Re-positioning Continuon Netbeheer in a changing gas market

Continuon

Netbeheer

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Examination committee
University of Twente
dr. M.J. Arentsen
dr. A.M. von Raesfeld meijer
prof. dr. ir. M. Wolters
Continuon Netbeheer
Ing. B.M.J. Lambregts
Ing. J.H.M. van der Vegt

R.N. van Eekelen
S0005959

Management Summary

The introduction of competition has changed the structure and functioning of the Dutch gas sector considerably. One of the major impacts for energy companies has been the unbundling of energy distribution and energy supply. The unbundling has led to independent regionally based gas and electricity network companies responsible for gas and electricity distribution in certain regions. Continuon Netbeheer is one of the regionally based distribution companies in the Netherlands with licence to distribute gas and electricity in Gelderland, Noord-Holland, large parts of Flevoland, Friesland and Zuid-Holland.

Next step in the unbundling process is the establishment of Continuon Netbeheer as independent organisation from the holding Nuon. Continuon is facing the challenge of developing a corporate strategy that enables the company to develop a good position in the liberalised energy market and a good profit position now and in the future. This thesis project is meant to provide Continuon with specific suggestions for developing such a position by means of an assessment of the current business strategy and strategic position in the perspective of the changes in the energy market. The project concentrates on the gas distribution activities of Continuon. More specifically the research objective is:

> *To support Continuon in their business development and offer a specific set of strategic options to improve their position in the current and future liberalized gas market.*

The problem definition that has been formulated is:

> *What will be an effective strategic position for Continuon now and in the future given the changes in the gas market and gas distribution?*

Based on current theory on strategic positioning Value Configuration analysis has been used to analyze the current strategic position of Continuon and to make suggestions for improvements. In this study the three "value logic models" from the Value Configuration theory developed by Stabell and Fjeldstad (1998) have been used as reference for the analysis of the current strategic position and the development of alternative strategic positioning options.

The empirical part of my project had three major activities:

1. Assessing the strength and weaknesses of the current position of Continuon Netbeheer in the gas market
2. Developing strategic alternatives for Continuon Netbeheer with the help of the three value models suggested by theory (value chain, value shop and value network type of organisation).
3. Assessment of the effectiveness of the strategic alternatives in the perspective four possible scenarios for gas market development

For assessing the current position of Continuon Netbeheer an extensive background study to the external environment of Continuon Netbeheer and the company has been performed to be able to draw a conclusion on the current strategic position of Continuon Netbeheer (see Attachments Report).

Research Question 1

1. *What is the current strategic position of Continuon Netbeheer?*

Several conclusions on the strategic position of Continuon Netbeheer have been made. First is that Continuon Netbeheer as regional network operator in the Netherlands is a very small player in the global gas market. They are responsible for the network operations of a monopolized part of the Dutch regional gas distribution grids under strong regulative supervision of the DTe. In the Dutch gas market they have a strong position, their market coverage in number of gas connections is almost 30% of the Dutch gas market. They are first mover in the introduction of innovative services and products, like smart metering and self services via the internet. Compared to the other network operators Continuon Netbeheer is one of the first that has chosen for a separate position from the trading part of the old vertically integrated energy company. Therefore they should be better prepared for the legal

unbundling process[1]. The lack of a clear vision at Continuon Netbeheer about the position in the gas market now and in the future might threaten the strategic position of the company.

For the next empirical part of this research project different strategic options for Continuon Netbeheer have been identified.

Research Question 2

2. *What are the alternative strategic options for Continuon Netbeheer?*

First, Value Configuration analysis has been performed on the current configuration of Continuon Netbeheer at the industry and the firm level. The conclusion that has been made from the Value Configuration analysis of the value system of the Dutch gas industry and the *Who, What* and *How* dimensions of strategy was Continuon seems to be changing from a **value chain logic** towards a **value network logic**.

Next the different strategic options for Continuon Netbeheer, that are based on the three value logic models in the Value Configuration theory developed by Stabell and Fjeldstad (1998), has been introduced. For Continuon Netbeheer as network operator in the regulated domain only the value chain and value network configuration are applicable due to regulative boundaries. These regulations set important boundaries in both configuration models, because they do not allow commercial activities for a network operator. However, we have also seen that a network operator is allowed to be part of a group company (a gas distribution network company), in which commercial activities can take place.

In the last part the suitability of the strategic options in four different future scenarios will be evaluated

Research Question 3

1. *What is the suitability of the strategic options in the different scenarios for business development in gas distribution services for Continuon Netbeheer?*

The four different scenarios are: the mass grey, solistic grey, solistic green and mass green scenario.
Each of these scenarios differ in the degree of society attention for sustainability and the degree of central or local energy production. They also differ in the customers demands and expectations and the character of gas distribution operations.

Next the suitability of each strategic option in the four different scenarios has been evaluated.

The **value chain logic** proved to be only suitable in the mass grey scenario. The unsuitability of this option in the other scenarios has been mainly caused by the increased network character of gas distribution services and the need for differentiation in the standard services in those scenarios.

The **value network** has proven to be suitable in almost all scenarios except for the mass grey scenario in this evaluation. The characteristic of the value network configuration of having a focus on both cost drivers as well as value drivers has proven to be effective in meeting the demands and expectations of customers as well as the suitability for describing the nature of gas distribution operations in most s scenarios. The **value shop** configuration is only suitable in the solistic green and solistic grey scenarios.. The overall conclusion that can be drawn from the assessment of the suitability of the three different strategic options in the future scenarios is that the value network option seems the most suitable option.

On the basis of the analysis of the current position, the value configuration analysis and the suitability assessment of the strategic options in the future scenarios, the conclusion can be made that the value network configuration is the most suitable strategic positioning choice for Continuon Netbeheer given the changes now and in the future in the gas market and gas distribution. We therefore propose that Continuon Netbeheer should be organized according to the value network configuration. Other recommendation is that Continuon Netbeheer should become part of a network company and merge with Nuon Netwerk services to be able to develop commercial activities outside the regulated domain This organization structure fits with the value network configuration and enables exploiting the most business development opportunities in the changing gas market for a regional gas distribution company.

[1]This legal unbundling process is not very active at this moment

Dutch Abstract

De liberalisering van de Nederlandse gasmarkt heeft de Nederlandse gasvoorziening ingrijpend veranderd. Eén van de belangrijkste gevolgen van de liberalisering is de splitsing van de energiebedrijven in aparte levering- en distributiebedrijven. Deze splitsing heeft geleid tot onafhankelijke regionale netbeheerders voor gas en elektriciteit in de verschillende regio's.
Continuon Netbeheer is een van deze Regionale netbeheerders in Nederland met een vergunning voor de distributie van gas en elektriciteit in Gelderland, Noord-Holland, grote delen van Flevoland, Friesland en Zuid-Holland.
De splitsing betekent voor Continuon dat het onafhankelijk van het energieconcern zijn functie in de gasmarkt zal moeten vervullen en als onafhankelijk netbedrijf positie zal moeten bepalen in de huidige en toekomstige gasvoorziening. De belangrijkste vraag waar Continuon in die hoedanigheid voor staat is hoe het bedrijf in de komende decennia waarde kan en wil creëren in de geliberaliseerde gasmarkt.
Dit afstudeeronderzoek is gericht op de gasdistributie activiteiten van Continuon. Het onderzoeksdoel is om Continuon the helpen om een strategische positie te kiezen in de huidige en toekomstige geliberaliseerde gasmarkt.
Het bepalen van deze effectieve strategische positie voor Continuon is in dit onderzoek op basis van de 'Value Configuration' theorie over strategisch positioneren van Stabell en Fjeldstad (1998) gedaan.
Het empirische onderzoek bestaat uit drie delen:

1. Het bepalen van de huidige positie van Continuon in de gasmarkt
2. Het ontwikkelen van strategische alternatieven voor Continuon op basis van de drie waardemodellen uit de 'Value Configuration'theorie
3. Het evalueren van de passendheid van de strategische alternatieven in het perspectief van vier mogelijke toekomst scenario's voor de ontwikkeling van de gasmarkt.

Het resultaat van het bepalen van de huidige positie van Continuon in de gasmarkt er geconcludeerd kan worden dat Continuon als Nederlandse regionale netbeheerder maar een heel erg kleine speler in de Europese en wereld gas markt is. In Nederland zijn ze echter een vrij grote speler met een marktaandeel van bijna 30% als men naar het aantal gasaansluitingen kijkt. Netbeheer is een gemonopoliseerd deel van de gasmarkt onder strak toezicht van de DTe. Dit betekent dat Continuon een licentie voor de netbeheerderstaken in haar gebied heeft, maar geen commerciële activiteiten mag ontwikkelen. Verder loopt Continuon voorop bij de introductie van innovatieve diensten en producten(zoals bijv. Smart metering en self-services via continuon.nl) en op het gebied van duurzaamheid en duurzaam netbeheer. In vergelijking met de andere Nederlandse netbeheerders is Continuon een van de eerste die heeft gekozen voor een positionering apart van het moederbedrijf en leveringsbedrijf Nuon. Dit betekent dat Continuon beter dan de andere netbeheerders op het splitsingsproces voorbereid is. Belangrijk zwak punt dat de strategische positie van het bedrijf in de toekomst kan verzwakken is dat er momentaal nog geen duidelijke visie is over wat de positie nu en in de toekomst moet zijn van Continuon als netbeheerder.

In het volgende empirische gedeelte is de 'Value configuration' theorie gebruikt om the huidige configuratie van Continuon te analyseren en om verschillende strategische alternatieven te ontwikkelen. De belangrijkste conclusie van de analyse van de huidige configuratie van Continuon is dat deze de eigenschappen van zowel de waardeketen als het waardenetwerk model heeft. In feite kan men concluderen dat door de liberalisering en de ontwikkelingen in de gasmarkt Continuon in een transitie zit tussen het waardeketen model naar het waardenetwerk model.

Op basis van de drie verschillende waardemodellen kan men drie verschillende strategische opties voor Continuon ontwikkelen, de waardeketen, het waardenetwerk en de waarde shop (probleemoplossend). Voor Continuon als netbeheerder in het gereguleerde domein komen in feite alleen de waardeketen en het waardenetwerk als reële opties in aanmerking. De waarde shop is meer een theoretische mogelijkheid en houdt het ontwikkelen van Continuon als een gas distributie consultancy bedrijf in.

Regulering vormt de belangrijkste belemmering voor de strategische positionering van Continuon in, omdat een netbeheerder geen commerciële activiteiten mag ontplooien. We kunnen echter concluderen dat er een mogelijkheid gevonden kan worden voor het ontplooien van commerciële activiteiten in het feit dat een netbeheerder onderdeel mag zijn van een netwerkbedrijf (groepsbedrijf). Voor een netwerkbedrijf, met als apart bedrijfsonderdeel de netbeheerder, is het waardenetwerk model de meest passende optie. In de structuur van het netwerkbedrijf kan als aparte consultancy divisie ook de waarde shop optie toepasbaar zijn.

Vervolgens zijn de strategische opties beoordeeld op de passenheid in vier verschillende toekomstige scenarios, Mass Grey, Solistic Grey, Solistic Green en Mass green. Uit deze beoordeling kwam naar voren dat de waardeketen optie alleen toepasbaar bleek in het Mass Grey scenario. De waarde shop optie bleek mogelijk te zijn in het Solistic Green en Mass green scenario, minder toepasbaar in de solistic grey en absoluut niet toepasbaar in het Mass Grey scenario.
De value network bleek in alle scenario's behalve het Mass Grey scenario goed toepasbaar te zijn.

Op basis van de drie empirische analyses kan geconcludeerd worden dat Continuon het beste kan kiezen voor een waardenetwerk model als basis voor de strategische positionering in de huidige en toekomstige gasmarkt.

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Introduction

The Dutch gas sector has changed considerably due to liberalization, commercialization, up scaling and concentrations. These developments have made gas network operations more complex and have forced network companies in regional gas distribution to change to a more customer based view.[2] Another factor that plays an important role in this process is the society attention for safe and reliable gas distribution and sustainability. In the past there were no parties such as the DTe[3] that need to be taken into account in gas network operations. Such governmental supervision has just recently been introduced and has not been an issue before the liberalization.
Customers expect a constant and reliable gas supply whereas significant sections of the Dutch gas infrastructure are reaching the edge of lifetime. Replacement, rehabilitation and innovation of gas infrastructure will demand high investments in the near future. A trade-off of desired reliability and costs will have to be made[4].
Liberalization and commercialization have led to a more differentiated gas supply and demand. To adjust to this development gas transport should become more flexible. This puts additional challenges to the operation and management of the gas network. Other issues will affect gas distribution in the coming years, such as the introduction of alternative energy sources like biogas or hydrogen. Integration of new gas infrastructure in densely populated areas is another challenging future issue.
Continuon Netbeheer is one of the regionally based distribution companies in the Netherlands with licence to distribute gas and electricity in Gelderland, Noord-Holland, large sections of Flevoland, Friesland and Zuid-Holland. Due to the unbundling process Continuon has to become independent from the holding Nuon. Independence implies that Continuon has to develop its own strategy to continue and improve its position in the liberalized energy market. So Continuon is facing the challenge of reaching a good strategic position in the liberalized energy market and a good profit position now and in the future. This research is meant to provide Continuon with specific suggestions for developing such a strategic position by means of an analysis of the current strategic position. This means an analysis of the current external environment and future developments in the environment, and an assessment of Continuons current business strategy and configuration of activities.

Outline

First we will start with describing the problem and formulating the problem definition of this research project in Chapter 1. We will also describe the methodology and research model. Next the theoretical framework of this research will be introduced and explained in Chapter 2. The main theoretical basis for the empirical section will be described.
In Chapter 3 the empirical section of this research will start with an analysis and description of the current strategic position of Continuon. First Continuon will shortly be introduced with its main characteristics. Next the current strategic position of Continuon in gas distribution services will be analyzed. The conclusion of the descriptive research of the external environment and the position of Continuon in this external environment will be given. Internal analysis will subsequently be performed in the second section of Chapter 3.
The current configuration of Continuon in the gas market will be analyzed and assessed in the first section of Chapter 4. This will be done with Value Configuration models. Next step is the development and introduction of different alternative strategic options based on Value Configuration Theory.
The implications of each different strategic alternative option will be described with their main advantages and disadvantages for Continuon.

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[2] Arentsen, M., Jager, B., Pater, S., Wolters, M.,*'Gastechnologische kennis in de Nederlandse Energiesector: een verdwijnend fenomeen?!'*, September 2002
[3] DTe (Directie Toezicht Energie) = the governmental supervisor for the Dutch energy market
[4] Arentsen, M., Künneke, R., Wolters, M.,*'Innovations in gas distribution networks'* Draft version, December 2005

To asses how each of these strategic options will fit considering future developments, the alternative options will be described with their main implications in different future scenarios in chapter 5. Finally in Chapter 6 we will make a conclusion about the strategic positioning options for Continuon and recommendations will be given.

1 Problem Analysis and methodology

In this section the structure of this research project will be defined. Section 1.1 contains the background of this research project. In section 1.2 we will determine the research objective and the problem definition that will guide this research project will be formulated. The next section(1.3) consists of a formulation of the research questions and the construction of the research model. Finally, in the remainder of this chapter (section 1.4) the methodology and research methods will be discussed.

1.1 Background

Liberalization of the gas and electricity market has led to major changes in the market environment of companies in this sector. It used to be a traditional utility sector characterized by natural monopolies, self regulation and public ownership. Due to the liberalization process, gas and electricity supply are now exposed to competitive forces and commercialization. The gas and electricity transport sector is still a capital expensive industry. The unbundling of gas supply and gas transport has led to public owned, strongly regulated[5], regionally based network operators responsible for gas and electricity transport-and distribution in certain regions.

Continuon Netbeheer

Continuon originated from the introduction of the Electricity and Gas Law in 1998 and 2000 respectively. To accommodate the liberalization of the energy market, energy companies were forced to split in network controllers, energy suppliers, producers, and metering companies.
Continuon is the network operator of the gas and electricity grids in a large section of the Netherlands. The unbundling of the energy companies has severe consequences for Continuon as network operator. Continuon should separate from the Nuon holding and should independently determine its position in the liberalized gas market as regulated gas network company. At this moment Continuon is not yet separated from Nuon.

Business development for Continuon Netbeheer

Findings from business administration (organization theories) can be useful for repositioning the company in a still rapidly changing market environment like the energy market. In such an environment companies like Continuon can no longer rely on their traditional basic competencies as they did in the past. They have to find new ways to make money and survive. One way to do so, is investigating how to capture value from existing processes and products and to develop new sources of value creation that may result in a strong strategic position in the changed market.
In general, a dynamic market environment requires a constant assessment of the match between the company's product and the company's customer. The process of renewing this matching process is called Business development[6]. Business development is about analysing, creating and delivering value to the customers. For Continuon however, operating in a highly regulated market means that business development opportunities are very limited.
One other important characteristic of the gas sector that has to be taken into account in this process is that in spite of the liberalization process, this sector is still a capital expensive industry with slow reaction times and regulatory supervision. Decisions take a long time to come info effect and once invested, the period of return might be more than 40 years.

[5] Being a regional monopoly, the government decided that a strong regulatory regime was to be imposed.
[6] http://www.rug.nl/bdk/faculteit/clusters/businessDevelopment/index

Gas distribution
Continuon is active in the energy market in both gas and electricity transport with their related services. This research will focus on the gas distribution services only. This boundary might have consequences for the conclusion about the strategic position of Continuon, since in fact Continuon is acting in the electricity market as well. Because the electricity and gas grids have been developed separately, we will assume that developments towards integrated and interactive electricity and gas grids will not yet play a role in the strategic positioning and business development opportunities for Continuon.

1.2 Research objective

From the previous section we learn that the most important issue for Continuon is to determine how they can and want to create value now and in the future as an independent regulated network operator in a liberalized energy market. This means choosing a strategic position that secures continuity of the company in the longer term. This project aims at providing Continuon with specific suggestions for developing and positioning their business and to anticipate on the continuously changing gas market environment.

Research objective

To support Continuon Netbeheer in their business development and offer strategic options to improve their strategic position in the current and future liberalized gas market.

To create a better position in the current and future liberalized gas market Continuon has to make a choice for a strategic option. In order to obtain the research objective the following problem definition can be formulated. This problem definition will guide the project.

Problem definition

What will be an effective strategic position for Continuon Netbeheer now and in the future given the changes in the gas market and gas distribution?

In more technical terms this problem statement is saying that we will develop and analyze different strategic options for business development available for Continuon Netbeheer in gas distribution services and match these options to different future scenarios

Given the following **boundary conditions**:

- Safe and reliable gas transport
- Regulations

1.3 Research model and research questions

This research project will consist of a descriptive background study of the current external environment of Continuon and an empirical section - the main section of this research. The empirical section of this research project can be divided in three different activities:

1. Assessment of the current strategic position of Continuon in the gas market
2. Development of strategic alternatives for Continuon
3. Assessment of the effectiveness of the strategic alternatives in the perspective four possible scenarios for gas market development and given the conditions of a cost effective and reliable gas distribution.

