces everything in-house.

Introduction (- 1830)	Growth (1831-1920)	Maturity (1921-1960)
Twentse Damast	WeVoTex	A.C. ter Kuile

Figure 12. Case selection based on decision to outsource and age.

The cases are contrasting regarding several factors: decision to outsource production, point of entry on the industry life cycle and the core business of the companies is different. Contrasting cases are used to ensure a higher validity of the model. When similar case organisations were used, it would have been more likely that their characteristics would have more similarities. By using contrasting cases, the diversity of the companies is as large as possible, to make sure the model can be tested and validated on a more broader range.

Many of the organisations were send a letter explaining the purpose of the research. Some organisations responded to the letter by email. Organisations that did not respond were contacted by phone. Not all organisations were contacted by phone because at some point in time, there were enough companies to form an accurate sample of the Twente textile industry. When an organisation did want to cooperate, an appointment was scheduled to conduct an interview of 30 to 60 minutes. Triangulation was used to get information that was as accurate as possible.¹⁹³ Different sources of information were used to obtain information on the different organisations: books, archives and interviews. How the interview questions were devised will be discussed in the next paragraphs.

¹⁹² See Hesselink (2009), p. 25.

¹⁹³ See Babbie (2007), p. 113.

3.3.2 Companies as units of analysis: treating every case the same.

The units of analysis, the cases, are the companies as a whole. Most information is based on an interview with the director of a company. The rest of the information was obtained through other sources like literature and archives. A description of the Twente textile industry is used to put the results into perspective and learn more about the situations the companies have been in and needed to deal with.

The research strategy for every case was the same. All companies were approached in the same manner and the directors were asked the same questions. Not for every organisation the same amount of information could be found in the literature. That is why the information on some cases is more elaborate than for other cases. The cases were used to re-search organisational theories,¹⁹⁴ e.g. the aggregated models that were devised in chapter 2.

3.4 Conceptualisation: changing constructs into interview questions

3.4.1 Searching for operational definitions

To construct interview questions, the meaning of the questions needs to be clear. It also needs to be clear what a question intends to measure. For this, conceptualisation is needed. Constructs are theoretical creation based on observations. Constructs cannot be observed directly or indirectly. Conceptualisation is the process through which particular terms used in the research are specified. Conceptualisation produces a specific agreed-on meaning for a concept for the purpose of the research. Conceptualisation gives meaning to a concept by specifying on or more indicators. An indicator is a sign of the presence or absence of the concept. It is a reflection of the variable under study.¹⁹⁵

From the conceptualisation a nominal definition will be formed. A nominal definition is a definition that is assigned to a term (without any claim that the definition represents an actual entity). Most nominal definitions do represent some consensus about how a particular term should be used. The nominal definition will help form an operational definition. The operational definition specifies precisely how a concept will be measured.¹⁹⁶ When these definitions are formed, the concepts can be measured.

¹⁹⁴ See Yin (2003), p. 31.

¹⁹⁵ See Babbie (2007), p. 124-125.

¹⁹⁶ See Babbie (2007), p. 128.

Construct	Nominal definition	Operational definition
Shakeout	A sharp drop in the number of organisations in an industry. ¹⁹⁷	A sharp drop in the number of organisations in an industry.
Textile industry	Organisations that performed, at one point in time, spinning, weaving or finishing activities.	Organisations that performed, at one point in time, spinning, weaving or finishing activities.
Twente	Municipalities Tubbergen, Dinkelland, Oldenzaal, Losser, Twenterand, Hellendoorn, Wierden, Rijssen-Holten, Almelo, Borne, Hengelo, Enschede, Hof van Twente and Haaksbergen. ¹⁹⁸	Municipalities Tubbergen, Dinkelland, Oldenzaal, Losser, Twenterand, Hellendoorn, Wierden, Rijssen-Holten, Almelo, Borne, Hengelo, Enschede, Hof van Twente and Haaksbergen.
Entrants	Organisations that enter a certain market or industry.	Organisations that start to produce and sell products in a certain market.
Cluster life cycle	A cluster life cycle has four stages: development, expansion, maturation and transition. ¹⁹⁹	Number of organisations during the four stages: development, expansion, maturation and transition.
Innovation	“Innovation is an iterative process initiated by the perception of a new market and/or new service opportunity for a technology based invention which leads to development, production, and marketing tasks striving for the commercial success of the invention.” ²⁰⁰	Change in products or production processes or other processes within an organisation.
Successful organisations	Organisations that have survived the Twente textile industry.	Existing organisations.
Unsuccessful organisations	Organisations that have not survived the Twente textile industry.	Organisations that no longer exist.
Exploration	“Exploration involves the development of new knowledge or replacing existing content within the organization’s memory.” ²⁰¹	Focusing on new business opportunities.
Exploitation	“Exploitation refers to incremental learning focused on diffusion, refinement, and reuse of existing knowledge.” ²⁰²	Exploiting existing business.
Diversification	Focussing on more business op-	Focussing on more business op-

¹⁹⁷ See Jovanovic/MacDonald (1994), p. 322; and Klepper/Graddy (1990), p. 28.

¹⁹⁸ See http://www.overijssel.nl/publish/pages/93806/geheel_overijssel.jpg

¹⁹⁹ See Van Klink/De Langen (2001), p. 453.

²⁰⁰ Garcia/Calantone (2002), p. 112.

²⁰¹ Kane/Alavi (2007), p. 797.

²⁰² Kane/Alavi (2007), p. 797.

	portunities instead of focusing on one business.	portunities instead of focusing on one business.
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Figure 13. Operationalisation of constructs.

3.4.2 Changing operational definitions to interview questions

The aggregated models that were constructed in paragraph 2.1.4 and in paragraph 2.3 need to be empirically tested. The interview questions are based on those two models. Important constructs that might cause miscommunications because different people could interpret them differently are made measurable in the previous paragraph. This resulted in the interview questions that are included as appendix I. These questions were used as guidelines for the semi-structured interviews. The interviews that were conducted were all recorded, as to make no mistakes in the interpretation of the results.²⁰³ Transcripts²⁰⁴ of the conducted interviews are added as appendices II, III, and IV. The presence of the characteristics of enduring success and cluster characteristics were measured, in order to compare the characteristics of the company to the characteristics of the aggregated models on enduring success and clustering. Directors were explicitly asked about the constructs, but were asked to elaborate with examples to ‘prove’ the answer they gave.

3.5 Validity of the research: strong points and possible threats

The development of a case study needs to maximise four conditions related to design quality, construct validity, internal validity, and external validity. To ensure the validity of the research several measurements were taken that will be discussed below.

Construct validity is “the degree to which inferences are warranted from the observed persons, settings, and cause-effect operations sampled within a study to the constructs that these samples represent”²⁰⁵. To ensure that the constructs of this research were solid, a nominal and an operational definition were formed, so that there could be no misunderstanding as to the meaning of the constructs when conversing about them with the directors of the companies or when reading and assessing literature. A possible threat to the validity could be that not all constructs were operationalised and there could be misunderstandings as to the meaning of some definitions that were not operationalised. To

²⁰³ See Seidman (2006), p. 114.

²⁰⁴ See Mazeland (2003).

²⁰⁵ Shadish et al. (2002), p. 506.

support construct validity, multiple sources of evidence were used²⁰⁶: interviews, different sources of literature and data from archives as well as results from previous studies.

Internal validity is the validity that is concerned with the causality of the variables in the study.²⁰⁷ Internal validity is important for this research because the research tries to determine why some organisations are successful in surviving the Twente textile industry and why others are not. When some factors are not accounted for in the research, the research loses validity. The aggregated model that is used to identify the factors for enduring success could be a potential pitfall. There could be more factors that the surviving organisations have in common. This however, does not say anything about the factors that are tested; it merely means that there might be more. To reduce this risk, semi-structured interviews were used where the directors could voice their thoughts on organisational survival. Because the companies in the research all have a history, this history was also used to identify more factors for survival. Also the model that is used to identify the factors for survival is based on the research of 5 authors to ensure that no factors were left out.

External validity is the validity of inferences about whether a causal relationship holds over variations in persons, settings, treatment variables, and measurement variables.²⁰⁸ To ensure external validity, three contrasting cases are used in the research. All cases were treated the same, the same questions were asked and the same methods of analyses were used: the study was repeated exactly for all three cases.

²⁰⁶ See Yin (2003), p. 34.

²⁰⁷ See Shadish et al. (2002), p. 53.

²⁰⁸ See Shadish et al. (2002), p. 83.

4. Casestudy: evolutions and innovations in the Twente textile cluster

4.1 The Twente textile industry: using internal and external factors to explain the decline of the industry

In this paragraph, the course of the Twente textile industry will be discussed. This will be done based on the life cycle of the industry, see figure 14. This figure represents the number of organisations that were present in the Twente textile industry. The life cycle is, as theory suggests, divided in four stages, introduction, growth, maturity and decline.

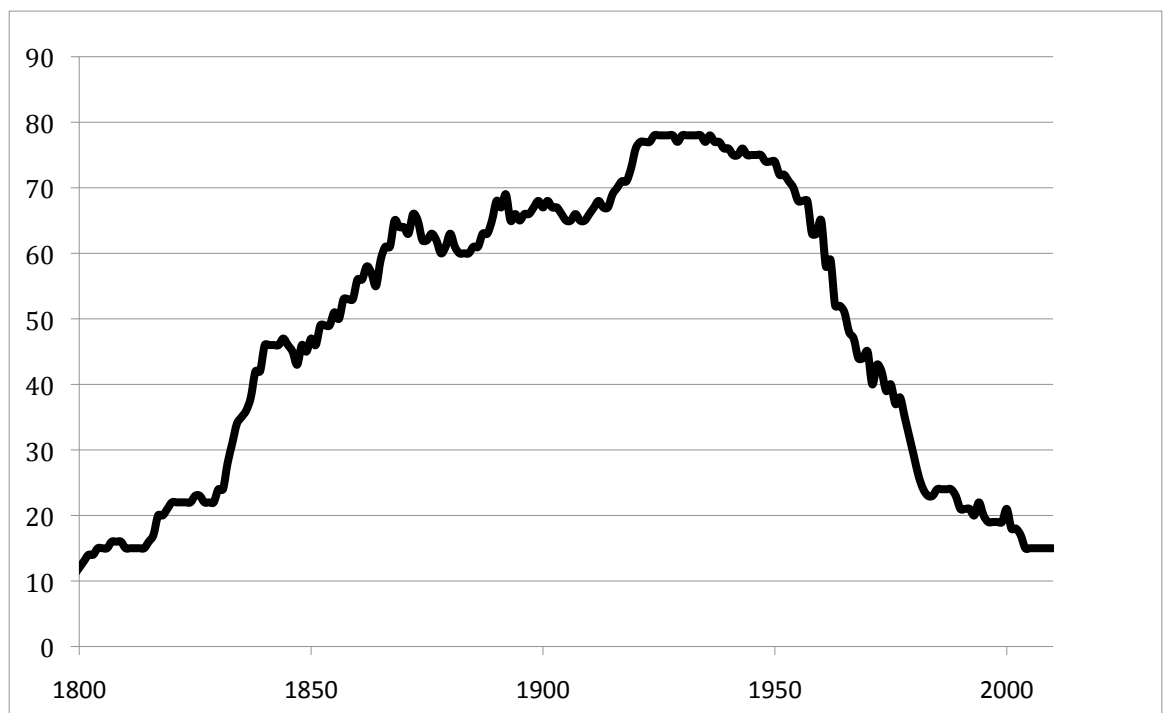


Figure 14. The number of organisations in the Twente textile industry from 1800 until 2010 based on appendix V.

