

# HOW TO ALIGN THE BUSINESS MODEL ADAPTATION PROCESS WITH A CHANGING ENVIRONMENT?

An analysis of the business model adaptation process at an incumbent energy supplier

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# Preface

This research report has been established in order to fulfil the requirements of the Master Thesis Project, which is the final assignment of the Master *Systems Engineering, Policy Analysis and Management*. It is also the result of an internship conducted at Nuon/Vattenfall.

The starting point of this research was the strategic challenge experienced by the Dutch retail business unit (Nuon) within Vattenfall. This strategic challenge originates from the ongoing changes in the energy system in which *Nuon Retail* operates and needs to adapt to.

In this complex problem setting, I was challenged to translate a practical problem to a scientific research project that would satisfy both practical and scientific demands. I experienced difficulties to cohere the two, as the scope of the problem was wide and of a high complexity level.

However, in the process of designing and conducting this research I have received help from members of the graduation committee. For that, I would like to warmly thank Gerard Dijkema for his enthusiastic guidance on the project structure and research methods. Furthermore, I would like to warmly thank Mark de Bruijne for suggesting usable literature and supporting the line of reasoning throughout the thesis. Next to that, I thank Prof. Margot Weijnen for chairing the committee and her research suggestions.

Next to the academic representation of the graduation committee, I would like to thank Nuon/Vattenfall for offering me the opportunity to conduct my master thesis project within their firm. The sales support team within the consumer sales (retail) unit enabled me in all possible ways to conduct my thesis at Nuon. In particular, I would like to thank Tijs Wilbrink (on behalf of Nuon) for enabling this research and his enthusiastic support. Next to that I thank Jochem, Reind-Jan and Marja for creating and enabling a pleasant work atmosphere.

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Last but not least, I want to thank my parents for supporting me in difficult times and enabling me to make my student period unforgettable one.

I hope you will enjoy reading the results of 8 months hard work.

Sincerely,

Thijs Nijland



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# Summary

## Problem description

The direct motivation for this study was that the focal energy supplier, which served as a case in this study, struggled with the maintenance of its business continuity within the consumer segment. Different developments within energy consumer market in the Netherlands forces Nuon to adapt its business within this segment.

### *Increasing competition*

Within the consumer energy market the competitiveness continues to increase as a delayed effect of the energy market reforms in 2004. The market entrance of new energy suppliers drives the number of annual switchers and with that the market for commodities (electricity and gas) becomes more price-driven. Furthermore, trusted organizations (like consumer associations) manage to bind large groups of consumers that are willing to participate in public energy auctions.

### *Distributed generation*

Besides an increasing market competition, distributed initiatives may partly disrupt traditional electricity and gas supply up to 35%. Distributed Generation (DG) technologies such as Photovoltaic (PV) systems, heat pumps and other technologies at a household level get increasingly competitive. The pace by which DG technologies become economically feasible requires fast moves by the focal company in order to harness value from these developments.

### *Disruptions*

Disruptive elements within the consumer energy market can both be found in the competitive environment (power of competition and disintermediation) and the adoption of distributed generation technologies (substitution through new technologies like PV).

### *Problem and objective*

The pace and type of environmental change forces Nuon to deal in a different way with business development than before. At this moment, the focal company struggles with re-arranging the business development process for the Dutch consumer market and therefore is in need of a guideline on how to deal with business development given the changing context. The research question is therefore formulated as follows:

*How can the business development process for the Dutch energy consumer market be aligned with the changing energy landscape?*

## Theoretical foundations for Business Model Adaptation

### *Strategic challenge*

The changing energy landscape is a *strategic* challenge for energy suppliers as their current way of working will be confronted by disruptions. Energy suppliers are therefore confronted with the challenge to develop new ways of value creation and with that change its business. Value creation by firms is often described by its *business model*. In this research, theories on strategy, strategic management and business models (BM) have been combined to create a theory of *business model adaptation*.

### *Business Strategy*

In this study the interpretation of strategy is deliberate and defined on a business strategy level. Business strategy in general answers the question how an organization will compete in the business that it is, or will be in. Following Porter (1996) it answers the question how a company will be unique, how it will achieve a competitive advantage and how this advantage may be sustained over time.

### *Business Models*

Every firm either explicitly or implicitly employs a particular BM. BM as a concept are typically used to explicate how companies do (analysis) or may (design) capture value

from its business activities. Most BM approaches contain meta-definitions and define which elements should be included in a BM such as *value proposition*, *supply chain*, *customer interface* and a *financial model*.

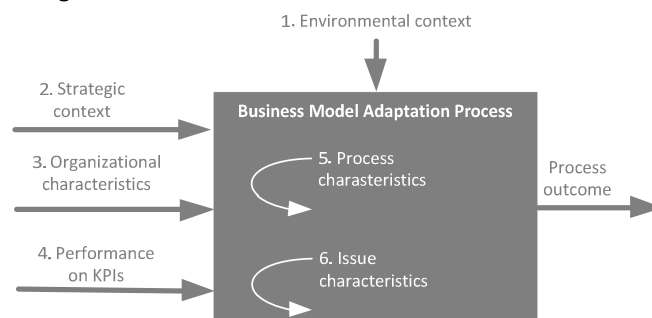
BM's may be defined on different units of analysis. BM's around a specific value proposition or product should be distinguished from BM's at an organization or business unit level. In this research we explore the adaptation of Nuon's BM that covers all its activities in the Dutch consumer energy market. This concerns a BM at an organization level as multiple products and value propositions are included in the BM.

### Strategy and BM

The relation between strategy and business model design depends on the organizational context. For a start-up company, strategy analysis in combination with a BM design is limited to the design of an isolation mechanism that complicates imitation and disintermediation. However, when designing a BM for an established organization, the new BM should also be strategically aligned with the established organizational BM.

### BM Adaptation

BM adaptation refers to the process of designing and moving to the desired BM, and thus represents business change. Decisions are focal points within this process, because a decision is required before firm's business activities are changed. From strategy literature we understand that different factors influence the process of BM adaptation. Different categories of factors that influence the process of BM adaptation are represented in the figure below:



### High Velocity Environments

As the consumer energy market is rapidly changing both in competition as well in substitution Nuon needs to align its BM adaptation process with the pace and type of external developments. In "high velocity environments" (HVE) the market is very dynamic and change becomes non-linear and less predictable. In HVEs, successful firms manage to decide and move quickly by possessing the following process characteristics:

1. Emphasis on speed rather than on risk control;
2. Use of simultaneous alternatives rather than incremental development;
3. Use of more real-time information rather than incremental information gathering;
4. Acceptance of information asymmetry as information hunger slows decision-making;
5. Sensing mechanisms that are close to the market;
6. The presence of an individual risk incentive for internal entrepreneurship;
7. An adaptive process but shaped by effective routines and therefore transparent and understandable;
8. Having a pro-active capability and able to break "the rules of the game" and with that being more adaptive than competitors.

## Empirical research methodology

Nuon's process of BM adaptation served as a single case within this research. Empirical research within Nuon was aimed to understand the process of BM adaptation, to mine perceptions on environmental velocity and to determine the extent of a fast-decision capability present within Nuon. Three empirical sources have been used:

- Secondary data of Nuon's organization and of the consumer energy market;
- Combined survey/interviews with internal stakeholders at Nuon who are involved in the BM adaptation process for the Dutch consumer energy market;
- An intra-case study on the development and decision process of the E-manager.

## Data analysis

Based on different responses from internal stakeholders, the environmental velocity within the consumer energy market has increased but is not as dynamic as the telecom sector. However, the environment volatility has increased compared to a couple of years ago. This was also confirmed in the external environmental analysis (see introduction). The main perceived uncertainties are in the technological and regulatory domain.

No real fast decision-making capability was experienced by internal stakeholders. The BM adaptation process is characterized by risk-averseness and requires a great internal consensus which is hard to reach. The process lacks authoritative decision-making. An unceasing need for more information exists before BM decisions are made.

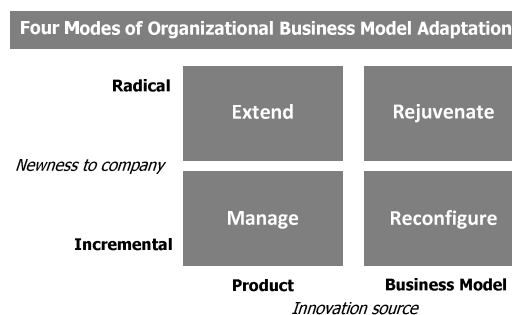
The strategic paradigm of the company is characterized by re-activity according to internal stakeholders. This was confirmed in the development of a novel product in the consumer energy domain: the E-manager.

Stakeholders experienced that there are limited budgets and resources for innovative projects. Next to that, the company size was experienced as a factor that created more bureaucracy and unclear responsibility distribution.

## Integrated view on organizational BM adaptation

Based on theory and empirical data analysis it has been concluded that different modes of BM adaptation exist. BM adaptation may follow inside-out (pro-active) or outside-in (re-active) pathways. The case-study illustrated that Nuon is rather re-active in its BM adaptation.

BM adaptation may either stem from a product innovation, or from a BM innovation. Next to that, BM adaptation can be either incremental (building on existing) or radical (and potentially destroying existent competences) for an organization. See figure:



Different modes of BM adaptation require different processes. Reasons for BM innovation lie in the fact that the existing BM is failing. Therefore, BM innovation tends

to be a re-active form of BM adaptation as BM innovations mostly comes from start-ups rather than from established firms.

Decisions referred to in HVE literature mainly refer to strategic decisions such as *new product development* and the *formation of alliances*. As there is time pressure on the speed of the decision, the decisions are in a sense a re-action on the competitive threat. There is little indication that the decisions in HVE literature concern decisions to radically create different BMs or products involving different resources and competences. The applicable decisions do rather appear to be close to the organization decisions and can therefore be best positioned in the "Manage" mode, although they are not restricted to that mode.

### **Conclusions and recommendations on used theory**

Within theoretical domain this research explored the connection of fast strategic decision-making, strategy and BM adaptation. The connection between fast strategic decision-making in high velocity environments and BM adaptation is new and underexplored.

*Determine  
environmental velocity*

- Determining whether a firm is or isn't in a high velocity environment is hard because the each environment consists of micro-environments having specific velocity. Environmental velocity typically depends on individual perception and may be viewed considered relative to other industries. This makes it hard to determine to which extent a fast-decision process should be included in a firm's business development process design.
- Research on fast strategic decision-making in HVEs fails to differentiate between decision types and its effect on the organization BM. A first attempt has been made to differentiate between modes of BM adaptation and its relation with fast decision-making. It suggests that decisions in HVEs are re-active in the sense that there is only a short-term opportunity window which is threatened to be closed by competition. Next to that, it concerns decisions that are in line with the existing business and therefore do not concern radical new intrapreneurships that disrupt existing resources and competences.

*Connecting BM  
Adaptation to HVE  
decision-making*

It is recommended that the connections between strategic decision-making and BM literature is further explored and developed as the integration is still in development.

### **Recommendations for Nuon/Vattenfall**

Nuon's business development process for the consumer energy market could be improved in some ways.

It is recommended to:

1. Use an adaptive process and develop dynamic capability
2. Incorporate real-time market data on local energy initiatives
3. Agree upon the level of uncertainty which is tolerated
4. Create separate budgets for BM innovations
5. Empower local business units
6. Build confidence and intuition of management team

The argumentation for these recommendations can be found in the section 8.2.

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# List of Abbreviations

B2C		Business to Consumers
BD		Business Development
BM		Business Model
CHP		Combined Heat & Power
DG		Distributed Generation
ERS		Energy Related Services
EV		Electric Vehicles
IT		Information Technologies
NL		Netherlands
PV		Photovoltaic
VAS		Value Added Services





# 1. Introduction and Problem

## 1.1 An incumbent energy supplier in a changing system

The traditional electricity supply chain can be regarded as a centralised supply chain (Bouffard & Kirschen, 2008). This supply chain is characterized by a one-way power flow: Primary energy carriers like coal and gas are remotely gathered and after transportation they are converted to electricity in large power plants. Then, power is transported via a high voltage transmission network. Eventually, power is converted to lower voltage levels and transmitted to local distribution grids. Households, being small electricity consumers, are positioned at the end of the energy supply chain. Their role in the traditional supply chain can be characterized as passive (Sauter & Watson, 2007).

In 2004 the electricity and gas supply market in the Netherlands has been liberalized. From that moment, new parties could enter the Dutch power market and consumers were free to choose the energy supplier of their preference. As a result of this new legislation, network activities were separated from competitive activities (generation, trade and supply). This was done under the assumption that competition would lead to an affordable energy supply with a relative high service level (Vries, Correljé, & Knops, 2010). *Nuon Consumer Sales N.V.*, as a part of Vattenfall Holding, is active as an incumbent energy supplier in the retail market for consumers. The scope of this division has been indicated by the orange area in Figure 1.

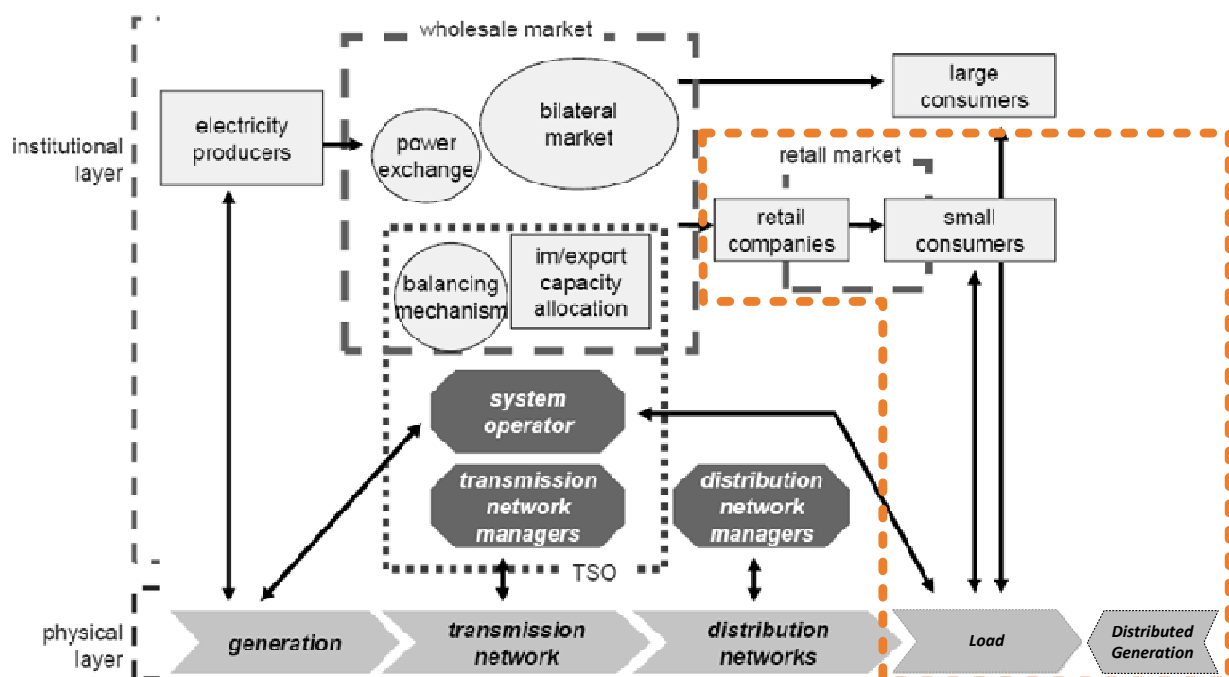


Figure 1 | The scope of Nuon Consumer Sales (Vries et al., 2010)

Different developments in the business environment of *Nuon Consumer Sales* influence its business performance. Therefore, Nuon is forced to adapt and comply with these developments in order to achieve business continuity. The challenge for established companies to adapt is not restricted to Nuon but this problem is faced by different kinds of companies. However, this research uses Nuon's adaptation efforts within the consumer segment as a specific case.

Developments in the consumer market enabled consumers to switch from energy supplier but they also may start to use a whole range of energy technologies and services at a household level.

#### *Distributed generation & savings*

Distributed Generation (DG) technologies like PV (photovoltaic) systems that generate electricity from solar radiation are getting increasingly competitive. Research on the economics of solar PV systems showed that the competitiveness with conventional electricity generation is much closer than many decision-makers have realized (Bazilian et al., 2012). In the Netherlands, subsidy schemes are in place to stimulate the adoption of PV systems, which make them already financially feasible in many cases.

'Beyond-the-meter' value of electricity is higher than the grid value because the consumer tariff includes taxes and transport costs. Therefore, DG technologies (like PV systems) are especially suitable for embedment in the built environment. The consequence for energy supply companies is that DG deployment leads to a decrease in the volume of electricity and gas sales. On the other hand, these developments provide windows for new business opportunities.

#### *Smart developments*

From the perspective of distribution grid operators the interest in the role of consumers is based on the function they may fulfil in the future electricity system. The introduction of new energy technologies like PV systems, wind energy, and electric appliances of the future (e.g. electric vehicles) pose new requirements to the electricity grid. DG technologies are intermittent power sources that may cause reliability problems. The realization of a "smarter grid" is often regarded as a necessity for the realization of an electricity system that can facilitate a wide-spread adoption of DG technologies (Wolsink, 2012).

In a "smarter grid", consumers can not only supply their power back to the local grid, but also act as an intelligent entity within the energy system. Distribution Grid operators are taking steps for the roll-out of *smart meters* in the Netherlands. Smart meters are digital electricity meters and are able to communicate the meter readings on a frequent basis to grid operators via the internet. The adoption of smart meters offers the opportunity for developing new home energy management services like demand response (DR) programs. Demand response (DR) includes "all intentional modifications to consumption patterns of electricity of end-use customers that are intended to alter the timing, level of instantaneous demand, or the total electricity consumption" (Albadi & El-Saadany, 2007). However, until this moment consumers will keep the right to choose for smart meters or not.

#### *Changing consumer preferences*

Consumers not only have the right to choose their energy supplier of preference, they also may choose to invest in a wide range of *distributed saving* or *distributed generation* solutions. Consumer's social networks may influence the adoption of new energy products and services and may influence the way that consumers select their energy supplier.

### **Consequences for energy suppliers**

The changes in the consumer energy market challenge the way that energy suppliers deal with providing energy to households. A competitive market place has evolved in which consumer preferences and behaviour, emerging technologies and changing regulation must be moulded into business.

## **1.2 Perspective in this research: Nuon Consumer Sales – part of Vattenfall**

Nuon, as one of the largest utility companies, was responsible for the power supply in a large part of the Netherlands. Nowadays their transport activities have been separated and are organized in a new organization called Alliander. Nuon's current business activities comprise power generation, trade and supply. On July 1<sup>st</sup> 2009 Nuon was acquired by Vattenfall, a Swedish energy company owned by the Swedish State.

Nuon Consumer Sales is the business unit within Vattenfall that is responsible for the sale of energy and related services to small energy consumers, being mainly households. The main goals of the department are to maximise profit and maintain business continuity. In a nutshell, their sub-goals are: more customers (through acquisition and retention), higher margins per customer (via product differentiation) and increased customer's loyalty.

## **1.3 Problem Description**

*Nuon Consumer Sales'* core activities comprise of the sales of consumer energy products. Due to ongoing changes in the consumer market, the level of competitiveness in the market and uncertainties are increasing. Therefore, *Nuon Consumer Sales* is challenged to adapt to its environment and to be proactive in developing new activities that contribute to a competitive advantage.