The research project with its three main empirical sections can be represented in a research model (see figure 1). For each of these three main empirical sections a research question has been formulated.

Research Question 1

1. What is the current strategic position of Continuon Netbeheer?

Answering this question will consist of two main sections. The first section is directed at analysis of the internal and external environment. Here, the characteristics of the industry, recent developments and the main implications for the position of Continuon in the gas market will be identified.

The next step is to look at Continuon herself as a network control operator in gas distribution services by identifying and analyzing their strategy. This means:

- identification of their customers
- what products and services do they offer
- what are the organizational and technical adaptations

The second section consists of an analysis of the current configuration of activities and value creation at Continuon. The theory about value configuration of Stabell and Fjeldstad will be used to classify the value configuration logic model that Continuon has adopted.

The understanding of the strategic position of a Continuon will help assessing whether or not the current strategy and value configuration is capable of dealing with the changes that already have taken place and the changes that will take place in the organizations environment in the future. Alternative strategic options offer opportunities for different strategic positions for Continuon that might better match the current or future external environment and expectations of stakeholders. The identification of these alternative strategic options is one of the main sections in this research and leads to the next research question.

Research Question 2

2. *What are the alternative strategic options for Continuon Netbeheer?*

In order to determine the consequences of choosing one of the strategic options for Continuon considering future developments, these strategic options will be matched to different future scenarios. This leads to the following next research question.

Research Question 3

3. *What is the suitability of the strategic options in the different scenarios for business development in gas distribution services for Continuon Netbeheer?*

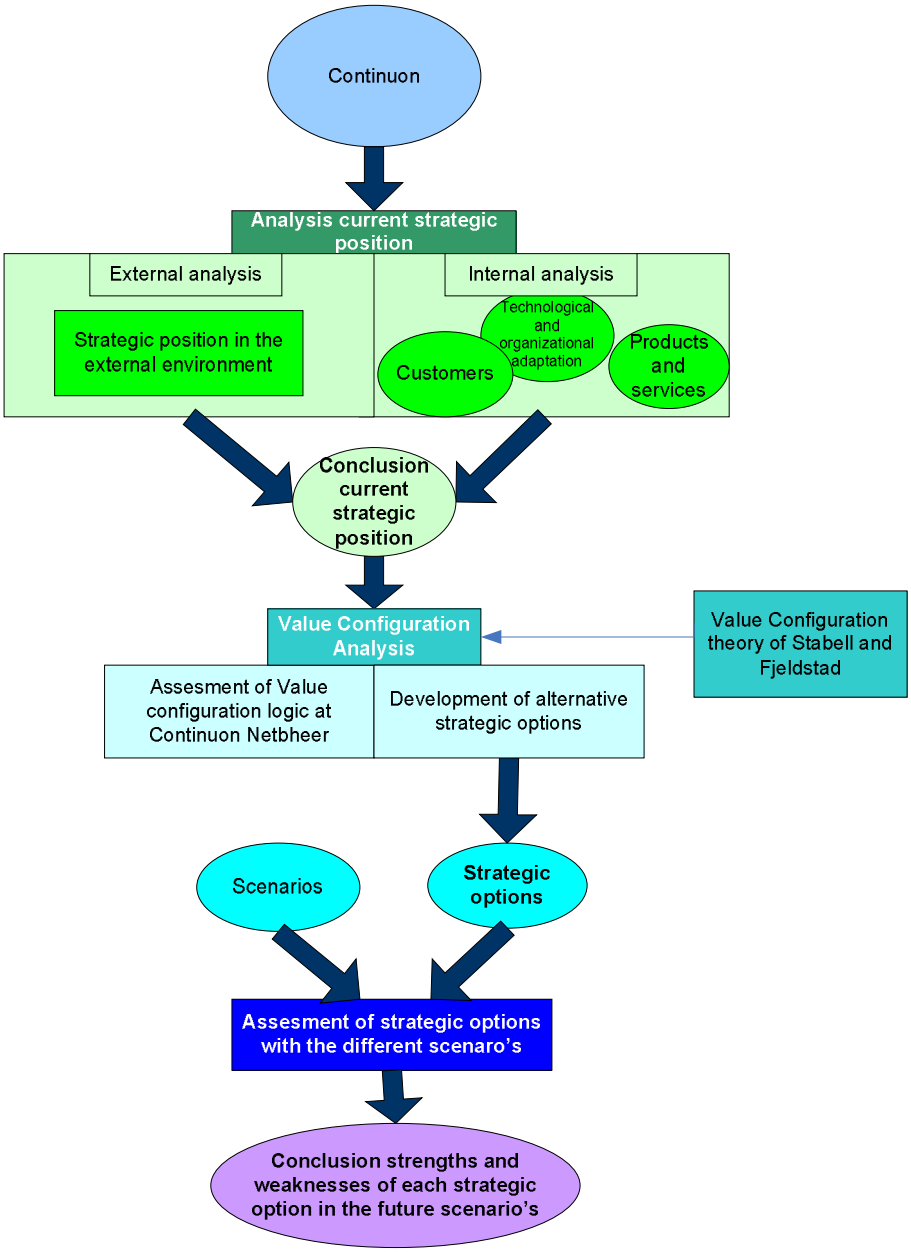


Figure 1 Research Model

1.4 Methodology and research methods

To be able to answer the different research questions and solve the underlying problems, a suitable research strategy will be determined for each specific question. The underlying theoretical framework will be discussed in chapter 2.
If we look at the formulated research questions, we are dealing with descriptive problems (internal and external situation analysis) on one hand and a therapy problem (which strategic options are best for Continuon considering future scenarios) at the other hand.
The main research object is the Continuon company. We will determine the data sources and research methods for each research question. They will be displayed in the tables below (tables 1, 3 and 4).

Research Question 1

1. *What is the current strategic position of Continuon Netbeheer?*

As we have concluded before this research question consists of two main sections: the first consisting of an external and internal analysis of Continuon in the gas market., and the second a value configuration analysis of Continuon.

Table 1 Research methods and Data sources for research question 1

Research object	Data sources	Research methods
The external environment of Continuon	• Literature • Documents • Interviews(2)	• Desktop research • Expert interviews (DTe&Energie Clearing house) • Case study of the Gasunie • Comparative Case study of several network operators
The internal environment of Continuon	• Documents • Interviews(6)	• Desktop research • Expert interviews (Continuon)

In the analysis of the internal and external environment, the characteristics of the industry, recent developments and the main implications for the position of Continuon in the gas market will be identified. The next step is to look at Continuon herself as network control operator in gas distribution services. This means identifying and analyzing their strategy, who are the customers, what products and services do they offer and what are the organizational and technical adaptations.
To gain more insight in the current developments and characteristics of the gas market and the company Continuon, experts will be interviewed. The number of experts, their position and company are represented in table 2.

Table 2 The expert interviews

Experts	Company
4 managers	Continuon Netbeheer
1 employee	Continuon Netbeheer
1 manager	Nuon Netwerk Services
1 manager	Energie Clearing House
1 employee	DTe

The understanding of the strategic position of Continuon will help assessing whether or not the current strategy and value configuration is capable of dealing with the changes that already have taken place and the changes that will take place in the organizations environment in the future.

Next section consists of an analysis of the current configuration of activities and value creation at Continuon. The theory about value configuration from Stabell and Fjeldstad will be used to classify the value configuration logic model that Continuon has adopted.
Alternative strategic options offer opportunities for different strategic positions for Continuon that might better match the current or future external environment and expectations of stakeholders. The

identification of these alternative strategic options is one of the main sections in this research and leads to the next research question.

Research Question 2

2. *What are the alternative strategic options for Continuon Netbeheer?*

Table 3 Research methods and Data sources for research question 2

Research object	Data sources	Research methods
The value configuration of Continuon	• Literature about the Value configuration theory • Documents	Case study of Continuon

Research Question 3

3. *What is the suitability of the strategic options in the different scenarios for business development in gas distribution services for Continuon?*

Table 4 Research methods and Data sources for research question 3

Research object	Data sources	Research methods
The three strategic options (three value logic models)	• Literature about the Value configuration theory • Documents ('Scenarios voor de infrastructuur in 2015, Continuon Netbeheer')	Case study of Continuon

We observe that the research methods include not only the desktop research of literature and documents, but also an intensive case study of Continuon, as well as a short case study of Gasunie , and a comparative case study of the different regional network operators.
Other sections of the research strategy consist of desktop research and expert interviews.

2 Theoretical Background

In this chapter the theoretical framework of this research project for Continuon will be introduced and explained.
The problem definition of the thesis project that has been defined is:

> *What will be an effective strategic position for Continuon Netbeheer now and in the future given the changes in the gas market and gas distribution?*

To answer this question we will need a theoretical basis for analyzing and assessing the strategic position of Continuon. In this research we will use the Value Configuration Theory developed by Stabell and Fjeldstad (1998) for analyzing the current and future strategic position.
This chapter will start with an introduction to the concept of strategic positioning in section 2.1. In this section we will also introduce and describe the three different value configuration models in the "Value Configuration theory". In section 2.2 we will shortly summarize the analytical instruments that will be used in answering the different research questions. We will conclude with an overview in which way the value configuration theory will be used in the empirical section of this research in section 2.3.

2.1 Strategic positioning with the Value Configuration theory

In this section the concept of strategic positioning will be further explored, leading to the introduction of the Value Configuration theory. The value logic models in this theory will form the basis for analysis of the current strategic position and will also form the basis for developing strategic options for Continuon. The Value Configuration theory will also be compared with the value discipline model of Treacy and Wiersema. This will be done because the current strategy of Continuon is based on this value discipline model. It is important to define the complementarities and differences between these two theories in order to understand the current position of Continuon and the link with the Value Configuration theory.

2.1.1 Introduction to Strategic positioning

Strategic positioning is the positioning of an organization (or business unit) in the future, while taking into account the changing environment, stakeholder expectation and the systematic realization of that positioning (the strategy for reaching that position).
The strategic positioning is focused at reaching a desired future position on the basis of the present external environment and future developments, and the internal configuration of resources and activities to secure the continuity of the organization. The external environment can be divided in different layers (see figure 2):

- the macro-environment (the general environment)
- the industry
- the strategic group[7] (group of organizations that produce the same sort of products or services and have similar characteristics)

[7] Johnson, G., Scholes, K., Exploring Corporate Strategy, Prentice Hall, 6th edition 2002

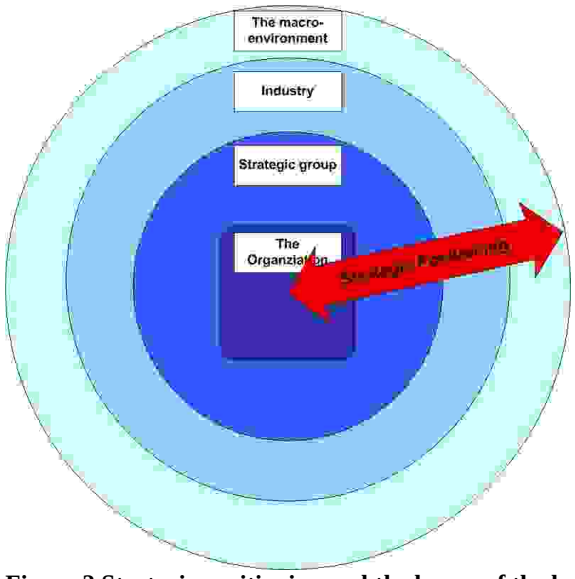


Figure 2 Strategic positioning and the layers of the business environment[8]

Understanding the current strategic position of Continuon should be concerned with the impact on strategy of the current external environment, internal company resources and competences, and the expectations and influence of stakeholders. The understanding of the strategic position of a company will help assessing whether the current strategy is capable of dealing with the changes that will take place in the organisations environment in the future or not. By matching the current strategic position to the current external environment and different possible future scenarios, the question arises if there is a need for a change in the strategic position.

A strategy for business development can be described by three dimensions[9]:

- *Who* dimension, defining who are the customers
- *What* dimension, determining what products and/or services the company offers to customers and with what characteristics
- *How* dimension, describing how the company delivers its products and/or services through the technical and organization arrangements that it adopts

These three dimensions will be used as a framework for describing the current strategy and strategic position of Continuon in this research. A strategy determines the contents and the character of the organization's activities.
Long-term success of strategies is determined by the extent to which they deliver best value for stakeholders. The underlying basis of strategy is to find a fit between the market opportunities and the organization's resources with the objective to achieve competitive advantage. The economic consequences of a given strategy will always depend on the features of the surrounding business environment in which the company operates[10].
This implies that a strategy must be well-matched to both the firm's resource strengths and weaknesses as well as the firm's best market opportunities and external threats to its well-being.
There is however not one best strategy that can be linked to economic success for a firm. Various different market strategies can be successful in the business environment in terms of choices in the three dimensions of *Who* (customer base), *What* (offering differential) and *How* (organizational and technical arrangements) of strategy.

[8] Johnson, G., Scholes, K., Exploring Corporate Strategy, Prentice Hall, 6th edition 2002
[9] Ford, D. et al, '*The Business Marketing Course, Managing in Complex Networks'*, John Wiley&Sons, 2004
[10] Ford, D. et al, '*The Business Marketing Course, Managing in Complex Networks'*, John Wiley&Sons, 2004

These choices together, form in fact a choice for a type of organization, thus a choice for what business to be in and how to create value. There are in fact three basic types of organizations, identified by their different value configurations:

- Value Chains
- Value Shops
- Value Networks

Each of these types of organizations creates value in different ways[11]. In the next paragraph a short introduction to the value configuration theory will be given followed by an example for each of the three different value configuration models to explain the differences between these models.

2.1.2 Value configuration theory

Based on Thompson's (1967) typology of different technologies, Stabell and Fjeldstad (1998) have developed three distinctive value logic models that can be described in terms of primary activity categories, drivers of cost and value and strategic positioning options. They have been examining the competitive advantage of different firms according to their structure and value logic. This theory is an extension to the value chain model developed by Porter (1985) and proposes that the value-chain model is only one of three generic activity configurations[12]. Each one of these three value configurations is based on significantly different logics and economics, which determine the competitive action and business development opportunities for companies in their industries. The value logic models can be used to analyze activities and to develop means to reposition a firm by identifying ways to create more customer value[13]. The different value configurations also offer different options for firms in how they position themselves in an industry.

Each of the three value configurations has a distinct activity template and different drivers of firm performance. The different value logic models indicate different type of firms, their main differences are found in the value elements that are managed and the deliverables created. They also indicate that between the different types of firms there are differences in the focus on cost and value drivers. The value chain is proposed as relevant for manufacturing firms relying on a long-linked technology. The value shop is an activity template for firms that use an intensive technology and create value by resolving unique customer problems, for example hospitals, consulting companies and oil exploration companies. The value network is used to describe the activity template of firms that use a mediating technology for creating value by enabling direct and indirect exchanges across a set of customers. Examples of mediating firms are banks, telecom and airlines.

The basic premise of these value logic models is that competitive advantage stems from the unique structural properties of the activity set whereby a particular firm creates value. The main characteristics and differences between these value logic models are summarized in table 5[14]. Next an example for each of the value logic models will be given by looking at the oil and gas industry.

[11] http://www.concoursgroup.com/research/completed/project_dbi.asp

[12] Fjeldstad, Ø.D., Becerra, M., Narayanan, S., 'Strategic action in network industries: an empirical analysis of the European mobile phone industry', *Scandinavian journal of Management*, nr.20 2004 , page 173-196

[13] Stabell, C., 'New Models for Value Creation and Competitive Advantage in the Petroleum Industry', 2001

[14] For a more detailed description of the different value configuration models, see Attachment A

Table 5 Summary of the main characteristics of the three different value logic models[15]

	Chain	**Shop**	**Network**
Value creation logic	Transformation of inputs into products	(Re)solving customer problems	Linking customers
Deliverables created[16]	Products	Solutions	Service, service capacity and service opportunity
Primary technology	Long linked	Intensive	Mediating
Primary activity categories	• Inbound logistics • Operations • Outbound logistics • Marketing • Service	• Problem-finding and acquisition • Problem-solving • Choice • Execution • Control/evaluation	• Network promotion and contract management • Service provisioning • Infrastructure operation
Business-logic method	Coordination of sequential activities	Co-performance of cyclical, spiralling and reciprocal activities	Synchronization of simultaneous, parallel activities
Primary activity interdependence	• Pooled • Sequential	• Pooled • Sequential • Reciprocal	• Pooled • Reciprocal
Key cost drivers	• Scale • Capacity utilization		• Scale • Capacity utilization
Key value drivers		Reputation	• Scale • Capacity utilization
Business value system structure	Interlinked chains	Referred shops	Layered and interconnected networks
Value- creation strategy[17]	Achieve scale and focus on efficient use of capacity	Make optimal use of human capital	Achieve scale and focus on efficient and effective use of capacity

[15] Stabell, C.B., Fjeldstad, Ø.D.,'Configuring value for competitive advantage: on chains, shops, and networks', *Strategic Management Journal*, Vol. 19 1998 pag. 413-437

[16] Harris, J.G., Burgman, R.J., 'Chains, Shops, and Networks: The Logic of Organizational Value', Research Report Accenture, May 2005

[17] Harris, J.G., Burgman, R.J., 'Chains, Shops, and Networks: The Logic of Organizational Value', Research Report Accenture, May 2005

2.1.3 Examples of different types of firms in the oil and gas industry

The differences between the different types of firms following different value configuration models will be explored by looking at some examples of firms in the oil and gas industry.
Most firms in downstream activities of oil refining, logistics, sales and marketing are following a value chain configuration. Tosco, which is one of the largest independent oil refiners and marketers of petroleum products in the United States, is one of these firms that follow a value chain configuration. Tosco competes on economies of scale and operational excellence in refining. For the Dutch and European gas market Tosco can be compared with Shell, Exxon Mobile or BP.
This strategy can be compared with feisty newcomers in the US oil industry, such as Union Pacific Resources and Newfield Exploration, which have become major players in new exploration and development of oil and gas fields, primarily by building, acquiring and exploiting specialised technological capabilities. These firms can be classified as following a value shop configuration. This value shop configuration can be seen in the different activities of oil exploration firms (appraising geological data, choosing prospects to drill, drilling and evaluating drilling results) and development firms (appraising a discovery, devising and choosing a development approach, developing a field and evaluating production).
The value network configuration can also be found in this industry in the data companies that have emerged as key players. An example of these firms is QC Data that provides a data-brokering service to oil and gas exploration companies. It stores and maintains drilling and exploration data on its computers and offers access to the data and analytical tools. This saves cost of rediscovering existing data for the exploration companies as well as a richer and more comprehensive base of data for analysis and in return the subscribers to this service receive a fee every time their data is accessed by another QC customer[18]. For the European market QC Data can be compared with Common Data Access Limited. This is however an non-profit organization owned by its members, but their main activities are the same as QC Data. They reduce the cost of storing and retrieving data for their members by improving efficiency and accessibility to data. They co-ordinate a single source of data from which all parties who have legitimate rights of access can obtain this data either electronically or by conventional means[19].