4.1.1 The introduction phase of the Twente textile industry: until 1830

At the beginning of the 19th century, the Netherlands almost completely relied on subsistence. In 1806, Lodewijk Napoleon accepted the government of the Kingdom the Netherlands. He made many attempts to stimulate prosperity in the Netherlands. Emperor Napoleon considered the Dutch kingdom as a failure for his anti-English politics, because the country was full of contraband from England. Therefore, the Netherlands was incorporated with the French empire. During the period that the Netherlands was part of the French em-

pire a lot of radical measure have been taken. Amongst others, the civil registration was founded, a new metric system was introduced, and legislation was renewed.²⁰⁹

Until 1810 organisations were not able to export their products because of the high tolls. From 1810, organisations could export their products freely to the Belgium and French market. For the Northern Netherlands, this was not until 1812. Mainly the textile industry in Brabant profited from this. In this period many organisations were founded.²¹⁰ In 1813-1814 the independence of the Netherlands was restored, and Willem Frederik became king Willem I.²¹¹ In 1814 some Belgium provinces were added to the Netherlands. Agriculture was the most important source of income for the Netherlands, but in Belgium, the industrial revolution had already begun in 1800.²¹² King Willem I was very interested in the progress of Belgium and focussed on Belgium with his policy, something that was not appreciated by the Northern Netherlands. But by investing so much in the Belgium textile industry, the king provided them (unwillingly) the means to be self-sufficient. This resulted in the separation of Belgium in 1830.²¹³

In figure 14 can indeed be seen that before 1830 there were very little textile organisations. When the toll barrier was eliminated the first signs of growth can be observed. But the textile industry in Twente was still in its infant shoes. During the introduction phase of an industry life cycle, the industry is populated by a few small organisations and the price is high.²¹⁴ This is also true for the Twente textile industry, until 1800 there were only 5 textile organisations in the region. This grew to steadily to 15 organisations in 1830.

4.1.2 The growth phase of the Twente textile industry: from 1831 until 1920

When Belgium was no longer a part of the Netherlands, there was not enough production in the Netherlands to supply enough textile products for the demand of the Dutch-Indies. Therefore textile products needed to be produced somewhere in the Netherlands. King Willem I choose Twente as a location for the textile industry.²¹⁵ In Twente the wages were lower than in other parts of the country, and the people in Twente had a strong work ethos.

The Belgian manufacturers were not happy about the separation of Belgium because they lost the market of the Dutch-Indies. For this reason there were several Belgian

²⁰⁹ See van Stuijvenberg (1977), p. 168-169.

²¹⁰ See van Stuijvenberg (1977), p. 176.

²¹¹ See van Stuijvenberg (1977), p. 197-198.

²¹² See van Stuijvenberg (1977), p. 202.

²¹³ See van Stuijvenberg (1977), p. 203-205.

²¹⁴ See Jovanovic/MacDonald (1994), p. 322; and Klepper (1996), p. 564.

²¹⁵ See Willink (2010), p. 22.

manufacturers that came to Twente to start a factory.²¹⁶ In figure 14 a significant steady growth can be observed from 1830.

In 1830 an important radical innovation occurred: the first steam engine in Twente was built in Almelo. The steam engine caused faster, easier production and was an important reason for the large increases in production in the textile industry. Van Zanden published well-grounded estimates of the production during the years 1805 until 1910, see figure 15.

	1805	1850	1880	1910
Textile industry	6,4	12,6	38,2	100
Primary sector	34,3	47,1	63,5	100
Secondary sector	12,1	20,5	49,0	100
Tertiary sector	14	20,7	46,6	100

Figure 15. Gross production for the textile industry in the Netherlands 1805-1910 compared to the entire primary, secondary and tertiary sector (indices: 1910 = 100). Based on Van Zanden (1987).

The textile industry is a part of the secondary sector and grew significantly and transcended the average growth of the secondary sector, but also of the other sectors. An important factor for the economic growth was the Nederlandsche Handelsmaatschappij (NHM). The society was founded in 1824 but became of significance in 1830. The NHM encouraged companies to produce as much as they could, this was to fight the high unemployment rates in the Netherlands. The NHM gave high grants to the producers of textile, a lot of people benefited from this. It became very profitable to 'do something with textile'. Even some persons tried their luck in the textile industry. Because the NHM purchased all products produced, this led to poor quality. After 1844 changes to this system were made. Manufacturers could apply for orders by closed bids. But this was only possible through large advances.²¹⁷ In 1874 the grant system was finally repealed.

The economic environment in the Netherlands was perceived as hostile by strong protectionism that the government maintained. Until 1860 the industry in the Netherlands was mostly small-scale production. But during the sixties and seventies there was technological change that stimulated economic growth: workers that worked at home or at small workshops (by hand) were replaced by large factories.²¹⁸ This resulted in a very high

²¹⁶ See Willink (2010), p. 22.

²¹⁷ See Willink (2010), p. 32-33.

²¹⁸ See van Stuijvenberg (1977), p. 228.

growth rate of the production of textile, as can be seen in figure 15. Another important innovation was the introduction of the English schuttle (Engelse schietspoel) by Thomas Ainsworth. Thomas Ainsworth came from England where the industrial revolution happened earlier and was an important person for the NHM, he supported the NHM with his knowledge on technology.

Until 1867 Almelo and its surroundings had a leading position regarding technology in the Twente textile industry. But in 1862 there was a large fire that destroyed Enschede. This moment was used to make a new start regarding the textile industry. And it worked: from 1867 Enschede had a leading position (not only concerning technological advancement).²¹⁹

With the industry still growing, the pressure rose for organisations to perform well to survive the increasing competition. And nevertheless the technological advancements, the working conditions were still not good: working hours were long, the work was hard and the wages were low. The first labour disputes occurred in 1860 (about working conditions and the fact that manufacturers paid their workers in DM, which led to a small advantage for the manufacturers).²²⁰ In the eighties (of the nineteenth century) some larger conflicts occurred. Most strikes were ‘won’ by the manufacturers although they did do some concessions regarding the length of the workdays and the amount of wages.²²¹

During the First World War, the Dutch tried to keep the economy going as much as they could, but the scarcity of resources severely decreased the social activity. This resulted in an economically and socially critical situation.²²² Because the Netherlands managed to stay neutral during the war, there was no physical damage and production could be started again after the war in 1918.²²³

4.1.3 The maturity phase of the Twente textile industry: from 1921 until 1960

After the First World War, there was a major conflict between the manufacturers and the employees. There was a cyclical downturn after the revival in 1918-1920. At first there were large salary increases, but the recession in 1922 was so strong that the manufacturers enforced a wage cut of 10 percent, and when they announced another wage cut in 1923 (and a work time extension); the workers declared a strike. The manufacturers association

²¹⁹ See Willink (2010), p. 45.

²²⁰ See Willink (2010), p. 53-54.

²²¹ See Willink (2010), p. 54.

²²² See van Stuijvenberg (1977), p. 276.

²²³ See van Stuijvenberg (1977), p. 278.

reacted with exclusion: every worker had to go home, whether they wanted to strike or not. After more than five months, the unions caved. It is said that the manufacturers wanted to ‘show them who was boss’.²²⁴

In 1930-1931 the last big strike of the Dutch textile industry occurred. This strike was also ‘won’ by the manufacturers through exclusion. In the Netherlands, exclusion was seen as a last resort, and the government did not approve of it. In other countries like Germany and England, exclusion was considered normal.²²⁵

After 1931, the manufacturers preferred to avoid further power struggles and tried to reduce costs by cartels. There were three large cartels: Garententrale, Manex and the Nederlandsche Textiel Conventie. A lot of the organisations were organised in these cartels and the industry was very much regulated by these cartels. Something that the Germans took advantage of when they occupied the country in 1940.²²⁶

De ‘Garententrale’ was founded in 1934, in this cartel, 86 percent of the spinners took part in this cartel. The goal was to sell yarn profitable through uniform price fixing.²²⁷ This cartel was one of the most solid cartels of the textile industry and also one of the most successful cartels internationally. The cartel gave quotas to its members. When a spinner made more than his quota, he had to pay a fine. When a spinner could not meet his quota, he was paid an allowance. Because of these measures, the occupancy rate improved significantly. In 1934 there was an understaffing of 43 percent, in 1937 the understaffing was down to 4 percent. (But this effect was also partly a result of the improvement of the economy.) Other positive effects were diversification of the production range, a better cooperation between the spinners and an increased credit by the government.²²⁸ As a result of the opening of the European borders and the increase of imported yarn, the Garententrale lost its function of price-cartel. In hindsight, this cartel was maintained too long: this had an unfavourable effect on the textile industry.²²⁹

Also in 1934 Manex (Manufacturen Export Centrale) arose. This was an export institute for joint export to restrain the competition from abroad, particularly Japan. This cartel arose under the influence of the Dutch government because the Dutch-Indies introduced import quotas. This led to a maximum level of export for the Dutch companies. The Manex

²²⁴ See Willink (2010), p. 56.

²²⁵ See Willink (2010), p. 59.

²²⁶ See Willink (2010), p. 60.

²²⁷ See Hesselink (2009), p. 152.

²²⁸ See van Waarden (1987), p. 112.

²²⁹ See Hesselink (2009), p. 554.

served as a central office system and distributed the quotas over the companies. The Manex was also responsible for all the communication with the Dutch-Indies.²³⁰

In 1935 the Nederlandsche Textiel Conventie (NTC) was founded. This cartel was a lot larger than the other two; it comprised almost all organisations that supplied fabrics to the domestic market.²³¹ The goal of this condition cartel was to maintain minimum sales prices and come to clear payment agreements in the Netherlands. The NTC made an end to the unclarity of the market and the unhealthy price competition.²³² It was successful until well after the Second World War and was successful in achieving its goal.²³³

Between 1934 and 1939 nine small cartels were also formed. These cartels comprised only a few organisations (mostly three participants, six at the most). These cartels only covered a few types of products. Mostly these products were technologically complicated and only some factories manufactured them.²³⁴

There were also some cartels that failed, the reason for this was that some important companies did not want to participate because they did not want to bind themselves to others by means of contracts.²³⁵

When the international tension started to rise, the Netherlands tried to defend themselves and tried to save as much trade as possible.²³⁶ During the first few years of the Second World War, the Netherlands tried to find a balance between the German's war interests and the Dutch survival efforts. The Germans strove for linking the Dutch and the German economy together, but there was a lot of resistance from the Dutch.²³⁷ The textile organisations had built a lot of stock because the textile industry was recovering from a crisis. The Germans took the stock and claimed that if the unemployment problem was not solved, that the unemployed people would be forced to go to Germany and work there. It was only possible to decrease unemployment and keep the textile industry viable to accept German orders.²³⁸ The Netherlands did everything in their power to keep the distribution of food going, but in the winter of 1944-1945 the distribution system collapsed. There was

²³⁰ See van Waarden (1987), p. 112-113.