Different perspectives exist on the sources of a firm's competitive advantage. The *resource-based view of the firm*, grounded in the work of Penrose (1959), focuses on the relation of a firm's resources and its performance (Spanos & Lioukas, 2001). On the other hand, Porter's framework of *competitive advantage* focuses on the relation between a firm's position in its environment and its performance (Spanos & Lioukas, 2001). The aforementioned perspectives are rather static and pay little attention to the dynamic and ever changing character of firms and the processes that lie at the cause of change.

Ultimately, firm performance can be traced back to managerial choices and external (to the firm) conditions (Spanos & Lioukas, 2001). In their turn, variations in processes by which decisions emerge influence the decisions that are being made (Dean & Sharfman, 1996).

It is for that reason that we propose the *business development process* as the unit of analysis in this study because managerial decisions are the output of this process.

### **1.3.1 What is meant by the business development process?**

Business development is an ambiguous concept. Some progressive firms perceive business development as their core competence (Sørensen, 2012). Other definitions refer to specific task and processes such as business growth opportunity identification. Different phases in business development may be distinguished; idea creation and implementation (Sørensen, 2012). Decisions are focal points within this process, because a decision is required before firm's business activities are changed.

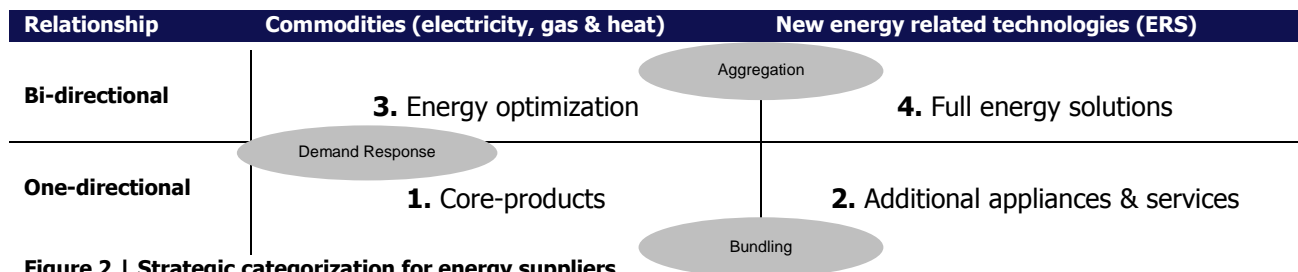
In this research we define the business development process as follows: "The process of creating-, deciding upon- and implementing ideas that reconfigures the business of *Nuon Consumer Sales*". A business development process is aimed at creating a business that gives a firm a competitive advantage. Whereas strategy literature provides a theoretical ground for how firms may create a competitive advantage, business model literature provides insight on how to perceive a firm's business.

### **1.3.2 Track record of business development in the consumer energy market**

*Nuon Consumer Sales* already has a proven track-record when it concerns business development in the consumer energy market. Whereas Nuon started as a distribution company for electricity and gas (core products), the product portfolio for consumers has gradually been expanded with additional products and

services like insulation measures, HE boilers, energy saving advice and most recently the E-manager. Figure 2<sup>1</sup> shows that the product portfolio has expanded from quadrant 1 to quadrant 2.

Existing products and services can be characterized by a one-directional relationship between the consumer and supplier. The consumer pays, and the supplier delivers. IT adoption in the energy system offers the opportunity for new IT enabled services. In that case the business will be expanded to quadrant 3 and 4.



**Figure 2 | Strategic categorization for energy suppliers**

The scope of each of the quadrants of Figure 2 can be explained as follows:

1. *Core-products;*  
One-directional supply of electricity and gas
2. *Additional appliances & services;*  
One-directional offering of peripheral products and services like insulation service, e-manager etc.
3. *Energy optimization;*  
Bi-directional value relation with customers. Demand response programs provide the opportunity for valuing time of use.
4. *Full Energy Solutions;*  
Bi-directional value relation by providing full energy solutions. By aggregating consumption information, power purchase can be more effectively realized.

Next to offering a competitive product portfolio *Nuon Consumer Sales* is challenged with the development and maintenance of sales channels. Sales channels such as door-to-door sales, internet sales and sales through third parties need to be developed and maintained for the purpose of customer acquisition.

### 1.3.3 Strategy and strategic decisions

The competitive advantage of a company is often described by a company's strategy. However, strategy literature is pluralistic; many views exist on what strategy is and how strategy comes along. Emergent views on strategy may be distinguished from deliberate views on strategy (Mazzucato, 2002). Next to that strategic choices are made on different hierarchical levels (Wit & Meyer, 2010).

Company's strategic decisions affect the architecture of how a company earns its money. Therefore, in order to understand how business is developed, one needs to understand those factors influencing strategic decision-making.

Since the focus of this study covers the BD process for Nuon's activities in the consumer energy market, we consider those strategic decisions that affect the business model related to the consumer market.

Core notion: *strategy concept is pluralistic; strategic decisions affect business activities.*

### 1.3.4 Business Models concept

Business model literature provides concepts for understanding how organizations capture value from their business activities. Next to that, other business model approaches provide guidelines for designing a business model around a specific value proposition. However, the practical usability of Business Model concepts is still in

<sup>1</sup> Extracted from internal document

development (Bouwman et al., 2012). Bouwman (2012) states BM literature fails to answer practical questions on how to move from the existing business model to a desired one.

Core notion: *Business models literature fails to address how to change business models in practice*

### 1.3.5 Relation of introduced concepts

Different concepts have already been introduced in this problem introduction. The preliminary understood relations between the concepts have been illustrated in Figure 3.

The business development process is a process that results in decisions that affect the existing business model of an organization. Strategic choices, being an output of the business development process, represent the management's belief on what the desired business model should look like.

However, a business model is a representation of the reality and therefore cannot be observed as such. The business model is reflected in business characteristics that can be observed. Examples of these characteristics are the product and service portfolio, identifiable inter-organizational processes, partner relationships, etc., etc.

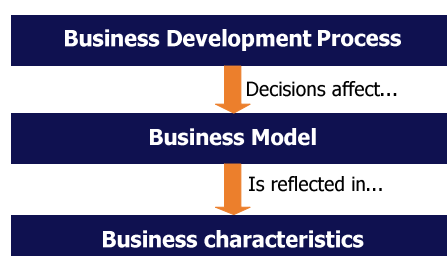


Figure 3 | Relations between theoretical concepts

### 1.3.6 Practical problem

The entire set of developments and trends in the energy consumer market confront the focal company with uncertainty on how to deal with the aforementioned developments and increased complexity in the energy market. Adoption of distributed generation, smart meter roll-out, IT diffusion, changing consumer and competitor behaviour are examples of developments that may disrupt the current business model of energy suppliers.

Some of these developments are new for energy suppliers. For example, Energy Suppliers in general have little experience on developing and implementing DG technologies and IT enabled products and services. There are doubts within the company whether the existing process of business development is well aligned with its changing environment. Preliminary interviews indicated that a feeling exists that the process takes too long.

This research may answer questions on how to deal with different types of developments within the energy consumer market, how innovative ideas should be processed and which organizational structure may support this.

### 1.3.7 Theoretical problem

Existing theory within literature on strategy and business models provides little support for understanding how companies may align their process of business development to a changing environment that is becoming more complex. The scientific relevance of this study lies in the fact that multiple theoretical concepts are used to understand how organizations change their business. With that, this research seeks for a guideline on how an organizations' business development process may be aligned with its changing environment.

By applying these theories to the case of Nuon, this research may contribute to business model literature in the sense that it provides a guideline for adapting the process of changing a business model.

### **1.3.8 Objective of the research**

This research aims to analyse the process of business development at Nuon taking into account the environmental changes and organizational context. By using theories in the field of business development, the analysis should indicate possible process improvement factors and to create a guideline on how to deal with business development for the Dutch consumer market from a process perspective. Process improvement is expected to lead to a better alignment of Nuon's Business Development process with the changing energy consumer landscape.

### **1.4 Research questions**

Following the problem as described earlier the main research question is defined as follows:

**How can the business development process for the Dutch energy consumer market be aligned with the changing energy landscape?**

In order to answer the main research questions, the following sub-questions have been formulated:

#### **1. Within Nuon/Vattenfall, how and which stakeholders are involved in the business development process for Dutch energy consumer market?**

Nuon, as an incumbent energy supply company, underwent major changes as an organization. A qualitative analysis should provide insight how the organisation has changed over time. Next to that, the analysis should indicate which internal stakeholders are involved in the business development process.

#### **2. How and in which direction is the Dutch energy consumer market changing?**

An explorative analysis of developments in the Dutch energy consumer market should indicate drivers for change that may be expected. Based on this analysis, the business environment of *Nuon Consumer Sales* can be characterized and consequently a normative stance may be chosen for analysing the business development process.

#### **3. How are business models related to strategy and which factors do influence the process of generating and deciding upon them?**

By means of a literature study the business model concept and strategy concept will be explored and related. Next to that, this literature review should indicate which categories of factors do influence the decision-making on new business models.

#### **4. What may be an applicable lens for exploring the process of business development for the Dutch consumer energy market?**

Based on the environmental characterisation, a theoretical lens may be adopted on how to review the process of business model adaptation. Both perceptions of internal stakeholders as well a case study will be used to do so compare practice to the chosen theoretical norm.

#### **5. Which recipes for the business development process can be extracted from the explorative analysis?**

This question is to be answered in a synthesis in which insights from empirical data as well as from multiple theoretical sources is moulded into recipes for the process of business development.

## **1.5 Research scope and delineation**

This research explores the process of business development from a theoretical point of view. The focus within this research lies in the alignment of this process to its environment. For this it uses the business development process at Nuon/Vattenfall as a specific case.

Therefore, only those developments that affect the consumer energy market will be considered. The chosen perspective of this study is limited to the consumer energy market in the Netherlands. Small scale energy consumers, most often representing households, are therefore of especially focus.

## **1.6 Report structure**

In chapter 2 the research methodology will be explained. In chapter 3, the problem will be put in the context of Nuon/Vattenfall and the Dutch consumer market for energy.

Chapter 4 contains a literature study on business models and strategy. This chapter should indicate how the two are related and which factors influence the business development process. Based on the business context a theoretical perspective will be chosen for the analysis of the business development process at Nuon/Vattenfall.

An analysis of perceptions of internal stakeholders will be presented in Chapter 5. These perceptions will be guided by the theoretical framework as constructed in chapter 4.

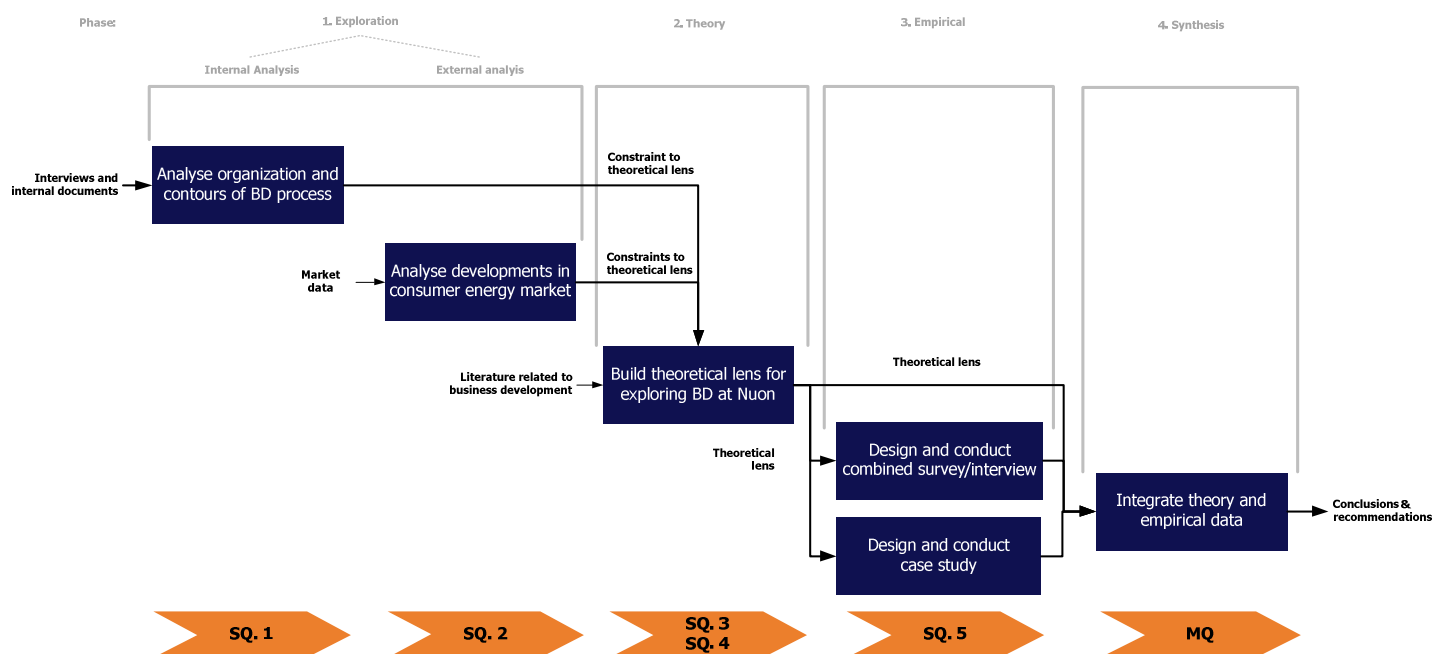
In chapter 6 a case is treated that provides another view on how the business development has worked in the past at Nuon/Vattenfall.

A synthesis on business development at Nuon/Vattenfall is presented in chapter 7, while in chapter 8 conclusions and recommendations, both theoretical as managerial are presented.

## 2. Research Strategy

### 2.1 Research process and methods

The research strategy used in this report will be explained in two steps. First the research process will be presented and explained. Next, the research methods included in this process will be elaborated upon. The research process of this report is illustrated in the following process structure:



**Figure 4 | Conceptualization of research process**

The research process as presented in Figure 4 indicates both research activities and research phases. The research activities are indicated in the blue blocks. Data inputs are on the left side of the blue blocks. Basically, each block represents an activity that contributes to the answer of research questions.

On the top of Figure 4 different research phases are indicated. In the first phase the research problem is contextualized. An internal analysis focuses on Nuons' organization architecture and formal processes. An external analysis focuses on the trends and developments in the consumer energy market that affect Nuon's business. Both constraints and goals for the BD process may be extracted from this context. These constraints can be used for the construction of a theoretical lens for analysing practitioner behaviour.

In the second phase, a literature review is executed in order to build a theoretical lens. By means of this theoretical lens, the business development process at Nuon can be observed in a structured way. In the



introduction reference was already made to literature on business models and strategy. However, these rather static concepts pay little attention to the dynamic character by which organizations adapt its business. Therefore process literature in the domain of business models and strategy will also be part of this literature study.

In the third phase, combined interviews and surveys will be conducted in order to gather perceptions of involved stakeholders in the business development process at Nuon. These perceptions can then be contrasted with the normative stance from theory. By doing that, gaps may be identified between best practices from theory and the reality as experienced.

Whereas a survey offers the advantage of quantitative data, open interviews may identify unaddressed factors of importance. Surveys are "information collection methods used to describe, compare, or explain individual and societal knowledge, feelings, values, preferences, and behaviour" (Fink, 2008, p. 1). Surveys are especially considered appropriate because the business development process is an implicit process that is person-driven. Next to that, the quantitative output of surveys makes the response easily comparable. However, as everybody's role in the business development process differs, open questions may yield valuable information as well.

The perceptions of involved stakeholders will be verified by a conducting an intra-case study. The case should comprise of a recent business development that can be analyzed from a more independent view. By doing that, the case-study serves as a benchmark with respect to the perceptions on the business development process.

The application a theoretical perspective including a normative stance, the perspective of internal stakeholders and the perspective from a specific business development case reduces the dependence on a single information source. This dependency reduction reduces uncertainty and increases the probability of general validity.

In the fourth phase, insights from theoretical and empirical sources are synthesized. By integrating theoretical and practical data, new insights may be gathered. The goal in this phase is to formulate some recipes for the process of business development.

## 2.2 Data sources

The research process presented in the previous paragraph uses different research methods. Data was gathered from interviews, literature, market data and internal documents. The data sources per research phase are indicated in table below:

Research Phase	Data sources
1. Problem exploration	Preliminary interview with Nuon/Vattenfall employees Literature and data on market developments
2. Theoretical	Literature on business models Literature on strategy Literature on strategic decision-making
3. Empirical	Survey response by Nuon/Vattenfall employees Interview response by Nuon/Vattenfall employees Internal documents of Nuon/Vattenfall

**Table 1 | Data sources**

# 3. Problem exploration

In this chapter, the problem is further explored in a two step execution; both an internal analysis of Nuon as organization and an external analysis of the consumer energy market. Based on this problem exploration, constraints may be identified on how to look at Nuon's business development process.

## *Internal context*

- 3.1 A rich history shaped Nuon to its current appearance. Chapter 3.1 contains an introduction to Nuon as organization and indicates who is involved in business development for the consumer market.
- 3.2 A first round of interviews and internal document analysis provides a ground for sketching the outlines of the business development process for the Dutch consumer market.
- 3.3 Conclusions on internal context

## *External context*

- 3.4 The business environment of Nuon Consumer Sales is in transition. An analysis of market dynamics, changing policies & legislation and technological developments is made in order to grasp the direction and velocity of change in the consumer energy market.
- 3.5 Contrasting views on competing in a commodity market indicates directions of business development for an Energy Supplier.
- 3.6 Conclusions on external context

## **3.1 A brief introduction into the history of Nuon (part of Vattenfall)**

Nuon Energy has evolved from a long trajectory of mergers, acquisitions and split-offs of regional utility companies in the Netherlands (see Figure 5).

Before 1986, the supply of electricity and gas was arranged by local companies that were owned by regional authorities like provinces and municipalities. The whole value chain (generation, distribution and supply) of energy was owned and managed by one and the same company. In this period it was not possible for consumers to switch. The geographical location of a consumer's house determined his supplier.

Nuon N.V. was established in 1994 after a merger between PGEM (Power Company of the province *Gelderland*) and PEB Friesland (Power Company of the province *Friesland*). For reasons of economies of scale, Nuon N.V. acquired ENW (Power Company *North West Netherlands*) in 1999.

The liberalization of the energy market in 2004 opened the retail market for new entrants. From that point in time consumers were free to choose their energy supplier and were no longer constrained to their regional energy company. In 2008, the network activities of Nuon had been split off, and were reorganized in the new distribution grid operator: Alliander.

From 2000 onwards, Nuon started to develop activities in Germany and Belgium. However, in 2009 the Swedish state-owned company Vattenfall acquired 49% of the shares of Nuon Energy. According to the

planning, in 2015 Nuon Energy will be fully owned by Vattenfall. The remaining shares are being acquired in a 6-year trajectory from Dutch municipalities and provinces.