2.1.4 Value configuration and industry structure

The value configuration theory with the three alternative value logic models is important in not only analyzing business logics across firms but also in analysis across industries. Stabell and Fjeldstad argue that industry structure and forces are also different when moving from manufacturing to mediation and problem solving industries. The logic of value creation in an industry can be found in the structure of the industry, meaning that differences in value creation logic are also reflected in differences in industry structure and dynamics. This means that the value configuration logic models can be used for analyzing and describing the structure of relationships between actors in a specific industry and can be used as a tool for determining the position of a company in this industry.

2.1.5 Value configuration and strategic options

Value configuration theory is not only suitable for firm-level and industry analysis of activities, value creation and creating competitive advantage. The theory also suggests that choice of configuration is a major positioning choice for firms[20]. As stated before choosing for a specific type of value configuration means choosing a specific kind of business model and moving between segments in an industry or even from one industry to another. This also means that one can find firms with different value configurations in a single industry. Choosing a type of value configuration is in fact a generic dimension of strategy beyond choosing between a cost leadership or differentiation strategy. Firms can get stuck in the middle between the different value configurations just as they can get stuck in the

[18] http://147.29.80.116/foundation/library/value/RP15.asp
[19] http://www.posc.org/news/release20010723.html, 7 November 2006
[20] Stabell, C.B., Fjeldstad, Ø.D.,'Configuring value for competitive advantage: on chains, shops, and networks', *Strategic Management Journal*, Vol. 19 1998 page 413-437

middle if they are not successful when trying to pursue simultaneously cost leadership and differentiation[21]. The conclusion can be drawn that the three different value configuration models can in fact be seen as alternative strategic positioning options for a firm in an industry.
The type of value configuration determines the strategies and business development boundaries and opportunities as will be shown in table 6.

Table 6 Strategy trade-off[22]

Value logic model	Strategy trade-off	Business development opportunities and constraints
Value Chain	*Product differentiation vs. cost* Closer adaptation to customer needs creates higher value, but "destroys" cost economies of scale	Product variation and flow constrained by scale and capacity utilization
Value Shop	*Knowledge depth vs. breath* General practitioner can solve a broad variety of problems, but specialists are required for complex cases	Specialization and integration increase value constrained by knowledge leverage
Value Network	*Network scope vs. service range* Value both from connectivity(who can be reached) and conductivity(what can be carried)	Sacrificing conductivity increases potential connectivity constrained by capacity as a customer benefit

2.1.6 The value discipline model vs. value configuration

The Value Discipline model is like the Value configuration analysis a theory about value creation and modelling. They are both models that can be used as frameworks in strategy development[23]. The difference however is that the value discipline model is about strategic positioning by choosing what kind of value a firm wants to offer their customers, while value configuration is about strategic positioning with an appropriate activity set.

Treacy and Wiersema state in their value discipline model that there can only be one market leader for every customer value type. Companies can build their competitive advantage by focusing on and excelling in only one of three basic values. In addition to having the discipline of maintaining this single focus, a company must at least reach the minimal expected performance in the other two disciplines[24].
The idea behind the value discipline is that the choice for one of the three value disciplines determines the structure and type of organization. Every value discipline has its own specific underlying operating model. Operating models are in this theory defined as the whole of operational processes, company and management structures and culture, that all need to be synchronized in order to create superior customer value. This implicates that the hierarchic structures, decision processes, degree of standardization and division of responsibilities differs substantially between the three value disciplines. The operating model can be considered as a guide to an internally successful functional organisation.[25]

[21] Stabell, C., 'New Models for Value Creation and Competitive Advantage in the Petroleum Industry', 2001
[22] Fjeldstad, Ø., D., 'Transforming Value Creation: Implications for Business Models and Business Practices', presentation Norwegian School of Management
[23] http://faculty.fuqua.duke.edu/~moorman/GeneralMills/Section2/Section2.htm#MarketBased, May 10th 2006
[24] http://www.vea.nl/presentaties/Treacy.doc, May 11th 2006
[25] Treacy, M., Wiersma, F.,'Customer Intimacy and Other Value Disciplines', *Harvard Business Review*, Jan/Feb 1993, pag. 84-94.

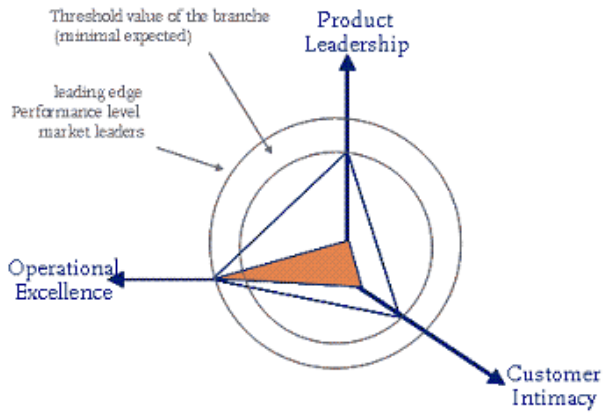


Figure 3 the value disciplines

The three value disciplines are (see figure 3)[26]:

- **Operational excellence**:
  Companies that pursue operational excellence seek to reliably deliver products and services at the lowest possible cost. Their focus is on cutting costs. To be able to operate efficiently a company has to continuously measure performance.
- **Product innovation (product leadership):**
  Companies that pursue product innovation rely on innovation in the pursuit of best-in-class products or services. They focus on the ability to rapidly devise new and enhanced products or services. In order to deliver the best and innovative products or services a company has to be able to operate flexible.
- **Customer intimacy:**
  The primary business model of customer-intimate companies relies on customer insight to address a broad swath of unique customer needs. These companies focus on scope, that is, they tend to deliver complete solutions to any perceived customer need. In order to fulfil customer demands a company should invest in customer relations.

This model looks very similar to Porters three generic market strategies model with cost leadership, differentiation and focus strategies that were developed in line with Porters five forces model for industry analysis. Porters theories however, are developed in coherence with his value chain framework and therefore appropriate for manufacturing firms relying on a long-linked technology.
Treacy & Wiersema focus on customer value and how to achieve a value discipline with an underlying operational model, while Porter argues about choosing a market strategy and strategic positioning. However Porter and Treacy & Wiersema both argue that there are in fact two basic choices:

- The first choice is to determine if a company seeks to compete by achieving lower cost than its rivals or with superior products through differentiation.
- The second choice is about in what arena the company seeks competitive advantage, in a broad range of segments or a very narrow range.

The conclusion can be made here that the value configuration theory and the value discipline model are complementary. In the previous paragraph we already noted that choosing a type of value configuration is a generic dimension of strategy beyond choosing between a cost leadership or differentiation strategy.

[26] Treacy, M., Wiersma, F.,'Customer Intimacy and Other Value Disciplines', *Harvard Business Review*, Jan/Feb 1993, pag. 84-94.

The choice for a cost leadership or differentiation strategy is in fact the same choice as for 'operational excellence' or 'product innovation' in the value discipline model.
The conclusion is that strategic positioning consists of two steps:

- First determining the value configuration model, and
- Next determining what strategy to pursue in this value configuration. The choice for a value discipline is the second step after choosing a value configuration in positioning the company.

2.2 Other analysis instruments and strategy tools[27]

The value configuration theory with the three value logic models is the main instrument for analysis in this study. But we also use some other theoretical concepts as analytical instruments in answering the different research questions.
Value proposition theory will be used to identify the characteristics of the products and services of Continuon in order to be able to determine the product dimension of the current strategy. Main instruments for identifying the value system at industry level are industry typology and business network pattern analysis.
To be able to anticipate on uncertain future developments, scenarios will be used to deal with this uncertainty. The scenarios will not be developed in this research but scenarios from a scenario study executed by Nuon Asset management for Continuon will be used.

2.3 Summary for the theoretical framework

The value configuration theory provides a systematic basis for analyzing and developing strategy and competitive advantage in all types of firms. A firm can be broken down into value activities where costs and value generated are allocated and estimated, either using the value chain template for manufacturing firms, value network template for mediators, or value shop template for problem solving service firms.
The value configuration theory will be used for the analysis in different sections of this research. As we have seen in the research model, the empirical section of this research project consists of three major sections:

1. Assessing the strength and weaknesses of the current position of Continuon in the gas market
2. Developing strategic alternatives for Continuon with the help of the three value models suggested by theory (value chain, value shop and value network type of organisation).
3. Assessment of the suitability of the strategic alternatives in the perspective of four possible scenarios for gas market development and given the conditions of a cost effective and reliable gas distribution.

In the first empirical part of this report the results of applying value configuration analysis will be used to identify the current strategic position of Continuon and identify strengths and weaknesses of the company in the gas sector at this moment. To identify the current strategic position and value configuration logic at Continuon the three dimensions of the current strategy (*Who*, *What* and *How*) will be analyzed.
Value configuration analysis will also be used for analysis of the external environment to identify the value system of the gas sector.
In the second section of this research the value logic models in the value configuration theory will be used to identify and develop strategic options for Continuon for positioning the company in the future gas sector.
Strategic options offer opportunities for different strategic positions for Continuon that might better match the future external environment and expectations of stakeholders and provide different options for business development. In the last section of this research project these strategic options will be matched to future scenarios for deciding on the main implications of future developments and each strategic option in the different scenarios.
The resulting theoretical framework for this research project is represented in figure 4.

[27] See attachment B in the Attachment report

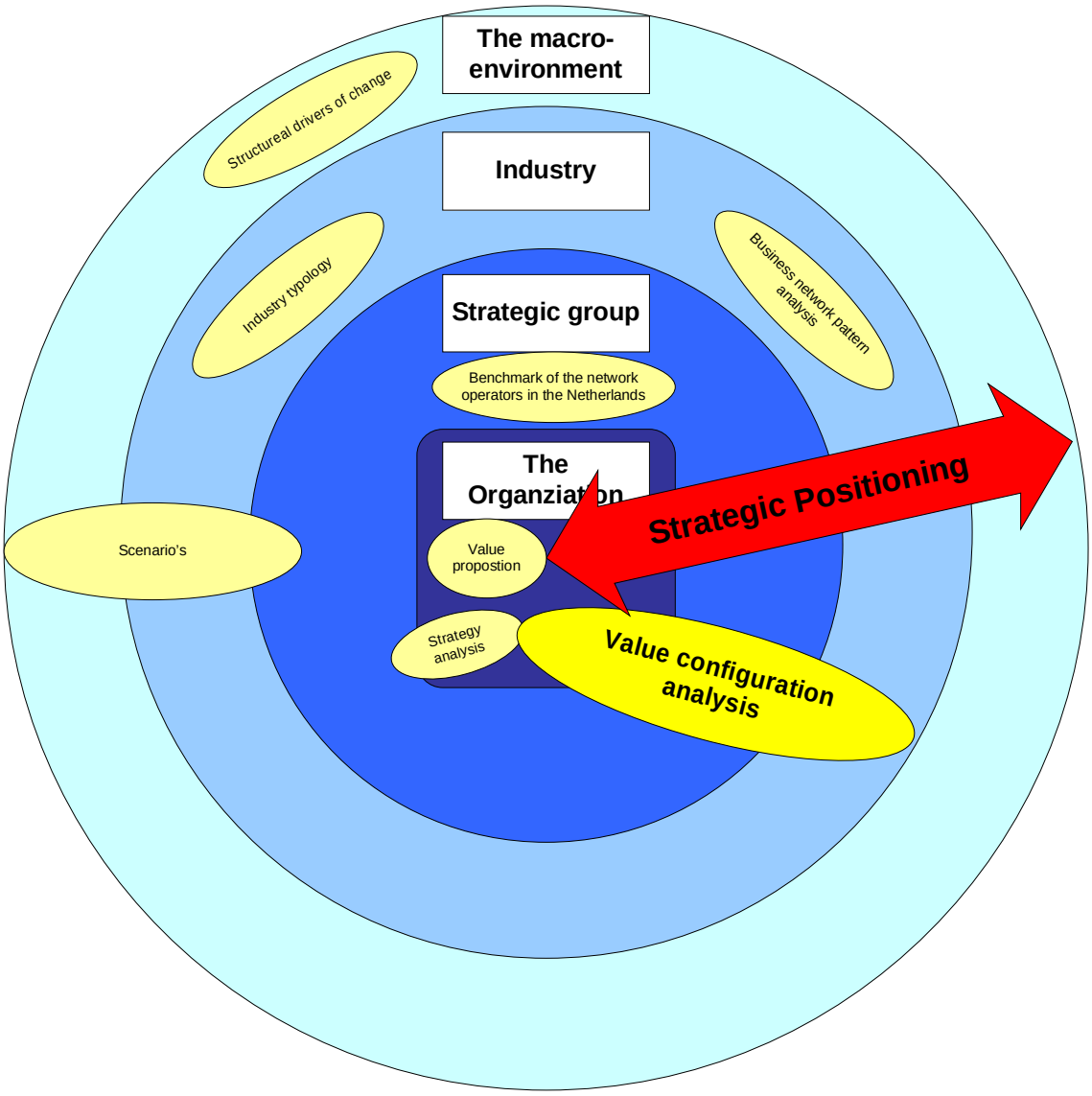


Figure 4 Theoretical frameworks and instruments for strategic positioning in this research

3 The current strategic position of Continuon Netbeheer

This Chapter consist of the assessment of the strength and weaknesses of the current position of Continuon Netbeheer in the gas market. The research question for this empirical part was formulated as:

Research Question 1

1. *What is the current strategic position of Continuon Netbeheer?*

To answer this question the external and internal environment will be analysed to be able to draw a conclusion on the current strategic position of Continuon. This is schematically represented in figure 5.

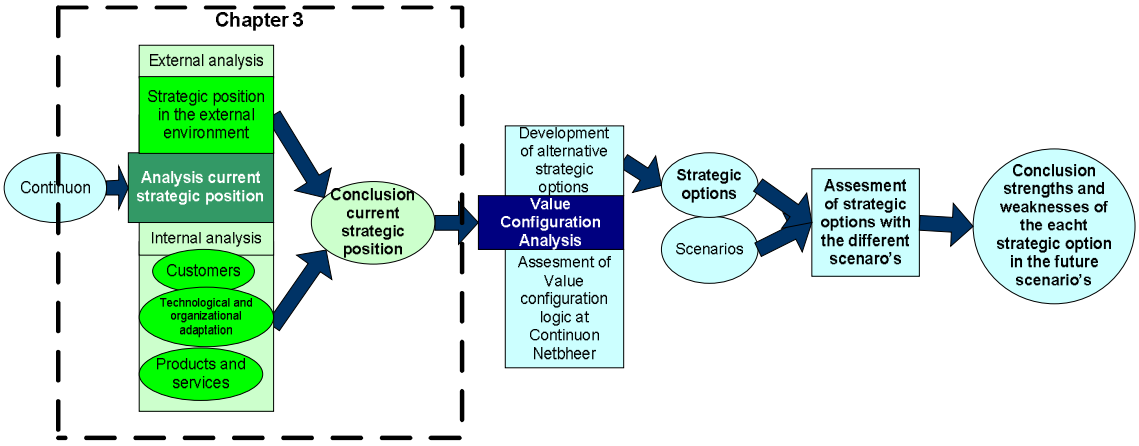


Figure 5 The research model

In section 3.1 the Continuon company will shortly be introduced with a short history and main characteristics. The next sections and main part of this chapter consists of a description of the current strategic position of Continuon, divided in an external and internal analysis (in sections 3.2 and 3.3 respectively). The external analysis contains a summary of a background study of the external environment[28]. The relationship and position of Continuon with the main forces will be described. The internal analysis consists of an analysis of the current strategy with the three main dimensions of strategy: customers, products, and the technical and organizational adaptations.

3.1 General overview of Continuon Netbeheer

In this part a general overview and introduction to the company Continuon will be given. 3.1.1. gives an overview of the history of the company, and 3.1.2 contains a description of the main characteristics.

3.1.1 Historical overview of Continuon Netbeheer

Originally Continuon was section of the vertically integrated energy company Nuon. Nuon was founded in 1999, when four different regional integrated energy companies merged together. These four companies were:

- Nuon (the energy and water company of Gelderland, Friesland and Flevoland
- Energie Noord West (the energy company of Noord Holland),
- Energy and water supply Rijnland (energy and water company of Leiden)
- GAMOG (the gas company of the east of Gelderland and Flevoland)

Later the GGR (Gasvoorziening Gelders Rivierengebied) also merged into Nuon. The gas distribution activities of this vertically integrated energy company Nuon, could be divided in three main tasks; building assets (contractor), network operations and maintenance and gas supply. The first two tasks

[28] For this background study see Attachment C in the Attachments report

are now main activities for Continuon in the regulated market, while Nuon performs the gas supply activities in a liberalized gas market.
Continuon originated due to the Electricity (1998) and Gas Law (2000). To accommodate the liberalization of the energy market energy companies were forced to split in network controllers, energy suppliers, producers and metering companies. The shares of Continuon are fully owned by Nuon, but Continuon has an independent position as stated in the Energy Law.

3.1.2 Main characteristics

Continuon is the network operator of the gas- and electricity distribution networks in a large part of the Netherlands: Gelderland, Noord-Holland, large parts of Flevoland, Friesland and Zuid-Holland. The main characteristics of the company will be described briefly by looking at the customers, products, organization and technology aspects of the company.

Products and Customers

Continuon provides the connection to the electricity and gas distribution network and the transport of gas and electricity for 2.7 million customers for electricity and 2.1 million customers for gas. Her turnover is over 1 billion Euros per year. The primary function of Continuon is to link customers (gas suppliers, industrial users and households) with each other through the gas distribution infrastructure and to provide the transport of gas from the gas suppliers to the end-users in a safe and reliable way. The same holds for the electricity distribution. To facilitate the transport and connection services, Continuon is also responsible for network operations, construction of new connections and the maintenance of current connections and gas grids.
The customers of Continuon can be divided in the consumer and small business customer market and the business market for gas on the basis of connection capacity.
The main gas distribution services that Continuon offers its customers are the connection and transport of gas. However besides these main services Continuon offers more services. These are summarized in the table below.

Table 7 Basic services of Continuon[29]

Basic services	Customer segments
Connection gas	Consumer, small business customer
Gas transport services	Consumer, small business customer
Gas-metering	Consumer, small business customers
Data collection/distribution	Supplier, program responsible, shipper

The main focus of Continuon last years has been at the mass market by offering standard services to large customer segments. At this moment Continuon is changing its offerings from not only offering what they are legally obligated to (legal demands) towards adapting their product offering by meeting where possible customer demands.

Organization and Technology

Continuon has been organized as a so-called “small” network controller. This meant that the main tasks of Continuon were selling the transport capacity and managing the distribution network. The operational control and design of the distribution network are outsourced to Nuon Asset Management. The operational tasks (maintenance, inspections etc.) were outsourced to service providers. Due to developments in the external circumstances (the legal separation of the network company and the commercial energy company) Nuon Asset Management has been merged with Continuon.