²³¹ See van Waarden (1987), p. 114.

²³² See Hesselink (2009), p. 152.

²³³ See van Waarden (1987), p. 119.

²³⁴ See van Waarden (1987), p. 119.

²³⁵ See van Waarden (1987), p. 122.

²³⁶ See van Stuijvenberg (1977), p. 293.

²³⁷ See van Stuijvenberg (1977), p. 293-294.

²³⁸ See Willink (2010), p. 63.

a major shortage of resources and labour and the economy shrunk rapidly.²³⁹ The country fell in complete disorganisation North of the great rivers.²⁴⁰

After the liberation in 1945 the economy needed to be reconstructed. There was a lot of physical damage to the production facilities, but at the end of the war, not a lot of damage was done to the production equipment of the textile industry because it had been of use to Germany. This was one of the reasons that the textile industry grew fast during the reconstruction.²⁴¹ The level of prosperity was (of course) lower than 1939 but there was a certain order and stability. The country got back to its feet and from 1955 the economy grew considerably ('le miracle Néerlandais').²⁴²

4.1.4 The decline of the Twente textile industry: from 1961 until 2003

After 1962 the competitive power of the Netherlands was diminished by several factors. The first being the relocation and liquidations in the clothing industry. With the disappearance of one of the most important customers and the relatively high labour costs (especially between 1970 and 1985), during the period 1962-1992 Germany and Belgium took almost 50 percent of the textile import.²⁴³ The textile industry was supported by the government in West Germany and Belgium and because West Germany had a very large domestic market, it was more capable of producing cheap.²⁴⁴

The lack of research on external influences on organisations (mainly in the nineteen sixties) caused for the underestimation of these influences. The decline of the industry was considered to be temporary.²⁴⁵ The threat of globalisation was underestimated. Because of this, a large number of strategies were implemented that seemed sensible on the short term, but could, on the long term, not withstand the emerging competition from abroad. The strategies that were used were focussed on and related to existing products (exploitation when exploration was required).²⁴⁶ Furthermore, specialisation and structural renewal did not get enough attention. Only limited diversification was implemented and the growing market of substitutes was left to foreign textile companies.²⁴⁷ The (textile) industrialisation

²³⁹ See van Stuijvenberg (1977), p. 294.

²⁴⁰ See van Stuijvenberg (1977), p. 295.

²⁴¹ See Willink (2010), p. 63.

²⁴² See van Stuijvenberg (1977), p. 295-297.

²⁴³ See Hesselink (2009), p. 25.

²⁴⁴ See Hesselink (2009), p. 553.

²⁴⁵ See Hesselink (2009), p. 25.

²⁴⁶ See Hesselink (2009), p. 554.

²⁴⁷ See Hesselink (2009), p. 25.

of the developing countries formed an unstoppable force for the textile industry in the entire Western world. The textile industry in Twente (but also in the rest of the Western world) could not compete with the developing countries because they can produce much cheaper. Despite protective measures by different governments.²⁴⁸

One of the success factors for surviving the industry was to outsource production to low wage countries in order to keep the current market position. Not many organisations saw this at the right time.²⁴⁹

To summarise, there were several external but also internal factors that has a negative influence on the textile industry.²⁵⁰

- The disappearance of the Dutch Indies market.
- The relative small domestic market.
- The Netherlands was always an inexpensive production country, but through the years it became an expensive country.
- The industry was inflexible: existing structures, independence and the attitude towards risk were maintained too long.
- There was not enough understanding of the profitability of certain groups of articles and markets and marketing channels.
- Family management was maintained too long.

4.2 The Twente textile cluster: competitors, suppliers, customers and institutions in Twente

To understand the Twente textile cluster, it is important to know what types of companies were in the cluster. There are three types of textile factories: spinning-, weaving-, and finishing companies. The production process of each of the factories exists of a number of phases. The companies form a value chain and supply their end product to the next company. Only spinning mills, weaving mills and finishing companies are incorporated in the research, as well as companies that, at some point in time, performed spinning, weaving or finishing activities. The cluster is schematically depicted in figure 16.

²⁴⁸ See Hesselink (2009), p. 553.

²⁴⁹ See Hesselink (2009), p. 25.

²⁵⁰ See Hesselink (2009), p. 554.

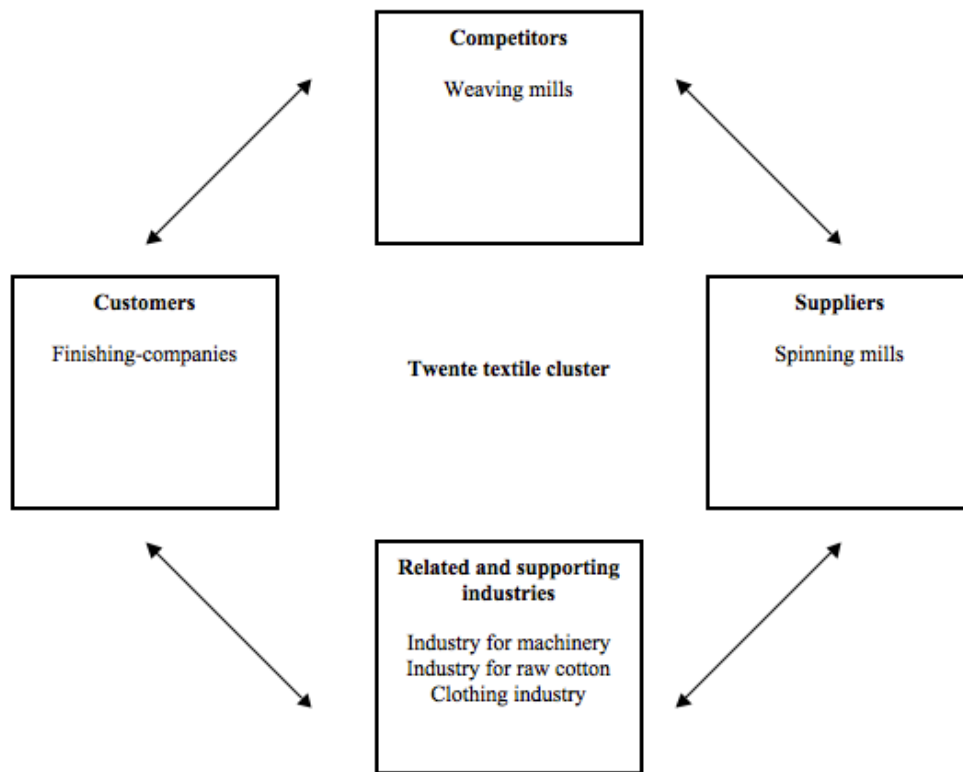


Figure 16. The Twente textile cluster.

4.2.1 Cooperation within the Twente textile cluster: manufacturers united after external threats

As mentioned in paragraph 4.1.3 there were cartels in which organisations cooperated with each other. These cartels were focused on prices and quantities. Next to these cartels, the Twente textile industry was organised in many other associations like employers organisations, syndicates, local manufacturers circles and other societies. There were many organisations and they were also very close.²⁵¹ This connectedness was actually very curious because the manufacturers in Twente were known for their individualism and their aversion to restrictions of their entrepreneurial freedom.²⁵² According to Sneller, a economic historian, the entrepreneurs from Twente had an aversion against governmental interference but also against connecting themselves with other manufacturers.²⁵³ The reasons that manufacturers did unite themselves were almost always external threats to their power and/or possibilities. Only under those circumstances, manufacturers were willing to give up some

²⁵¹ See Van Waarden (1987), p. 9.

²⁵² See Van Waarden (1987), p. 9.

²⁵³ See Sneller (1938), p. 188.

of their own autonomy to establish collective bonds.²⁵⁴ In the nature of the threats a clear order can be observed. First, external threats on the labour market (resistance and organisations and cartel forming by employees) lead to the association of manufacturers. But also later, when the coal supply was threatened or the cotton supply was threatened and at last when the industry was threatened by competition from abroad, manufacturers organised themselves. Because these organisations were founded as a result to external threats, they were very defensive.²⁵⁵

The three large cartels Garencentrale, Manex and the NTC, as discussed in paragraph 4.3.1, were founded as a defence mechanism against the increasing competition from abroad. The Manex had 14 members and regulated the export to the Dutch Indies.²⁵⁶

Company name	Based in
H. ten Cate Hzn & Co	Almelo
H.P. Gelderman & Zn	Oldenzaal
Van Heek & Co	Enschede
Jansen & Tilanus	Vriezenveen
Arntzenius, Jannink & Co	Goor
Katoenmaatschappij v/h Gebr. Scholten & Comp.	Almelo
Koninklijke Oldenzaalsche Stoomweverij	Oldenzaal
Koninklijke Stoomweverij te Nijverdal N.V	Nijverdal
Rigtersbleek v/h G.J. van Heek en Zonen	Enschede
Textielfabriek Almelo	Almelo
Veenendaalsche Stoomspinnerij en Weverij	Veenendaal
Boekelosche Stoombleekerij	Boekelo
Twentsche Stoombleekerij	Goor
Nederlandsche Stoombleekerij	Nijverdal

Figure 17. Members of Manex.

With the exception of Ten Cate, none of the organisations that joined the Manex survived the industry. The organisations that joined the Manex were all mass producers of cotton,

²⁵⁴ See van Waarden (1987), p. 123.

²⁵⁵ See van Waarden (1987), p. 123-124.

²⁵⁶ See Kroese (1977), p. 43.

with the exception of the 3 bleaching companies. The Manex is an example of competitors working together to overcome external threats.

The Garencentrale was an organisation that united only spinning companies, 86 percent of all spinning companies were united in the Garencentrale. The official members could not be identified, but none of the companies that focused solely on spinning, survived the Twente textile industry. Some companies that survived performed, at some point in time, spinning activities. But spinning was never the core business for these companies. When the NTC started almost every textile organisation was a member of the NTC.

4.2.2 Other forms of cooperation in the Twente textile industry

In the 1950s some spinning companies founded the Stichting Onderlinge Research (Mutual Research Foundation), the goal was to do technological research, which had to lead to quality improvements and cost savings. The existing weavers association was also contacted because the spinning companies were convinced that without a joint approach, they would not survive the competition from the new integrated Europe. Most of the spinning companies produced a very large and diverse variety of products and had no resources to modernise their factories. Eventually a group of seven medium sized family businesses formed the Koninklijke Nederlandse Textiel Unie (Royal Dutch Textile Union, KNTU), a new textile company. The company started in 1962 and was registered at the Amsterdam stock exchange. It was a unique project which had some difficulties, such as the misbalance of production capacity and the less than strong financial basis of especially the weaving companies.

There was some competition between the joining companies, but because of the joint interest of a healthy sector, cooperation with the Garencentrale and good financial results, there was also some kinship. Some weaving companies that were not in every situation each others competitors, hardly had any relationship. The only kinship they had was their joint fight against the influence of the Garencentrale and the threat of the emerging international competition²⁵⁷.