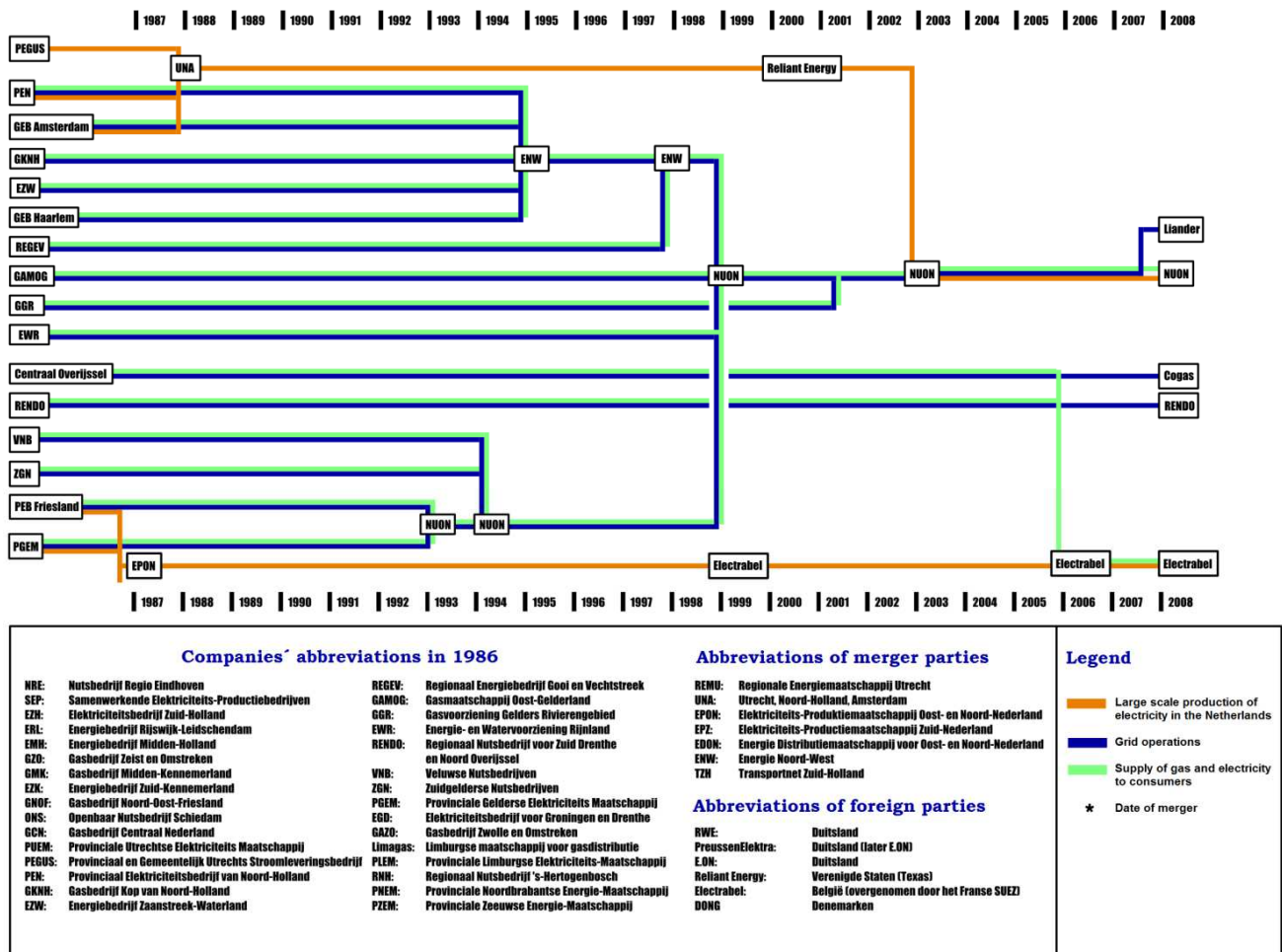


Figure 5 | Timeline of energy companies in the Netherlands from 1987-2008 (Wikipedia, 2012)

Since the acquisition of Nuon by Vattenfall, six business divisions (abbreviated with BD in the figure) have been defined (see Figure 6). Competition in the consumer energy market is within the scope of the division *Distribution and Sales*. The underlying business unit *Consumer & Sales* is closest to the market and signals different market trends. Next to that, the business units "*products & solutions*" and "*market strategy & business development*" (*MS&BD*) plays an important role in the process of business development. Where *MS&BD* is responsible for the Holding-wide strategy, *Products & Solutions* is occupied with designing and specifying new products into detail.

#### Scope of Market Strategy & Business Development

This department is focussed on the longer term (5 years and more ahead). This department has a broader view on business development than solely the consumer market. The scope is on holding level and is focussed on creating synergies between Vattenfall's focus countries and different business units and divisions. Next to that, pilot projects that have the goal of developing leads are positioned in this unit.

#### Scope of Products & Solutions

This department operates on a holding level and is developing energy-related products and solutions for consumers. The focus of this business unit is focussed on developing products and energy solutions for the

middle-long term (2 years ahead). The e-manager is an example of a product that has been developed by this department. The product and solutions department employs around 50 employees.

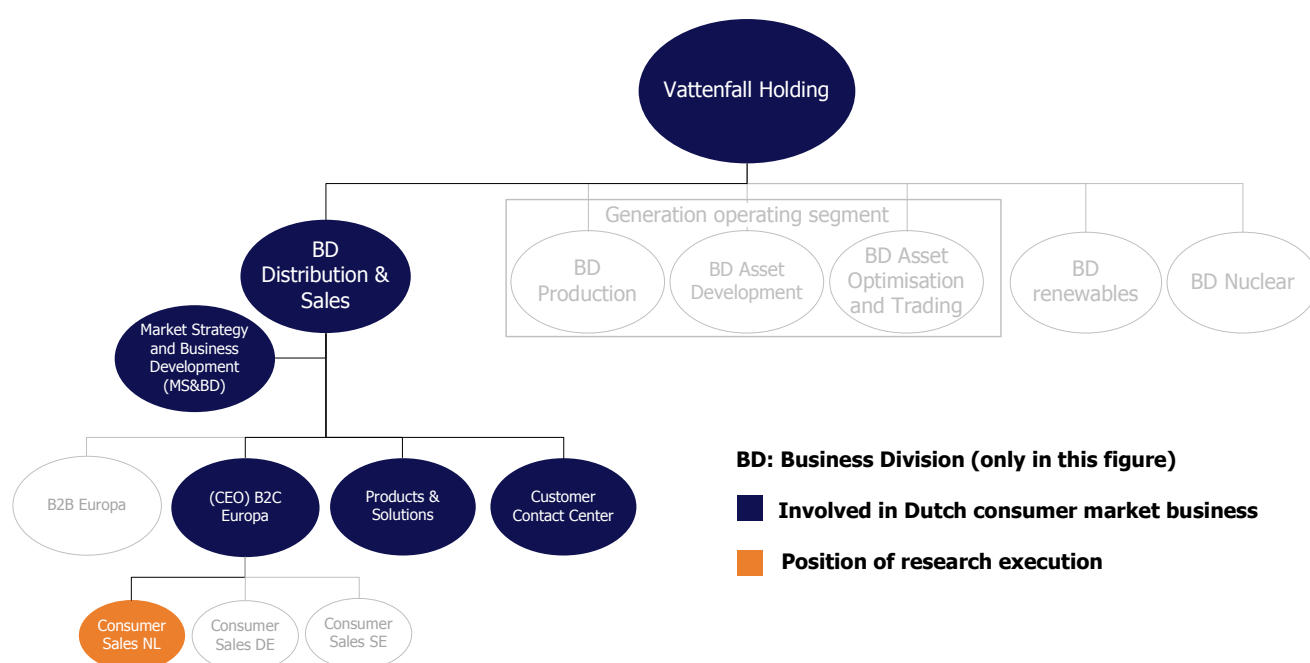
#### *Scope of Nuon Consumer Sales*

This department is primarily responsible for the sales of Nuon consumer products and services. The goal is to effectively use marketing budgets for acquisition and retention of customers. Supreme value propositions are favoured as this facilitates effective marketing. Consumer Sales Netherlands comprises of approximately 100 full-time employees.

Within Consumer Sales business unit, budgets are set for acquisition and retention. However, there is a constant tension between the two (Lhoest-Snoeck, 2012). Whether business model adaptations support either acquisition or retention (or both) may be questioned.

#### *Scope of Customer Care Center*

Nuon Customer Care Center is responsible for client processes such as billing, complaint procedures etcetera. These activities are organized on national level. Therefore, within the Netherlands this business unit also includes a call centre. Goals of this department are to be as lean as possible.



**Figure 6 | Organization structure Vattenfall.**

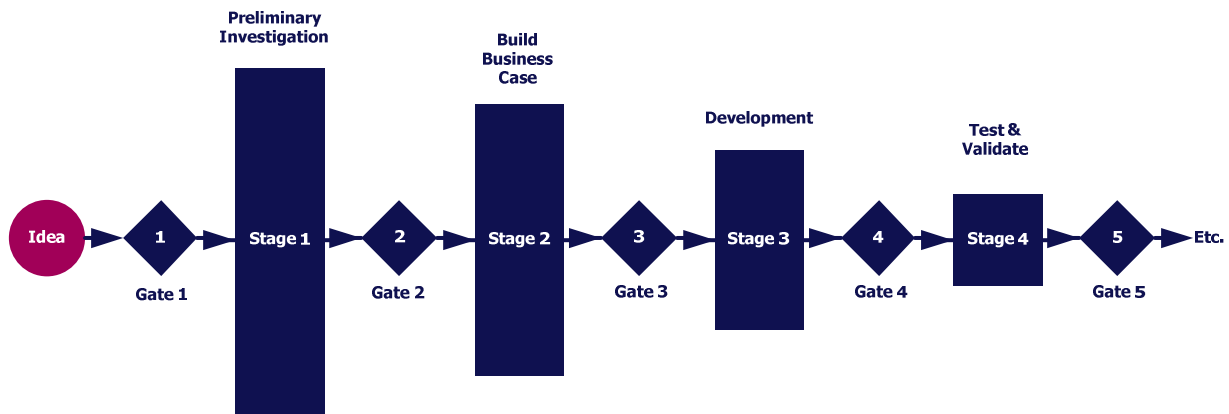
### **3.2 First glance on the process of business development**

The formal process for processing innovative ideas can best be described as a stage-gate process.<sup>2</sup> After the decision that an idea is worth investigating, a project team is assembled that conceptualizes the innovation and build a business case.

Formally, projects are monitored in an enterprise resource planning system called "VPMi". However, the system is still in an implementation phase and is primarily used for asset management in the production division. However, the intention is to roll-out this system throughout all divisions of Vattenfall and by that this method should also be used within the consumer segment.

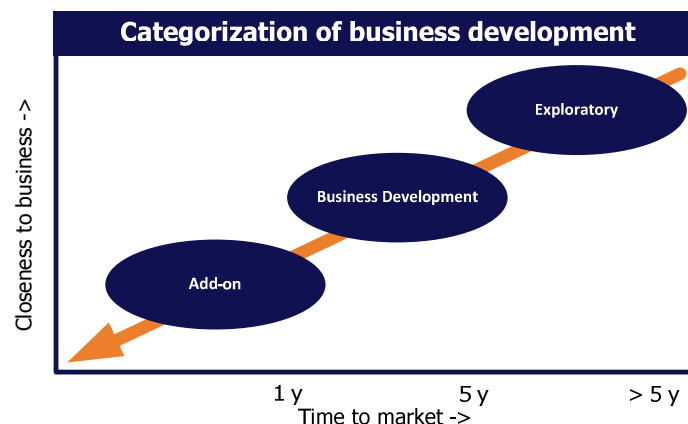
The process that is followed within VPMi consists of different stage gates. After the last gate the new business idea is implemented in the existing architecture.

<sup>2</sup> Internal documents and personal interview



**Figure 7 | Stage-gate process (Adapted from (Cooper, 1994))**

For business development a categorization has been made on basis of the time to market and the closeness to the business<sup>3</sup>. This categorization is used to determine in which unit's scope business development ideas belong. Whereas exploratory ideas are within the scope of R&D and MS&BD, business development ideas are in the scope of *MS&BD* and *product house*, and add-on decisions are in the scope of *Consumer Sales*.



**Figure 8 | Business development categorization**

### 3.3 Conclusions on internal context

Business development for the Dutch consumer market within Nuon/Vattenfall involves different internal stakeholders on different hierarchical levels. Responsibilities for business development are distributed amongst these internal stakeholders and are categorized based on the expected time-to-market. It was noticed however, that there is a grey area in the time-to-market periods. The transition of an exploratory idea towards business in operation is not straightforward. First of all, there is always some kind of uncertainty about the time-to-market. Next to that, the move of an idea from one category to another is no discrete event but rather evolves gradually and involves stakeholders on all levels.

It was noticed that due to ongoing internal reorganizations, after the acquisition by Vattenfall, the number of internal stakeholders have increased. For example, the business unit *products and solutions*, was previously a part of *Nuon Consumer Sales*. However, after the acquisition by Vattenfall its position has been moved up in the organization tree whereas they take responsibility for product development in the entire Vattenfall consumer segment.

<sup>3</sup> Personal interview

### 3.4 Developments in the consumer energy market

Environments with disruptive characteristics pose different requirements to the BD process than environments with stable characteristics. In this section we analyse those developments that affect the existing business performance of Nuon Consumer Sales. The goal of this analysis is to derive constraints that the environment poses to the business development process at the focal company. Based on those constraints a theoretical lens may be adopted in order to analyse the business development process at Nuon/Vattenfall.

This paragraph starts with a general introduction into market dynamics in the consumer energy landscape (§3.4.1). Then, the consumer energy market for electricity and gas is estimated approximately (§3.4.2). Environmental threats are categorized in threats from competition (§3.4.3) and threats from substitution (§3.4.4). Finally, an overview of legal developments has been presented in §3.4.5.

#### 3.4.1 Introduction into market dynamics

The consumer market for energy is in transition. After the liberalization of the consumer market for energy supply in 2004, new retail companies have entered the market. The consumer market for energy in the Netherlands now counts around 27 energy suppliers (Energieleveranciers.nl, 2012).

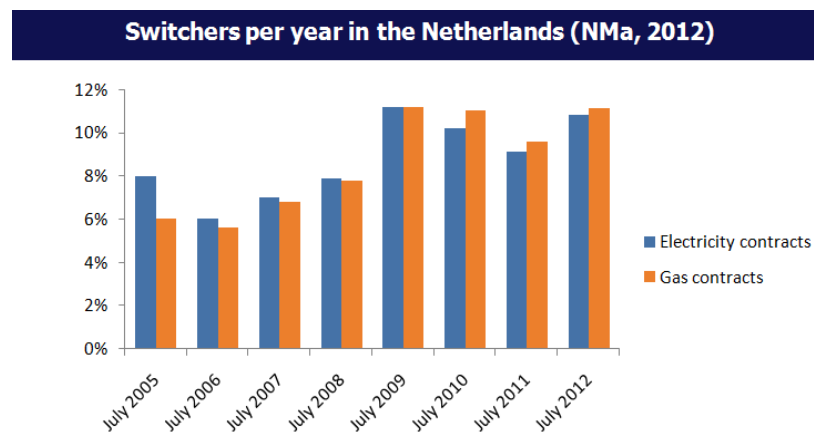


Figure 9 | Switchers per year in the Netherlands (NMa, 2012c)

Next to that, the number of consumers that switched from energy supplier has increased from 6% in 2004 to 11% in 2011. Therefore, a trend in switching behaviour can be identified. However, consumers are still encouraged to switch more often because price differences may be significant. The Netherlands Competition Authority (NMa) recently announced that consumers may save up to €500,- by switching from energy supplier (NMa, 2012a).

Besides the changes in the competitive landscape, distributed measures emerge that may substitute energy demand from the grid. The value of energy demand from the grid for Nuon/Vattenfall is threatened in two ways; through competition and through substitution.

In section 3.4 first the energy consumer market size will be estimated in terms of electricity and gas demand. Then the threat of competition will be described and assessed in terms of competitiveness. Afterwards, the threat of substitution by new technologies on a household level will be approximated.

### 3.4.2 Energy consumer market size

In the introduction it was defined that the scope of this study focuses on the consumer market for energy. The residential energy demand from the grid determines the total market size for the scope of this research. The market size for electricity & gas equals *the number of households* multiplied by *the average gas and electricity consumption per household* multiplied by *the average price per unit*. See the following equation:

$$\text{Domestic Market Size} = \sum_T N \cdot \hat{C}_T \cdot \hat{P}_T$$

- $T$  : Commodity type, being either gas or electricity;
- $N$  : Total number of households;
- $\hat{C}_T$  : Average consumption in units per household (in  $\text{m}^3$  or in kWh, dependent on  $T$ );
- $\hat{P}_T$  : Average price per commodity unit.

#### *Number of households in the Netherlands*

The Netherlands inhabits almost 16,8 million citizens that live distributed over almost 7,5 million households. Most of these households are single or double households (CBS, 2013c). A recent analysis identified a demographical trend which indicated that the number of single households is on the rise. This trend has been explained by an aging population and an increase of the number of divorces (CBS, 2013c).

The population level, on the other hand, has only slightly increased over the last years. The Dutch population has increased from 15,9 million in 2000 to 16,8 million in 2013 (CBS, 2013c). It is expected that the Dutch population will peak in 2040 at a level of 17,8 million, after which the population will decrease due to aging and decreasing immigration rates.

Concluding, it may be assumed that the number of households will increase slightly in the coming decade due to a moderately growing population and a demographical shift to more single households.

#### *Average natural gas demand per household*

The average gas consumption is around  $1.500 \text{ m}^3$  per household (Energie-Nederland, 2012). Due to the abundance of natural gas reserve in the Netherlands, a refined gas infrastructure has evolved in the Netherlands. Most households in the Netherlands use natural gas for residential heating, water heating and for cooking.

The consumption of natural gas per household has decreased significantly compared to 1995, where the average consumption per household was around  $2.100 \text{ m}^3$ . The penetration of high efficiency boilers and the application of better insulation contributed to this decrease (Energie-Nederland, 2012). Furthermore, a trend towards electric cooking was identified, that reduces the average gas demand from households. In general, the energy efficiency of houses has increased.

#### *Average electricity demand per household*

The average electricity consumption per household is around 3.500 kWh per household (Energie-Nederland, 2012). The mass adoption of electric appliances (like PCs, televisions etc.) caused an increase in residential electricity consumption. Since 2007, the electricity consumption was quite stable. The adoption of future electric appliances like electric vehicles may cause an increased consumption in the future. However, the penetration of more electric efficient appliances (e.g. LED lighting bulbs and efficient machines) may contribute to a more efficiency electric use.

### Average consumer electricity prices

For consumer different energy contracts are offered by energy suppliers. These contracts differ in duration and price, dependent on the energy provider of choice. In Figure 10 the consumer price development has been shown for 1-year contracts. The current supply tariff for electricity is around € 0,08/KWh. As it is demonstrated in the figure below, the consumer supply price for electricity has been quite stable over the past 5 years. The major part of what consumers pay for electricity per KWh is energy- and value added tax (VAT).