[29] Stroete, H., te, Presentation ‘Continuon Netbeheer’, 2004

To facilitate the transport of gas in a large part of the Netherlands Continuon controls over 6,000 km of medium pressure pipes and almost 30,000 km of low pressure pipes in the provinces Noord- en Zuid-Holland, Flevoland, Gelderland en Friesland.
The structure of the gas grids of Continuon is historically determined. In the urban areas the gas grids are ring-shaped and in the more rural areas they are branch-shaped. Because the several regional gas grids of Continuon originated from the former regional gas companies, they differ in their design, pipe materials and operating pressure.

3.2 External analysis for the strategic position

In this section the current strategic position of Continuon will be discussed by looking at the key forces and position in the external environment. This is a short overview of the extensive background study of the analysis of the external environment of Continuon that has been performed for this research[30].

Position in the Gas market
Continuon as regional network operator in the Netherlands is only a very small player in the global and European gas markets. This means that they do not have the ability to influence developments in the global gas market and they will have to adapt to these developments. Main threat for the gas distribution services of Continuon is the steadily decreasing demand for gas for domestic heating purposes due to improved insulation and a changing climate. This has not yet had any consequences for network operators, because the number of connections is still steadily rising.
As network operator Continuon is active in gas distribution and this only in a small part of the gas value chain from production to end-use.
At national level however, Continuon is one of the largest gas network operators in the Netherlands with the largest number of gas connections to her gas grids and a market share in number of gas connection of approximately 30%. The market for gas network operations in the Netherlands can be seen as concentrated, because there are only a few very large players that together take up almost 80% of the market. For Continuon this means they have a strong position in market coverage at national level opposed to the other network operators, and the opportunity for economies of scale. They have also been in gas distribution services since the start of the gas industry and therefore their strong position is also based on knowledge, experience and expertise that has been build up over many years.

Regulations
Important for the strategic position of Continuon and their business development opportunities is that the network operators in the Netherlands have to operate in a highly regulated gas market segment. The national and regional gas and electricity network operators are now actors in a monopolized section of the liberalized energy market under governmental supervision by the DTe instead of being section of a vertically integrated energy company in a stable closed national and regional gas market. This means they are restricted in the development of new services and products by what is legally allowed, because a network operator is not allowed to perform commercial activities.
The conclusion can be made that regulations impede on the space for strategic positioning while on the other hand it has led to a stable monopolized position with a low but continuous and secure profit margin.
The introduction of Yardstick regulation means that the profit margin of a network operator is not only determined by their own actions and performance but is also dependent on the performance of the other network operators. For strategic positioning this means that they have to take into account an important main stakeholder, the DTe and the actions and choices of other regional network operators.
The regulations that will lead to the unbundling of the energy companies has severe consequences for Continuon. Continuon should separate from the holding Nuon and should independently determine its position in the liberalized gas market as regulated gas network company. At this moment Continuon is not yet separated from Nuon. Compared to the other network operators Continuon is one of the first

[30] See Attachment C External Analysis

that has chosen for a separate positioning from the trading section of the old vertically integrated energy company. Therefore they are better prepared for the legal unbundling process.

Technology
Next reason for the strong market position of Continuon is that they want to have a leading position in innovation and sustainability. This implicates they want to be first mover in the introduction of new technologies in gas distribution operations and gas distribution services. Examples are the introduction of smart metering and self services via the internet. Other important fact is that Continuon is the only network operator in the Netherlands that is exploring 'intelligent network operations'. It is expected that this combination of gas distribution operations with information exchanges will become important in the future. In gas distribution operations Continuon is striving to become the Dutch and European leader in innovative and sustainable gas grid operations.

3.3 Internal analysis for the strategic position

In this part the current strategic position of Continuon is analyzed by looking at the three dimensions of strategy:

- the customers
- the products and services
- the technological and organization adaptations

(The *Who*, *What* and *How* dimensions.)
The mission statement of Continuon is to be a primary supplier of gas and electricity connection- and distribution services and to provide these services for an optimal price/quality ratio considering local circumstances, stakeholder interests and using the opportunities of the Electricity and Gas law. To accomplish this mission they pursue a strategy of '*Operational excellence'*. This strategy originated in the strategic direction of the Nuon holding, that is also directed at 'Operational excellence'.

3.3.1 The Customers

Due to the geographically determined monopolized position of Continuon, the customers are all the households and businesses with a gas connection in the operational area of Continuon (see figure 6).

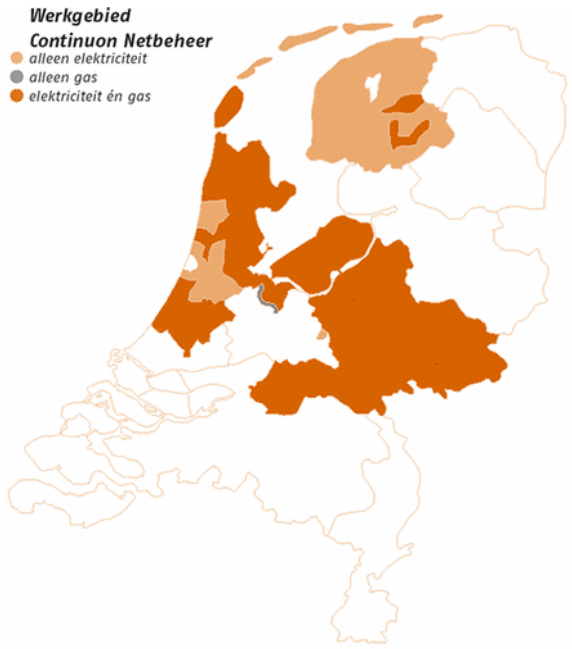


Figure 6 Operational area of Continuon (the operational area for gas are the dark orange and grey areas)

The historically determined customer segmentation of Continuon is based on the capacity of the connection and can be characterized as conventional, thus segmentation in large or small customers.
At Continuon a more progressive segmentation has recently been introduced with the development of subgroups for the business market on the basis of homogeneous customer wishes and needs (see table 8).
Business customers and consumers have both growing needs that Continuon wants to meet in the development of new services. The customer demands can better be fulfilled by segmenting the market on the basis of homogeneous customer needs and demands.

Table 8 The different customer segments at Continuon

Customer segment	**# of customers**	**characteristics**	**Sub segments**
Consumers and small business customers	2,1 million	Connection: (G)<170.000 m^3	Consumers
			SMB (small and medium sized businesses)
Business market	2800	Connection: (G)>170.000 m^3	Multisites
			Governmental institutions and municipalities
			Greenhouses
			Intermediars (building contractors and developers)
			Industry, Care and Utility customers

The changes in segmentation basis are characteristic for the transition of Continuon from their former position as section of a vertically integrated energy company towards an independent network operator that has its own strategic position in the energy sector. Difficulty in this process however, is that Continuon has not been a customer directed company before and has always been directed at offering standard services to the mass market.
Continuon still focuses on the end-users of the gas as their main customers, while parties like shippers and energy suppliers are not explicitly defined as customers in the market segmentation.

3.3.2 Products and services

The value proposition of the products and services Continuon offers (the offering) is closely linked with the chosen strategy "Operational excellence" This means that the offering should differentiate from other companies offerings on the following product characteristics:

- time
- quality
- selection
- price[31]

Main promises in the market offering of Continuon are a consistent continuous gas flow with low interruption rates, reliable supply of gas and low costs.

The gas transport and connection services
The current offering of Continuon will be analyzed by identifying the elements of this offering and asses the flexibility of these offering elements (advice, product, service, logistics, adaptation). Also the price setting will be discussed.
The basic offering for all the customer segments consists of:

- *Product*

  The physical product consists of the connection tot the gas distribution network, this connection is adapted to specific capacities for different customer segments. This connection is the section of the gas distribution infrastructure that is controlled by the network controller and connects the gas installation of a parcel with the main gas pipeline

[31] http://www.hit.nl/Product_BedrijfsStrategie.asp, geraadpleegd 31-08-2006

and includes installations like the metering instruments, taps, pressure and safety controllers. Important physical product is the gas meter. Currently smart (digital) meters are provided to customers in the InfoStroom project, and are one of the important differentiation parameters of Continuon's offering.

- *Service*

The service element consist of many components:

- § The gas transport service, this is the main element of the market offering
- § The maintenance of the connection
- § The metering service,
  This is an optional service, because the metering market is free. This service can be monthly or yearly, and is outsourced to Nuon Monitoring, a certified metering company
- § Self services via Continuon.nl (web services)
  This is part of the ambition of Continuon to become a web based network controller, by offering self service possibilities with their internet site for the standard services.

- *Advice*

A network controller that provides connections for their customers in order to enable gas transport to those customers, is legally obligated to improve safety of gas appliances and instruments. This means that a small section of their offering is the advice that they have to give to ensure safety of gas applications[32].

- *Logistics*

Customers expect a continuous reliable supply of gas, this means that they want to have gas available any moment they want, this means "just-in-time" delivery. In order to fulfill this promise, the gas distribution infrastructure must be safe an reliable and continuous without interruptions. This is a very important section of the offering, because of the social responsibility of a safe and reliable gas transport.

Price setting

The distribution tariffs of Continuon are based on the regulatory permitted tariff merits, these are determined by the DTe. These merits are partly determined by the DTe on the basis of the x-factors (the fixed efficiency discounts). These factors are reflect the efficiency of network operations in comparison with competitors and costs made. Because the tariffs are determined by the DTe, there is no possibility for differentiation in the gas transport tariffs. The more efficient a network operator is, the lower the tariffs will be. The price setting can be classified as a value proposition based partly on performance (efficiency and quality factor) and partly in comparison with competitors due to Yardstick regulation.

Theoretically there is the possibility for different tariffs in the possibility of non-discriminatory negotiated access for customers with specific characteristics and circumstances. Non-discriminatory implicates that this different tariff is valid for each customer with the same characteristics and circumstances. This option has not yet been used at Continuon.

Market facilitation services

Before the introduction of the Supply model the main customers for market facilitation services were end-users of the gas, energy suppliers and shippers. These services were not paid for and had to be performed due to regulations by the network operator and could be classified as cost center for a network operator

In the Supply model the metering data for the small user market can be accessed directly by an energy supplier. For the market facilitation services, this will mean a shift from a process focus to a data orientation.

[32] Article 42 Dutch Gas Law

The market facilitation services for the small users in the new Supply model will consist of putting meters at customers' proposal. An important new service in this area is facilitating the introduction of smart meters. For the energy suppliers, the services will consist of the allocation and reconciliation of the gas and the access to the metering data.

The growth share matrix (or BCG matrix)
The products and services of Continuon can be classified by their market (segment) share and market growth in a growth share matrix. This will help assessing the balance and development of the portfolio of the main products and services of Continuon[33].

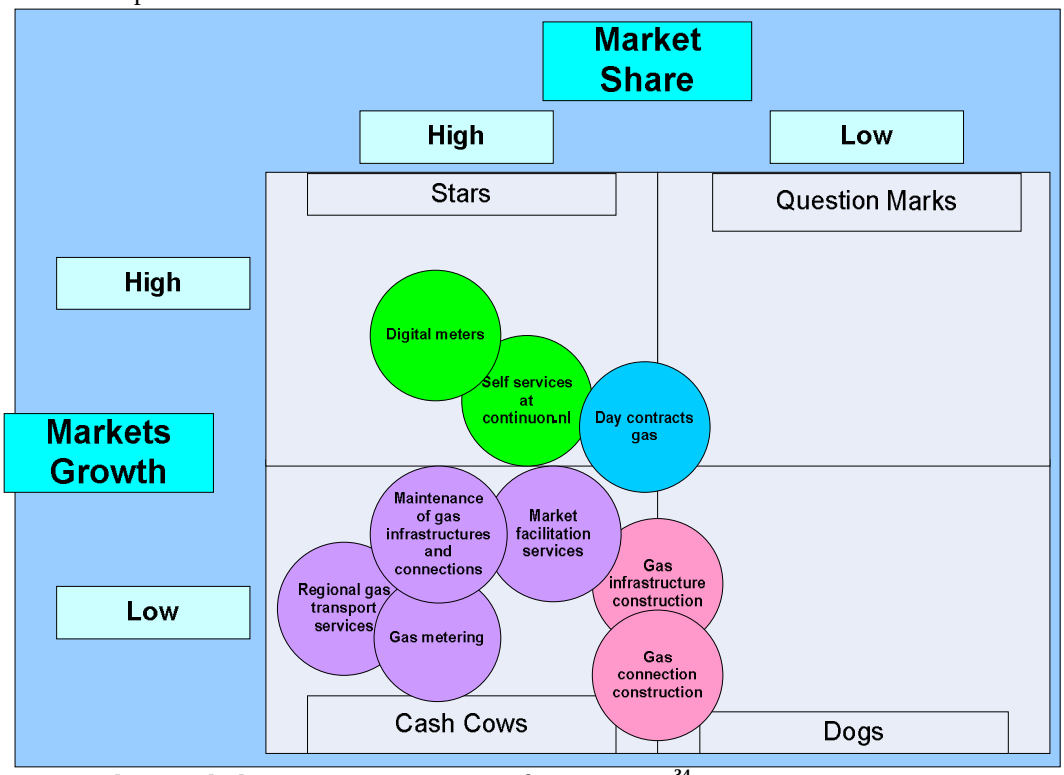


Figure 7 The growth share matrix(BCG matrix) for Continuon[34]

In Attachment D an explanation for the positioning of the different products and services in the growth share matrix is given. From the positioning in the growth share matrix for Continuon we can conclude that most products and services in the regulated domain represent a stable market with a high market share. New services in growing new market segments with a relatively high market share like self services at Continuon.nl and the digital meters represent a strong position for Continuon. A non core business of Continuon are the market facilitation services, however they are necessary to complete the regulated task of a network operator. The products and services directed at construction and conventional metering that are mainly outsourced to Nuon Netwerk Services represent a medium market share and low market growth.

3.3.3 Technical & Organizational adaptations

Technical and organization adaptations are the third dimension of strategy. It is about "how" the company organizes in order to approach customers and how it fulfils a particular offering for customers. Customer needs can be fulfilled by a specific offering that can be achieved through a

[33] Johnson, G., Scholes, K.,' *Exploring Corporate Strategy'*, Prentice Hall, 6th edition 2002
[34] See Attachment D Continuon Netbeheer, Chapter 2 Assessment of current strategy for a the analysis of the products and services in the growth share matrix

variety of offering designs, design processes and operational approaches. The operational approach that a company adopts determines the amount of costs and structure[35].
For Continuon the operational excellence strategy was first directed at technical excellence to prevent failure and interruptions of gas distribution services.
With the change of the main business goal *"Doing things right the first time"* to "*To exceed customer expectations*", the focus is now more at surprising the customer from an operational strong basis. Customers will be surprised by doing things faster and cheaper than expected, thus on operational excellent characteristics of the offering[36].

Operations & Process Technology
The process choice is concerned with how a company transforms inputs into outputs ('the offering'). It has to be based on current and future customer demands in order to invest in a process that remains able in fulfilling offerings to match customer requirements. Continuon relies on a capital extensive pipeline system to provide their gas distribution services (see figure 8).

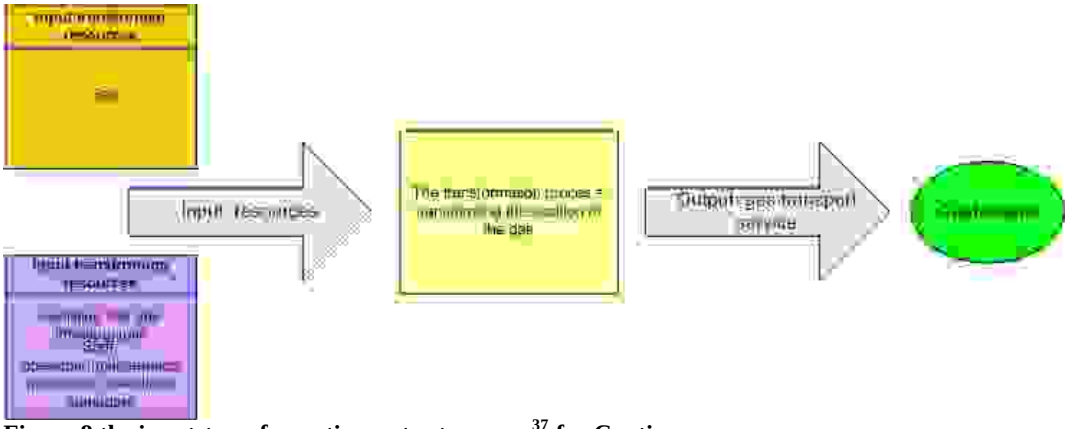


Figure 8 the input-transformation-output process[37] for Continuon

Main promises in the market offering of Continuon are:
- a consistent continuous gas flow with low interruption rates
- a dependable supply of gas
- low costs

For the operations capabilities in fulfilling these main offering elements, the company should focus on an efficient and effective transformation process. This matches the 'operational excellence' strategy of Continuon.
The type of process at Continuon is a **continuous process. T**his is a high volume process, with less variety. It also links nicely with the strategy of '*Operational excellence'*. For the company this means that the process only supplies a narrow range of standard offerings with little possible adaptation in the gas transport service element of the offering. Cost advantages can be reached through high volume. The disadvantage is that new offerings take longer to introduce because the process is not very flexible, caused by a technology that is dedicated to the specific gas transport service.
The process technology is the technical systems, equipment and devices which enable the operations process in transforming the materials, information or customers in order to add value and fulfill customer needs[38]. For a gas network operator the process technology consists of the gas infrastructure, devices and information technologies that deliver the gas transport service. These capital extensive gas grids impose high entry barriers for potential new entrants.

[35] Anderson, J.C., Narus, J. A., *'Business Market Management, Understanding, Creating and Delivering Value'*, Prentice-Hall 1999
[36] Interview Paul Corton, CEO Continuon Netbheer, 28 September 2006
[37] Slack et al, '*Operations Management'*, Prentice Hall, 3rd edition, 2001
[38] Slack et al, '*Operations Management'*, Prentice Hall, 3rd edition, 2001

Main goal in gas grid design of Continuon is standardization. The differences in design, pipe materials and operating pressures of the gas distribution grids in the several regions however, hamper the possibilities for standardization in the gas distribution area of Continuon.

Organization

The organization structure can be defined as a functional structure, structured around functional areas. The functional structure groups specialize in similar skills in separate units.(see figure 9). For Continuon this structure is suitable because they focus on only a few main services; the transport and connection of gas and electricity.