Eventually, the KNTU had 15 members, 2 of them were not from the Twente region²⁵⁸, see figure 18.

²⁵⁷ See Hesselink (2009), p. 242-244.

²⁵⁸ See Hesselink (2009), p. 243.

Company name	Based in
NV Katoenspinnerij Bamshoeve	Enschede
Koninklijke Nederlandsche Katoenspinnerij (KNKS) NV	Hengelo
NV Spinnerij Oosterveld	Enschede
J. Wellink NV	Oldenzaal
J.F. Scholten & Zonen NV	Enschede
Koninklijke Textielfabrieken Jordaan-Ter Weeme NV	Haaksbergen
NV Koninklijke Oldenzaalse Stoomweverij v/h J.H. Molkenboer Jr.	Oldenzaal
NV Spinnerij Roombeek	Enschede
N.J. Menko NV	Enschede
F.E. Hardick Zijdeweaverij NV	Haaksbergen
D.J. ten Hoopen & Zoon NV	Haaksbergen
BEHTI, Baekers-Elias-De-Haes Textielindustrie	Eindhoven
NV Textielfabriek Holland	Enschede
Jerseyfabriek Kerssemakers	Beek en Donk

Figure 18. Members of the KNTU.

The KNTU was a defensive merger, it has some weak points and when the international competition became fiercer, the KNTU was too weak to continue and stopped existing in 1973. Hesselink identified the success and failure factors of the KNTU:

Success factors:

- The notion that through collaboration and expansion a large integrated textile company would be better suited to compete against other companies.
- Joining family businesses to form one large organisation with publicly traded shares.

Failure factors:

- There was a structural misbalance between the capacity of weaving- and spinning mills.
- With a few exceptions, the weaving mills were too small for expansion because of the wide variety of products.
- The directors had no experience with leading such a large organisation.
- At the beginning too much time was lost on restructuring because of the gradual integration.

- The members of the board of directors were not always impartial because of double functions they had.

After the failure of the KNTU some organisations continued on their own, but eventually none of the companies survived.

4.2.3 The Twente collaboration paradox: collaboration only when absolutely necessary

It has been made clear that the organisations in the Twente textile industry only collaborated with each other when it was absolutely necessary, only under the pressure of external threats, organisations from the Twente textile industry collaborated with each other. This is not only a phenomenon in the textile industry, but it is observed in many areas.

Twente has a remarkable high 'social capital'. Many people are a member of a social-cultural organisation and people trust each other. People from Twente are networkers; they have large networks they maintain by going to certain events or societies. The problem of a high social capital is that people do not dare to stand out from the group, and therefore stay within the group out of fear. This is an obstacle for innovation and entrepreneurship.²⁵⁹ It seems that people from Twente only want to collaborate in a non-committal way or is there really is not other way because of threats that cannot be faced alone. This lack of collaboration combined with the high social capital the region does have, is called the Twente collaboration paradox.²⁶⁰

4.3 Cases of surviving organisations in the Twente textile industry

4.3.1 Case TD Performance Textiles: history and current situation of Twentse Damast-, Linnen en Katoenfabriek

4.3.1.1 History of Twentse Damast-, Linnen- en Katoenfabriek

In 1813 S. Bendien started a textile factory, S. Bendien en Zonen, he bought several hand spinning- and hand weaving machines, which he placed in his factory. Employees came to the factory to work instead of working at home what was more usual during this period. In 1861 the first steam machine was purchased, weaving by hand was replaced by weaving with a machine. In 1888 the family business S. Bendien en Zonen became a limited part-

²⁵⁹ See Hospers/van Lochem (2002), p. 30-32.

²⁶⁰ See Hospers/van Lochem (2002), p. 30.

nership (Commanditaire Vennootschap). In 1890 the steam mill C. Cardinaal en Co from Almelo was taken over. And in 1892 the limited partnership was changed to a limited liability company (Naamloze Vennootschap) and the name changed into N.V. Twentsche Damast-, Linnen en Katoenfabriek voorheen S. Bendien en Zonen.²⁶¹ The organisation had two directors and the son of one of the directors (Bendien) was manager in the factory in Ootmarsum.

Making business decision took very long, the steam mill needed to be replaced in 1894, but it took until 1899 for the machine to finally be placed. This was due to the differences between the visions of the directors and the manager. The steam mill was not the only thing they did not agree on. The manager A. Bedien was very much concerned with the wellbeing of the workers, but many of his proposals were not implemented because the directors and the supervisory board did not agree.²⁶²

In 1903 a horse and carriage was purchased for the transportation of goods to Almelo. In 1906 a second horse and carriage was purchased. And in 1910 the factory was provided with electrical light. During this period the factory in Ootmarsum was successful but the organisation was financially very careful.²⁶³

In 1916 the organisation 4000 guilders was made available to buy new looms, one for handkerchiefs and two for towels. In 1920 the organisation started (cautiously) with a confection department. In 1920 the first lorry was purchased and the horses and carriages were sold.²⁶⁴ During this whole period the profitability of the organisation fluctuated. There were prosperous periods but also periods of decline. The company was continually adjusting its production and the number of looms in use and the number of people needed for production.

In 1944 H. Ten Cate Hzn. en Co from Almelo bought the factory, which later merged with the Koninklijke Textielfabrieken Nijverdal Ten Cate N.V. After the war many changes took place, expansions, rebuilding and the purchasing of new machines. An important expansion for the environment of the factory was the building of the canteen. The canteen had an important function in Ootmarsum, The space was very large and was used for many purposes by the volleyball club, a school, an orchestra and more societies.²⁶⁵

²⁶¹ See Morshuis (1988), p. 29-30.

²⁶² See Morshuis (1988), p. 34-36.

²⁶³ See Morshuis (1988), p. 39.

²⁶⁴ See Morshuis (1988), p. 41.

²⁶⁵ See Morshuis (1988), p. 46.

There are no signs of decline in the literature in the 60s and 70s. In 1972 technical textiles was actually expanded which led to a 50 percent increase of the turnover. And also the confection department needed to be expanded (causing that the canteen could not be used anymore by the different societies in Ootmarsum). But a large fire destroyed a large part of the factory. But the production only stood still for one day because the organisation could use a former dairy factory to continue the production.²⁶⁶

In 1975 the production was declined by 5 percent but the turnover increased with 20 percent. This because the organisation did not only depend on production but also on trade. In this year was also decided to stop the production of confection and to outsource this to two contractors. In 1977 De Phoenix a company from Amsterdam that made flags, established itself in Ootmarsum. Because of this, a part of the production of Twentse Damast could be processed to a final product. But this cooperation stopped in 1979.

During the 80s development was still rising, more investments were made. During this period Twentse Damast produced the following items²⁶⁷:

1. Cotton and polyester/cotton fabrics that were used in the healthcare industry as sheets and pillowcases, drapes, draw sheets and diapers.
2. Cotton fabrics that were used in confection for lining and pocket lining.
3. Fabrics for the dairy and filter industry.
4. Fabrics for the printing industry, shoe industry and the starch and seed industry.
5. Covering fabrics, flame resistant as well as non-flame resistant for the showcase and exhibition industry.

In 1995 G. Steinmeijer bought the factory and moved everything to Losser where the factory still resides as a separate limited company (BV) of the Van Heek-Ten Cate group. Operating under the trademark TD Performance Textiles.

Twentse Damast was always the only large textile factory in Ootmarsum and although there were more factories in Ootmarsum, the population always referred to Twentse Damast as “'t febriek”.²⁶⁸

²⁶⁶ See Morshuis (1988), p. 48-49.

²⁶⁷ See Morshuis (1988), p. 51-52.

²⁶⁸ See Morshuis (1988), p. 6.

4.2.1.2 The current situation of Twentse Damast-, Linnen- en Katoenfabriek: lack of co-operation

Twentse Damast-, Linnen- en Katoenfabriek is established on an area in Losser together with four other organisation that are all part of the Van Heek-Ten Cate group. In 2013, Twentse Damast will celebrate its 200 year existence. The core business of the company at this point is the trading of textiles on the institutional market. Currently, the organisation is supplying the following products²⁶⁹:

1. Mattresses, mattress protectors, pillows, duvets, bed linen, incontinence materials, textiles used in operating rooms, separation curtains, diapers, blankets, spreads, kitchen towels, and terry products for the healthcare industry.
2. Mattresses, mattress protectors, pillows, duvets, bed linen, table linen, kitchen towels and terry products for the catering and hotel industry.
3. Fabrics for the decoration and exhibits industry.

It can be seen that certain activities were stopped and the organisation focused its activities on the healthcare and catering and hotel industry. Within this focus the organisation is trying to explore new options. The organisation has been trying to be more innovative the last couple of years. When the organisation was separated from Ten Cate, innovation was not a priority; the organisation was more or less in survival mode. With the arrival of the new director innovation, collaboration and corporate identity became more important. But at this point in time a strong corporate identity cannot be identified at Twentse Damast.

Twentse Damast does not cooperate much with other organisations. But there is a desire to do this in the future. See figure 18 for the relations of Twentse Damast.

²⁶⁹ See <http://www.twentsedamast.nl/>

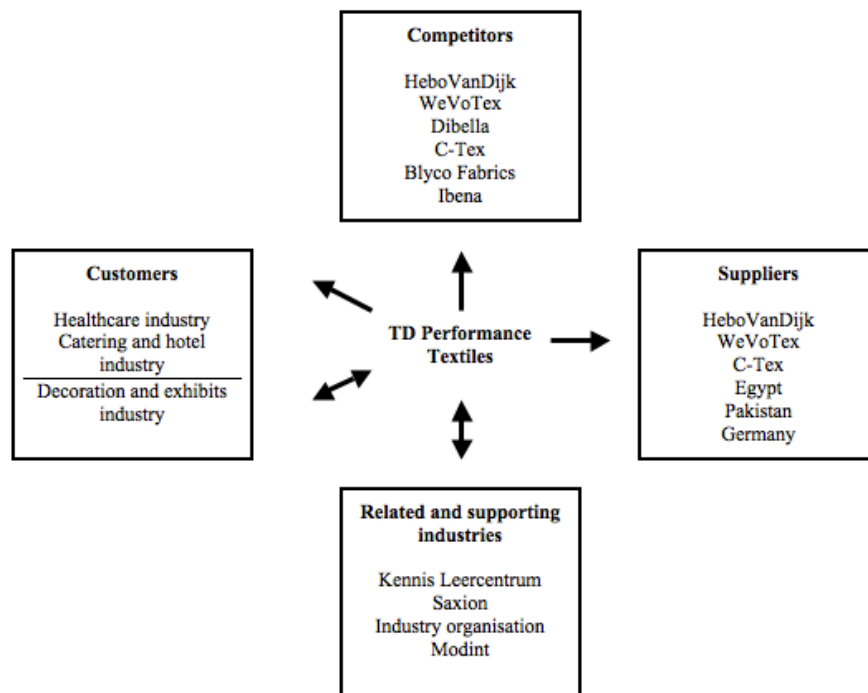


Figure 19. Relations of TD Performance Textiles.