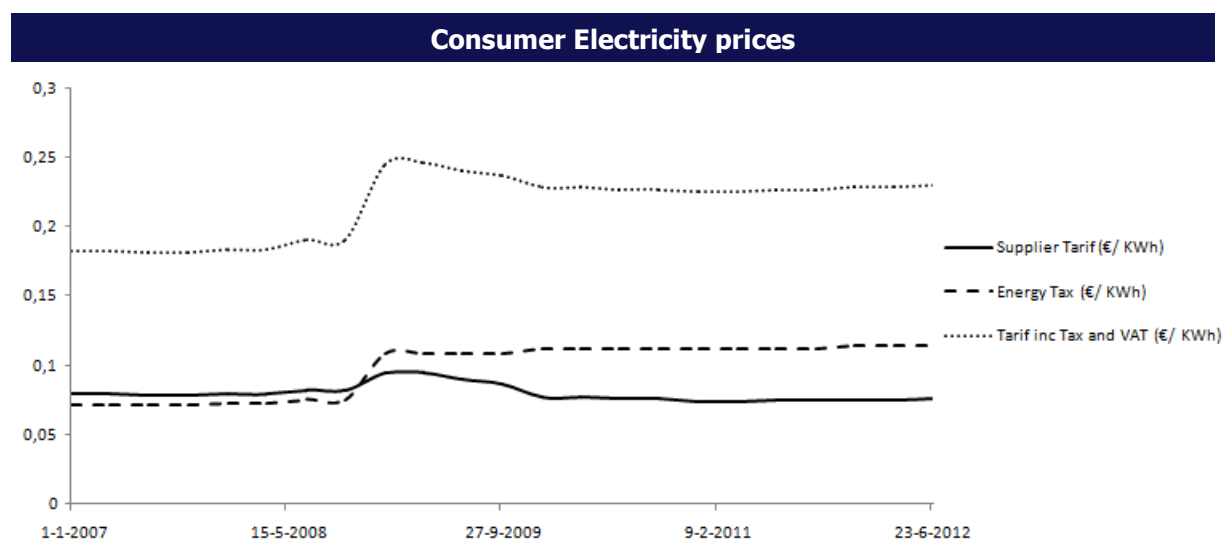


Figure 10 | Average consumer electricity price decomposition since 01-01-2007 in the Netherlands (CBS, 2013a)

### Average consumer gas prices

The price of natural gas for a 1-year contract is dependent on seasonal fluctuations (as can be seen in Figure 11). In the last 5 years, the average gas supplier tariff varies between €0,4/m<sup>3</sup> and €0,5/m<sup>3</sup>. For this reason in the market size estimation we assume a supplier tariff of €0,45/m<sup>3</sup>. The tariff structure as shown in Figure 11 is true for all households consuming between 600 and 6000 m<sup>3</sup>. It is assumed almost all households are represented by this range.

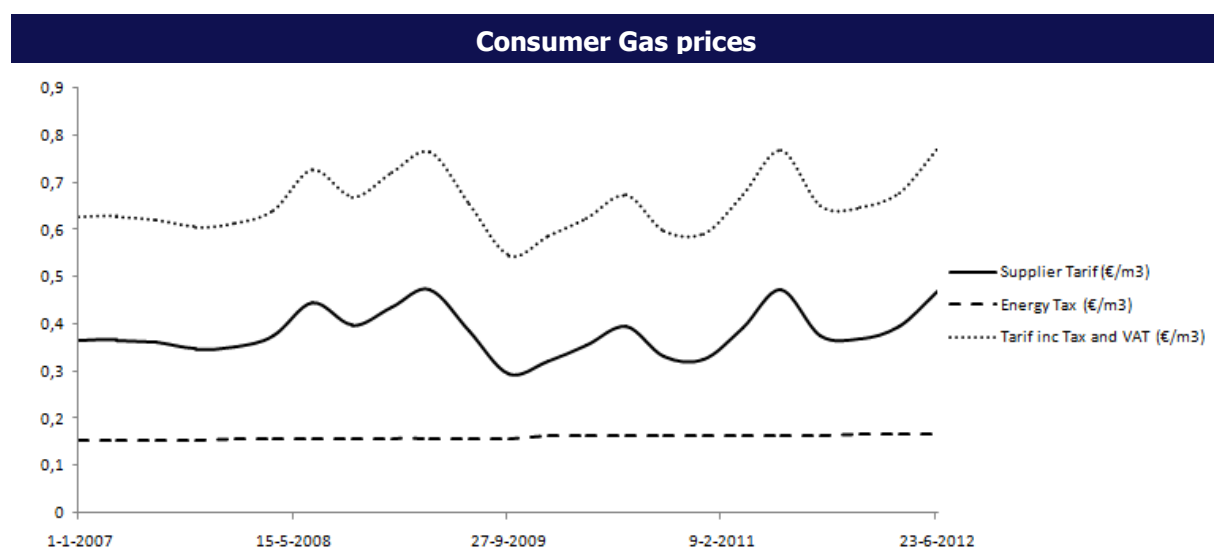


Figure 11 | Average consumer gas price decomposition since 01-01-2007 in the Netherlands (CBS, 2013a)



#### *Conclusion on the residential market size for electricity and gas in the Netherlands*

The estimated residential market size for both gas and electricity has been summarized in the table. The total market size for residential electricity and gas supply in the Netherlands is estimated to add up to €7.2 billion per year.

It should be noted that this market estimation is only indicative and that it is build upon several assumptions. However, the estimation provides an indication of the residential energy market size in the Netherlands. The focal company has a market share of approximately 25%.

	A. Number of households	B. Consumption per household	C. Supplier tariff per unit	Product of A,B & C
<b>Gas</b>	7.500.000	1500 m <sup>3</sup>	€ 0,45/m <sup>3</sup>	€ 5,1 billion
<b>Electricity</b>	7.500.000	3500 KWh	€ 0,08/KWh	€ 2,1 billion

**Table 2 | Overview of market size estimation**

The estimation of the domestic market size for electricity and gas represents a large part of in which Nuon's business is that is threatened through competition and substitution.

#### *Critics on market size estimation*

The approach to estimate the market size was based on decomposition. *Average residential energy consumption* and *average supplier tariffs* were important factors for determining the residential market size for electricity and gas.

However, this approach did not differentiate between the value offerings and promises of energy suppliers. In reality the market may be further divided. For example, a part of the market for electricity may be divided in a market for green and grey energy. Next to that, there may be a market for the specific brand name of the focal company.

Another limitation within this approach is related to the boundaries of the market estimation. Only core energy products (gas and electricity) have been taken into account. However, also a market indication could have been estimated for energy related products and services.

### 3.4.3 Threat by competition

After liberalization, the number of energy suppliers in the Netherlands has increased. Different new competitors have established and consumers have the freedom to switch supplier. In this paragraph the completion will be analyzed and consumer behaviour trends (driving switching) will be identified.

#### 3.4.3.1 Competitor behaviour

Power generation and power supply are distinguished from each other in the liberalized energy market of the Netherlands. In the figure below it is illustrated how annual electricity production volumes are distributed amongst production companies. Nuon is the third largest electricity production company in the Netherlands.

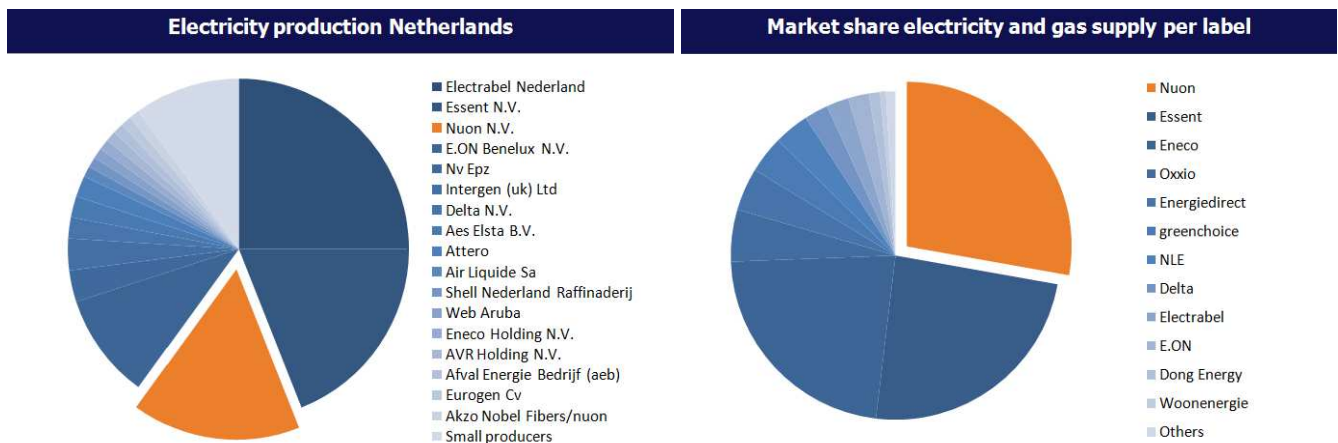


Figure 12 | Electricity plants in the Netherlands

Figure 13 | Market share per energy label

Throughout time, most production companies also developed a sales channel for electricity and gas. Historically, the supply market for electricity and gas is dominated by three incumbents: Nuon (owned by Vattenfall), Essent (owned by RWE) and Eneco. These three incumbents own around 85% of the total sales market for energy.

The C3-index (Figure 14) shows the development of the market share of the three largest energy suppliers. The spikes in the graph can be explained by different acquisitions. *Oxxio* is a full subsidiary of *Eneco* and 30% of the *Greenchoice* shares are owned by *Eneco*. Next to that, *energiedirect.nl* is a full subsidiary *Essent/RWE*. *Essent/RWE* also supplies energy to the labels *Vastelastenbond* and *Westland Energie*.

Of the three incumbents only Vattenfall is active in the Dutch energy supply market with one label: *Nuon*. Both RWE and Eneco own or are at least involved in four labels in the Dutch energy supply market. It seems that by these actions the market share for the big players is maintained.

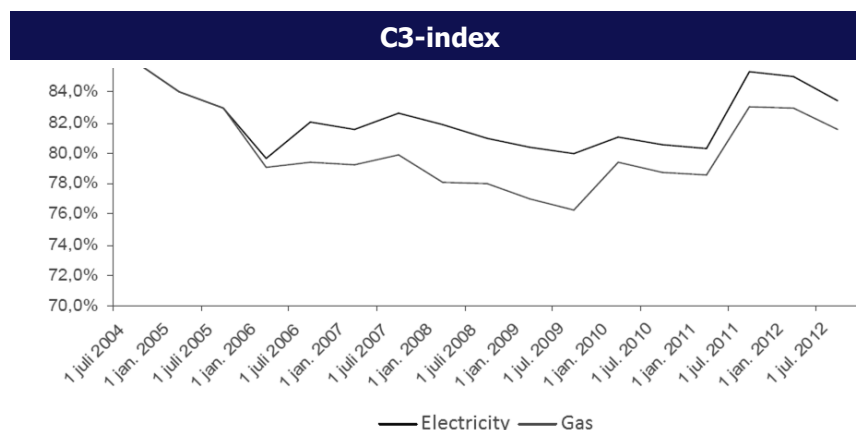


Figure 14 | Cumulative market share of Vattenfall, RWE and Eneco

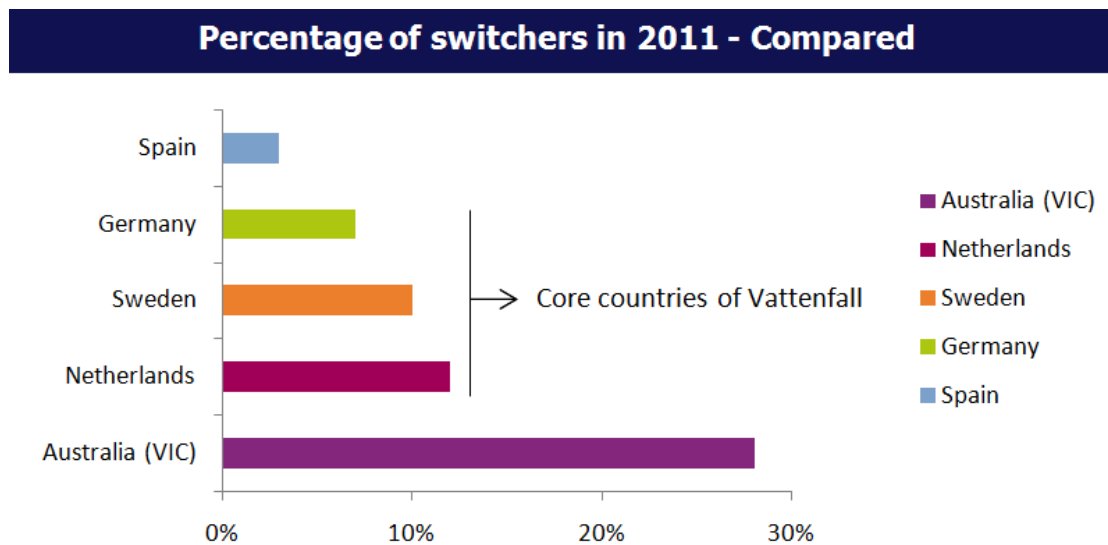
In the table hereunder, an overview of labels and energy suppliers in the Netherlands is presented. The list is based upon those suppliers that possess a supply permit of the Netherlands Competition Authority (NMa, 2012b) and on the suppliers overview available on [energieleveranciers.nl](http://energieleveranciers.nl).

Holding	Label or sub-supplier	Main Focus, characteristics and proposition
Vattenfall	Nuon	<b>Incumbent</b> , service focused, broad portfolio, custom advice
RWE	Essent	<b>Incumbent</b>
RWE	Energiedirect.nl	Online energy supplier, price-focussed, no ERS
RWE	Vastelastenbond	Collective purchasers, price-focussed
RWE	Powerhouse	Focus on greenhouse companies and industrial businesses
Eneco	Eneco	<b>Incumbent</b> , green image
Eneco	MKB Energie	Focus on (small) business segment
Eneco	Oxxio	100% green, 'innovative'
Eneco	Greenchoice (30%)	100% green, focus on distributed generation
GDF Suez	Electrabel	Reliable and price-focussed
GDF Suez	United Consumers	Collective purchasers
Nuts Groep	Atoomstroom	Nuclear power proposition
Nuts Groep	Budget Energie	100% green, CO2 compensated gas
	Homestroom	Green collective purchasers (ongoing)
	Nederlandse Energie	Focus on price and water power, aggressive campaigners
	Maatschappij (NLE)	
	Orro Energy	Focus on immigrants and internationals, payments in cash.
	Main Energie	Real Estate, Business (and consumers)
	DGB Energie	Agriculture sector, non-profit, solar
	Delta	Multi-utility, Zeeland energy
	Dong Energy	Danish state-company
	E-ON	German company
	Robin Energie	"Power to the people", start-up
	Anode Energie	Small supplier, trader
	QWint	100% green, service focussed, mainly business
	Trianel	Focus on small businesses
De Vrije Energie Producent (DVEP)	Noord Hollandse Energie	Local energy, 100% green, cooperative.
	Coöperatie	
	Leon Zeewolde	Focus on solar, renting PV systems

**Table 3 | Overview of energy suppliers in the Netherlands**

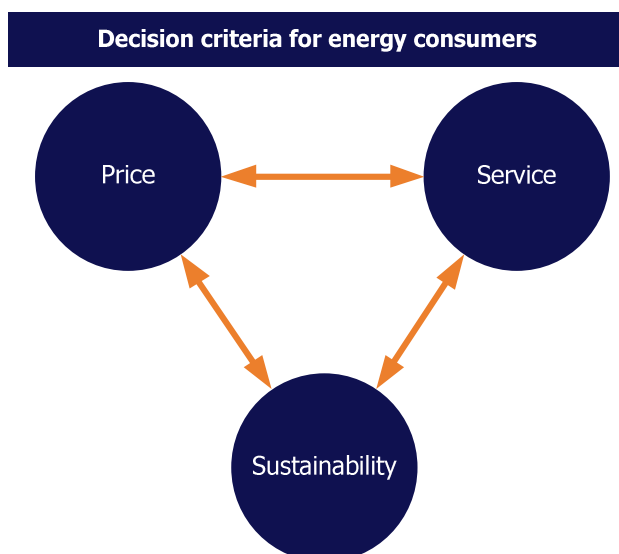
### 3.4.3.2 Consumer behaviour

The freedom for consumers in the liberalized energy market has increased. Consumers can really make a choice between energy suppliers. In that sense, consumers are increasingly enabled in their freedom of choice.



**Figure 15 | Level of competitiveness between different geographical regions**

Consumers choose their energy supplier on basis of different selection criteria. Perceptions on price, service promise and sustainability are the most important criteria on basis of which consumers choose (NMa, 2012c).



**Figure 16 | Decision criteria for energy consumers**

Although commodity branding and differentiation is possible to some extent, it is a characteristic of commodity markets that as the market matures, consumers demand price concessions (Dolak, 2005).

Recently, a trend has evolved that trusted organizations bind a group of people after which they let energy suppliers bidding on acquiring the group of customers (Energieleveranciers.nl, 2013). These trusted organizations, like consumer associations, have proven to be able to address different client segments via this way. One could argue that the perceived transaction costs of customers to switch energy supplier have been decreased because customers trust these organizations. This is endorsed by the fact that consumers are influenced by the people in their (social) network. (Lhoest-Snoeck, 2012).

The influence of social networks should be considered as a factor that may catalyze the velocity of change in if and how consumers select their energy supplier. Nuon's current business model may be disrupted by the establishment of intermediary parties. These trends pose new constraints to the business development process, in that sense that it requires fast decisions on how to deal with these trends.

### 3.4.4. Treat of substitution

Next to a threat of competition, energy suppliers are faced by a threat of substitutions. Technological developments of measures that can be employed at a household level may disrupt the market for energy supply through the grid.

#### 3.4.4.1 Technological advancements and substitution

The share of distributed generation as a percentage of the total power production in the Netherlands has increased from 20% in 1990 to almost 40% in 2011. It should be noted that the presented graph does include more than distributed generation at households. The volume of traditional power and gas supply will decrease as more energy is generated locally (CBS, 2012).

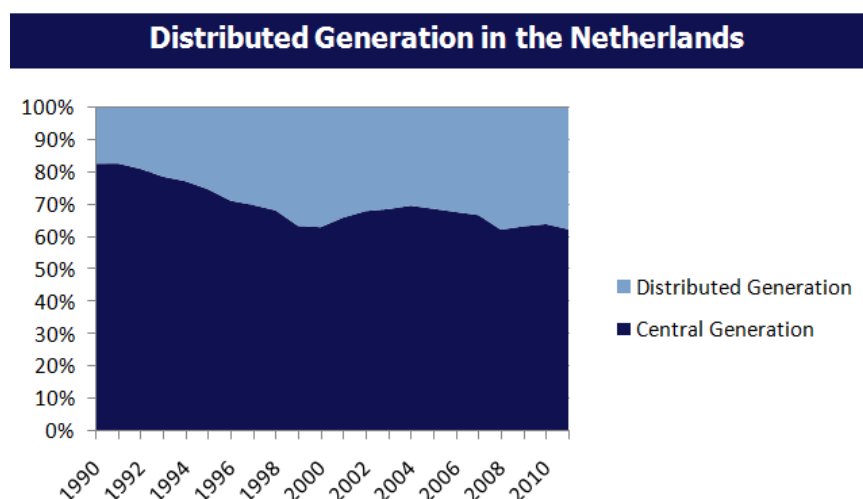


Figure 17 | Relative difference between distributed and central power production (CBS, 2012)

Figure 17 illustrates the development of distributed generation (DG) in the Netherlands. In this graph the following is mentioned with DG:

- Power from thermal installations, wind, water and solar sources;
- And delivered to the middle- and low voltage grid (< 110 kV).