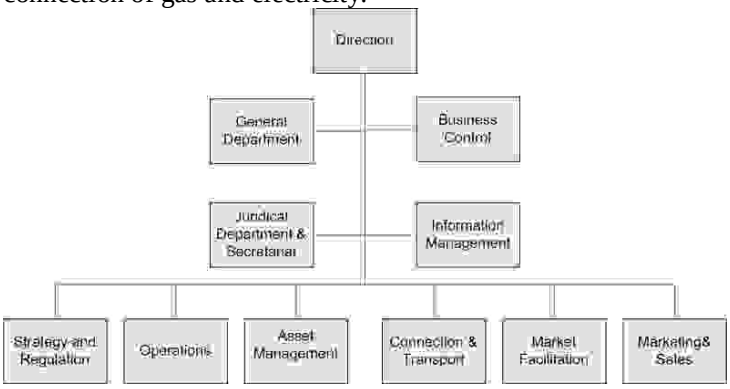


Figure 9 Provisional organization chart for Continuon[39]

However this functional structure has evolved over the years and is for a great section historically determined.

The main activities of network operations at Continuon are organized following a chain model (see figure 10). In this chain model some of the main tasks of a network controller are outsourced to service providers. The main tasks of Continuon are asset planning and realisation, contracting and managing contract relations. The service providers have as main tasks the detailed planning, ordering materials and optimizing and allocating of resources to activities

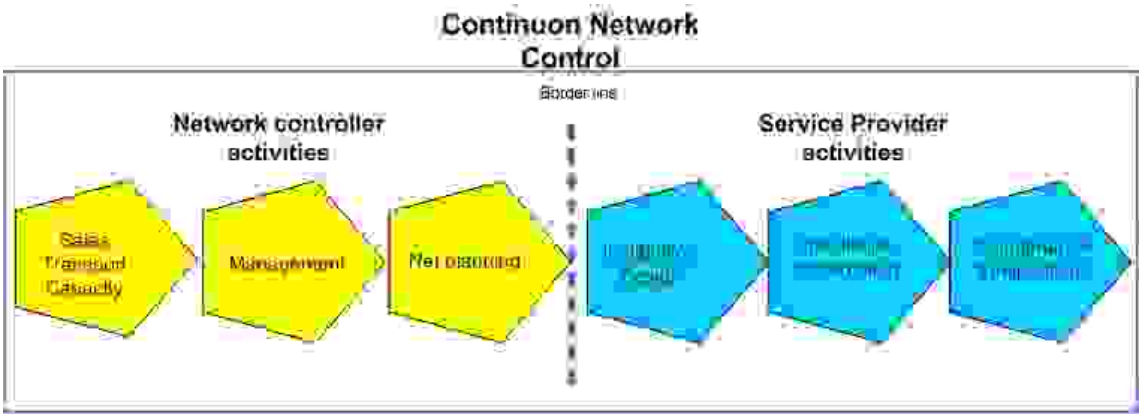


Figure 10 New chain model for Continuon

[39] Anonymous, 'Integration CN-AM', Presentation Continuon Netbeheer, 25th of April 2006

3.4 Summary of the current strategic position of Continuon Netbeheer in the (Dutch) gas sector

Continuon as regional network operator in the Netherlands is a very small player in the global gas market. They are responsible for the network operations of a part of the Dutch regional gas distribution grids under strong regulatory supervision of the DTe. Although the heavy regulation from the DTe impedes business development opportunities, it also involves a secure monopolized position for Continuon in their regulated domain activities with relatively certain and constant profits.

For their strategic position in gas distribution services they are dependent on the demand for natural gas and the developments in the gas markets. The main boundary is formed by regulations.
In the Dutch gas market, Continuon as network operator has a strong position in a monopolized part of the market. Their market coverage in number of gas connections is almost 30% of the Dutch gas market. Continuon is a wealthy company and the capital intensive gas grids and they have monopolized position in their operational area due to regulations. This means that there is almost no threat from new entrants in regional gas transport services, because for regional network operations a licence is required from the DTe. However theoretically competition from other alternative energy sources can be possible(for example competition from heat grids). Another reason for their strong market position is that they are first mover in the introduction of new services and products, like smart metering and self services via the internet. They are also first mover in innovative and sustainable gas grid operations.
Compared to the other network operators Continuon is one of the first that has chosen for a separate positioning from the trading part of the old vertically integrated energy company. Therefore they are better prepared for the legal unbundling process.
The internal analysis of the strategy of Continuon leads to the conclusion that while the company has chosen the operational excellence strategy, new developments in the *Who* and *What* dimensions of their strategy are directed at meeting and fulfilling customer demands better. This is a strategy that better suits the customer intimacy strategy. In the past Continuon has not been a customer directed organization, and to meet the customer demands the company has to deal with adaptations in their technological and organizational dimension.
The conclusion can be made that at this moment a clear vision is lacking at Continuon about *How* they should approach the market and position the company in the current changed energy sector and this may threaten their strategic position in the near future.

4 Value configuration Analysis

In this Chapter the second empirical part of this research project will be represented.

Research Question 2

2. *What are the alternative strategic options for Continuon Netbeheer?*

The part of the research model that is covered in this chapter can be see in figure 11. The final result will be the development of alternative strategic options for Continuon for strategic positioning now and in the future.

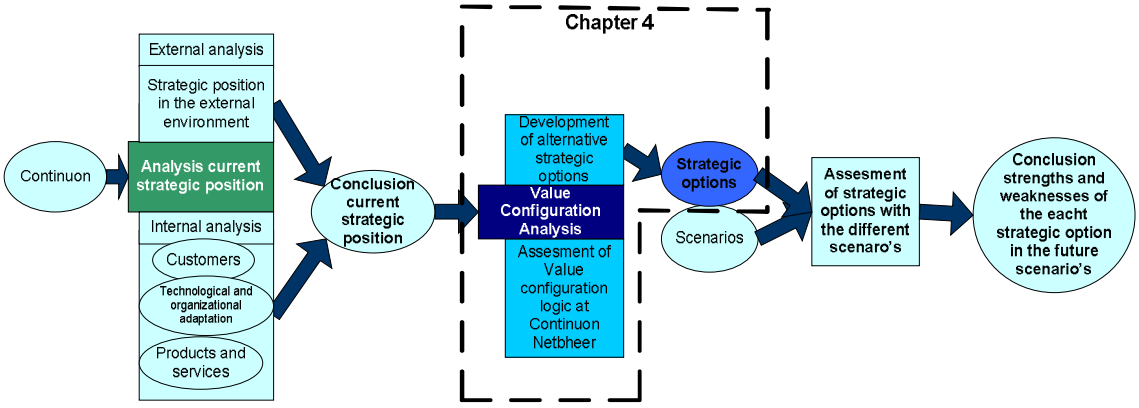


Figure 11 Research model

This chapter can be divided in two main parts. In the first part the current configuration of Continuon in the Dutch gas market will be assessed with the value configuration theory (section 4.1). This will be done by looking at the value system of the industry and the *Who*, *What* and *How* dimensions of the strategy of Continuon and matching these both to the different value configuration logic models. A conclusion will be made of what value logic model fits the best with the current configuration of Continuon.

In the second part, section 4.2, we will introduce different strategic options for Continuon that are based on the different value configuration logic models. The implications of these strategic options will be explained by looking at the *Who*, *What* en *How* dimensions of strategy in each of these strategic options. The main consequences of the strategic options for Continuon will also be discussed.

4.1 Value Configuration analysis

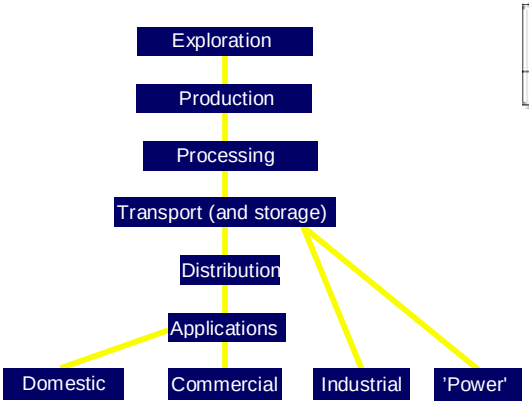
Value configuration theory is about strategic positioning. Therefore value configuration analysis should not only be performed at firm level but also the industry level has to be taken into account. The assessment of the current configuration of Continuon therefore consists of two parts:

- industry analysis (section 4.1.1)
- firm level analysis (section 4.1.2)

4.1.1 Industry level analysis

The larger value system in the industry is an important determinant for the logic of value creation. This means that the main determinants for the dominant value creation logic are reflected in the industry structure and dynamics.

Traditionally, the business value system of the gas sector could be seen as a system of interlinked chains (see figure 12). The supply and transport of gas to the final end-consumers at a regional level used to be in the hands of one company, the regional gas distribution company, before the liberalization of the energy market.



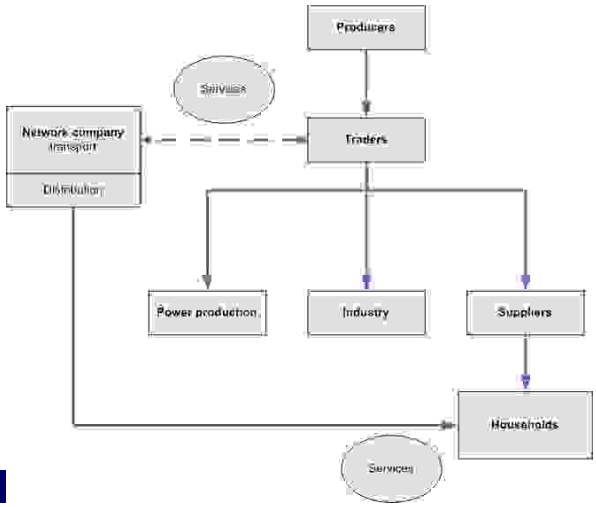


Figure 12 The Traditional Gas Chain[40]

Figure 13 Gas value system after liberalization [41]

The traditional gas chain changed due to the recent liberalization process, and supply and transport of gas are now functions of separated companies (see figure 13). The physical gas flow is flowing via the transport and the regional distribution grids. This part of the liberalized gas system represents the natural monopoly part of the gas sector and is heavily regulated. Therefore the national and regional network control companies are not allowed to take part in the commercial process.
In the situation after the liberalization a gas sector with specialized, vertically separated companies has emerged. As a consequence, the consumer has to get a connection from a network operator and can choose between multiple gas suppliers and metering companies.
The conclusion can be made that the dyadic buyer-seller-relationships in the old situation have been replaced by many-to-many relationships. Another important change is the necessity for a infrastructure for the information exchange in the liberalized market. Next to the gas distribution infrastructure an information infrastructure has emerged, that both provide interaction between the different parties in the gas sector. The changed characteristics of the gas sector have consequences for the business system in which Continuon operates as a network operator. Due to the above mentioned developments the gas sector is changing from a multisided platform and infrastructure industry in a value chain system to an industry that also has some network industry characteristics and moves toward a value network system.

4.1.2 Firm level analysis

In this section the current configuration of Continuon will be analyzed with the Value Configuration theory. The value configuration models that can be used to describe Continuon in its current configuration will be discussed, meaning: the way they see the company and what value creation logic is in use.

Product-Market combinations (the *Who* and *What* dimension)

The value discipline that Continuon has chosen "Operational Excellence", corresponds best with the value chain model, because the competitive strategy for a value chain is to achieve scale and focus on efficient use of capacity. Companies that pursue operation excellence seek to reliably deliver standard products and services at the lowest possible prices and their focus is on cutting costs. The 'value model' currently in use at Continuon, fits in the value chain logic as a measurement method for performance. It defines measures of value in the firm and focuses on performance measures and elements in order to improve efficiency and performance of the company.

[40] Wolters, M., 'Introduction to the Gas chain', Presentation 20 April 2005
[41] Arentsen, M.J., Künneke, R.W., '*National Reforms in European Gas'*, Elsevier Global Energy Policy and Economic Series, 2003

The value chain logic can also be concluded from the customer segmentation at Continuon. The customer groups defined are all end-consumers of gas. The energy suppliers and shippers are not explicitly defined as specific customer groups.
The two main services of Continuon are the connection of customers to the electricity and gas distribution networks and the transport of gas and electricity.
The primary function of Continuon as gas network controller is to link customers (gas suppliers, industrial users and households) with each other through the gas distribution infrastructure and to provide the transport of gas from the gas suppliers to the end-users.
The conclusion can be made that value is created by the ability of linking the different customers instead of by transforming inputs into products as in the value chain logic. In the main process the gas is only moved to a different location and not transformed into a different product.
The deliverables that are created are the gas transport service, the gas transport service capacity and the connection to the gas distribution infrastructure. When we look at the '*What*' dimension, we can conclude that the characteristics of the main products and services of Continuon do not fit with the value chain logic, but better fit with the value network logic.

Technological and organizational adaptations (the *how* dimension)

By looking at the organization of activities, the value chain logic seems most suitable to describe Continuon. When we look at the chain model representing the activities of Continuon, Asset management and the Service providers, the interdependence between these activities are represented as sequential.
The sequential dependency between activities is an important characteristic of the value chain logic.
The value chain logic model shows how each distinct task performed by a company, such as marketing, manufacturing, logistics management, and after-sales service, contribute to the creation of business value[42]. This model applies best to companies that operate a series of input-process-output activities and seek to build sustainable competitive advantage primarily through their effective use of financial and physical resources. A value chain company is integrated around the product, its production, and distribution process by automating and linking each step in the process. This is done to reduce cost and to increase flexibility[43]. Continuon has a functional structure that suits the distinctive tasks defined in the value chain logic model.
When we look at the focus on cost and value drivers, the conclusion can be made that the main focus has always been mainly on cost drivers. The cost driver capacity utilization is most important at Continuon as can be concluded from the focus on the efficient use of the capacity of the gas distribution infrastructure. The heavy focus on costs and cost drivers implies that the value chain best describes the value creation logic that is used at Continuon. In the value creation logic the focus on costs should also be deduced from the technology development directions. Most of the technology development directions at Continuon are indeed directed at process improvements to reduce cost levels, these are for example *Stretching current infrastructure capacity*, *Uncomplicated infrastructures*, *Interruption prevention* and *localization & Life span assessment.*
Few of them can be classified as directed at improving customer value and do not fit with the value chain logic. These are for example *Raise service level*, *Introduction of new energy sources* and *storage media* and *flexible distribution infrastructures*[44].
While there is a heavy focus on costs at Continuon, the safety of the gas distribution infrastructure is also very important and forms a threshold value for considering minimum cost levels. Safety can be seen as a value driver. Historically safety was implicitly taken into account in gas distribution operations. Nowadays this is changing with the development of a safety indicator.
The change toward the combined attention for cost and value drivers is an important sign of the existence of the value network logic in the company. A value network configuration is directed at influencing cost drivers as well as value drivers as opposed to the value chain configuration that is primarily directed at influencing cost drivers. This is not the only indication for the presence of the value network logic in the current strategy and configuration of Continuon.

[42] For an extensive description of the value chain model , see Attachment A
[43] http://www.concoursgroup.com/research/completed/project_dbi.asp
[44] Attachment D Innovation and sustainability policy of Continuon Netbeheer

The primary technology that is used to create value can be characterized as mediating, because the gas distribution infrastructure for facilitating the gas transport enables the linking of customers who remain independent of each other(the energy suppliers and the end-users of the natural gas). This technology can be classified as mediating. On the basis of the mediating technology Continuon could be classified as value network firm.
The main yields for a gas network control company consist of the charged network connection costs and the transport costs for the required amount of gas. Main costs come from the maintenance, control and extending of the gas network infrastructure[45]. This would imply that the value network logic should be used for the activities of Continuon, because companies following a value network logic typically charge their customers separately for the access opportunity to the mediating services and for the actual use of the mediating service. However Continuon seems to be stuck in the middle between the value chain and value network logic.

4.1.3 Conclusion on Value configuration analysis of Continuon Netbeheer and the gas industry

The traditional dyadic buyer-seller relationships that can be found in the value chain logic have been replaced due to the liberalization process by many-to-many relationships that better match with the value network logic.
The gas distribution infrastructure of Continuon transports gas from different energy suppliers instead of from only one supplier to the final end-users. The conclusion that has been made is that the Dutch gas sector is changing from a multisided platform and infrastructure industry with a value chain system into an industry that also has some network industry characteristics and moves toward a value network system.
The influence of the traditional model of gas distribution companies with combined supply and transport of gas and electricity can still be found in the value chain logic that is currently used in the unbundled energy supplier and network control companies. Gas and electricity companies have always been companies relying on capital intensive assets. Historically, this kind of companies essentially followed the logic of a value-chain framework[46] where value is created as goods move along the vertical chain (from production to final customers). In an industry with value network characteristics and many-to-many relationships the value chain logic might no longer be suitable.
At Continuon value creation thinking following the value chain logic is still mainly applied as we have seen in the value configuration analysis. The value chain logic can still be found in the strategy directed at operational excellence and the chain model for the activities performed by Continuon and the service providers.
We have also seen in the value configuration analysis however, that the products and services offered by Continuon and the primary technology in the current situation show characteristics that better match with the value network logic. Other development such as the changing focus toward not only cost drivers but also value drivers indicate a change towards the value network logic at Continuon.
Based on the value configuration theory the conclusion can be made that Continuon is currently in the middle of a transition between the value chain logic towards a value network logic model. It is important to make a choice for one of these value logic models or Continuon can end up stuck in the middle between these two value logic models and this can threaten their strategic position in the gas market now and in the future.

[45] Steinmann, K. 'Gas Transmission and Distribution-Present and Future', Eurogas 1999 Bochum, Syllabus Gastechnology 2004.
[46] Harris, J.G., Burgman, R.J., 'Chains, Shops, and Networdks: The Logic of Organizational Value', Research Report Accenture, May 2005

4.2 Strategic options

For Continuon to be successful and secure continuity of the company now and in the future, they have to continuously make strategic choices in terms of the three dimensions of strategy (The *Who*, *What* and *How* dimension). They will have to determine whether to continue network operations as it has been done in the past or to take a new approach and to do things differently or even to stop doing some activities at all.

First we will analyze the main restrictions and opportunities for strategic choice in the regulations (section 4.2.1). Next we will introduce the alternative strategic options (section 4.2.2). These strategic options will each be described following the *Who*, *What* and *How* dimensions of strategy. The main implications for choosing for each of these strategic options and the main advantages and disadvantages will also be addressed in section 4.2.3.

We will propose that, following the value configuration theory, Continuon has three main options available for positioning themselves in the future gas market:

- a value chain
- a value network
- a value shop configuration

The choice for type of value configuration is a major positioning choice for Continuon. Moving to a different type of value configuration model means choosing a different way of creating value and reorganizing activities in order to create value.

4.2.1 Regulations and strategic options

After unbundling, the activities that involve competition with other parties are not allowed for a network operator. This regulation sets important boundaries on business development and strategic positioning options for Continuon. For the identification of the options that are still available the regulative boundaries have to be taken into account. First, we will discuss the opportunity offered in regulations for a network operator as part of a network company for 'escaping' the regulated domain of network operations. Next, we will discuss the current government policy and the implications for the possible strategic options for a network operator.

The network operator as part of a network company

First, it is important to identify the difference between the definition of a network operator and a network company.

A network operator is a company that has been pointed out as operator for a part of the regional energy grids by the Electricity law 1998 and/or Gas law 2000.

A network company is defined as the group of which the network operator can be part of as group company.