As can be seen most of the relations of TD Performance textiles are one sided, there is no cooperation. Suppliers are just suppliers and competitors are just competitors. Because TD Performance Textiles focuses on two types of markets there is a differences. With customers form the decoration and exhibits industry there is (little) cooperation, but with the healthcare and catering and hotel industry there is no cooperation. Recently cooperation between Saxion and TD Performance Textiles was realised and the organisation joined the industry organisation, a first step to cooperation with more related and supporting industries but also with competitors.

4.3.2 Analysis of the results: Twentse Damast enduring success but not part of an innovative cluster

Twentse Damast is the second oldest textile organisation that survived the Twente textile industry. In figure 19 the factors of enduring success are applied to Twentse Damast.

Key factors for enduring success	Twentse Damast
Balance exploration and exploitation; know when it is the right time	Exploration and exploitation were balanced and used at appropriate times.
Balance incremental and radical innovation; know when what type is needed	Mostly incremental innovations, only radical innovations when certain change would be successful.
Diversification	Diverse range of products.
Consider external environment	Becomes increasingly more important.
Core ideology needs to be present (core values and core purpose)	Core values are not present, core purpose is present.
Envisioned future needs to exist (BHAG and vivid description of desired future state)	No clear envisioned future.
Products/services need to be of good quality	Quality is an important factor for the company.
Conservative about finance	Company has always been conservative about finance.

Figure 20. Organisational success of Twentse Damast-, Linnen- en Katoenfabriek.

The most important factor of the success of Twentse Damast was that the organisation used exploration and exploitation at the appropriate times. Although the confection industry disappeared from the Netherlands during the 1960s, the confection department of Twentse Damast was very successful and even expanded (exploitation). But when it became less profitable in 1975 the production was outsourced and the organisation explored other options, such as the cooperation with De Phoenix. Furthermore the organisation did never focus on one single business, there was always enough diversification. This also makes it possible to close down less profitable departments. In combination with the conservatism about finance, Twentse Damast was very flexible.

Looking at the production and products in 1813 with hand spinning- and hand weaving machines to the products and production now, the change is very radical. But the changes that were made were mostly incremental. Twentse Damast can be seen as a conservative company that only made radical changes when it was absolutely certain the changes would be successful.

When the factory was established in Ootmarsum, the company had a very strong corporate identity. It was also always involved in the community. This corporate identity has faded through the years.

Twentse Damast represents many of the factors for enduring success, especially in the first 175 years of the existence of the company. At this point in time, the organisation can make the most progress by giving more priority to creating a strong corporate identity and keep working on the balance between exploration and exploitation while maintaining conservative about finance and about radical innovations because that is what ensured the enduring success of the company.

Next to the enduring success of the organisation, the possibility of Twentse Damast being in a cluster has been investigated. In figure 20 the characteristics of Twentse Damast are analysed based on the cluster dimensions.

Cluster dimension	TD Performance Textiles
Competitors	- Compete
Suppliers	- No collaboration yet, collaboration is desired.
Customers	- No collaboration on institutional market. Purely financial. - Customer service on deco market.
Institutions	- Hardly any relations, but trying to establish relationships with industry organisation and with Saxion.
Innovation	- Exploration - Diversification - Carefully planned radical innovation at very selective moments in the past. - Innovation becomes increasingly important.
Relationships	- Starting relationships by going to industry meetings.

Figure 21. Actions and reactions of TD Performance Textiles based on cluster dimensions.

Based on the fact that there is no evidence for collaboration with competitors or suppliers it can be concluded that Twentse Damast has never been part of an innovative cluster and that is also not part of an innovative cluster at this point in time. The overall lack of external relationships proves that the organisation is not part of an innovative cluster. But if the

organisation continues and succeeds in trying to establish relationships with competitors and also suppliers the company may be well on its way to form/join an innovative cluster.

4.3.3 Case A.C. Ter Kuile: history and current situation of A.C. Ter Kuile

4.3.3.1 History of A.C. Ter Kuile: producer of interlinings

A.H. Ter Pleij BV was founded in 1923, the company changed names and owners a few times. The current name dates from 1970. The company started in 1923 with the production of haircloth, horsehair and tie lining of wool, cotton, polyester, viscose etcetera. The company spun horsehair yarn with special machines, but the production of horsehair yarn stopped during the sixties. Also during the sixties the clothing industry disappeared from the Netherlands, and the demand for woven interlinings declined and made place for an increasing demand for fusible interlinings of lighter materials. The management of A.C. Ter Kuile realised that the company was too small and did not have enough financial resources to invest in new production lines.

In 1970 the entire company was reorganized and half of the shares were transferred to J.C.Biederlack & Co GmbH from West Germany also part of the management was rejuvenated. Because the competition in the Netherlands disappeared and the supply decreased margins increased and the company was able to repay all debts. Also the company was able to invest above the depreciation levels so that the machinery stayed modern.

The commercial strategy of A.C. Ter Kuile was focused on intensely operating on the export market, staying the supplier of companies that moved their production abroad and building a strong position in Germany and France where the moving of the clothing industry started much later.²⁷⁰

Around the year 2000 the shares of Biederlack were transferred to Dutch shareholders but the collaboration remained. The collaboration is commercial as well as production based. Biederlack produces an additional product that ensures a broad range of lining material, which strengthens the market position of both companies.

The company policy at A.C. Ter Kuile has always focused on modernisation of all aspects of the company, a minimal bank credit (preferably no bank credit), and a clear hierarchical structure, but with a strong informal character. The company has specialised itself in products with high quality and a high added value.²⁷¹

²⁷⁰ See Hesselink (2009), p. 488.

²⁷¹ See Hesselink (2009), p. 489.

4.3.3.2 The current situation of A.C. Ter Kuile: last operating weaving mill in Enschede

A.C. Ter Kuile is the last remaining operational weaving mill in Enschede. The company produces a large range of interlinings for (mainly) the men's clothing industry. The interlinings are made out of horse hair, goat hair, wool blends, viscose, polyester, and acryl. The main goal of the organisation is to maintain and possibly enlarge their market share but also to ensure continuity of the company. The core business has always remained the same and the type of products have not changed. A.C. ter Kuile is focused on small incremental changes and exploits the current products. When customers do want something different, the organisation cooperates with customers and suppliers to deliver what the customer wants. But the innovations are always incremental.

In the sixties when the industry changed and the demand for woven interlinings declined and made place for an increasing demand for fusible interlinings of lighter materials, A. C. ter Kuile did not change and stayed with the existing product lines. Even now, the main focus is still on the conventional products instead of the fusible interlinings. A.C. ter Kuile remained focused on their core products but with different suppliers and different types of thread to achieve a very high level of quality. The investments to keep the machinery up to date have been somewhat reduced over the last five to six years.

As mentioned earlier, A.C. ter Kuile cooperates with suppliers and customers to achieve customer satisfaction, all relations can be seen in figure 21.

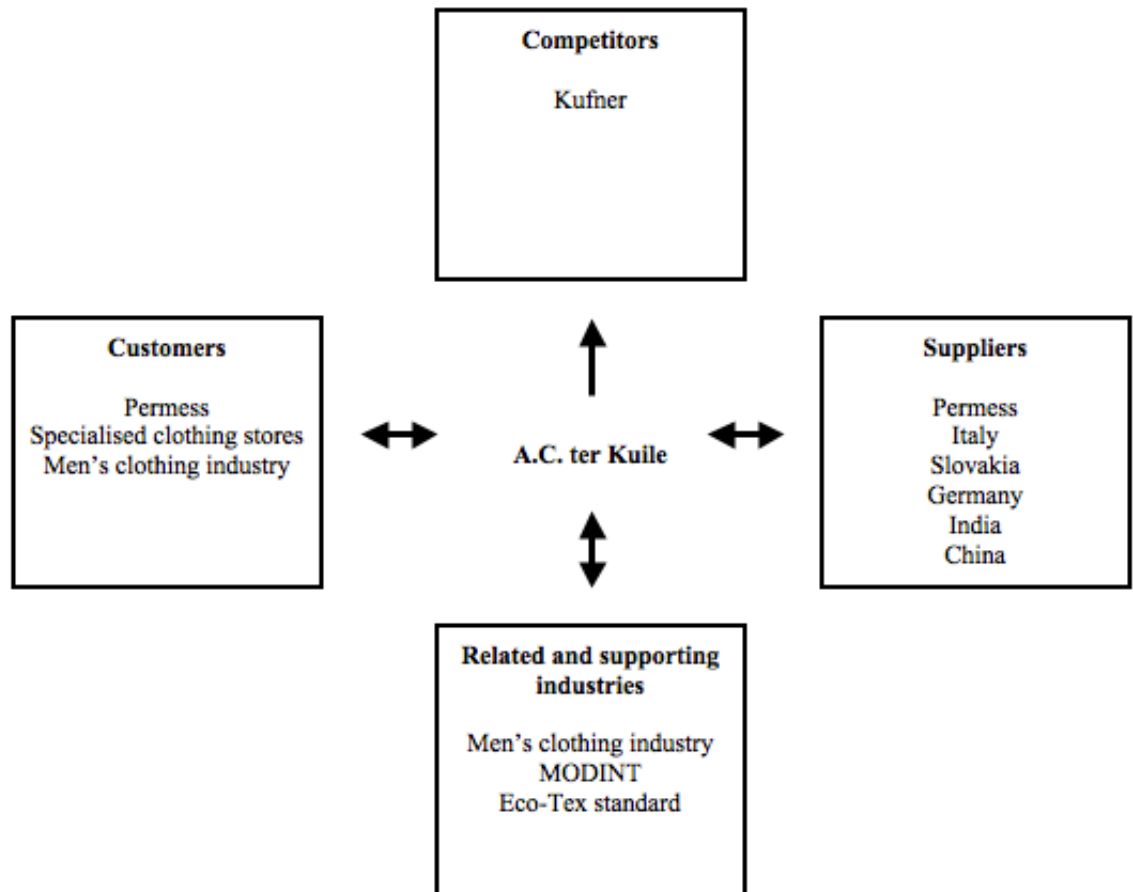


Figure 22. Relations of A.C. ter Kuile.

A.C. ter Kuile maintains relationships with suppliers, customers and related and supporting industries. The non existence of cooperation with competitors is a deliberate choice. What can also be observed at A.C. ter Kuile is that customers are used as innovators, customer satisfaction is very important for the organisation and when the organisation cannot produce something the customer needs, A.C. ter Kuile finds a way to supply the things the customer needs. The company is highly specialised. It once explored the option to weave products for Van Heek Textiles, but the machines at A.C. ter Kuile are specialised and therefore cannot weave at the speeds required for other products.

4.3.4 Analysis of the results: A.C. Ter Kuile cooperative and innovative but not part of an innovative cluster

A.C. ter Kuile is one of the youngest organisations that survived the Twente textile industry. In figure 22 the factors of enduring success are applied to A.C. ter Kuile.