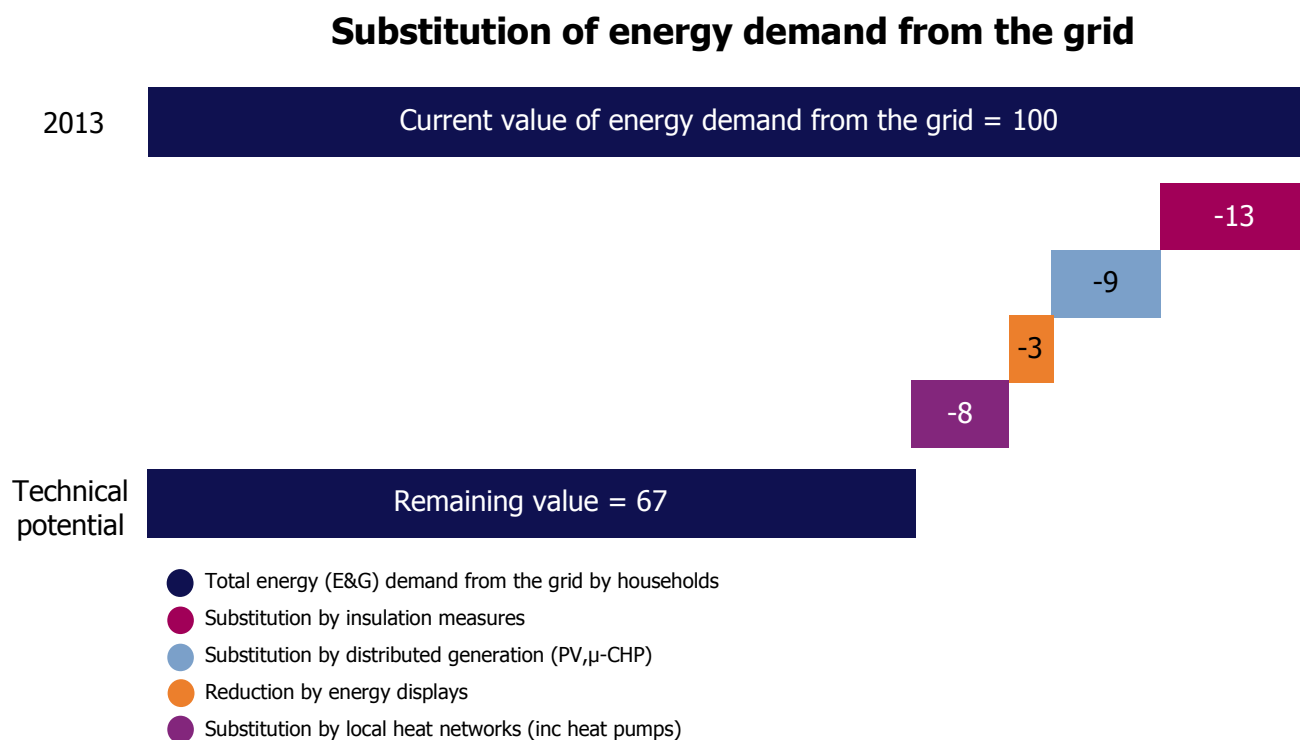
Next to DG other measures may be applied at a household level that substitute electricity and gas demand from the grid. Although PV systems are quickly becoming popular due to significant prices decreases, other distributed measures may also penetrate into the market as their prices decrease. The solutions presented in Table 4, represent those measures that are already offered or being monitored by the focal company.

New Energy Solutions For Households					
	Energy production		Energy savings		Smart Electric Appliances & Services
	Distributed Generation		Distributed savings		Smart Meters Smart appliances Electric Vehicles Demand Response Solutions
Household	Electricity	Heat	Gas savings	E-savings	
	PV systems µ-wind	Solar boiler Heat Pumps HRe-boilers	Insulation HE boiler	Eff. appliances E-management	
District	Wind turbine	District Heating Biomass fired boiler			

Table 4 | New energy solutions for households

### 3.4.4.2 Electricity and Gas Substitutes

In paragraph 3.4.2 the market for electricity and gas from the grid has been estimated. The total value of electricity and gas demand from the grid was estimated to be around € 7.2 billion (=100). In this section we explore the potential impact of technology measures as presented in Table 4. Only those technologies that have the potential to be economically feasible within a couple of years have been taken into account. Further assumptions for this estimation as presented in Figure 18 have been described hereafter.



**Figure 18 | Potential substitution of energy demand from the grid, \* If technical potential will be realized**

#### ● Energy demand from the grid

This concerns the total residential energy demand from the grid, both electricity and gas. The comparable unit is Euro's. The following general assumptions have been made:

- The Energy supplier tariff of natural gas is € 12,8 million/ PJ<sub>gas</sub> (CBS, 2013a).
- The Energy supplier tariff of electricity is € 22,8 million/ PJ<sub>electric</sub> (CBS, 2013a).
- Natural gas with an energy content of 9,77 KWh/m<sup>3</sup> (based on gas with the standard Dutch Slochteren quality).
- Measures with an estimated payback time below 20 years are considered as measures that potentially reduce the energy demand from the grid. The selection of technologies and energy measures is based on an internal analysis conducted by the focal company.

#### ● Insulation measures at household level

The following insulation measures are considered: high efficient windows, wall-, floor-, and roof-insulation.

For the estimation of the total annual reduction of energy demand from the grid the following assumptions have been made:

- Only houses built before 1990 are considered to be appropriate for full insulation due to economic feasibility (Ecofys, 2010).
- The potential energy savings by insulation of houses in the Netherlands depends on the type of house and the building period (Ecofys, 2010).

- Four types of houses have been identified: detached, semi-detached, row-house and apartment.
- Total house stock in the Netherlands is 7.2 million and can be categorized on house type and building period. The number of houses per category are demonstrated in Figure 19 (CBS, 2013b).
- The energy saving potential per house category is based on an analysis of Ecofys (see Figure 19).

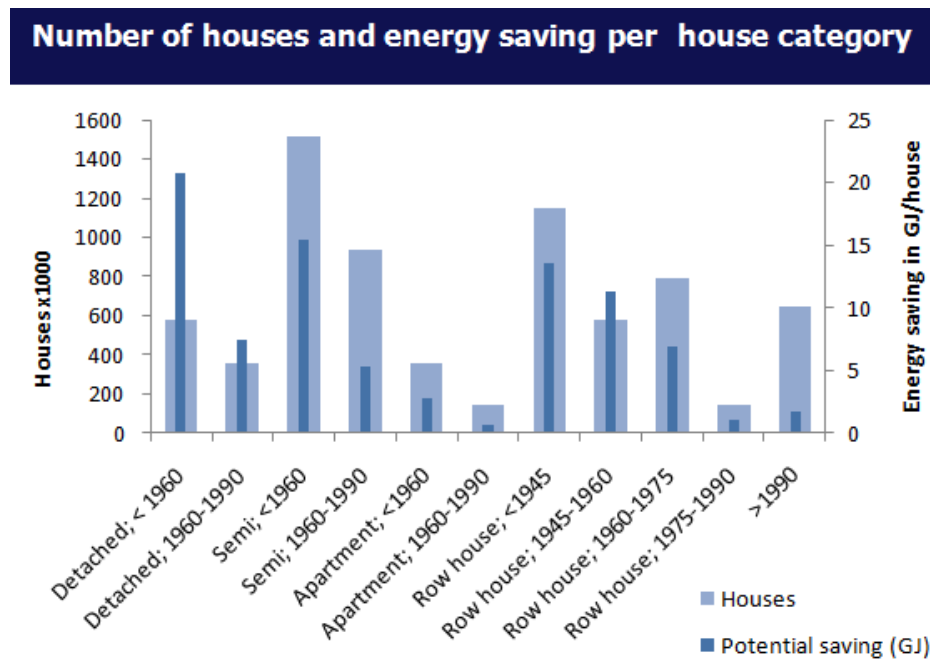


Figure 19 | # houses (left) and the E-saving potential (right) per house category (CBS, 2013b; Ecofys, 2010)

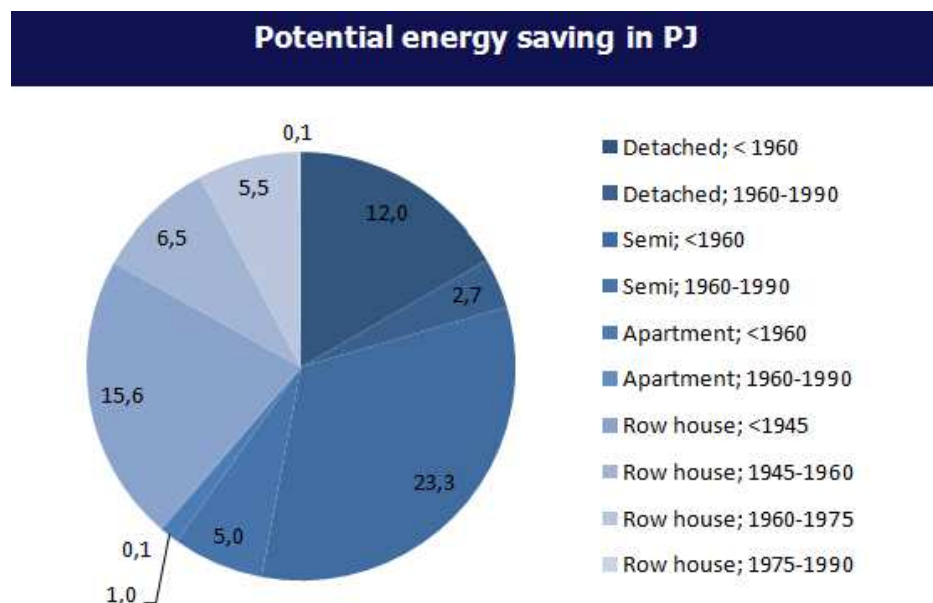


Figure 20 | Energy saving potential in PJ per house category following from figure 16

Based on all assumptions made before, the technical energy saving potential by insulation is around 71 PJ per year. Since electrical heating in houses is negligible in the Netherlands, this energy saving represents a value of € 900 million natural gas for energy suppliers.

## ● **Distributed Generation**

The following domestic energy technologies have been taken into account: Photovoltaic (PV) systems, micro-wind turbines, combined heat & power systems.

The following assumptions have been made for the domestic PV:

- Corrected for different types of dwellings, the average surface per household that is appropriate for PV systems is 10 m<sup>2</sup> (eRisk\_Group, 2012). The total number of houses was estimated to be 7.2 million (CBS, 2013b).
- The electricity production of current PV systems is around 80 KWh<sub>electric</sub>/m<sup>2</sup>/year.
- The total technical potential for domestic solar electricity production is around 21 PJ annually, which is representing an Energy Supplier value of €460 million/year.

The following assumptions have been made for urban wind turbines:

- The economic feasibility of urban wind turbines is controversial. Some calculations indicate that payback periods exceed 20 years. For this reason the technical potential has been conservatively estimated (ECN, 2010).
- Geographical conditions are important for the economic feasibility of urban wind turbines. However, they have a good fit with PV systems
- The technical potential for micro-wind turbines consists of a total of 50.000 turbines (eRisk\_Group, 2012).
- The average electricity production is around 2000 KWh<sub>electric</sub>/turbine/year if implemented at an appropriate geographical location (eRisk\_Group, 2012).
- The technical potential is therefore estimated to be around 0,4 PJ/year (ECN, 2010).
- Under these assumptions the technical potential for micro-wind turbines represents a value of € 8 million/year.

The following assumption have been made for micro Combined Heat and Power (CHP) systems:

- Micro CHP systems have the capability to simultaneously generate heat and electricity. When installed, the system replaces a conventional boiler. The domestic gas consumption will slightly increase, but as electric power is generated simultaneously, the electricity demand from the grid will decrease.
- On average, the gas demand will increase with 240 m<sup>3</sup>, while the local electricity demand will decrease by 2300 KWh (Nuon, 2012).
- Dependent on house characteristics the estimated potential of houses for micro-CHP is around 2.000.000 million (ECN, 2008).
- Although the gas demand from the grid will increase, the electricity demand from the grid will decrease resulting in a total value loss of € 150 million/year for energy suppliers.

Based on multiple assumptions, distributed generation may reduce the electricity demand from households with almost 38 PJ. The gas demand however may increase as a consequence of micro-CHP adoption with 17 PJ. These mutations represent a value loss of almost € 618 million.



### ● **Smart Energy Management**

Energy displays, which enable house-owners to have better insight in their energy consumption, may reduce domestic energy demand. Research at Nuon/Vattenfall indicated that consumers on average reduce their energy bills by €150,- per year. This represents a supplier value of approximately €60,- annually (on basis of 60% tax and transport).

If 60% of the all houses (7.2 million) would adopt an energy display, the total value of energy demand from the grid would reduce with €250 million.

### ● **Local heat networks**

The basics of a heat pump are pretty old, as every fridge contains one. However, heat pumps may also be applied for heating a home when used in reverse. In that case the heat pump uses an outside-the-home heat source (Harmsen, 2009). In residential situation, heat pumps may draw heat either from the air or the ground. Heat pumps use electricity to transfer heat.

Based on the existing housing stock, as presented under *insulation measures*, the total estimated potential for application of hybrid air/water heat pumps is around 2 million in the Netherlands (Harmsen, 2009). The adoption of this amount of heat pumps for residential heating would reduce the residential gas demand by 10% (Harmsen, 2009). This would mean a value decrease of approximately €500 million.

### **Conclusions on electricity and gas substitutes**

The estimation of the impact of household energy measures indicate that the domestic electricity and gas demand may be partly disrupted by technology measures on a household level. Regardless an increase or decrease of energy need per capita, up to 35% of the current grid demand may be replaced by solar PV, insulation and local heat networks. This reduction in central energy supply is based on known technologies that are already or expected to be soon financially feasible and therefore the estimation is plausible for 2020. The real reduction will depend on the ability of the society to implement these measures.

### **3.4.5 Changes of policies and legislation**

The Dutch government aims to create and maintain a clean, affordable and reliable energy system (Rijksoverheid, 2012a). In order to reach these goals a track record of governmental choices and decisions has evolved that are aimed at either market reforms or at favouring and stimulating specific technologies.

Energy policies are established on different governmental levels. General market reform decisions are typically taken at European and national level. However, on the level of provinces and municipalities other decisions are taken that influence the energy market.

#### *Market Reforms*

As a consequence the implementation of EU Directive 96/92/EC and EU Directive 2003/54/EC the Dutch markets for generation and supply has been fully liberalized. Next to that, a regulated monopoly was established for the transportation of electricity and gas within the Netherlands.

Reforming the energy supply market is still an ongoing process. In this light the recent 'stroomopwaarts' program aims to restructure the energy supply market even further (EDSN, 2013). Energy suppliers are made responsible for billing transport costs for distribution operators. This is done in order to facilitate clear bills for consumers and enabling them to switch without too much hassle. However, the credit risk is also transferred to energy suppliers and in that way having an impact on energy supplier operations.

Governmental decided that distribution grid operators may roll-out smart meters only on a facultative basis. The introduction of smart meters in the consumer domain offers the possibility for energy suppliers to develop new services for consumers based on real-time energy data.

#### *Policies for carbon emission reduction*

Basically there are two reasons for the Dutch Government to strive for an increase of the share of renewable energy sources. The first reason is that the abundance of fossil reserves like natural gas is no longer obvious. When taking this into consideration, the fossil dependency should be limited. Secondly, for reasons of climate change, the increase of renewable energy is on the Dutch agenda just like in other (European) countries (EC, 2009; Rijksoverheid, 2012b).

Domestic energy consumption represents around 15% of the total energy consumption in the Netherlands and therefore is an important sector for establishing carbon emission reduction.

However, policies aimed at making households in the Netherlands more sustainable are designed and implemented on different governmental levels; national, regional and local. On a national level, specific subsidies are in place for technologies such as PV. On a regional and local so-called green loan funds have been established to overcome the problem of up-front investments in distributed technologies. On local there are sometimes subsidies in place for house insulation.

#### *Conclusions on governmental policies*

Governmental policies and subsidies are scattered geographically and throughout time. This challenges energy suppliers to make long-term policy on how to adapt the business in the consumer domain. Governmental policies are a source of uncertainty for energy suppliers which are able to make or break specific business models.

### 3.5 Views on competing in a commodity market

Two views on the consumer energy market may be distinguished. The first view regards the core products (electricity and gas) as a commodity in which little product differentiation is possible. The second view assumes that core products can be differentiated by coupling commodities with differentiated contracts, peripheral products and services.

#### 3.5.1 Consumer energy market driven by price competition

Electricity and gas are homogenous products that are offered by different energy suppliers. According to economic theories, in markets with homogenous products little price-differentiation is possible, as consumers will be price-driven in purchasing electricity and gas (Harper & Oliver, 2001). However, this view on the consumer energy market has its limitations as consumers appear to be no utility optimizing entities. This is demonstrated by the fact that only limited number of consumers switched from energy supplier after the liberalization of the energy consumer market (NMa, 2012a).

Explanations for this phenomenon can be found in different factors. According to Harper et al (2001) product intangibility determines difficulty of both establishing new customers and retaining existing ones. Consumers may not be aware of what they receive until they don't receive it (Harper & Oliver, 2001). Therefore, as electricity and gas supply continues without disruptions energy supply contracts can be tacitly renewed. In other words, the reciprocal transaction is loosely coupled compared to purchasing a product in a grocery store.

#### 3.5.2 Consumer energy market driven by differentiation

In another view on consumer energy market it is possible for energy suppliers to differentiate. Factors on which energy suppliers are tempting to differentiate from each other are service quality and environmental friendliness. Next to that, differentiated contracts whether or not complemented by peripheral products and services diversify the entire product portfolio offered by an Energy Supplier.

Differentiated contracts and product bundles offer the opportunity for price discrimination and additional sales. Next to that, companies may use bundling for promoting customer lock-in and to create entry barriers (Haaker, Vos, & Bouwman, 2006). Products and service bundles may be mutually reinforcing, complementary, unrelated or competing.

#### 3.5.3 Emerging market places in a differentiated energy market

Energy suppliers are challenged to differentiate in a commodity market. This is particularly true for Nuon as other suppliers have already positioned themselves as price fighter. Different peripheral market places may evolve around the consumer's home:

- **Emerging substitute products;**  
*Insulation measures, PV systems, Heat pumps, Distributed Generation etc.*
- **Emerging strategic services;**  
*Financing, installation, Energy Management*
- **Complementary products;**  
*Smart appliances, home energy automation devices*

IT solutions provide opportunities for energy companies to create beyond-the-meter values for consumers. The adoption of energy management programs creates the opportunity for offering customized products and services to customers. Demand time management, offering customized E&G contracts; loyalty awards etcetera. Because retail electricity prices are based on average production costs, there is no incentive for consumers to react on the variation in wholesale prices. This leads to a poor resource-efficiency that may be improved by closer alignment between customer electricity prices and the actual value of electricity (Conchado & Linares, 2012). Demand response (DR) includes "all intentional modifications to consumption patterns of electricity of

end-use customers that are intended to alter the timing, level of instantaneous demand, or the total electricity consumption” (Albadi & El-Saadany, 2007). Within the set of DR programs, incentive based programs can be distinguished from price based programs. Advanced metering, communication and control infrastructure is required for DR programs. The society as a whole might benefit from lower electricity prices as a consequence of demand response. However, costs of advanced equipment to facilitate this are non-negligible (Conchado & Linares, 2012).

#### **3.5.4 New playing field in emerging market places around the consumer home**

The adoption of new technologies in and around the consumer’s home attracts new companies and organizations that are willing to participate in the delivery of novel values to energy consumers. Companies within the technology domain can be distinguished from companies in the service domain.

Different companies in the technology domain may be identified:

- Smart meter manufacturers;
- Demand response IT systems suppliers;
- Utility IT system suppliers;
- Smart Grid equipment manufacturers;
- Distributed Generation technology manufacturers.

Emerging actors within the service domain:

- *Installation service and maintenance companies;*  
DG technologies require capabilities for installation and maintenance.
- *Energy advisors;*  
As the freedom of choice for both suppliers and technologies increased (groups) energy advisors may find business in advising consumers which measures to adopt.
- *Financers;*  
Many distributed measures are accompanied by large upfront investment. Financers may play a role by offering financial solutions.
- *Retailers.*  
Diverse sales channel have already evolved. However, intermediary parties such as consumer associations are also entering the market for electricity and gas supply by organizing auctions.