For the group companies of the network company with exclusion of the network operator division, it is allowed to perform commercial activities as long as they don't involve energy production, trading or supply. This means that a network controller can be part of a group company in which commercial activities take place. An example of a company that has chosen for this organization structure is the company Gasunie as we have seen in the case study of the national network operator [47]. As national gas transport company they have chosen for a network company structure with three different group companies: GTS, Constructions& Operations and Participation & Development. (see figure 14)

[47] See Attachment C: 3 Case study Gasunie

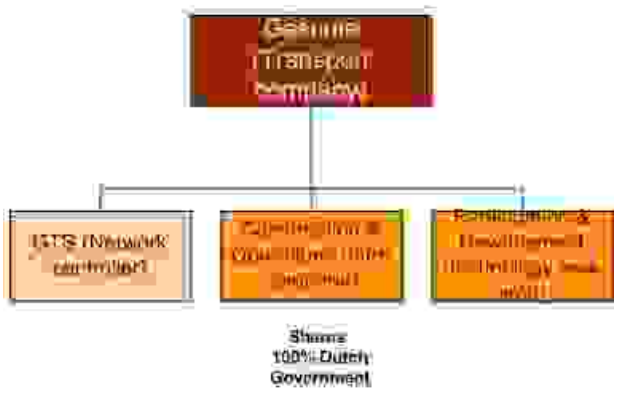


Figure 14 Organization structure of Gasunie

The GTS is the national network operator in this network company, that operates in the regulated domain. Construction & Operations is the part of the network company that represents the infra company part and performs the physical operations of the gas transport infrastructure for the GTS, but can also operate in the free domain. The third part, Participation & Development focuses on the development of new business activities and participation in international projects (for example the Balgzand-Bacton pipeline and Eurohub). It also includes the subsidiary Gasunie Engineering & Technology that performs activities in the area of consultancy, research & development and engineering services.

The reason for allowing commercial activities of group companies in a network company is that, in this way, the network company can operate, function and most importantly develop as a normal company. It offers the network operator the possibilities to realize benefits from synergy with similar activities or profit from knowledge and experience of the different network company divisions. It is expected that this will finally lead to more efficiency. It is up to the network operator to identify and realize these chances.
The conclusion can be drawn that important opportunities for business development can be found in the possibility of developing commercial activities in a network company for Contiuon Netbeheer.
For Continuon this would logically involve a merger with Nuon Netwerk Services. Already a large part of the activities of Continuon are outsourced to the service providers of Nuon Netwerk Services, and they are both active in the same gas market segment of gas distribution. However, Netwerk Services as infra division company of Nuon is able to perform and develop commercial activities. In fact, they develop complementary services and products to the regional gas transport services of Continuon in the free domain. In figure 15 a possible structure for Continuon as network company is given.

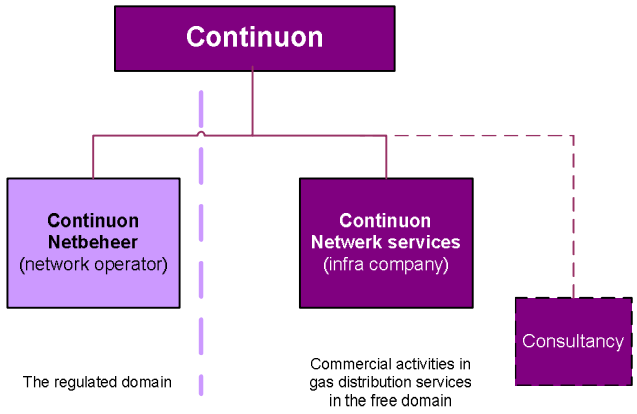


Figure 15 Continuon in a network company structure (the consultancy division is optional)

The network operator Continuon Netbeheer in this structure is mainly restricted to the regulated domain. Commercial activities outside this regulated domain can be developed in this structure in the infra company part of the network company, Continuon Netwerk Services.

The Government policy
According to the Minister of Economic affairs a network company has several options for business development in gas distribution services. These can, for example, be found in expanding and exploiting expertise in the area of pipeline construction, the development of innovative techniques in the area of gas infrastructures or gaining cost benefits due to up scaling and improved efficiency. These examples of business development opportunities can be matched to the different value configuration models that have been identified by Stabell and Fjeldstad.
The exploiting and expanding of the expertise in the area of constructing pipeline infrastructures can be classified as fitting with the value shop model.
The development of innovative techniques in the area of gas infrastructures in order to improve the quality of the gas transport service and improve the service range fits more with the value network model.
Business development by gaining cost benefits due to up scaling can be seen as more suitable with the value chain model but can also be seen as suitable in the value network model.

Conclusion on regulations and business development
Main boundary for business development for Continuon is that a network operator, due to regulations, is not allowed to perform any commercial activities. This restricts business development to increasing the efficiency and quality of network operations and further improving the offering by a better customer segmentation, or offering the same products and services in a different way (for example with internet services at continuon.nl). For the development of new products and services outside the regulated domain Continuon should therefore focus at the possibilities that can be found in the allowance of commercial activities in a network company of which a network operator can be part of as group company.
The conclusion can be made that Continuon has opportunities for business development in different areas, that can be matched to the three different value configuration models identified by Stabell and Fjeldstad.

4.2.2 The Value configuration models

As we have seen in the previous section (4.2.1), the value chain, value network and value shop configuration can each be seen as an alternative strategic option for the positioning of Continuon in the current and future market. The value configuration theory also states that choosing for a type of value configuration is a major positioning choice and can involve choosing a different way of creating value and a reorganization of activities. Following the characteristics of the three different value configuration models, we will describe the implications for the *Who*, *What* and *How* dimensions of strategy for Continuon in each configuration.

The Value chain configuration for Continuon
Choosing for the value chain configuration model means for the network operator a return to the position they had in the past in the vertically integrated energy company. The value chain option implicates continuing network operations as it has been done in the past and purely focusing on optimalizing current activities to reach higher efficiency levels.

The customers
In this value configuration model the end-consumers are seen as the customers, while the energy suppliers provide the input for the transformation process that consists of the one way transport of the gas.

The products and services
The choice for the value chain configuration implicates for Continuon that they should transform their network services, the connection to the gas distribution network and the gas transport services, into services with more product like characteristics[48]. This can be done by focusing purely on the input-process-output activities for changing the location of the natural gas.
For strategic directions choosing for a value chain configuration means a trade off between product differentiation versus. cost. Closer adaptation to customer needs creates higher value, but also destroys cost economies of scale.
The variation of the gas transport service and the volume flow are constrained by scale and capacity utilization. For Continuon this means they have to concentrate on cost efficiency and this has important consequences for the activities and business development directions.

The technological and organizational adaptations
The activities in this configuration should be purely directed at transporting the gas from the city gate stations to the end-consumer. This can only be done when the gas is purely transported in a one way direction.

The Value network configuration for Continuon
Choosing for the value network model means for a gas distribution network company a transformation of seeing the products and services they offer as service enablers of inter customer relations in stead of seeing the gas distribution services purely directed at transporting the gas to the end user[49]. For a network operator in the regulated domain there are in fact two options left for business development, the development of new technologies that increase the efficiency and capacity utilization of the gas grid and the development of new services adapted to specific customer segments. In the value network configuration both these business development directions can be followed, because this model enables a focus on both cost and value drivers.

The customers
It is important to acknowledge that, in the value network configuration, there exist supplier-customer relationships between the members of the network, but for Continuon in the value network configuration they should all be seen as customers. For the customer segmentation and the development of new products and services this means not only seeing the end-users of the gas as customers, but also the energy suppliers and shippers.

The products and services
Value for the customers is derived from the actual use of the gas distribution services, the transport capacity, the opportunity to make use of the gas distribution services (the access option) [50] and opportunities to increase the value for the customer should be found in one of these options.

The technological and organizational adaptations
The organizational processes and activities should be directed at linking actually and potentially inter-dependent customers. In the case of Continuon these are the energy suppliers and the final end users of the gas. The primary activities in a value network configuration should be divided in three main categories:
- Network promotion and Contract management,
- Service provisioning
- Network infrastructure operation[51].

[48] Andersen, E., Fjeldstad, Ø., Presentation 'Transforming value creation: Implications for Business Models and Business Practices'
[49] Ibid.
[50] Stabell, C.B., Fjeldstad, Ø.D.,'Configuring value for competitive advantage: on chains, shops, and networks', *Strategic Management Journal,* Vol. 19 1998 pag. 413-437
[51] See attachment A

The performance model for the value network configuration should be focused on measuring the utility and progress of relationships and organizational capital. Important measures are the percentage of flawless transactions, network expansion rates, and the ratio between buyers and sellers, to predict the health and growth of the gas distribution network.
The operations rely on the gas infrastructure. The gas grids and metering instruments enable the interaction between the energy suppliers and the end-users by enabling the transport of gas. This kind of technology can be classified as mediating technology. Operating and controlling this gas distribution infrastructure as mediating technology requires standardization and the ability to handle multiple customers at the same time at different locations. Standards are critical for the coordination of the reciprocal activities for the operation of the gas grid, because they enable the different activity segments to operate in compatible ways.
The profitability of the network is the key for a value network company. The yields from the gas control tasks in the regulated domain are mainly determined by the regulation activities of the DTe.
Other yields for Continuon come from letting out gas and electricity meters, a task that is performed in the free domain.
Costs will mainly come from operating the infrastructure and delivering the energy transport service. For Continuon a large part of these costs are for the service providers that perform the maintenance and inspection of the electricity- and gas infrastructure, customer service and invoicing. The other part of the costs will come from investments in the infrastructure, for laying new pipelines and rehabilitating old gas pipelines[52]. Most of these costs can be classified as fixed costs.

The Value shop configuration for Continuon
The choice for a value shop configuration potentially doesn't seem the most suitable configuration and would involve the largest change for a gas distribution network company in value creation typology. For the network operator tasks this configuration can not be applied, because of regulation by the DTe, that states that knowledge about the construction and operations of gas grids may not commercially be sold. This means that the value shop is not a very realistic strategic option for Continuon in its current organization.
However, in a network company holding a separate consultancy business unit could be established that can be focused at exploiting and expanding the expertise in the area of constructing and operating pipeline infrastructures(see figure 15 in section 4.2.1). The exploiting and expanding of the expertise in the area of constructing pipeline infrastructures can be classified as fitting with the value shop model.

The customers
Main customers in the value shop configuration are not the end-users and suppliers of the gas, but other network operators, companies with own private gas grids and construction companies are the main customers here.

The products and services
The deliverables created in this configuration are solved problems. For Continuon this would involve consultancy services in the area of constructing and operating (gas) pipeline infrastructures.
Strategic positioning in the value shop configuration involves a trade-off between knowledge depth versus breath. Thus, specialization and integration increase value, but are constrained by knowledge leverage[53]. This means choosing between the ability to solve a broad variety of more general problems or a focus on solving complex cases that require specialization.

The technological and organizational adaptations
The organization process of this consultancy business unit in the value shop configuration should be directed at knowledge and relationship management in order to mobilize case dependent competencies and activities under high uncertainty and information asymmetry.

[52] Annual report Continuon Netbeheer network company, 2004
[53] Andersen, E., Fjeldstad, Ø., Presentation 'Transforming value creation: Implications for Business Models and Business Practices'

Activities should be scheduled at needs of the clients' problem to be solved. This means focusing on using the experience on managing, operating and constructing energy infrastructures and thus operating as problem solver for different customers.
For the performance model, a value shop configuration means looking at a different set of measures as opposed to the value chain and value network configuration. Measures such as personnel churn, utilization rates and unplanned project discounts are important for determining performance of the business unit asset management in the value shop configuration.

4.2.3 Main consequences of the different strategic options

Each strategic choice for a value configuration model implicates different strategic development directions for Continuon or for a Gas distribution network company of which Continuon could be part of as a group company.
To identify the consequences for business development directions and the main advantages and disadvantages of each strategic option, we will try to classify them in a product/market matrix for strategic development directions[54].

The product/market matrix
The matrix (see figure 16) considers the development directions 'available' to an organisation in terms of the market coverage, products, competence base and expectations. Usually a combination of development directions is pursued.
The different strategic development directions that any company could take are:

- *Protect/Build*
  Protecting an organisations position with its existing products and competences by consolidation and/or market penetration
- *Product Development*
  Building an organisations position on its existing competences and/or with new competences by developing of new products beyond customer expectations
- *Market Development*
  Building an organisations position by emerging or creating new market opportunities by entering new segments and uses with existing products, with new competences and beyond current customer expectations
- *Diversification*
  Building an organisations position by entering completely new markets with new products or services, building on existing and new competences beyond customer expectations.

The three strategic options that have been identified - the value chain, the value network and the value shop configuration - are in fact a choice for different strategic development directions. This can be seen in figure 16 and will be explained in following sections. Also, the main advantages and disadvantages of choosing for one of the specific value configuration models for Continuon will be explained.

[54] Johnson, G., Scholes, K., Exploring Corporate Strategy, Prentice Hall, 6th edition 2002

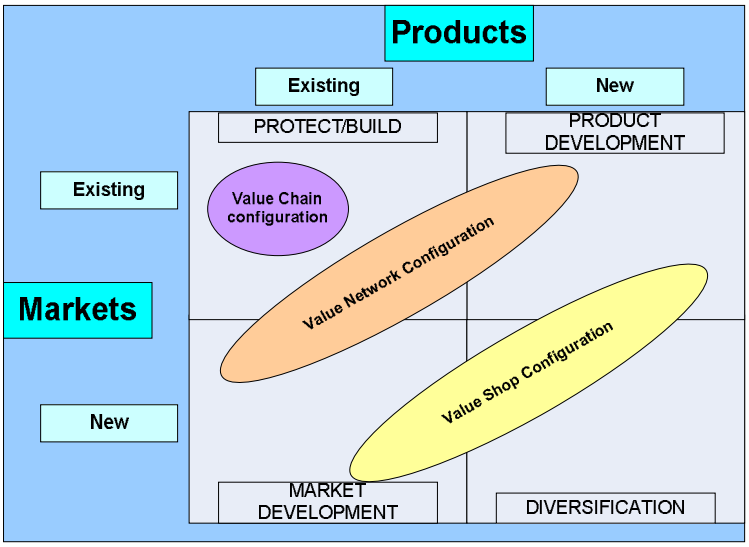


Figure 16 Strategic development directions of value configuration models for Continuon

The value chain configuration

As we have concluded before, choosing for the value chain configuration model means for the network operator a return to the position they had in the past in the vertically integrated energy company and a focus on the input-process-output activities for changing the location of the natural gas (the gas transport function). This strategic option involves maintenance of the current market share in the regional gas distribution market, thus focusing at activities in the existing markets.

Business development is directed at improving performance of current business processes, and improving the value of current main products or services. For Continuon, the value chain configuration also implicates withdrawing from those products and services that are not directed at the natural gas transport activities. Therefore the value chain configuration as strategic option for Continuon is positioned in the existing markets-existing products part of the matrix.

The disadvantage of choosing for a value chain configuration for a network operator is that it means seeing gas distribution operations as a pure cost centre. By focusing on the transaction-processing unit costs, possibilities for value creation are restricted.

Another difficulty is that almost all activities of a gas distribution network company in the value chain configuration, will have to be classified into a single major activity class: operations.

Another problem is that, while the transaction process with the customer involves sequential activities, this process can only take place with a contract with an energy supplier and an infrastructure that facilitates the gas transport between the energy supplier and the end user. This means that different activities have to performed simultaneously and have reciprocal interdependence between primary activities instead of sequential as assumed in the value chain model.

Also the dealing with energy suppliers and end users, that are in fact both customers for the gas distribution services of Continuon is difficult to fit in the value chain model.

This will restrict possibilities of improving value creation in gas distribution services and the strategic position of Continuon.

The value network configuration

Choosing for the value network configuring as strategic option for Continuon (whether or not as part of a network company) means competing on the size of its network, the amount of connections, and the different types of services that are offered. This implies competing by balancing the scope of the network with the range of services. Strategic development should be directed at balancing the network size (reach), capacity and transport services (richness).

In comparison with the value chain option that is directed at standard products and services for the mass market, the value network offers possibilities for segmenting the market and differentiate in the different products and services. This fits with the recent developments at Continuon Netbeheer that are directed at segmenting the market in subsegments with specific characteristic and adapting the products and services to the demands and expectations of these market segments.
For strategic development directions the above means a focus at product development by developing new services for existing market segments. There is also the possibility of entering new markets with existing products. However, maintenance of the current market share and improving current business performance is also important. Therefore the value network as strategic option can be positioned in three parts of the matrix: Protect/build current market position, Product development and Market development.
The Value Network model is also most suitable with the network company structure option for Continuon considering the current business value system in gas distribution and the activities performed by Continuon and Nuon Netwerk Services. The Value Network model fits with the activities performed and a strategy directed at operation efficiency as well as at product differentiation by adapting offerings to specific customer segment needs.

The costs that are made in this configuration are predominantly fixed costs. Therefore, it is important to manage the revenue yield of the whole network instead of the individual connections[55]. This seems perfectly applicable for gas distribution, because, as we have seen in previous chapters, capital costs of the gas infrastructure are fixed for over 40 years, and the influence of changing a single offering is almost none for these costs[56].

The value network configuration offers a gas distribution network company in fact three strategy options[57] for improving the strategic position of Continuon:

- *Optimize pricing*
  Treating each of the links between customers as separate service and price differently
  This is a common used strategy in value network companies, like telecommunication or airlines. Here, the strategic pricing of individual connections is determined by their impact on the overall network[58]. This is done with a capacity tariff for network operators. Gas distribution tariffs however, are fixed and determined by the DTe and makes differentiation for different customer segments difficult. Theoretically there is the possibility for different tariffs in the possibility of non-discriminatory negotiated access for customers with specific characteristics and circumstances. Non-discriminatory implicates that this different tariff is valid for each customer with the same characteristics and circumstances. This option has not yet been used at Continuon, but could offer possibilities for differentiation in distribution tariffs for specific customer segments with special characteristics (for example a different gas distribution tariff for customers for natural gas for vehicles with a gas demand during the night when they need to refill their cars and normally there is a low demand for gas in that period)
  Differentiation for customer segments with different requirements for reliability of the gas grid however, could be provided with different compensation tariffs in the compensation agreement.
  Complementary regional gas distribution services could be performed in the free domain by the service providers that are part of Nuon Netwerk Services. These can be priced differently for different customers groups, because they are not performed in the regulated domain. Examples of these services can be: short term gas storage, consultancy, pooling, exploiting micro WKK systems etc.[59]

[55] Andersen, E., Fjeldstad, Ø., 'Casting off the chains', ***EBF***, issue 14, 2000
[56] Inteview mr. Corton CEO Continuon Netbeheer, 28 September 2006
[57] Andersen, E., Fjeldstad, Ø., 'Casting off the chains', ***EBF***, issue 14, 2000
[58] Ibid.
[59] Anonymous, 'The technological infrastructure of the European gas market', Syllabus Gastechnology 2004, University of Twente

- *Increase linking opportunities*
  This strategy involves increasing the number of connections that can be facilitated over a network. Network companies can increase the value of their own services by stimulating good activity complement networks. An example of this in energy transport could be integration and adjustment of the gas grids to the electricity grids to increase substitution between different energy sources meeting the same energy demand.
  There is not yet a legal connection duty for gas (opposed to electricity connection that legally has to be provided). However, the gas connection coverage in the Netherlands is very high, almost all households are connected to the gas grid[60]. This means that there are not many opportunities left for increasing the number of connections. One of the opportunities left is in new gas applications that will need new connections to the regional gas grid like, for example, natural gas for vehicles at gas stations or natural gas for distributed energies. Other opportunity can be the transport of other alternative gases besides natural gas, for example hydrogen, biogas or carbon dioxide (carbon dioxide pipelines to greenhouses)
- *Internalise transactions*
  Keeping customers in your own network, without interconnection with other networks can provide major cost reductions. For example: an airline with the right set of landing rights can keep customers travelling within its own network and does not require interconnection with others. In gas distribution services this could for example involve trying to provide all complementary gas distribution services for the customer within one company. In this way a gas distribution company can offer their customers a complete end-of-pipe solution that fits their specific needs.
  This business development opportunity fits more with the organization structure of the network operator as part of a network company, because it would also involve offering services and performing commercial activities that are not allowed by a network operator.
  Other example of internalising transactions in gas distribution and transport services can be found in cooperating with the national network operator to decrease costs (also involves a considerable energy saving) of gas compression along the physical gas chain(from injection in the national transport gas pipelines to the final connection tot the households). These compression costs can theoretically be decreased considerably by better matching the pressure ranges in the different parts of the national and regional gas distribution pipelines.