Key factors for enduring success	A.C. ter Kuile
Balance exploration and exploitation; know when it is the right time	Significantly more exploitation than exploration.
Balance incremental and radical innovation; know when what type is needed	Incremental innovations more important for the company
Diversification	Diverse products with same production technique, when customer wants something else, it will be arranged.
Consider external environment	Using customers as innovators, aware of changes in external environment (such as changing demand).
Core ideology needs to be present (core values and core purpose)	Core ideology is present; core purpose has never changed.
Envisioned future needs to exist (BHAG and vivid description of desired future state)	No clear envisioned future. Continuity most important.
Products/services need to be of good quality	Quality is extremely important for the organisation, that is how they distinguish themselves.
Conservative about finance	Conservative about finance

Figure 23. Organisational success of A.C. ter Kuile.

During the entire existence of A.C. ter Kuile, the organisation has focused on the same products. The organisation is aware of the changing standards in the environment (increasing demand for fusible interlinings) but chooses to stay with the original products and to focus on a smaller part of the market (the more specialised part). Customers are used as innovators to ensure maximal customer satisfaction.

Looking at the factors for enduring success, there should be a balance between exploitation and exploration and a balance between incremental and radical innovations. But at A.C. ter Kuile, there is only exploitation present. Innovations are always incremental, radical innovations do not play an important role in the organisation. The organisation has no plans when exploitation does fail because the organisation is highly specialised. Positive is that the organisation is aware of what happens in the external environment and chooses its actions carefully.

The organisation has a corporate identity as a very ‘down to earth, no nonsense’ type of organisation where quality is very important. The core purpose is continuity of the organisation, but the envisioned future is not clear.

The two most important factors for survival for A.C. ter Kuile are their conservativeness about finance and the highly specialised and high quality products.

A.C. ter Kuile represents some of the factors of enduring success, but not all. This could be the result that the organisation operates in a niche market where radical innovations and exploitation might be less important. At this point it is advisable for A.C. ter Kuile to focus even more on their specialised products and the high quality they supply and incorporate this into the corporate identity. Also it would be advisable to formulate the envisioned future, and also emphasise maintaining of the uniqueness of the company in this envisioned future.

Next to the enduring success of the organisation, the possibility of A.C. ter Kuile being in a cluster has been investigated, see figure 24.

Cluster dimension	A.C. ter Kuile
Competitors	- Compete
Suppliers	- Close collaboration
Customers	- Close collaboration, customer needs are important
Institutions	- Few relations
Innovation	- Exploitation - Incremental innovation - Deliberate choice not to follow new trends
Relationships	- Relationships are based on innovation and achieving higher quality by using different materials, production methods

Figure 24. Actions and reactions of A.C. ter Kuile based on cluster dimensions.

A.C. ter Kuile cooperates very much with colleagues, suppliers as well as customers. But the organisations with which they cooperate are not organisation from the Twente region. Because of globalisation, proximity has become an obsolete factor in choosing collaboration partners. It can therefore be concluded that A.C. ter Kuile is not part of an innovative milieu because proximity does not play a role and does therefore not result in shared material resources such as infrastructure.

4.3.5 Case WeVoTex: history and current situation of WeVoTex

4.3.5.1 History of WeVoTex: exploring new options and outsource production

In 1920 Elfers en Veld was founded in Enschede, this was a weaving mill for terry products. In 1924 B.J. van der Weerd became a partner in this company and the name changed to Van der Weerd en Vos. The company specialised itself in weaving terry products such as (bath) towels. The most important customers were in retail but carefully the first steps to promotional terry were made. Also the company started to explore the concept of renting/leasing textile to hospitals. In 2000 the company developed quickly. E. van der Weerd, the current director, started WeVoTex, a new company that took over the activities from Van der Weerd en Vos. WeVoTex is a family business; the current director is the grandson of B.J. van der Weerd. During the first years of the 21st century, the factory was closed and the production was relocated abroad.²⁷²

4.3.5.2 Current situation of WeVoTex: textile factory without a chimney

WeVoTex supplies textile products to industrial laundries, these products are rented by the hotel and catering industry, hotels and restaurants, and by the healthcare industry, hospitals and nursing homes. WeVoTex supplies almost ever textile product that can be found in these organisations, except for clothes, examples are sheets and towels. The products are produced abroad.

The company is also entering a new market, in cooperation with suppliers and customers; WeVoTex developed a line of ambulance clothing, which WeVoTex also supplies to the industrial laundries. This cooperation with suppliers and customers is important to WeVoTex, For WeVoTex it is not important if these organisations are based in Twente or

²⁷² See <http://www.wevotex.nl/nl/html/wevotex/historie.htm>

not. WeVoTex hardly works together with competitors, sometimes when the company itself does not supply a certain type of product and the competition does, they are inclined to buy from each other, but other types of cooperation are not an option for WeVoTex: ‘it is a matter of life and death’. The business that WeVoTex is in, is very competitive, everyone supplies the same types of products, more or less. WeVoTex tries to differentiate themselves by excellent customer service. To achieve a high level of service, the organisation employs people of high intelligence who are able to react to the different needs of different customers.

Furthermore, an explicit balance between exploration and exploitation is very important for WeVoTex, also considering the amount of money that is divided between exploration and exploitation. It is not wise to invest all money into the development of a new product: financial caution is necessary. Furthermore, exploitation needs to be monitored, WeVoTex watches the turnover of their products, exploitation needs to be stopped just before turnover or profits start to decline. To decide this, extensive knowledge of the market is necessary. WeVoTex invests in the company when economic times are less good, and saves up money when the economy is thriving. This money is then used to attract new customers by giving them lower prices than competitors could possibly do because WeVoTex saved money for that purpose. When the economy is picking up, prices then can be slowly raised to a more normal level.

For the future, WeVoTex aspires a complementary cooperation like the cooperation between Philips and Douwe Egberts when they created Senseo. At the moment no actual options have been explored. For all current relations of WeVoTex, see figure 25.

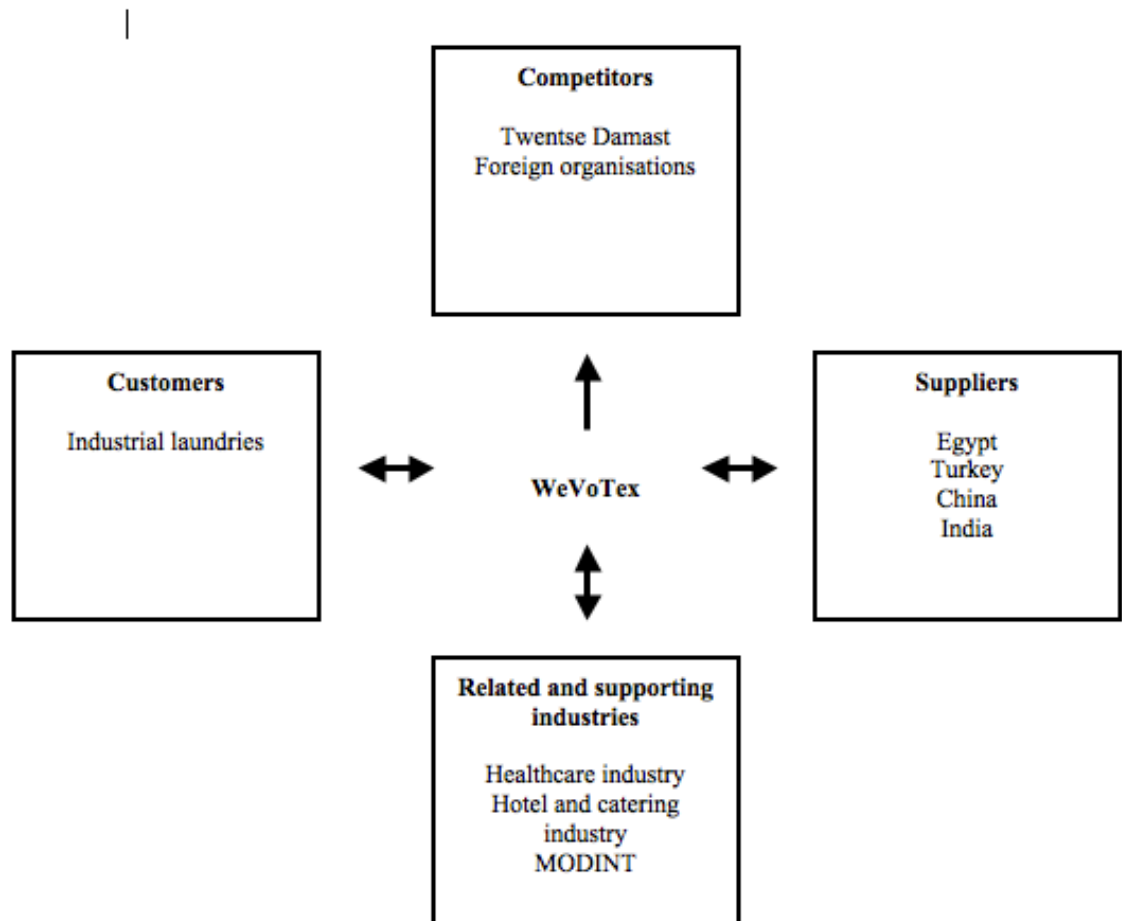


Figure 25. Relations of WeVoTex.

4.3.6 Analysis of the results: WeVoTex enduring succes but averse to working with competitors

WeVoTex is a real family business, one of the last remaining that is still being owned and managed by family members whose family members also actually founded the company. In figure 26 the factors of enduring success are applied to WeVoTex.

Key factors for enduring success	WeVoTex
Balance exploration and exploitation; know when it is the right time	A careful balance between exploitation and exploration
Balance incremental and radical innovation; know when what type is needed	More incremental innovations than radical, but opportunities are identified for radical innovations.
Diversification	Diverse product range.
Consider external environment	Using customers as innovators by considering their needs and keeping an eye out for opportunities in the external environment, as well as threats.
Core ideology needs to be present (core values and core purpose)	Core ideology is present; not very old (approximately 5 years)
Envisioned future needs to exist (BHAG and vivid description of desired future state)	Only long term goals, continuity most important. No clear BHAG's
Products/services need to be of good quality	Good quality but excellent customer service most important.
Conservative about finance	Conservative about finance

Figure 26. Organisational success of WeVoTex.

Looking at the factors for enduring success, many similarities can be observed between the theory and the practice as observed at WeVoTex. The company is very aware of what happens in their external environment and is very much aware of the risks that are associated with decisions of exploration and exploitation. The organisation is (financially) very conservative and careful, but also willing to take a (calculated) risk with radical innovations such as entering the market for ambulance clothing. Although the company does not actually produce their own products, they are not willing to accept a lower product quality. The company is also aware of the fact that other companies can do exactly the same as what they are doing, buying textile products from manufacturers abroad. But by a close collaboration with suppliers and customers, customer needs are being met. Furthermore the organisation distinguishes itself by excellent customer service.

Next to the enduring success of the organisation, the possibility of WeVoTex being in a cluster has been investigated. In figure 27 the characteristics of WeVoTex are analysed based on the cluster dimensions.