#### **3.5.5 Local initiatives and micro-grid systems in the consumer domain**

Local initiatives in the energy sector are illustrative for the transition of the energy sector. At this moment there are over 400 local energy initiatives in the Netherlands (Rotmans, 2012, p. 155). These initiatives are driven by citizens, independent cooperation whether or not in conjunction with municipalities. Rotmans (2012) argues that local and bottom-up initiatives are and will change the paradigm of central (and carbon-rich) energy supply.

The creation of micro grids in the consumer domain is a concept for creating a local energy system, whether or not detached from the central grid (Abu-Sharkh et al., 2006). The concept builds upon technological development of distributed generation and energy storage. This concept fits well to the trend of bottom-up initiatives. In the micro-grid concept there is nearly a role for Nuon as central energy supplier and therefore Nuon is ought to develop a strategy whether or not to enhance these developments.

### **3.6 Conclusions on external context**

The complexity of the external context of Nuon/Vattenfall in the consumer segment is increasing. New companies are offering (partial) technologies and services for energy solutions at a household level and energy initiatives increasingly originate via a bottom-up approach. This increased complexity challenges energy suppliers to get involved in business models in which DG technologies and IT systems are incorporated. Therefore, the business development process requires an outward stance to new technological developments. Also, strategies for creating customer value in corporation with third parties are required.

Home energy automation it will not disrupt the residential energy demand from the grid, although awareness on energy consumption may reduce demand slightly. However, home energy automation and associated services for customers may redefine customer's perception on service.

Disruptive elements within the consumer energy market can both be found in the competitive environment and the adoption of distributed generation technologies. Especially Photovoltaic (PV) systems and of heat pumps are new development that may reduce the market value of grid electricity and gas. The pace by which DG technologies become economically feasible requires fast moves by the focal company in order to harness value from these developments.

# 4. Theoretical perspective on business development

The changing energy landscape is a strategic challenge for energy suppliers as their current way of working will be confronted by disruptions from distributed and renewable technologies (Richter, 2012). Energy suppliers are confronted with the challenge to develop new ways of value creation. Value creation by firms is often described by its business model. In this chapter we evaluate both the concepts of *strategy* and *business models*. Next to that we explore and analyse how they are related.

## 4.1 The strategy concept

Within literature different views on strategy of firms have evolved over time. While in 1960 strategy was largely equal to corporate planning, in 1970s the view broadened to portfolio management (Kay, McKiernan, & Faulkner, 2006). Since the 1980s the ideas of two authors have dominated the literature on strategy: Henry Mintzberg and Michael Porter (Forbes, 2013). However, within the strategy literature academics haven't managed to converge to a common definition of strategy (Wit & Meyer, 2010). Therefore, two dominant views on strategy will be presented here.

### 4.1.1 The creation of a valuable position

One view states that a strategy covers "the creation of a unique and valuable position, involving a different set of activities" (Porter, 1996, p. 68). Within this view, a strategy answers the question how a company will be unique, how it will achieve a competitive advantage and how this advantage may be sustained over time. Porter makes a strict distinction between strategy and specific actions, stating that specific actions are no strategy but merely means for a firm to arrive at a favourable position. Three generic strategies were identified by Porter, consisting of "*cost leadership*, *differentiation* and a *focus strategy*" (Porter, 1998).

### 4.1.2 Deliberate versus emergent strategy

Another view on strategy differentiates between emergent and deliberate strategies. In order to do so, strategies as a plan, a ploy, a pattern, a position and a perspective have been distinguished from one-another (Mintzberg & Quinn, 1996).

Firstly a strategy can be regarded as a plan that comprises of a 'consciously intended course of action' (Mintzberg & Quinn, 1996, p. 11). However, a strategy can be a ploy too which means nothing more than a manoeuvre. Strategies as a plan and ploy are both intended and realizable.

Secondly, a strategy can be perceived as a pattern (Mintzberg & Quinn, 1996, p. 12). This definition perceives strategy as consistency in behaviour, *whether or not intended*. This is fundamentally different from strategy as a plan or ploy since within this interpretation strategy is intended. However, intended and non-intended strategy may be hard to distinguish, as it may only be noticed in hindsight whether a strategy was intended.

Thirdly, a strategy can be a *position* of an organization in its environment. This definition of strategy can be well combined with the other definitions of strategy. The execution of a plan may lead to a new position of an organization in its environment. The view of strategy as a position is very focused on its environment. Fourthly, a strategy can be interpreted as a perspective. Within this view strategy contains “an ingrained way of perceiving the world” (Mintzberg & Quinn, 1996, p. 16).

The difference between Porter’s and Mintzberg’s view on strategy concerns the process by which strategies emerge (Mazzucato, 2002). Porter perceives strategy as something that is deliberate and can be designed, while Mintzberg pays more attention to the emergent nature of strategy. The latter means that strategy is not the result of rational calculation but of experimentation and trial and error (Mazzucato, 2002).

In this study we assume that business development can be traced back to strategic choices. Therefore, the strategy as we perceive it in this study is considered to be deliberate. However, whether or not these deliberate strategic choices are rational or opportunistic is left open.

#### 4.1.3 Hierarchical levels of strategy within a firm

Now that we have defined different *meanings* of strategy, still a categorization can be made on the *hierarchical levels* of strategies. In literature a distinction has been made between corporate, business and functional levels of strategy (Mintzberg & Quinn, 1996; Wit & Meyer, 2010).

Within the deliberate school of strategy, corporate level of strategy is related to the question in what businesses a company shall compete. Corporate strategy is also referred to as multi-business level strategy (Mintzberg & Quinn, 1996; Wit & Meyer, 2010). Corporate strategy is concerned with identification and realization of synergies between multiple businesses. Whether or not to diversify a business either horizontally or vertically are typical strategic concerns on corporate level (Mintzberg & Quinn, 1996; Wit & Meyer, 2010). Paradoxically, although companies may profit from synergies through diversification, the responsiveness of companies is threatened due to increased organizational complexity (Mintzberg & Quinn, 1996; Wit & Meyer, 2010).

Business level strategy is strongly related to the question how a company should compete in each business that it is in. Business level strategy is well comparable to Porter’s definition of competitive strategy (Porter, 1996). Since “business” is defined as a set of related product-market combinations (Mintzberg & Quinn, 1996; Wit & Meyer, 2010), business level strategy equals business unit strategy because each business unit is competing in different markets. Business strategy is about the fit between business and “the outside world”. A business level strategy is concerned with the firm’s positioning within the market. According to Porter (1996) five forces that influence the competitive intensity are the *power of suppliers*, *threat of new entrants*, *power of buyers*, the *threat of substitutes* and the intensity of competitive rivalry. Recent developments within these forces have already been described in the context analysis in chapter 3.

*Functional level* strategies are related to business operations. Functional areas such as marketing, operations, finance, logistics and HR are examples of the level on which functional strategies are defined. It is generally accepted that corporate-, business level and functional strategies need to be aligned for a business to be successful (Mintzberg & Quinn, 1996; Wit & Meyer, 2010).



**Figure 21 | Hierarchical levels of strategy**

#### **4.1.4 Strategy scope in this study**

*Nuon Consumer Sales NL* is a business unit within the overarching energy corporation Vattenfall. The focus of this business unit (and other staff departments) is to provide consumers (being households) with energy. Within this study it has been questioned in what way Nuon can adapt the process of business development (involving also other supportive departments) for the Dutch consumer energy market in such way that it fits with the changing energy landscape.

The hierarchical level of strategy that is applicable to the business development process for the Dutch Consumer Market concerns strategic decisions at a business level. Business strategy addresses how to compete in each market, while the markets are targeted at a corporate strategy level. This means the output of the strategy process are business level strategic (or tactical) decisions that adapt the way of doing business within the consumer energy market. As we consider tactical decisions to be the output of a process, this implies that there is a freedom of choice, and therefore the business strategy is considered to be deliberate.

Decisions on new products, new sales channels, marketing and price setting are types of decisions that affect the strategic position of Nuon within the consumer energy market. These decisions are therefore business strategy decisions that are taken deliberately.



## 4.2 The Business Model concept

The Business Model (BM) concept was introduced in 1975 within information management literature (Bouwman et al., 2012). Business models as a concept are typically used to explicate how companies create and capture value (Bouwman et al., 2012). Business Models have been defined as "the organization (or 'architecture') of product, service and information flows and the sources of revenues and benefits for suppliers and customers" (Timmers, 1998, p. 4).

Although different BM approaches exist at least the following elements can be derived from these different approaches (Boons & Lüdeke-Freund, 2012):

1. *Value proposition*: the value of the product and/or service;
2. *Supply chain*: upstream relationships with suppliers;
3. *Customer interface*: downstream relationships with customers;
4. *Financial model*: costs and benefits from 1, 2, 3 and their distribution across stakeholders.

Next to a tool for conceptualisation, business models have been identified as a strategic asset of a firm (A. G. Dottore, 2009). Dottore (2009) argues that sustained superior advantage depends crucially on the deployment and re-deployment of superior strategic assets.

To get a better understanding of the business model concept we evaluate different BM approaches. Since each approach may possess different functions we evaluate four BM approaches that dominate the BM school (Bouwman et al., 2012):

- Business Model CANVAS (Osterwalder & Pigneur, 2009);
- STOF methodology (Bouwman, Haaker, & Vos, 2008);
- E3-value methodology (J. Gordijn, 2002);
- BM configuration framework (Ballon, 2009).

This literature review on business models serves different goals. Firstly, insights on different BM contribute to our understanding of how companies capture value from their business activities. Different BM may yield different functions. Therefore different BM approaches will be explored on its functionality and applicability.

### 4.2.1 The business model CANVAS

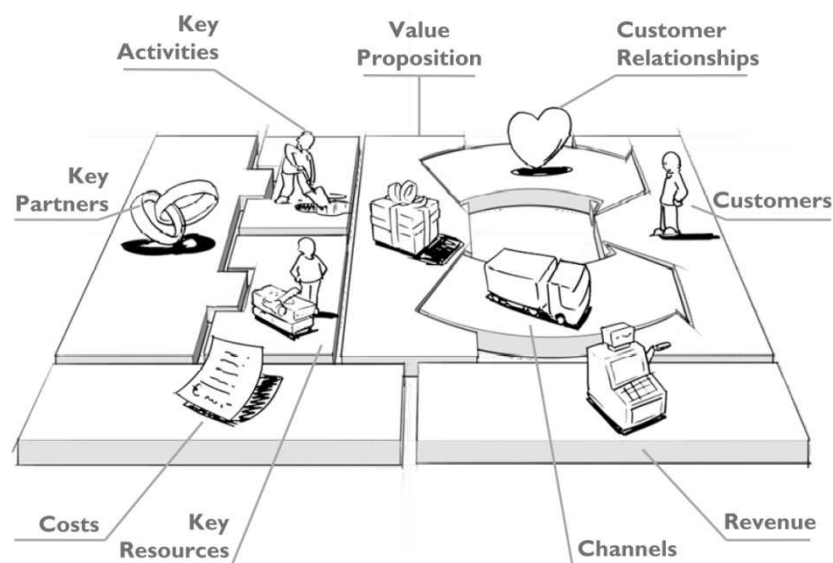
According to Osterwalder (2004) a business model is "a conceptual tool that contains a set of elements and their relationships and allows expressing a company's logic of earning money. It is a description of the value a company offers to one or several segments of customers and the architecture of the firm and its network of partners for creating, marketing and delivering this value and relationship capital, in order to generate profitable and sustainable revenue streams." (Osterwalder, 2004, p. 15)

The Business Model CANVAS, which resulted from the work of Osterwalder and Pigneur, is a popular tool to create BM in a creative session (Osterwalder & Pigneur, 2009). The conceptual model distinguishes between different design domains and variables.

Domain	Design variable	Description
Product	Value proposition	provides a view on how products and/or service create value for the customer
Customer Interface	Target customer	is a segment of customers a company wants to offer value to
	Distribution channel	describes the way of how products/services are delivered to the customer
	Relationship	describes the kind of link a company establishes between itself and its customer
Infrastructure configuration	Value configuration	describes the arrangement of activities and resources that are necessary to create value for the customer
	Capability	is the ability to execute a repeatable pattern of actions that is necessary in order to create value for the customer
	Partnership	is a voluntary initiated cooperative agreement between two or more companies in order to create value for the customer
Financial aspects	Cost structure	is the representation in money of the means employed in the business model
	Revenue model	describes the way a company makes money through a variety of revenue flows

**Figure 22 | Building Blocks within the Business Model CANVAS (Osterwalder & Pigneur, 2009)**

The BM CANVAS as introduced by Osterwalder appears to function as a powerful tool for BM creation as the CANVAS challenges to design, challenge, invent, and pivot a BM in a structured way. It can be used in a creative session and it is even available as an application that runs on tablets.



**Figure 23 | Business Model CANVAS (Osterwalder & Pigneur, 2009)**

However, the CANVAS also received some criticisms. The business model canvas is very focussed on individual companies. This is a shortcoming for those who are interested in eco-systems around a service concept. (Bouwman et al., 2012). The value network is however. Next to that, the BM CANVAS offers little detail and with that leaves much room for interpretation.

### 4.2.2 The STOF Methodology

The STOF framework provides a holistic view on business models by analyzing them from four interrelated aspects (Faber et al., 2003). However the BM approach is based on the inclusion of technological application.

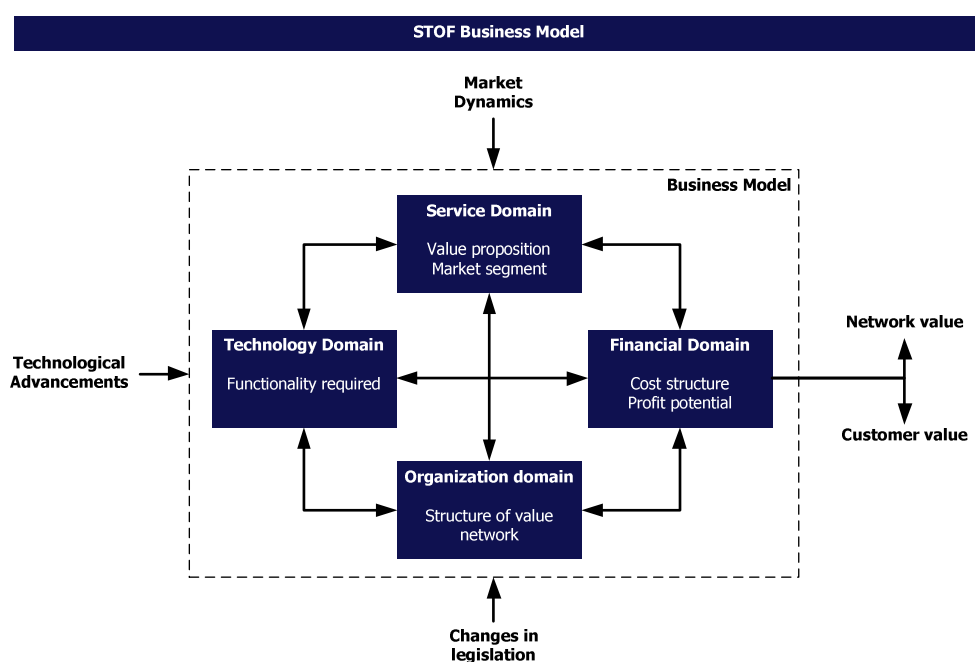
Design domain	Description
Service	Defines the value proposition and identifies the market segment to which the service will be offered.
Technology	Defines the functional requirements and technical functionalities needed to realize an offering.
Organization	Defines the structure of the value network required to create and distribute the service offering, including the form of the partnership.
Financial	Estimates the cost structure and profit potential of producing the service offering.

**Figure 24 | Description of the STOF design aspects**

The STOF method is very much focused on dealing with design issues and success factors of business models. Critical design issues per and between domains are described in the method.

The STOF framework (Figure 25) distinguishes between three drivers that can influence the viability of a business model over time:

- Market dynamics (i.e. influence of suppliers, customers, competitors and economics);
- Technological advancements (i.e. grid capabilities or new energy technologies);
- Changes in legislation (i.e. subsidies or regulation with respect to net-metering).

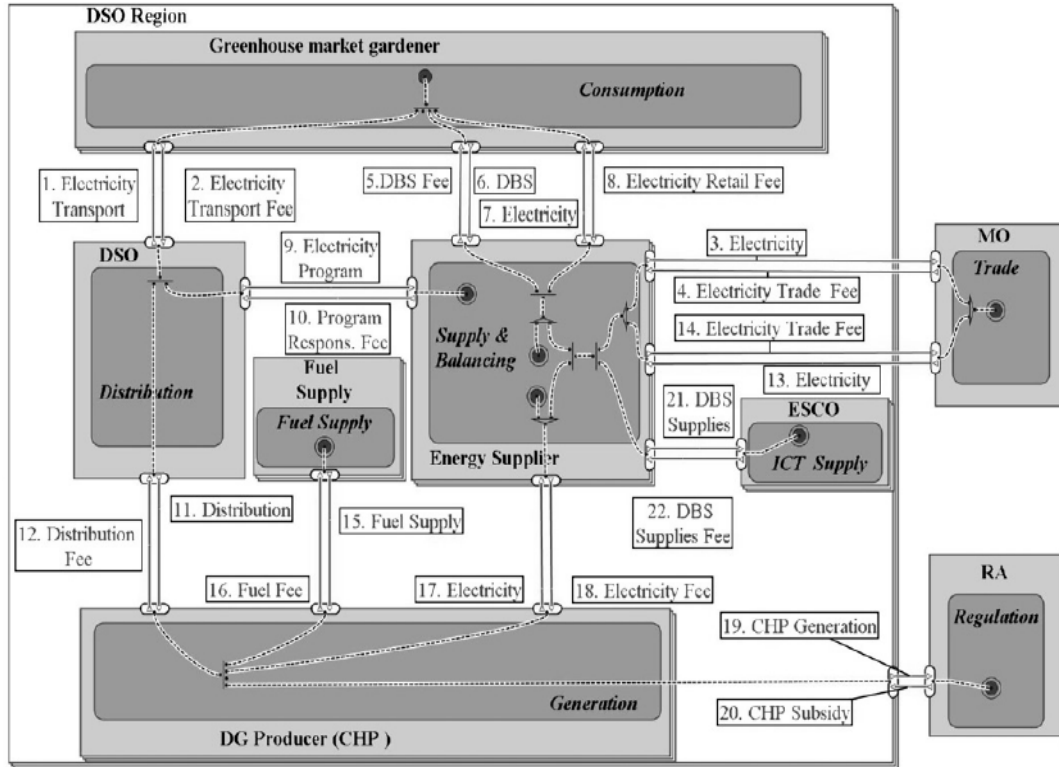


**Figure 25 | STOF Business Model representation (Bouwman et al., 2008)**

The viability of the business model as presented by Bouwman will depend on the value it creates for customers and for other entities in the business model network.

### 4.2.3 The E3-value methodology

The E3-value methodology (Jaap Gordijn & Akkermans, 2007) focuses on the financial transactions within the network of business models. By simulating the value network for each of the partners in the network, the business case is calculated for all stakeholders. The methodology is especially applicable when testing the business case under different scenarios.



**Figure 26 | Example of a value model for DG-supported distributed balancing service**

The E3 methodology is not so much a design approach, but it is rather a method for stress-testing a business model design. Therefore, Gordijn's work helps to test the viability of a business model concept under different scenarios. A visualisation of an example business model within an e3-value method has been presented in Figure 26.