[60] Anonymous, 'Energie in Nederland 2005', Energiened, 14 juni 2005

The value shop configuration

The value shop configuration involves the largest change in strategic directions and activities of a gas distribution network company; because it would involve the introduction of problem solving activities for third parties, and Continuon has never done this before. It would also mean a complete change in not only customer base but in also developing new services. Instead of competing on efficiency they would have to compete on reputation and their problem solving skills by building and extending their existing competences in the area of constructing and operating pipeline infrastructures. This would involve a major change of culture, and is a major disadvantage of the value shop option for Continuon. However, when in the future most large business customers decide to construct and operate their own energy grids, this would be one of the few opportunities left for gas network operators to ensure their continuity.

The asset management division of Continuon, has some experience with consulting services. When they were still part of Nuon Netwerk Services they did a project for the construction of a new gas distribution infrastructure in Dubai. Continuon also did an attempt to perform network operations for the private gas distribution infrastructure of Schiphol, but this failed[61]. Despite the fact that there is some experience with consultancy services, these were only few projects and means that Continuon has not yet a reputations to start with a consultancy company, and this will be an important weakness of the value shop option.

We can classify this strategic option as mainly directed at diversification, because it takes the organization away from its currents market or product by developing new competencies (problem solving).

4.2.4 Summary Business development in the three strategic options

Regulations set important boundaries in for all three strategic options, because no commercial activities are allowed by the DTe for a network operator. However, we have also seen that a network operator is allowed to be part of a group company or a gas distribution network company, in which commercial activities can take place. This is an important opportunity to develop commercial activities outside the regulated domain. Another conclusion was that this network company structure best fits with the value network option. The value network options also offers the most business development opportunities and a combined focus on efficiency as well as on developing customer directed services and products.

Examples of the products and services that can be developed (new and existing) , that have identified for each strategic option in this section, are represented and summarized in the product-market matrix. (figure 17)

[61] Lambregts and van der Vegt, interview 28 December 2006

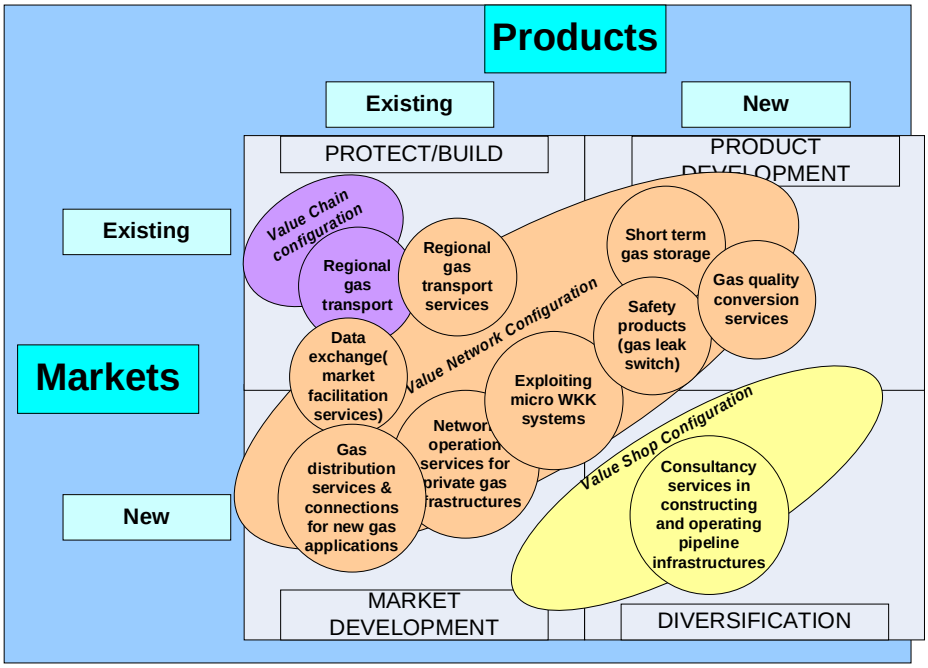


Figure 17 Examples of products and services in the strategic development directions of value configuration models for Continuon

4.3 Summary of the Value configuration analysis

In section 4.1 the current configuration of Continuon in the Dutch gas market has been assessed with the Value Configuration theory. The conclusion that has been made from the analysis of the value system of the Dutch gas industry and the *Who*, *What* and *How* dimensions of strategy was that the current configuration of Continuon does not fit consistently in either one of the three value configuration models of this theory. Continuon seems to be changing from a company with a value chain logic towards a value network logic.

In section 4.2 we have introduced different strategic options for Continuon that are based on the different value configuration logic models. The strategic options for positioning Continuon in the gas market that have been developed on the basis of the Value configuration Theory are the value chain, the value shop and the value network configuration.

Regulations set important boundaries in both configuration models, because no commercial activities are allowed by the DTe for a network operator. However, we have also seen that a network operator is allowed to be part of a group company or a gas distribution network company, in which commercial activities can take place. This is an important opportunity to develop commercial activities outside the regulated domain.

The conclusion can be made that all three different value configuration models can theoretically provide an option for a strategic position in gas distribution services if Continuon chooses for a network company structure, like the Gasunie has already done. However for Continuon as pure network operator only the value chain or value network model can be applicable due to regulative boundaries. Each of the strategic options implicate different business development directions for Continuon.

The exploiting and expanding of the expertise in the area of constructing pipeline infrastructures is a strategic option in the value shop configuration model. This option is considering the nature of network operations and the lack of experience and reputation in consultancy services of Continuon not a very realistic option.

The development of innovative techniques in the area of gas infrastructures in order to improve the quality of the gas transport service and improve the service range is a strategic option in the value network configuration model. Business development by gaining cost benefits due to up scaling can be a strategic option in the value chain configuration model but can also be suitable in the value network configuration model.

5 Assessment of the strategic options in the different scenarios

In the previous chapter we have introduced three alternative strategic options for Continuon. In this chapter we will evaluate the suitability of the strategic alternatives in the perspective of four possible scenarios for gas market development. The research question that will guide this evaluation is:

> *What is the suitability of the strategic options in the different scenarios for business development in gas distribution services for Continuon Netbeheer?*

First we will introduce the four scenarios for gas market development in the future in section 5.1. Next part of this chapter, section 5.2 consists of an analysis of the implications of the three strategic options in each scenario. The strategic options in each scenario will be assessed following the *how*, *what* and *who* dimensions of strategy. Finally we can draw a conclusion about the suitability of the different strategic options. The part of this research study that will be discussed in this chapter is represented in figure 18.

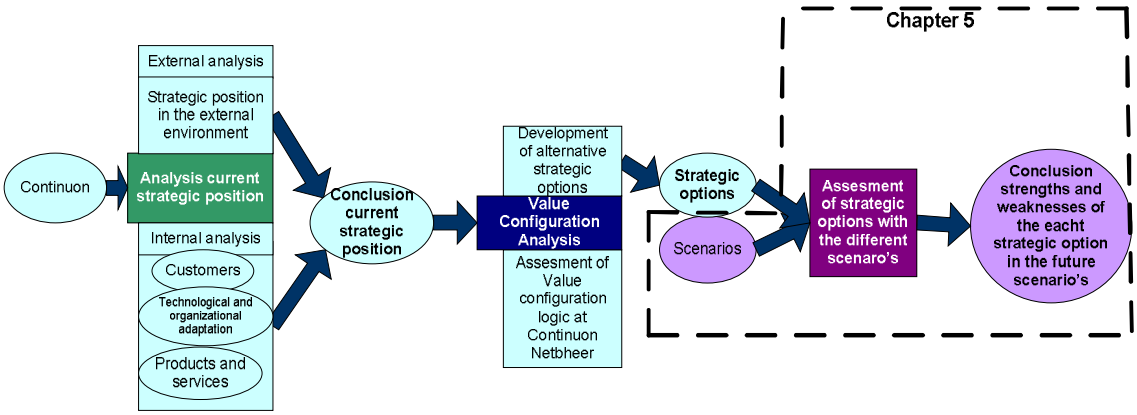


Figure 18 Research model

5.1 Introduction to the scenarios

Each one of the four scenarios presented is a description of one possible future and how it might develop, thus an alternative image of how the future might unfold. In this study the scenarios are not developed, but the results of a scenario analysis at Continuon have been used as input. This scenario analysis was performed in 2004 by Nuon Asset management for Continuon in its role as network controller.

The four scenarios sketch an image of the energy supply system, energy demand and infrastructure in the near future (2015).

First the different scenarios with their main characteristics will shortly be introduced in section 5.1.1. Next the characteristics of the *who*, *what* and *how* dimensions in each scenario will be analyzed. In section 5.1.2 we will describe the customers and their demands and expectations (the *who* and *what* dimensions). Next the implications for gas distribution operations (the *how* dimension) in each scenario will be described in section 5.1.3.

5.1.1 The Key driving forces in each scenario

The two forces in the environment of Continuon with the greatest unpredictability and largest impact on energy distribution that were identified in the scenario study for Continuon serve as the two scenario-axes on which the four scenarios are based(see figure 19). These main two forces are the sustainability of the society and the energy production (central or local).

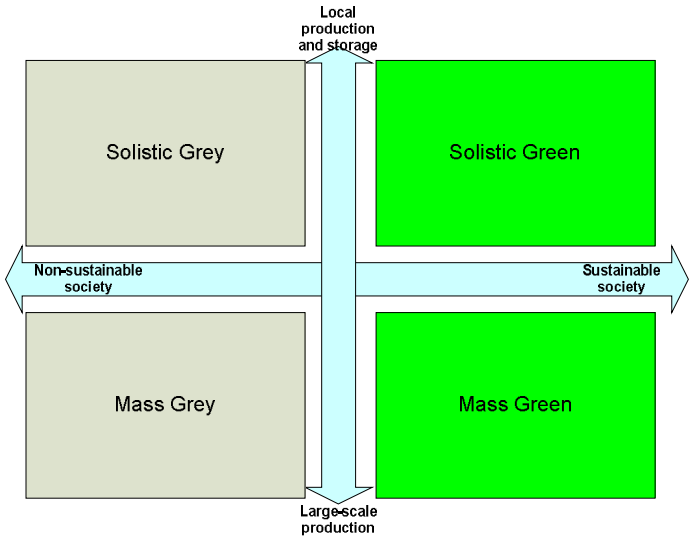


Figure 19 The Scenario Matrix

The different scenarios will shortly be introduced with their main characteristics and general key driving forces in the environment (for a more detailed description see Attachment E).

Mass Grey

Mass Grey is a scenario based on a combination of a stagnating non-sustainable society and large scale energy production. Other key forces in this scenario are a decreasing population growth, obsolescence of the population, decreasing society attention for a renewable and sustainable environment and economic growth.

Solistic Grey

This scenario is based on a combination of a stagnating non-sustainable society and local production and storage of energy. Key forces in this scenario are population growth, high rate of obsolescence of the population and economic growth. Technological developments in the area of micro heat and power enable a growing rate of local energy production.

Solistic Green

This scenario is based on a combination of local production and a growing sustainable society. Key forces in this scenario are a continuing growth of population, high rate of obsolescence of the population, society attention for renewable and sustainable policies and strong economic growth. Technological developments have enabled lower costs for energy storage and local energy production, and energy storage systems are used on large scale.

Mass Green

This scenario is based on a combination of large scale energy production and a growing sustainable society. Key forces in this scenario are continuing growth of population, high society attention for renewable and sustainable policies and strong economic growth. Technological developments have renewed interest and use of nuclear energy and nuclear fusion for energy production.

5.1.2 Customer demands and expectations (*who* and *what* dimensions)

For the customer demands and expectations we will look at different factors in the scenarios. These factors are:

- *Market growth*
  The market growth in a scenario can be measured by looking at the growth rate in the number of connections to the gas distribution grid, populations growth and/or economic growth rates
  This is an important factor for evaluating the different strategic options in the scenarios, because we have seen in chapter 4 that each strategic option implicates a focus on different strategic directions. For example when current markets are saturated or declining in a future scenario this would mean that the opportunity of a strategic option for entering new markets or

new market segments for new gas appliances can be an important advantage of a strategic option.

- *Customer Needs/Demands for comfort products and services*
  To measure the demand for comfort products we will use the rate of obsolescence of the population in the scenarios. The assumption for choosing for the rate of obsolescence of the populations is that domestic customers are important customers for gas distribution services, and an aging customer group has a growing demand for comfort products.
- *Customer Needs/Demands for environmental friendly gas distribution services*
  To measure the demand for environmental friendly gas distribution services we will use the society attention for a sustainable environment in each scenario. A high society attention for a sustainable environment will mean that business and domestic customers will demand gas distribution services that are environmental friendly.
- *Gas demand pattern*
  To measure the gas demand pattern we will look at the fluctuations in gas demands in each scenario, these can range from a more continuous flattened demand pattern to a more seasonal based demand pattern. A flattened demand pattern exists when the gas demand peak in the winter season is flattened due to energy savings, improved insulation and a changing climate, while the demand for gas has risen in the summer season for cooling purposes.

The different values for the different factors in each of the four scenarios are represented in figure 20 (for an explanation of this figure see attachment E of the Attachments report).

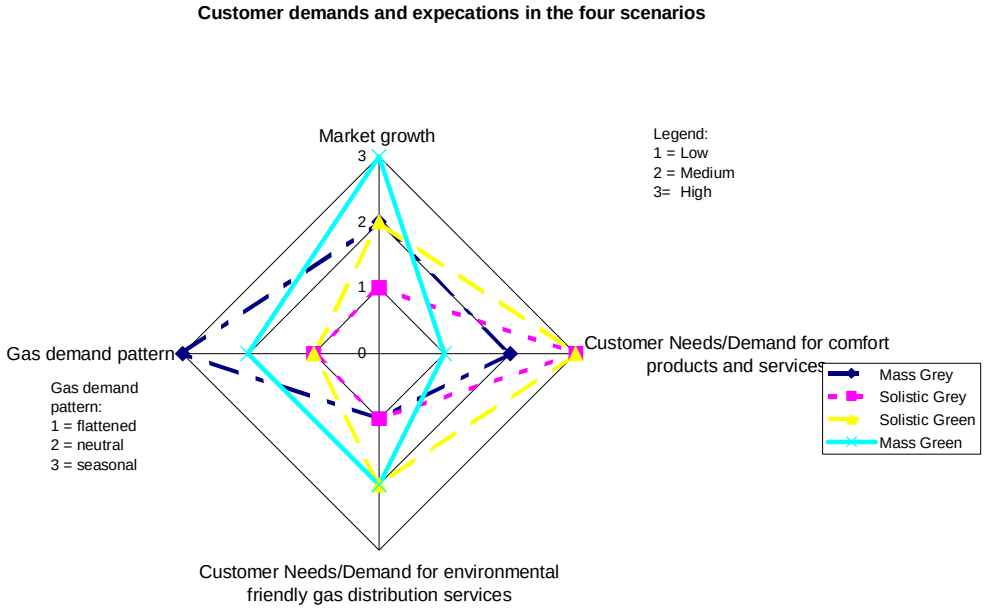


Figure 20 Polar representation of customer demands and expectations

5.1.3 The consequences for gas distribution of each future scenario (the *how* dimension)

The consequences for gas distribution of each scenario can be divided in different parts:

- *The gas flow*
  This gas flow can be unidirectional or multidirectional in the different future scenarios. A unidirectional gas flow means that at city gate station gas is injected in the regional gas grid and exits the grid at the end user. This gas flow can change into multidirectional when gas is also locally injected into the regional gas grids. For example gas injected from refuse dumps, local gas storage facilities or hydrogen, which is locally produced.

- *The Complexity of gas grid operations*
  This reflects what will be demanded by operating the gas grid and the changes in gas distribution structures in each scenario. This can be measured by looking at the expected fluctuations in gas demand, the directions of the gas flow (uni- or multidirectional) and expected performance of the gas grid. Gas grid operations can become less complex due to the flattening of peak gas demand and a higher demand for gas during the traditional lower demand periods. Higher demands in performance of the gas distribution infrastructure to be able to secure safe and reliable gas transport can increase the complexity of gas grid operations. Multidirectional gas flows increase complexity of gas grid operations.
- *The role of IT systems in gas grid operations*
  The role of IT systems in gas grid operations is expected to be high in each scenario
- *The transported gas volume (regional gas grids)*
  The increasing demand for gas caused by the local energy production(for example with micro heat and power units) will increase the transported gas volumes and can cause capacity problems in some parts of the gas infrastructure. Also increased demand for energy due to increasing population and/or economic growth can lead to higher transported gas volumes.
- *Sustainability of gas grid operations*
  Increased attention of the society for a renewable and sustainable environment will lead to changes for the operations of the gas infrastructures. Natural gas is a 24 times more stronger greenhouse gas than carbon dioxide and decreasing the number of gas leaks will be important. This will mean that rehabilitation of old existing gas grids of non-renewable and leakage sensitive materials will become a main objective in gas grid operations.

The different values for the different factors of gas distribution operations in each of the four scenarios is represented in figure 21 (for an explanation of this representation see attachment E of the Attachments report).