Cluster dimension	WeVoTex
Competitors	- Compete
Suppliers	- Close collaboration
Customers	- Close collaboration, customer needs are important
Institutions	- Relations with several research institutes.
Innovation	- Exploitation, exploration increasingly important. - Incremental innovation and radical innovations when opportunities present.
Relationships	- Relationships are based on innovation and satisfying customer needs.

Figure 27. Actions and reactions of WeVoTex based on cluster dimensions.

WeVoTex cooperates much with different organisations, these organisations are not from the Twente region. As well as for A.C. ter Kuile, distance has become an obsolete factor because of globalisation. It can therefore be concluded that WeVoTex is not part of an innovative milieu in Twente, because the organisation has hardly any ties to the region. And the location of a company is also not a factor in deciding to cooperate.

4.4 Additional information: the bankruptcy of KLM Kleding and a comparison with the Italian textile industry

4.4.1 Additional case: the bankruptcy of KLM Kleding

Just before finishing the research, Kwintet KLM Kleding announced that the company was closing. The company continues the activities until 31 December of 2011, and then the company will close forever. This is relevant because Kwintet KLM Kleding was initially in the sample as one of the surviving companies from the Twente textile industry. Kwintet KLM Kleding has three sales units: KLM Workwear, formerly Eerste Haaksbergse Con-

fectie Onderneming (founded in 1930)²⁷³, Wenaas (founded in 1920)²⁷⁴, and Lonneker, formerly Lonneker Textiles (founded in 1919)²⁷⁵. Wenaas joined the Eerste Haaksbergse Confectie Onderneming (EHCO) in 2000 and Lonneker Textiles joined EHCO in 1995.

KLM Workwear supplies work attire for industries such as the building industry. Based on advanced knowledge, technology and a complete range the KLM Workwear offers products of very high quality.²⁷⁶ When Lonneker Textiles was merged with KLM Workwear (then EHCO-KLM Kleding) there were large differences between the cultures of both companies. Lonneker Textiles was very customer oriented, service was the most important thing for the company. The listed KLM was much more haughty.²⁷⁷ Lonneker supplies work attire for the healthcare industry. Wenaas supplies protective work clothes.

During the nineties the company started to decline, management was changed many times and the company also reorganised multiple times, but nothing helped.²⁷⁸ In the official press release KLM Kleding stated that the last five years were loss-making and the reorganisation in 2009 did not have the desired effect. According to KLM Kleding there are no signs of improvement and that is why closure is the only possibility left. KLM Kleding blames the economic crisis for the declining results. Joop Trap (former director/owner) refuses to believe that the economic crisis is the (only) cause for the closure of the company. Joop Trap analyses that the last five years must have been crucial to the company. According to him, the new matrix structure the company adopted did not suit the company well and resulted in the current situation.²⁷⁹

Employees that are currently working at KLM Kleding do not want to react to the closure of the company. The only communication KLM Kleding brought out was the press release announcing the closure of the company. Nobody working at KLM wanted to react on the closure of the company. The company also did not want to participate in the research. 'The matter is too sensitive at this point in time.'²⁸⁰

²⁷³ See <http://www.klmworkwear.nl/en/over-ons.html>

²⁷⁴ See <http://www.wenaas.nl/over-wenaas/wenaas/historie/>

²⁷⁵ See <http://www.lonneker.com/dit-is-lonneker/onze-geschiedenis/>

²⁷⁶ See <http://www.klmworkwear.nl/en/over-ons.html>

²⁷⁷ See Joop Trap, interview in Twentse Courant Tubantia on 03-06-2011, p. 30.

²⁷⁸ See http://www.texpress.nl/alg_popup.asp?Bericht=326

²⁷⁹ See Joop Trap, interview in Twentse Courant Tubantia on 03-06-2011, p. 30.

²⁸⁰ Reaction of KLM via telephone.

4.4.2 Comparing industries: the Italian textile industry, the Prato region

While the most difficult time for the Twente textile industry were the 1960s, the Italian industry encountered difficulties during the second half of the 1980s and at the beginning of the 1990s. The reason however, was the same: the new wave of international competition from developing countries. The total production significantly decreased and the number of organisations in the weaving sector declined. In Italy, organisations started looking for innovations to reduce costs and to achieve better coordination between production and marketing.²⁸¹ During this time, many radical innovations were made: the New Information Technologies (NIT) were successfully implemented. “NIT can be considered to be a technological system, which emerges when new technologies, that are individually more effective and productive than their substitutes, provide important scope for further improvements of productivity when associated with new organisational structures, new skills and new intermediate inputs.”²⁸² Since the end of the 1980s there has been the following division of companies: on the one hand there are six large multinationals and on the other hand there are the small highly specialised organisations that are mainly located in Northern Italy. There, organisations are agglomerated in a few industrial districts.²⁸³ One of these industrial districts is Prato, a city in Northern Italy that has always been very important for the woollen industry in Italy.²⁸⁴ Between 1950 and 1981 the number of employees in the Prato textile industry rose from 22.000 to 60.000 while in Twente the decline started during this period.²⁸⁵ After the years of expansion Prato has also undergone a long period of economic rationalisation. Although the decline was less severe than in other industrial districts in Europe, the region has experienced a significant decline in employment in the textile industry as well as in the number of firms in the textile industry.

There are three main reasons for the decline; the first is that customer demand changed. The Prato district was specialised in woollen textiles, and because of household heating and different lifestyles, the demand shifted to lighter materials such as flax, silk and cotton.²⁸⁶ Organisations usually produced carded wool fabrics, generally of medium and low quality. Now they changed the types of products. Some organisations continued to manufacture wool yarns and fabrics but decided to produce a higher quality, others shifted

²⁸¹ See Antonelli/Marchionatti (1998), p. 9.

²⁸² Antonelli/Marchionatti (1998), p. 9.

²⁸³ See Antonelli/Marchionatti (1998), p. 11.

²⁸⁴ See Dei Ottati (2003), p. 503.

²⁸⁵ See Pitelis et al. (2006), p. 243.

²⁸⁶ See Pitelis et al. (2006), p. 244.

to using the new fabrics the customers demanded and others shifted to new products, furnishing fabrics, technical textiles and so on.²⁸⁷ Second, the larger textile organisations implemented new technologies that increased the flexibility of their large-scale production processes. By doing so they could compete more directly with district organisations, who found themselves at a distinct disadvantage. Third, Prato was suffering, just as Twente did, from increased competition from newly industrialised countries where labour costs are much lower.²⁸⁸

In response to the shakeout that occurred, Prato's government took some measures to stimulate the employment in the textile industry. Simultaneously unions and organisations worked together to achieve industrial restructuring during the second half of the 1980s. These actions prevented the massive exit of workers that otherwise would have been harmful for social cohesion.²⁸⁹

At this point in time, the industrial district of Prato extends over 700 square kilometres, employs 45.000 people, and hosts 8.000 local firms. It is said that the region is so successful because of the wide range of products the district offers.²⁹⁰ Although the textile industry in Prato is not as extensive as it once was, it may be clear that the industry is still of consequence and has proven to be more successful, regarding organisational survival, than the Twente textile industry.

²⁸⁷ See Dei Ottati (2009), p. 1820.

²⁸⁸ See Pitelis et al. (2006), p. 244.

²⁸⁹ See Dei Ottati (2003), p. 513.

²⁹⁰ See <http://www.unido.org/index.php?id=o4299>

4.5 Combining case results: similarities between the three companies

4.5.1 Comparing cases based on enduring success: many similarities, but no clear envisioned future or core ideology

In figure 28 the model on enduring success is represented once more with the characteristics of all three companies.

Key factors for enduring success	Twentse Damast	A.C. ter Kuile	WeVoTex
Balance exploration and exploitation; know when it is the right time	Exploration and exploitation were balanced and used at appropriate times.	Significantly more exploitation than exploration.	A careful balance between exploitation and exploration
Balance incremental and radical innovation; know when what type is needed	Mostly incremental innovations, only radical innovations when certain change would be successful.	Incremental innovations more important for the company	More incremental innovations than radical, but opportunities are identified for radical innovations.
Diversification	Diverse range of products.	Diverse products with same production technique, when customer wants something else, it will be arranged.	Diverse product range.
Consider external environment	Becomes increasingly more important.	Using customers as innovators, aware of changes in external environment	Using customers as innovators by considering their needs and keeping an eye out for opportunities in the

		ronment (such as changing demand).	external environment, as well as threats.
Core ideology needs to be present (core values and core purpose)	Core values are not present, core purpose is present.	Core ideology is present; core purpose has never changed.	Core ideology is present; not very old (approximately 5 years)
Envisioned future needs to exist (BHAG and vivid description of desired future state)	No clear envisioned future.	No clear envisioned future. Continuity most important.	Only long term goals, continuity most important. No clear BHAG's
Products/services need to be of good quality	Quality is an important factor for the company.	Quality is extremely important for the organisation, that is how they distinguish themselves.	Good quality but excellent customer service most important.
Conservative about finance	Conservative about finance.	Conservative about finance.	Conservative about finance.

Figure 28. Key factors of enduring success of the three cases.

When an organisation exactly followed the ‘guidelines’ for enduring success, the following symbol will be used: + When an organisation absolutely did not follow the guidelines, the following symbol will be used: -. And when an organisation did not exactly follow the guidelines, but also did not do the opposite, the following symbol will be used: \pm .

Key factors for enduring success	Twentse Damast	A.C. ter Kuile	WeVoTex
Balance exploration and exploitation; know when it is the right time	+	\pm	+
Balance incremental and radical innovation; know when what type is needed	+	+	+
Diversification	+	+	+
Consider external environment	\pm	+	+
Core ideology needs to be present (core values and core purpose)	\pm	\pm	\pm
Envisioned future needs to exist (BHAG and vivid description of desired future state)	-	-	\pm
Products/services need to be of good quality	+	+	+
Conservative about finance	+	+	+

Figure 29. Scored key factors of enduring success of the three cases.

Exploitation versus exploration. At Twentse Damast and at Wevotex there was a clear balance between exploitation and exploration. At A.C. ter Kuile the focus is more on existing products and there is little attention for new opportunities, but is has worked so far for the company and A.C. ter Kuile is therefore assessed with a \pm .

Balance incremental and radical innovations. There is no standard of the quantity of innovations that is appropriate for a company. Because all three companies applied different types of innovations that were suitable for the company at times that were appropriate for the company, all three companies were assessed with a +.

All companies have a very diverse product range.

WeVoTex and A.C. ter Kuile are very much aware about their external environment, they use customers for new ideas and are aware of changes in their environment that will effect them directly. Twentse Damast is different, the company is very old but has been a little neglected management wise before the current director was hired. In the past the company was very aware of the external environment, but in recent history this had less priority for the company. The current director wants to increase the awareness of the external environment, so intentions are good and the company is therefore assessed with a \pm on this point.

In all three companies, there is no clear envisioned future or core ideology at this point in time. There used to be a very strong core ideology and core values at Twentse Damast, but these were lost over the years.

Quality is important for all three companies, some companies find it more important than others but all three companies deliver products of good quality. Besides that WeVoTex (but also A.C. ter Kuile in lesser degree) provides excellent customer service.

All three companies are conservative about their finances.