### 4.2.4 BM configuration framework

According to Ballon (2009) "a business model is (among others) a cognitive tool, a lens through which a number of application domains can be treated, a number of business design questions can be answered and a number of objectives can be pursued."

The framework as described by Ballon (2009) is a design and analysis framework that follows from a 'multi-level and multi-parameter approach'. Only the most critical parameters are identified (see Figure 27) and they refer to the entire network of stakeholders involved in the BM. Within every parameter, Ballon identified the two main options that require a trade-off.

According to Bouwman, the framework appears useful when it comes to analyze BMs at a high level of abstraction, although it is less useful as a design approach as no practical design guidelines are provided (Bouwman et al., 2012).

Design category	Design parameter
A. Value Network	A1. Combination of assets
	A2. Vertical integration
	A3. Customer ownership
B. Functional Architecture	B1. Modularity
	B2. Distribution of intelligence
	B3. Interoperability
C. Financial Model	C1. Cost (Sharing) Model
	C2. Revenue Model
	C3. Revenue Sharing Model
D. Financial	D1. Positioning
	D2. User Involvement
	D3. Intended Value

**Figure 27 | Business Model Configuration Parameters (Ballon, 2009)**

#### 4.2.5 Conclusions on different BM approaches

All BM approaches as described earlier do to some extent differ in their usability. Some approaches are really focussed to designing a business around a new product or service; some approaches are more focussed on quantitatively analysing value networks and others provide a framework for analysing business models at a high level of abstraction.

The business model CANVAS is very design driven. The CANVAS offers a tool for building a business model around a new value proposition. The CANVAS is a strong communication tool and has its focus on marketing a new product. The CANVAS seems useful for designing a business from sketch but has its limitations when it has to take into account existing business and enterprise architectures. Next to that it provides no guidelines for quantitatively assessing the feasibility of a business model.

The e3-value method is focussed on the financial analysis of a business model, and therefore its function can be best being regarded as a BM stress test method. Next to that, it is possible to assess how BM performance may evolve over time for the involved actors. This method however, provides little guidelines for designing a new business model around a new value proposition.

The STOF approach is focussed on IT enabled services in the mobile industry although the approach has also proven its applicability in other industries. External factors that influence the BM over time are included in this approach. However, the unit of analysis is, comparable to the CANVAS, the service (or service bundle) and not the business model of the firm. Therefore it lacks guidelines on how new business models should be coupled with existing business.

Ballon provides a framework that is well-grounded in theory but is not accompanied by clear design guidelines. The framework however addresses all business model aspects at a high level of abstraction.

#### *Business Model functions*

The BM concept has proven its applicability for both start-ups and incumbent companies (Osterwalder, 2004). Al-Debei and Avison (2010) distinguishes between the design, analytical and evaluating function of the business model concept.

Capability	CANVAS	STOF	E3-valuation	Ballon
Design capability	Strong	Average	Average	Weak
Analytical capability	None	Weak	Weak	Strong
Evaluating capability	Weak	Weak	Strong	Weak

The above mentioned functions of the BM concept are not mutually exclusive and they overlap to some extent. The BM concept above all provides a framework to structure thoughts on how organizations capture value from their activities, now (analysis and evaluation) and in the future (design). Al-Debei and Avison (2010, p. 486) state that most BM definitions “are meta definitions, consisting of lists of elements that could or should be included in a business model.”

#### *Business Model unit of analysis*

Business model concepts are rather abstract and therefore needs further understanding when using BM for defining current business of an organization. On the one hand BMs help to understand how *organizations* capture value from their activities (Bouwman et al., 2012), on the other hand they provide a framework for designing around a specific value proposition (Osterwalder, 2004). This would imply that each organization would have one specific value proposition. However, this it is pretty straightforward that many organizations offer a set of value propositions. Therefore, it is concluded that business models of existing organizations can be analyzed on different hierarchical levels. The *unit of analysis* of a BM depends on the purpose of the model (Lambert, 2012). Different hierarchical levels of the unit of analysis may be distinguished:

##### *1. Level 1: organization*

The unit of analysis of a BM may be defined on the level of an enterprise or on the level of a part of the enterprise such as a business unit (Lambert, 2012). Therefore, the BM concept may be defined on different hierarchical organizations levels.

##### *2. Level 2: Specific value proposition*

The unit of analysis of a BM may also be defined on the level of a specific value proposition. BM design approaches such as the BM CANVAS (Osterwalder, 2004), put a specific value proposition at the centre of a BM.

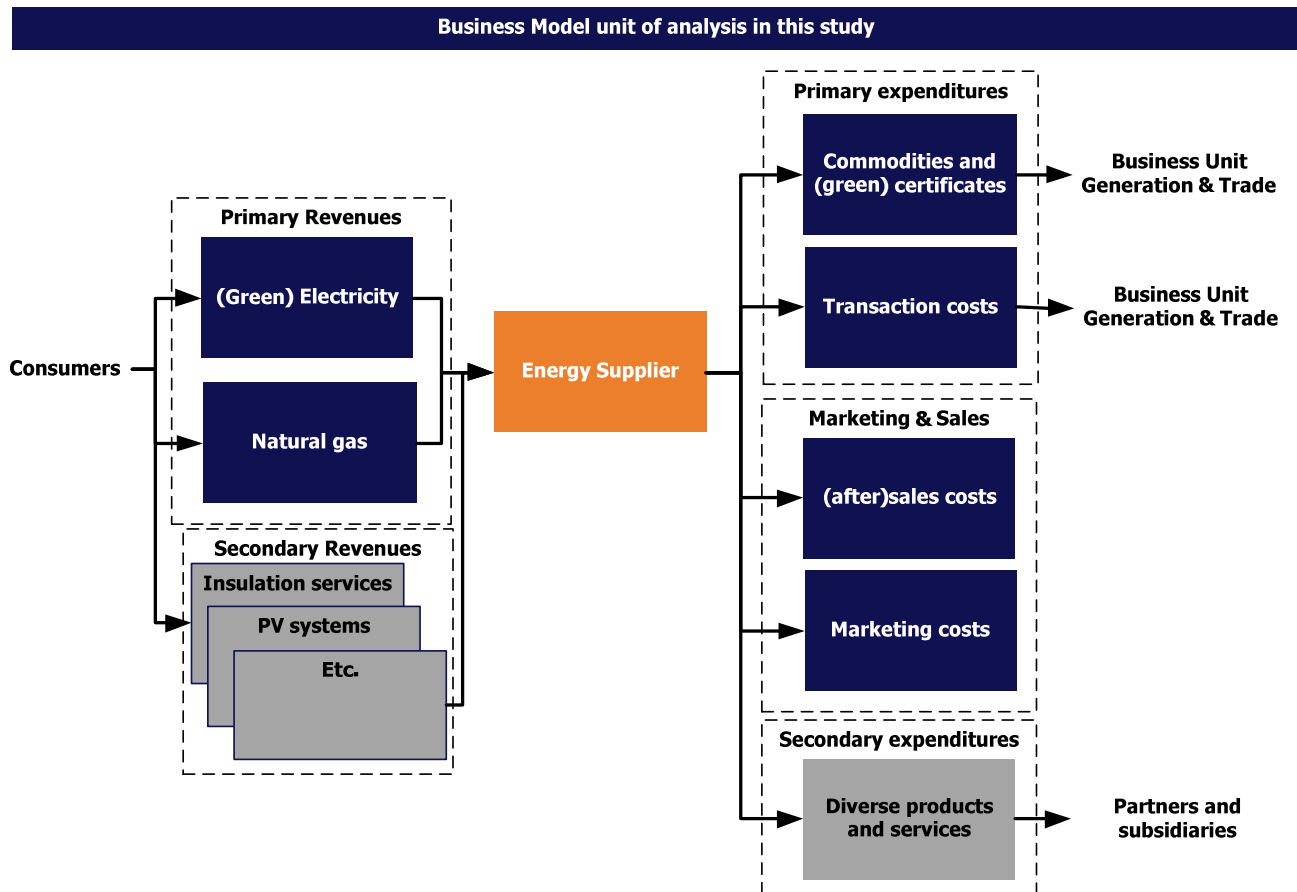
A newly designed BM around a specific value proposition (level 2) may become part of an organizational business model (level 1). In that case a new BM is created (=innovation). However, since the BM is created within an established organization the BM on an organizational level is being adapted. When exploring change of business models within incumbent firm, one should define which part of the organizations’ business model is subject to adaptation.

#### **4.2.6 Business model scope in this study**

We noticed that business models can be described on different levels of abstraction. Therefore in order to explore the process of change at the focal company we here define the BM that we consider to be subject to that change.

The scope of this study covers the Nuon’s activities in the consumer segment. It covers both the sale of electricity and gas to consumers as well as the sale of energy related products and services to consumers. *Nuon Consumer Sales* is the business unit that is responsible for generating the revenues through sales to consumers. However, also other business units are involved in the development of new products and services that contribute to an improved business model.

The BM scope of Nuon’s activities in the consumer energy market has been illustrated in the figure below. The figure has been created on basis of preliminary understanding of how Nuon captures value from its activities in the consumer energy market. However, the BM as presented in Figure 28 is conceptualized at a high analysis level. For example, no specific sales channels have been included and no partners for energy related products have been identified. From now on we will refer to this BM as the “*Energy Supplier BM*”.



**Figure 28 | BM unit of analysis in this study: the Energy Supplier BM**

Figure 28 describes the main value flows around the Energy Supplier BM. Primary products (electricity and gas) are purchased internally by *Nuon Consumers Sales* at the *generation & trade business unit*. Other expenditures concern the costs for marketing and sales operations. Secondary products (e.g. insulation services and PV systems) are often directly delivered by partners or subsidiaries. Nuon Consumer Sales added value is in the marketing and billing of the energy related products and services.

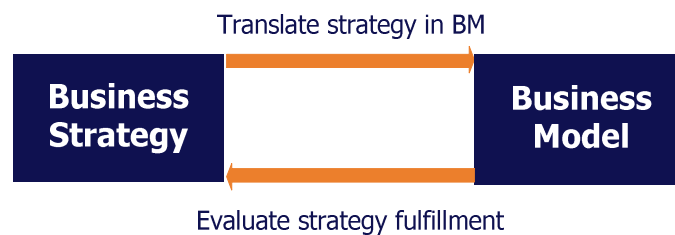
The perspective of this study is that of *Nuon Consumer Sales NL*. It is in the interest of this sales unit that the business model for the consumer market is effective and sustainable. The unit is judged on the sales performance of the business model it is involved in. Therefore, business model innovation for competitive reasons is also in the scope of *Nuon Consumer Sales*. It was however indicated that there are more organizational units involved in BM adaption for the Dutch consumer market all having their own stakes in business development.

### 4.3 How does Business Strategy relate to Business Models?

Based on the previous chapters and section(s) it could be concluded that the adaptation process of the Energy Supplier BM at an incumbent energy supplier is the main topic of interest in this research. In this paragraph we seek theoretical ground for relating strategy to business models.

#### 4.3.1 Business Model as Strategy implementation

Within the strategy analysis (paragraph 4.1) it was noticed that the concept of business strategy is pluralistic and that little consensus exist on what is and what isn't strategy. Next to that, we have observed that business model addresses partly the same issues as strategy does. The business model is referred to as an implementation of a business strategy (Osterwalder, 2004).



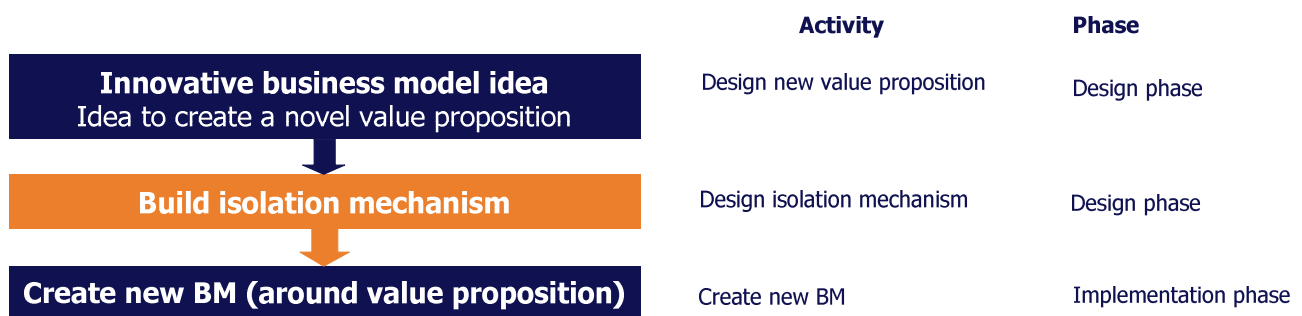
**Figure 29 | Business strategy versus Business Model**

Figure 29 illustrates the relation that Osterwalder makes between business strategy and business models. Strategy is translated in a BM, and BM evaluation indicates to what extent the BM fulfils the business strategy. This relation is very generic and doesn't take the BM unit of analysis in account. Next to that, the BM in this interpretation is one that is realized, otherwise it wouldn't be able to evaluate its strategic fulfillment.

Therefore we propose a more specific relation between business strategy and business model that takes different units of analysis in account and makes a difference between designed and realized BMs. Teece (2010, p. 179) states that coupling strategy and BM is needed as "strategy is needed to protect competitive advantage resulting from a new business model design." First the relation between strategy and a value proposition BM is made after which the relation is made on an organization BM level.

#### 4.3.2 Strategy in relation to business models at value proposition level

In the first situation an innovative business model idea doesn't have to take the strategic constraints of an existing organization into account. Therefore, the desired strategy analysis is limited to the interpretation by Teece (2010), where a strategy should answer the question why employment of an innovative business model would create a sustainable competitive position. While designing BM without organizational constraints a strategy analysis should indicate what 'isolation mechanisms' can and should be used to prevent imitation by competition and hinder disintermediation by customers and suppliers (Teece, 2010). Disintermediation by customers or suppliers would make the BM redundant which would most likely lead to poor BM performance.



**Figure 30 | Strategy and start-up BMs**



### 4.3.3 Strategy in relation to business models at an organisation level

In the second situation an innovative business model idea should be aligned with existing business before it will be adopted by an organisation. After all, it is unlikely that firms decide to engage in an innovative business models that have the potential to radically disrupt their business. Therefore, a strategy analysis should not only indicate isolation mechanisms, but should also indicate how engagement in a new business model would create a competitive advantage for the overarching business model. We call this strategic alignment of an innovative business model with the existing business model.



**Figure 31 | Strategy and organizational BMs**

The distinction we make can best be illustrated by an example of Dell Inc. Michael Dell, the founder of Dell Inc., built Dell upon the belief that working directly with customers could get them technology faster, at a better service level and with that provide a better value. The fundamental difference in the business model of Dell compared to incumbents was that they were not using intermediate retail channels.

From the perspective of Dell, they didn't have to encounter strategic constraints of existing business and found themselves in the first situation (strategy and start-up BMs).

Incumbents had difficulties to copy Dell's business model as direct sales to customers would upset their channel partners and resellers. From the perspective of incumbent laptop and PC companies, the innovative business model idea of selling directly to customers had to deal with an organizational strategic context. They found themselves in the second situation (strategy and organizational BM).

Therefore, the content of business strategy in relation a single BM design (sell directly to customers) was dependent of the perspective of the initiator (being either Dell or an incumbent).

## 4.4 The Business Model adaptation process

In the previous paragraph both the concept “business model” and “strategy” have been described and related. Next to that the business model which we observe (the Energy Supplier BM) has been specified and delineated. When talking about business model adaptation we mean the adaptation of the Energy Supplier BM as delineated in Figure 28.

Although we have earlier spoken about business development process for the consumer energy market we propose to rephrase this to business model adaptation process. Business model adaptation is more specific and better connects with theories treated before. In this chapter we seek theoretical ground for assessing the BM adaptation process at Nuon/Vattenfall.

### 4.4.1 High Velocity Environment: A theoretical lens for the BM adaptation process

In chapter 3 it was noticed that technological, market and legislative factors drive change in the consumer energy market. The type of change in the consumer energy market is new for Nuon. The external analysis in chapter 3 showed that an increasing number of organizations position themselves as players in the consumer energy market. Their focus is to capture value from DG development and home energy automation. Some DG technologies rapidly decrease in price which makes their adoption rapidly more feasible.

Next to that, the increasing competitiveness in the consumer energy market force energy suppliers even more to create distinguishing value for their customers. New energy suppliers are targeting new client segments and intermediary parties assemble customers for collective purchase of electricity and gas.

In short, the competitive environment has increased in complexity. The complexity requires fast decisions in order to remain competitive.

In this chapter we build a framework on basis of which the business model adaptation process will be analysed. We will use *high velocity environments* as a normative lens. In strategic management literature *High Velocity Environments* (HVE) are defined as “environments where changes in demand, competition, and technology are so rapid and discontinuous that information is often inaccurate, unavailable or obsolete” (K.M. Eisenhardt, 1989, p. 816). Research on decision-making in HVE had its first application in the microcomputer industry and but its application was extended to airline, banking and telecom industries (Bogner & Barr, 2000). Recent developments in the consumer energy market (see chapter 3) indicate that environmental complexity and velocity is growing. Furthermore, there is little reason to believe that this development is reversible as (DG) technologies will continue to develop, innovations will continue to be created and the liberalized market model will remain (for the foreseeable future).

By using HVE as a theoretical lens for analysing the BM adaptation process at Nuon, the process analysis should lead to both a description of the existing process as to a normative comparison. We question whether the consumer energy market can be compared to a high velocity environment; and if so, which process recommendations may be extracted from best practices identified in literature.

First, we explore what characteristics a BM adaptation process has in HVE and base questions to internal stakeholder on that.

### 4.4.2 What is a process?

Basically, a process is nothing more than the course of development. In the case of a BM adaptation, the process describes how decisions are made that adapt the business model in place. Decisions are at the basis of organizational change, and therefore these focal points are of specific interest in this process analysis. We assume that decisions are the output of the business model adaptation process and therefore decisions are focal points in this analysis.

Within a process a distinction should be made between formal and explicit process agreements and informal agreements (de Bruijn, ten Heuvelhof, & in 't Veld, 2010). Since informal agreements also play a role within a process, a process can be seen as a phenomenon (Hutzschenreuter & Kleindienst, 2006).

Adaptation of a business model at organizational level will mean change for an organization. This change may also be described as an innovation. The definition of innovation boils down to the development of new customer's value through solutions that meet new needs. Dottore (2009) argues that the use of *innovation*, *adaptation* and *change* can be used interchangeably. He follows by stating that "*innovation* might bear a more pro-active, distinctive nuance than the other terms, like the others it stems from dissatisfaction with the status quo and a decision to take action to improve the outlook" (A. G. Dottore, 2009). According to Dottore (2009) researchers tend to use 'adaptation' while practitioners tend to use 'innovation' instead.

#### **4.4.3 Building a framework of the BM adaptation process in High Velocity Environments**

Business models are strongly related to business strategies. Strategic decisions, being the output of a strategy-process, change the structure of a business model. For that reason strategy-process literature is relevant for analysing the process of BM adaptation. However, the field of strategy-process literature is characterised by an "ever-increasing plurality of concepts and frameworks" (Hutzschenreuter & Kleindienst, 2006). For research feasibility reasons we need to limit the set of factors.

First, a high abstraction analysis will be made of which category of factors influence the process of BM adaptation. This is done by analysing a specific literature review article in the field of strategic decision-making by Hutzschenreuter and Kleindienst (2006). Ideally, this leads to an identification of factor categories that influence the process.