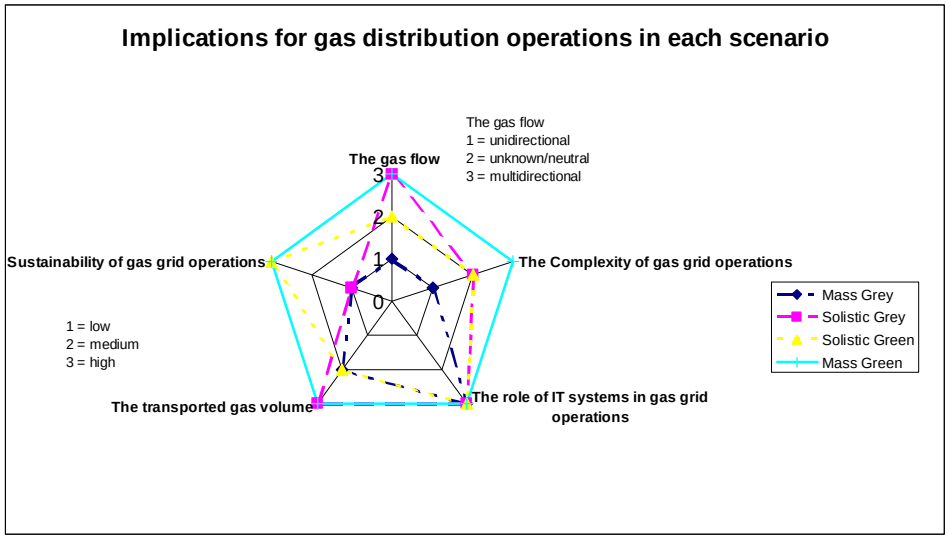


Figure 21 Polar representation of the implications for gas distribution operations

5.2 The assessment of the strategic options in the scenarios

Some strategic options might succeed better than others in the different scenarios. The assessment of a strategic option in the scenarios can be seen as dealing with the motives of an organization in choosing for a strategic option in relation to their strategic position and possible future developments.
The motives for pursuing some strategic positioning options and not others can be:

- Environment-based motives: does the strategic option exploit opportunities in the environment and avoiding threats
- Expectations-based motives: does the strategic option meet the expectations created by the regulatory framework, powerful stakeholders, society and culture

- Resource-based motives: does the strategic option capitalize on organisation's strengths and avoiding or remedying weaknesses

These three motives will be used to evaluate each strategic option in the future scenarios. The first two motives are more directed at the *who* and *what* dimensions, while the last motive is more directed at the *how* dimension. For the evaluation of the strategic options, each strategic option will be matched to the four scenarios to be able to draw a conclusion on the suitability of the strategic option in each scenario[62]. In section 5.2.1 the results of the assessment of the suitability of the Value chain model for Continuon in the different scenarios will be represented. Next in section 5.2.2 and 5.2.3 the results of the assessment of the suitability of the Value Network model and the Value shop model for Continuon in the different scenarios will be given. The results are represented in three tables by matching the characteristics of the strategic options to the four scenarios. When the strategic option fits in a scenario, this will be represented with the colour green, if there is no fit this will be represented with the colour red, the colour orange represents neutrality.

5.2.1 The Value chain configuration

The value chain option for Continuon as network operator implicates a focus on the basic gas transport service and the conventional customer segments. The main focus in this strategic option will be on influencing cost drivers, and therefore economies of scale and efficiency gains are pursued. The assessment of the value chain option in the four different scenarios is represented in table 9.

The conclusion can be made that the value chain option is only suitable in the Mass grey scenario. In the Mass grey scenario gas distribution operations are not very different form the current situation. The main difference between the current situation and the Mass grey scenario is that there will be no need for the development and integration of sustainable energy sources and related gas distribution services.
In the value chain logic Continuon can concentrate on their basis gas transport service in the existing markets and this will mean a strategy focused on protecting the existing markets by improving the efficiency levels. However it doesn't fit the development of new products and services or the entering of new markets or market segments. This means that the value chain option is only suitable in the mass grey scenario and not in the other scenarios on the basis of the environment-based motive.
The value chain option has proven to be unsuitable in the solistic grey, solistic green and mass green scenario on the basis of the expectations-based motive. This is mainly caused by the fact that in these scenarios customers demand and expect more customer directed products and services, and this does not fit the value chain logic that is directed at offering a basis service at low costs. Another important cause for the unsuitability in the solistic grey, solistic green and mass green scenarios is that the traditional supplier-buyer relationships are changing towards many-to many relationships in these scenarios due to developments such as local storage and/or local injections of natural gas in the regional gas grids. The local injections also cause a change in the traditional unidirectional gas flows towards multidirectional gas flows. This does not fit with the sequential interdependence and long linked technology (a product/service flow in one direction) in the value chain option.

[62] See Attachment E Chapter 7 for a more detailed description of the match between the strategic options in the different scenarios

Table 9 Assessment of the suitability of the Value chain option for Continuon in the four different scenarios

			The Value chain		
			Who	*What*	*How*
			End-users of the natural gas, more traditional supplier-buyer relationships	Basic gas transport service at low costs	Long linked technology and sequential activity
Mass Grey	Who	The end-users of the natural gas, supplier-buyer relationships			
	What	No interest in new (environmental friendly) gas distribution services			
	How	Unidirectional gas flow			
Solistic Grey	Who	The end-users of the natural gas and energy suppliers(local injections), many-to-many relationships			
	What	Growing needs for comfort products			
	How	Considerable increase in the transported gas volumes, local injections of gas, multidirectional gas flow			
Solistic Green	Who	The end-users of the natural gas, many-to-many relationships (local injections from gas storage facilities)			
	What	Growing needs for comfort products and environmental friendly gas distribution services			
	How	Injection from local gas storage facilities, multidirectional gas flow			
Mass Green	Who	The end-users of the natural gas, and energy suppliers(local injections), many-to-many relationships			
	What	growing need for environmental friendly gas distribution services			
	How	considerable increase in the transported gas volumes			

5.2.2 The Value Network configuration

The value network option for Continuon implicates facilitating mediating services between buyers and suppliers, but to Continuon they are all customers. The main focus in this strategic option will be on influencing cost drivers as well as value drivers, thus scale and efficiency gains are pursued as well as extending the gas distribution services range with product differentiation. The assessment of the value network option in the four different scenarios is represented in table 10.

			Who	*What*	*How*
			Both the end-users of the gas and the energy suppliers, many-to-many relationships	Gas distribution services (mediating services: the service itself, service capacity and service opportunity)	Mediating technology, reciprocal and pooled activities
Mass Grey	Who	The end-users of the natural gas, supplier-buyer relationships			
	What	No interest in new (environmental friendly) gas distribution services			
	How	Unidirectional gas flow			
Solistic Grey	Who	The end-users of the natural gas and energy suppliers(local injections), many-to-many relationships			
	What	Growing needs for comfort products			
	How	Considerable increase in the transported gas volumes, local injections of gas, multidirectional gas flow			
Solistic Green	Who	The end-users of the natural gas, many-to-many relationships (local injections from gas storage facilities)			
	What	Growing needs for comfort products and environmental friendly gas distribution services			
	How	Injection from local gas storage facilities, multidirectional gas flow			
Mass Green	Who	The end-users of the natural gas, and energy suppliers(local injections), many-to-many relationships			
	What	growing need for environmental friendly gas distribution services			
	How	considerable increase in the transported gas volumes			

Table 10 Assessment of the suitability of the Value network option for Continuon in the four different scenarios

The value network configuration enables a focus on efficiency as well as on creating extra value for the customers by improving the gas distribution services. It enables building and protecting the current existing market, but also enables the development of new services for existing market segments. On the basis of the resource-based motive the value network option could be suitable in all the scenarios. However the conclusion can be made from the assessment that the value network configuration is not suitable in the mass grey scenario. In the solistic grey, mass green and solistic green scenarios, the end users of the gas have needs for customer directed products and services that meet their expectations.

The value network option can provide these services by developing new services for existing markets.. The multidirectional character of the gas flows in these scenarios fit with the mediation function of the gas grid in the value network configuration. On the expectations- and environment based motive the conclusion can also be made that the value network option is suitable in all the scenarios except for the mass grey scenario

5.2.3 The Value Shop configuration

In the previous chapter (chapter 4) we have concluded that the value shop configuration involves the largest change in the strategic directions and activities of a gas distribution network company. This strategic option is only possible in a network company with a separate consultancy business unit. This consultancy business unit will have the value shop configuration and will be directed at solving customer problems in the area of constructing and operating pipeline infrastructures.
The customers in this strategic option are very different from those customers of the gas distribution services in the value chain and value network configuration. The customers for the problem solving services in this area will be for example large business customers with their own private gas grids, network operators, or other companies that are active in gas distribution or gas grid construction.
The need for problem solving services in gas distribution in the four scenarios will be measured by looking mainly at the complexity of gas grid operations, the sustainability level in gas distribution operations and the uni- or multidirectional character of the gas flow. The assumption made is that increased complexity and a multidirectional gas flow will lead to a demand for problem solving services in gas grid operations. A high sustainability level in gas distribution operations will also lead to an increased demand. Continuon is market leader in innovative and sustainable gas grid operations and will therefore have knowledge that other companies do not have in these areas. A business unit for consultancy in these areas for other network operators or other business parties is a possibility to use this knowledge to create extra value. The assessment of the value shop option in the four different scenarios is represented in table 11.
The value shop option proves to be suitable in the solistic green and mass green scenario on the basis of the expected need for problem solving services in gas distribution (the expectations-based motive). The value shop configuration has proven to be unsuitable in the mass grey scenario and can possibly be effective for a small market in the solistic grey scenario.

Table 11 Assessment of the suitability of the Value shop option for Continuon in the four different scenarios

The Value shop					
			Who	*What*	*How*
			large business customers with their own private gas grids, network operators, or other companies that are active in gas distribution or gas grid construction	Problem solving services	(Re)solving customer problems
Mass Grey	Who	Business customers for problem solving services in the area of regional gas distribution			
	What	No interest in new (environmental friendly) gas distribution services			
	How	Unidirectional gas flow			
Solistic Grey	Who	Business customers for problem solving services in the area of regional gas distribution			
	What	Growing needs for comfort products			
	How	Considerable increase in the transported gas volumes, local injections of gas, multidirectional gas flow			
Solistic Green	Who	Business customers for problem solving services in the area of regional gas distribution			
	What	Growing needs for comfort products and environmental friendly gas distribution services			
	How	Injection from local gas storage facilities, multidirectional gas flow			
Mass Green	Who	Business customers for problem solving services in the area of regional gas distribution			
	What	growing need for environmental friendly gas distribution services			
	How	considerable increase in the transported gas volumes			

5.3 Summary of the suitability of the strategic options in the different scenarios

The suitability of each strategic options has been evaluated in the four different scenarios. In the value chain logic Continuon can concentrate on their basic gas transport services in the existing markets and this will mean a strategy focused on protecting the existing markets by improving the efficiency levels. The value chain logic proved to be suitable in the mass grey scenario. However in the solistic grey, solistic green and mass green scenario, the value chain logic option was shown to be unsuitable. The unsuitability of this option in these scenarios was mainly caused by the increased network character of gas distribution services and the need for differentiation in the standard services.

The value network has proven to be suitable in almost all scenarios in this evaluation except for the mass grey scenario. The characteristic of the value network configuration of having a focus on both cost drivers as well as value drivers has proven to be suitable in meeting the demands and expectations of customers as well as the suitability for describing the nature of gas distribution operations in the solistic grey, mass green en solistic green scenario.

The value shop option is only possible in a network company with a separate consultancy business unit. To measure the suitability of the value shop in the different scenarios the need for problem solving services in gas distribution has been identified as the most important factor. When this factor is taken into account in the different scenarios the conclusion can be made that the value shop configuration has proven to be unsuitable in the mass grey scenario and can possibly be effective for a small market in the solistic grey scenario. However the value shop will be suitable in the solistic and mass green scenario on the basis of the expected need for problem solving services.

The overall conclusion that can be drawn from the assessment of the suitability of the three different strategic options in the future scenarios is that the value network option seems the most suitable option.

6 Conclusion and recommendations on re-positioning Continuon Netbeheer

In this section the main results of this research and conclusions and recommendations on re-positioning Continuon will be represented.
The problem definition that has been defined in the first chapter of this report was:

> *What will be an effective strategic positioning choice for Continuon Netbeheer given the changes now and in the future in the gas market and gas distribution?*

To answer this problem definition the empirical part of my project was divided in three major activities:

1. Assessing the strength and weaknesses of the current position of Continuon Netbeheer in the gas market
2. Developing strategic alternatives for Continuon Netbeheer with the help of the three value models suggested by theory (value chain, value shop and value network type of organisation).
3. Assessment of the effectiveness of the strategic alternatives in the perspective four possible scenarios for gas market development

Continuon Netbeheer as regional network operator in the Netherlands is a very small player in the global gas market. They are responsible for the network operations of a monopolized part of the Dutch regional gas distribution grids under strong regulative supervision of the DTe. In the Dutch gas market they have a strong position, their market coverage in number of gas connections is almost 30% of the Dutch gas market. Another reason for their strong market position in the Netherlands is that they are first mover in the introduction of innovative services and products, like smart metering and self services via the internet. Compared to the other network operators Continuon Netbeheer is one of the first that has chosen for a separate position from the trading part of the old vertically integrated energy company. Therefore they should be better prepared for the legal unbundling process[63].
The lack of a clear vision at Continuon Netbeheer about their position in the gas market now and in the future might threaten the strategic position of the company.

The conclusion that has been made from the Value Configuration analysis of the value system of the Dutch gas industry and the *Who*, *What* and *How* dimensions of strategy was that Continuon seems to be changing from a value chain logic towards a value network logic.
Next the different strategic options for Continuon Netbeheer, based on the three value logic models in the Value Configuration theory of Stabell and Fjeldstad (1998), have been developed. For Continuon Netbeheer as network operator in the regulated domain only the value chain and value network configuration are applicable due to regulative boundaries. These regulations set important boundaries in both configuration models, because they do not allow commercial activities for a network operator. However, we have also seen that a network operator is allowed to be part of a group company (a gas distribution network company), in which commercial activities can take place.
All three different value configuration models can theoretically provide alternatives for a strategic position for Continuon as part of a gas network company in gas distribution services.
Another conclusion was that this network company structure best fits with the value network option. The value network options also offers the most business development opportunities and a combined focus on efficiency as well as on developing customer directed services and products.

In the last part of this research project the suitability of the strategic alternatives in the perspective of the four possible scenarios for gas market development has been assessed.
The four different scenarios introduced are: the mass grey, solistic grey, solistic green and mass green scenario.
Each of these scenarios differ in the degree of society attention for sustainability and the degree of central or local energy production.

[63]This legal unbundling process is not very active at this moment

Next the suitability of each strategic option in the four different scenarios has been evaluated. The value chain logic proved to be only suitable in the mass grey scenario. The unsuitability of this option in the other scenarios has been mainly caused by the increased network character of gas distribution services and the need for differentiation in the standard services in those scenarios.
The value network has proven to be suitable in almost all scenarios except for the mass grey scenario in this evaluation. The characteristic of the value network configuration of having a focus on both cost drivers as well as value drivers has proven to be effective in meeting the demands and expectations of customers as well as the suitability for describing the nature of gas distribution operations in most s scenarios. The value shop configuration is only suitable in the solistic green and solistic grey scenarios.

On the basis of the analysis of the current position, the value configuration analysis and the suitability assessment of the strategic options in the future scenarios, the conclusion can be made that the value network configuration is the most suitable strategic positioning choice for Continuon Netbeheer given the changes now and in the future in the gas market and gas distribution.

6.1 Recommendations

On the basis of the conclusion that the value network configuration is the best suitable strategic positioning choice, we recommend that Continuon Netbeheer should choose for the value network configuration. This would in fact be a natural transition for Continuon, because in their current configuration the company already shows characteristics of the value network configuration. This strategic options also better matches the changes in the gas market due to the liberalization process. By explicitly choosing for the value network and adapting the strategy towards a focus on cost as well as value drivers better matches with meeting customer demands and higher efficiency levels.
The value network configuration will also be more efficient for coping with the fact that next to the physical gas distribution infrastructure an information infrastructure has emerged, that both provide interaction between the different parties in the gas sector. The importance of the information structure is expected to increase considerably (intelligent network operations) and for the management of both infrastructures for mediating gas and information the value network configuration is the most suitable.

We also propose that Continuon should choose for the network company structure. The national gas transport company Gasunie has already chosen for such an organization structure and this option can offer a good strategic position for Continuon in the changing gas market. It offers an important opportunity to develop commercial activities outside the regulated domain. A choice for a group company for Continuon would logically involve a merger with Nuon Netwerk Services. (see figure 22) The organization of Continuon with a separate network operator in the regulated domain and the development of commercial activities in the infra company suits with the value network model. It also offers an opportunity for the value shop option in the form of a consultancy division.
Examples of commercial activities that are complementary to the gas distribution services of the network operator that can be performed in the free domain in the network company structure for Continuon are short term storage, consultancy, pooling, exploiting micro WKK systems etc.
More research will be necessary to determine the feasibility of this opportunity for Continuon and the necessary merger with Nuon Netwerk services.

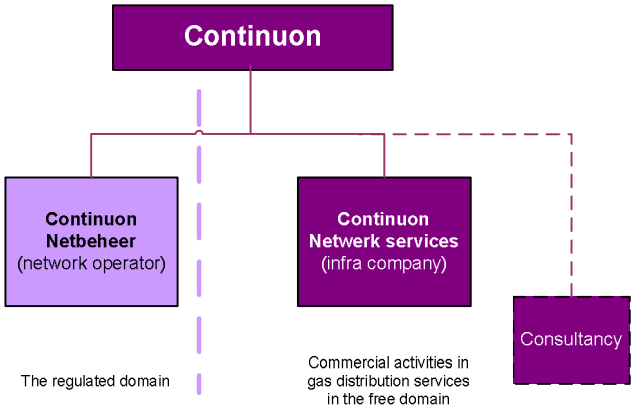


Figure 22 Continuon in a network company structure with consultancy division (optional)

Examples of he strategy options for business development and improving the strategic position of Continuon in the value network configuration that were identified in this research are :

- *Optimize pricing*
  - Non- discriminatory negotiated access for customers with specific characteristics and circumstances. This option could offer possibilities for differentiation in distribution tariffs for customer segments with specific characteristics (for example a different gas distribution tariff for customers for natural gas for vehicles with a gas demand during the night when they need to refill their cars and normally there is a low demand for gas in that period)
  - Differentiation in gas distribution tariffs with different compensation tariffs for customer segments with different requirements for reliability.
- *Increase linking opportunities*
  - Integration and adjustment of the gas grids to the electricity grids to increase substitution between different energy sources meeting the same energy demand
  - Other option is linking new gas applications to the regional gas grid, for example natural filling stations for vehicles or distributed energy installations.
- *Internalise transactions*
  - Providing all complementary gas distribution services for the customer within one company, this can only be provided in the network company structure. In this way a gas distribution company can offer their customers a complete end-of-pipe solution that fits their specific needs.
  - Cooperating with the national network operator to decrease costs of gas compression along the physical gas chain by better matching the pressure ranges in the different parts of the national and regional gas distribution pipelines.

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