4.5.2 Comparing cases based on cluster dimension: no innovative cluster in Twente

In figure 10, the actions and reactions of successful and unsuccessful organisations are discussed. The actions and reactions of the three case companies will be compared to the actions and reactions of successful and unsuccessful companies, resulting in a label successful or unsuccessful according to the model.

Cluster dimension	TD Performance Textiles	A.C. ter Kuile	WeVoTex
Competitors	- Compete	- Compete	- Compete
Suppliers	- Collaboration is desired	- Close collaboration	- Close collaboration
Customers	- No collaboration on institutional market. Purely financial. - Customer service on deco market.	- Close collaboration, customer needs are important	- Close collaboration, customer needs are important
Institutions	- Hardly, trying to establish	- Few relations	- Relations with research institutes
Innovation	- Exploration - Diversification - Carefully planned radical innovation at very selective moments in the past. - Innovation becomes increasingly important.	- Exploitation - Incremental innovation - Deliberate choice not to follow new trends	- Exploitation, exploration increasingly important. - Incremental innovation and radical innovations when opportunities present.
Relationships	- Starting relationships by going to industry meetings.	- Relationships are based on innovation and achieving higher quality	- Relationships are based on innovation and satisfying customer needs.

Figure 30. Actions and reactions of the three case companies based on cluster dimensions.

The cluster dimensions are assessed in the same way as the characteristics of enduring success. When the company has unsuccessful cluster characteristics, the company will be given a -, successful characteristics will get a +, and when the characteristic cannot be said to be entirely successful or unsuccessful, it will be given a \pm .

Cluster dimension	TD Performance Textiles	A.C. ter Kuile	WeVoTex
Competitors	-	-	-
Suppliers	-	+	+
Customers	-	+	+
Institutions	-	\pm	\pm
Innovation	+	+	+
Relationships	-	\pm	\pm

Figure 31. Scaled actions and reactions of the three case companies based on cluster dimensions.

5. Conclusion: Key factors of enduring success identified but no innovative cluster present in Twente

5.1 Surviving the declining Twente textile industry by long term strategies and exploration

At this point in time, there are 13 survivors of the Twente textile industry. Not even all companies see themselves as textile organisations anymore. The textile industry in Twente is no longer the most important industry type in Twente. The designated cause of this are a number of internal and external factors: the disappearance of the clothing industry and of the Dutch Indies market; the relative small domestic market and the relatively high labour costs; and last but not least: globalisation. The lack of research on these external factors lead to underestimation of the external factors. The decline was considered to be temporary and companies used strategies that focussed on the short term instead of the long term. The strategies that were being used were focussed on and related to existing products. Companies were using exploitation when exploration was required. Possibly, when a long term focus was used, with long term strategies, companies might have seen that exploration was required because the industry, as it was, did not have any future in Twente. The industry's inflexibility also did not help; existing structures, independence and the attitude towards risk were maintained too long. Manufacturers in Twente refused to cooperate to survive the crisis. Although it cannot be concluded that cooperation would have saved more companies, because almost all of the members of the Garencentrale, Manex and the Nederlandse Textiel Conventie did not survive. Because there was not enough attention paid to the long term and to exploration, there was not enough understanding of the profitability of certain groups of articles and markets and marketing channels. Within some companies these factors can be explained by family management that was maintained too long. But also in some companies where there was no family management, the same mistakes were made. But *why did only some organisation survive the Twente textile industry?* Every company in the Twente textile industry was confronted with the same external conditions. To survive, the companies had to change their internal conditions.

The internal conditions are in this research represented by the key factors for enduring success. The key factors for enduring success that were identified in this research are present at all three case companies. Some factors are more obviously present than others

but it has been proven the key factors are present at all three surviving companies. Looking at the key factors of enduring success, four key themes can be distinguished (see figure 32).

Key themes for enduring success	Key factors for enduring success
Customers	Products/services need to be of good quality
	Consider external environment
Innovation	Balance incremental and radical innovation; know when what type is needed
	Diversification
	Balance exploration and exploitation; know when it is the right time
Corporate identity	Envisioned future needs to exist (BHAG and vivid description of desired future state)
	Core ideology needs to be present (core values and core purpose)
Finance	Conservative about finance

Figure 32. Key factors for enduring success, divided in four key themes.

What some organisations lack is a clear identity of who they are and who they want to be. According to theory this will contribute to their enduring success. But, the companies that participated in the research were very well aware of what they could change in their organisation and what not. Looking at the three organisations, their core business hardly changed. It is brought up to date, but is not changed in essence.

5.2 Lack of cooperation: no innovative textile cluster in Twente

The first thing that is different between theory and practice concerns the cooperation between competitors. In order to form an innovative cluster according to theory, competitors must also collaborate. But in all three cases there is no collaboration between competitors. Many organisations would not even consider collaboration with their competitors. In the past, collaboration between competitors was used as a last resort trying to protect the industry from external threats. It can be concluded that when not absolutely necessary, textile

companies from Twente do not want to cooperate with their competitors, this is in accordance with the Twente collaboration paradox.

Another notable fact is that none of the organisations has strong regional ties. There are hardly any competitors in the region, but also no suppliers and little customers. Most collaboration is with organisations from abroad. From this it can be concluded that distance has become an obsolete factor. Because of globalisation and the possibilities the internet provides, distance is no longer an issue.

Because distance and geography are no longer important for the Twente textile industry, clustering loses its importance. A cluster is a strong collection of geographic concentrations of interconnected organisations in a particular field or a particular industry that compete but also cooperate. But there is no longer a geographical concentration present, and there is certainly no interconnectedness between the textile companies that still exist. Also the lack of a positive presence of the characteristics of a successful clustered organisation supports that there is no longer a textile cluster present in Twente.

Two of the visited organisations collaborate a lot with their suppliers and customers to create innovations. The other organisation aspires to do so. It can be said that the organisations created their own innovative milieu, not a cluster because of the lack of proximity, but a self-invented innovative milieu, where competitors are only for competing.

Although the three cases are contrasting by point of entering the industry and by their decision to outsource production, no significant differences can be identified between the cases. The Twente collaboration paradox was and still is evidently present in the Textile industry. And therefore, an innovative cluster can never exist. Because, for an innovative cluster to exist, there needs to be cooperation between competitors. And because of the Twente collaboration paradox it is unlikely that there will ever be an innovative cluster.

5.3 Discussion and possibilities for future research

The history of the Twente textile industry is very elaborate and it is impossible to encompass it all, especially in a report of this scope. I tried to incorporate all information that was relevant for the study. Also the inaccessibility of data concerning the number of companies that once existed in the Twente textile industry formed some difficulties in comprising an accurate overview about the number of companies, where they were established and the length of their existence. I cannot guarantee the completeness of the overview of companies, but I used many sources to ensure as much coverage as possible.

The unwillingness of KLM Kleding to participate in the research was regrettable but understandable. I communicated with them through email, mail and by phone but at this point in time they do not want to talk about the company. Their comment was that the matter was too sensitive. The only communication they had with the outside world was a press release on the 31st of May. After that no one has heard anything from the company, they have also not communicated with the media. This is also a point for further research. At this point no one at KLM Kleding wants to talk about the closing of the company. But maybe after the official closing of the company at the end of 2011, the people are more willing to talk about what went wrong.

To test why certain companies survived the Twente textile industry I used a model with factors for enduring success based on existing research. It is possible that these factors do not cover all factors that are responsible for enduring success. Future research could focus on repeating this research at the other surviving textile companies in Twente. But another option is to devise a research that focuses only on identifying factors for enduring success in Twente textile companies.

Epilogue

There is much that can be learned from the case of the Twente textile industry. The external threats when the industry started to decline were underestimated. This led to decisions based on wrong information. What can be learned from this is that changes in the external environment should be taken seriously. Furthermore, long-term strategies are important. Most products do not last forever, and therefore the product life cycle should be taken into account. When the product life cycle starts to decline, organisations need to have other options. When an organisation has to start finding other options when the product life cycle, or even the entire industry, has already started to decline, it is too late. If there is one thing that should be taken away from this, it is keep thinking about the future. The model on the key factors for enduring success can help managers do so.

The statements made above, do not only apply to the Twente textile industry. It is true for all industries, perhaps some more than others. Looking at the VCR being replaced by the DVD. Companies that produced VCR's or videotapes have become obsolete. They needed to be aware of the situation and the changes in the (technical) external environment. Companies that may not have been fast enough to respond to these changes, might have been too late at all. Entering later during a product life cycle is not a problem, it can even be an advantage. You can 'copy' products or processes that were invented by other organisations, reducing your own R&D costs. But when a company is also still producing a product that is in the last phase of the product life cycle and might be loss-making it might be difficult to switch. In other words, organisations must be vigilant; they must consider their external environment.

As for the cluster, the Twente region has its peculiarities. Entrepreneurs in Twente are very guarded when it comes to cooperation. This does not mean that a cluster cannot exist. It only means that an innovative cluster is not a suitable means of cooperation in Twente. Because of the Twente cooperation paradox, most forms of cooperation will be avoided. Luckily, there are examples of successful clusters, also in textiles, for example in Italy as discussed in this report. It is even the case that the Chinese government is investing in the Italian textile industry because there are working many Chinese people in the Italian textile industry because the demand of textiles is too large for Chinese production facilities.

A (very) successful cluster is Silicon Valley. This cluster is the living proof that clusters can actually be very successful. Innovation has top priority and organisations work together on both radical and incremental innovations. One of the companies in the research said it was looking for a complementary cooperation. This is a form of cooperation that is very common in Silicon Valley.

What is new about this research is that it links organisational survival to innovative clusters. Unfortunately, in Twente there is no apparent relation between organisational success and an innovative cluster because there is no innovative cluster in Twente. When the same research would be repeated in another region, there might be a stronger relation between cooperation with competitors amongst others (an important part of an innovative cluster) and organisational survival.

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Interviews

Maurice Tiehuis, director at Twentse Damast Performance Textiles.

Coert Meihuizen, director at A.C. ter Kuile.

Erik van der Weerd, director at WeVoTex.

Contact via telephone with various employees at KLM Kleding.

Appendix I. Interview questions

- What's your core business?
- What is the goal of your organisation?
- Do you set audacious goals for the organisation?
- Does your organisations have core values?
 - What are they?
- Do you document your experiences?

- What role does innovation play in your organisation?
 - What is more important for your organisation, radical or incremental innovations?
- How do you recognize the need for innovation?
 - Do you have a specific plan of action when you perceive a need for change?
- Does your organisation focus more on exploration or on exploitation?
 - Has this always been this way?
 - What are the reasons for doing so?
- Who are your most important competitors?
- For how long have these competitors been your most important competition?
- Do you cooperate with your competitors?
 - What type of cooperation is there between you and your competitors?
 - For how long has there been cooperation?
- Who are your most important suppliers?
 - For how long have these suppliers been your most important suppliers?
- Do you cooperate with your suppliers?
 - What type of cooperation is there between you and your suppliers?
 - For how long has there been collaboration?

- What type of relationship do you have with your most important customers?
- Do you involve your most important customers in the innovation process?

- What institutions are important for your organisation?

- What type of relationship do you have with these institutions?