Then, it is analyzed what characteristics a successful process outcome in HVE has. Consequently, within each category a converging step will be taken where factors will be identified that are believed to contribute to successful decision-making in HVEs. Multiple empirical studies of how decisions are made in HVEs may fill in these gaps.

Based on a literature review on strategy processes by Hutzschenreuter (2006) six factor categories have been identified that influence the BM adaptation process:

1. *Environmental context;*

Different studies showed how environmental context can influence the strategy-process. Attributes such as uncertainty, munificence and dynamism influence the strategy process (Hutzschenreuter & Kleindienst, 2006, p. 676). In the perspective of the environmental context we have hypothesized that the consumer energy market has become a high velocity environment.

2. *Strategic context;*

The strategic context refers the strategic position and moves of an organization (Hutzschenreuter & Kleindienst, 2006, p. 694). Organizations may have a legacy of having a prospecting-, analyzing-, defending- or reactive-strategy.

3. *Organizational context;*

Different organizational factors such as age, size, structure as well as culture and routines may influence the strategy-process (Hutzschenreuter & Kleindienst, 2006, p. 676).

4. *Performance on KPIs;*

Past performance influences the strategy process through its influence on amongst other comprehensiveness and intensity of information search (Hutzschenreuter & Kleindienst, 2006, p. 677).

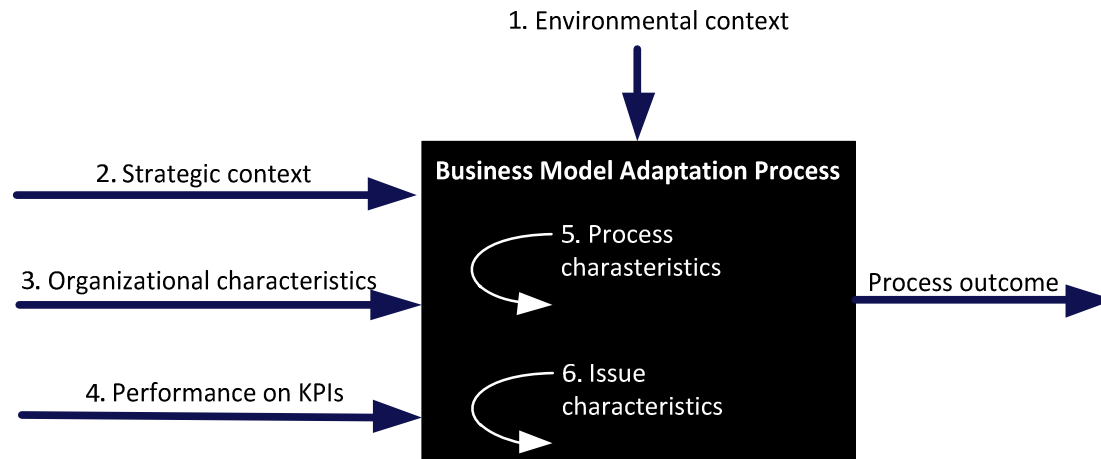
5. *Process characteristics;*

Different factors determine the sequence of actions within a process. As decisions are made by individuals, personal factors as behaviour and experience are of influence on managers' cognitive models (Hutzschenreuter & Kleindienst, 2006, p. 695).

#### 6. Issue characteristics.

The business model adaptation process may differ due to issue characteristics. In our case the issue characteristics have been delineated by those issues that affect the business model in the consumer energy market being new consumer products & services, new sales channels etcetera.

The above mentioned factor categories have been schematically represented in Figure 32. In order to build a framework of business model adaptation in high-velocity environments, the above mentioned structure will be followed. Within each factor category, factors will be identified that are considered to contribute to a desired process-outcome in HVE. Consequently, questions will be derived from the framework that may be used in a semi-structured interview.



**Figure 32 | Framework of factor categories influencing the BM adaptation process**

#### 4.4.4 Environmental context: a high velocity environment

Firstly, it must be stated that the perception on the environment may differ from the objective reality. Sharfman & Dean (1991) did an effort to objectively “measure” the environment on the following three dimensions (Sharfman & Dean, 1991):

- Measure for *Complexity* refers to product diversity and technical intricacy. An overload of information leads to complex decision-making since managers are bounded in their rationality.
- Measure for *Dynamism* refers to the (un)-predictability of environmental elements. Technological and market instability are distinguished from each other in this measure.
- Measure for *Competitive Threat* refers to the availability of - and battle for resources.

In “high velocity markets” the market is very dynamic and change becomes non-linear and less predictable according to Eisenhardt (Kathleen M. Eisenhardt & Martin, 2000). Based on this definition on high velocity environments we propose to ask stakeholders to rank the consumer energy market as follows:



#### 4.4.5 Desired process outcome: Fast decision contribute to effective firm performance

In high-velocity environments decision speed is of great importance for effective performance (K.M. Eisenhardt, 1989). In these environments the process for BM development should be shaped in such way that it allows for fast decision-making. First-mover advantages can be achieved when decisions are made pro-

actively and fast. Although first-mover advantages are only temporary, this advantage is crucial when product- and innovation life-cycles are short.

However, some researchers indicate that rational processes may be superior. But these rational processes do lengthen decision-making. According to the rational-decision-process, the objectives of the actor (i.e. Energy Company) are known. These objectives then determine the value of the possible consequences of an action. On basis of appropriate information, a set of alternative actions is generated. Then, the optimal alternative is selected. This rational decision-approach, how-ever is based on the assumption that all relevant information and alternatives are known. However, empirical research showed that decision-processes are often rationally bounded. Therefore, more rationality is sought by using more information and creating diverse viewpoints (Kathleen M. Eisenhardt & Zbaracki, 1992).

Rationality versus bounded rationality can be viewed at as a continuum (Kathleen M. Eisenhardt & Zbaracki, 1992). Therefore, we propose that the trade-off is between taking a decision fully rational (and minimize risk) or accept bounded rationality and speed-up decision-making. The dichotomy of risk-control and decision-speed was confirmed in some research (Baden-Fuller & Volberda, 1997). We propose to ask internal stakeholders whether the process of adapting the Energy Supplier BM at Nuon is rather emphasized by risk-control or by decision-speed:



#### 4.4.6 Process factors for fast decision-making

It was already stated that decision-speed in high-velocity environments is very important. From this, the question follows how decisions on new (or adaptations to-) business models are made, given the fact that decision-makers are at least to some extend rationally bounded since they have to move quickly.

Rational-comprehensive decision-making	Successive limited comparison
1. Value goals are clarified and are a prerequisite for the generation of alternatives.	1. The selection of value goals and generation of alternatives are intertwined.
2. BM adaptations are formulated on basis of their contribution to the company's value goals.	2. Because means and ends are not distinct, such an analysis is not appropriate.
3. The 'good' BM adaptation would be the one that best contributes to the company's goals.	3. The test of a 'good' BM adaptation is that analysts and decision-makers reach an agreement on its appropriateness.
4. The analysis is comprehensive and exhaustive. All relevant factors are taken into account.	4. The analysis of alternatives is limited.
5. The analysis and selection is heavily based upon theory.	5. Reliance on theory is limited and is replaced by agreement instead.

**Table 5 | Comparison between rational decision-making and successive comparisons (Lindblom, 1959)**

#### *Multiple simultaneous alternatives*

Empirical work by Eisenhardt (1992) showed that the greater the number of alternatives that were considered simultaneously, the faster a decision was made. This might be in contrary to what one would expect, since in a comprehensive decision-making process decision-makers cannot be exhaustive in their analysis (see Table 5). In some researches, multiple alternatives were associated with slow decision-making. However, Eisenhardt (1992) showed that the sequence of alternatives was crucial for decision-speed. Slow decisions were characterized by a sequential consideration of fewer alternatives, while rapid decisions were characterized by simultaneous consideration of more alternatives.

Both the number as the sequence of alternatives is therefore an indicator for the decision-speed. We propose to ask the interviewees on the use of multiple alternatives in decision-making on new or adaptations to the current business model.

The simultaneously consideration of multiple alternatives after which decisions are made fast can be contrasted to an incremental process for decision-making. Therefore, we assume that simultaneous alternative comparison can be associated with radical innovations. We propose to ask internal stakeholders whether they use few or many simultaneous alternatives in decision-making:



#### *Use of real-time information*

The use of real-time information is associated with fast decision-making. Real-time information is defined as "information about a firm's operations and environment for which there is little or no time lag between occurrence and reporting." (K.M. Eisenhardt, 1989, p. 549) In fast changing environments, data on market indicators, technological advancements, and change of legislation are crucial to take into account when striving for a competitive advantage as access to real-time information will develop decision-makers intuition for decision-making.



#### *Level of detail at point of decision*

While multiple simultaneous alternative and use of the use of real-time information were associated with fast decision-making high levels of detail per alternative at point of decision-making was not. "Much time may be required to make an accurate decision between alternatives, because gathering, processing and evaluating information may be a lengthy process" (Franks, Dornhaus, Fitzsimmons, & Stevens, 2003, p. 2457). Therefore, we propose to ask whether internal stakeholders perceive current BM decision-making requires sketch ideas or need detailed plans:



#### 4.4.7 Organizational context factors

##### *Consumer Sales NL versus Vattenfall Holding stakes*

Since the acquisition of Nuon by Vattenfall, the entire organization has been in transition. The process of new business development is fragmented throughout the organization, both national as international.

Since every business unit has own targets and stakes, the innovation process for new business models in the consumer market is a non-linear process that is subject to a political power game. Since the acquisition of Nuon Consumer Sales NL by Vattenfall the distance to decision power has grown. However, Nuon B2C NL is closest to market developments and functions as a sensor for demand changes in the consumer market. Next to that, Nuon Consumer Sales NL is occupied with sales of energy and related services and products to consumers.



##### *Individual risk incentives*

Within organizations, employees may show risk-averse or risk-taking behaviour. In innovative organizations that succeed in their adaption to a fast changing environment, a reward system may be in place that encourages risk-taking and innovative behaviour (Slater, 1993).

Since this factor touches with the risk/speed trade-off, we are interested in whether persons involved in business model creation or adaptation feel a personal incentive for taking risk.



##### *Common understanding of business model adaptation process*

The business model adaptation process can be viewed at as a dynamic capability of a firm. Dynamic capabilities consist of many well-known processes such as alliancing, product development, and strategic decision making that have been studied extensively in their own right (Kathleen M. Eisenhardt & Martin, 2000). In moderately dynamic markets, routines are based on cumulative and existing knowledge, making the process stable and predictable. However, in high velocity environments, effective routines are adaptive to changing circumstances making the process unstable with unpredictable outcomes.

For the above mentioned reasons we propose a factor of common understanding of the way that decisions are made on innovative business ideas.



##### *Slack resources as a mean for innovation*

Organizational slack is defined as a buffer of actual or potential resources that may or may not be currently in use (Ferrier, 2001). The availability of slack resources permits organizations to experiment with strategic innovation. Therefore, room is created for managing competitive moves in reaction of environmental change.

Ferrier (2001) concluded that attack volume and attack duration of a company is positively related to a high level of slack. Therefore a high level of slack provides the resources that are required for competitive aggressiveness. A limited level of slack may therefore constrain fast decision-making in competitive environments.

#### 4.4.8 Strategic context

##### *Paradox of compliance and choice*

“Compliance to the rules of the game” means that a company adapts to the industry context and environment (Wit & Meyer, 2010). This strategic imperative can be characterized as a re-active way of adapting to environmental change.

On the other hand, a company may exercise their “freedom of choice” in order to break “the rules of the game”. This pro-active stance towards business adaption can be associated with industry leadership. This approach may lead to significant rewards but it may also lead to quick bankruptcy.

The friction between compliance and choice has been widely described within literature on strategic management:



#### 4.4.9 Performance on KPIs

##### *Past performance as a burden for today*

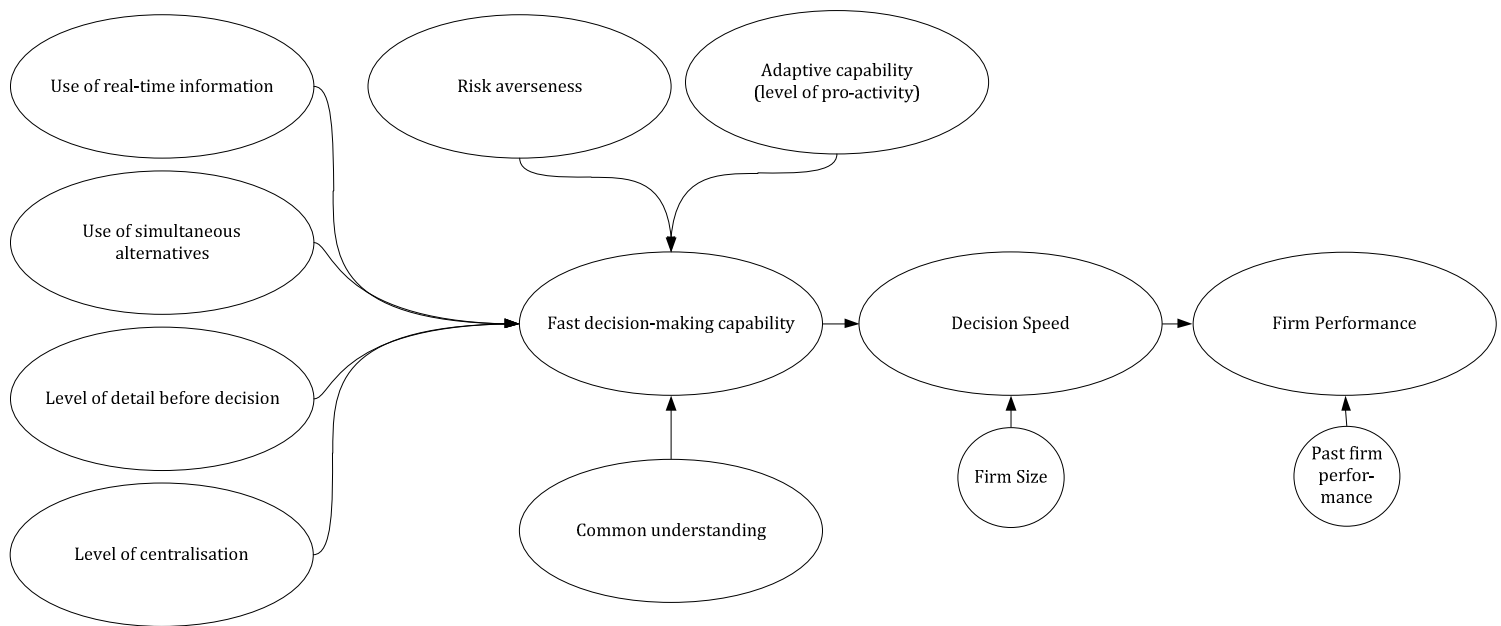
Theoretical research showed that performance in the past influences the preparedness and motivation for future actions (Ferrier, 2001). Success in the past leads to complacency and persistent trust in organizational routines and processes. Organizations that performed bad in the past are motivated for change.

This theory may even be applied at an individual level; managers link their actions and mental models to past performance and are not motivated for change. However, the historical experience of managers within organizations may differ. When that is the case it may be deduced that the perception on whether change is needed also differs from person to person.



#### 4.4.10 Overview of theoretical framework for fast BM adaptation

All identified process characteristics that contribute to successful (=fast) decision-making in high velocity environments have been indicated below. This is a tentative framework containing indicators for an organization capability to adapt its BM quickly. It is assumed that the presence of this capability is a company asset that leads to decision-speed and eventually effective firm performance. Dottore (2009) has also referred to Business Model adaptation as a “dynamic capability”, being “antecedent organizational and strategic routines” (Kathleen M. Eisenhardt & Martin, 2000, p. 1107).



**Figure 33 | Framework for fast-decision making capability**

##### *Application of the framework*

For each of the factors influencing the fast-decision making capability an indicator was identified an axis was specified. By incorporating these indicators in a survey, the framework can be used for identifying an organizations capability for quickly adapting its business model.

##### *Limitations to the framework*

The theoretical framework that has been developed had to be limited due to practical reasons. The framework serves as a theoretical ground to gain insight in the perception of involved people in the BM adaptation process. The framework serves solely as a basis to compare perceptions between interviewees.

To also gain secondary data through interviews with internal stakeholders, the interview will also gain open-ended questions. In that way additional relevant information on the BM adaptation process is gathered and the limitations of the framework are dealt with.

# 5. Internal perspective on business development

## 5.1 Interview strategy

A survey has the advantage that respondent's answers are well comparable. However, the richness of response is seriously limited when using closed questions. Since, the theoretical framework used for the closed questions has its limitations, additional response may yield valuable insights on the BM adaptation process at Nuon. Therefore, a combined survey/interview will be used for mining data on the perspective of internal stakeholders.

### 5.1.1 Goal of combined interview/survey

The goals of the closed questions survey is to:

- Analyse internal stakeholder perception on environmental velocity on consumer energy market;
- Analyse fast decision-making capability of Nuon Retail for BM adaptation in the consumer energy market.

The analysis of the *perception on environmental velocity* and the *fast decision-making capability* might indicate either a gap or alignment between the two. As proof from literature (see chapter 4.4) indicates how fast decisions and successful decisions are made in high velocity environments, this might provide guidelines for adapting the process of BM adaptation to a changing environment. The open questions are used to investigate in a less structured way:

- Analyse how the existing business model adaptation process works;
- Identify additional perceptions and perceived points of improvements for the BM adaptation process.

### 5.1.2 Design of combined interview/survey

#### *Step 1: Closed question design*

Factors have been derived from the theoretical lens on BM adaptation as described in chapter 4.4. There are two categories of questions. For the closed questions we ask respondents to rank their score on a Likert scale between 1 and 7. As an example question the on the respondent's involvement in the BM adaptation process:

#### 1. How are you involved in the BM adaptation process for the Dutch consumer energy market?

Outsider	1	2	3	4	5	6	7	Key figure
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These kinds of questions also have been constructed for the factors that were identified in the theoretical lens on BM adaptation (see section 4.4). The proposed scales have already been specified in that chapter. The entire interview set-up can be found in Appendix A1. It uses the following indicators as a basis for the closed questions.

Indicator for environmental velocity

- **Perception on consumer energy market**  
Stable and predictable *versus* Dynamic and uncertain

Indicators for fast decision-making capability

- **Emphasis in the BM adaptation process**  
Risk-control *versus* Decision Speed
- **Use of simultaneous alternatives**  
Few *versus* Many
- **Use of real-time information**  
Never *versus* Always
- **Level of detail at point of decision**  
Sketch *versus* Very Detailed
- **Level of process centralisation**  
Holding Stakes *versus* Local Stakes
- **Individual risk incentive**  
Avoid risk *versus* Encourage some Risk
- **Level of common understanding of BM adaptation process**  
Coherent *versus* Incoherent
- **Level of adaptive capability compared to competition**  
Re-active/Comply with the environment *versus* Pro-active / Change the environment

*Step 2: Open question follow-up*

In the follow up questions we ask respondent to give their arguments for their answer given in the closed questions. Next to that, we ask respondents to give examples for their arguments.

*Step 3: Target respondents*

Respondents are targeted in different organizational business entities that are involved in the business development for the Dutch consumer market. Table 6 shows the targeted respondents within Nuon/Vattenfall. Respondents were selected on their track record of involvement in the business development process of business in the consumer energy market in the Netherlands.

Organizational entity	Brief description	Respondent & level
Consumer Sales	Responsible for business (incl. sales) in consumer energy market	Senior Manager Strategy advisor Senior legal advisor Senior Manager Marketing Sales manager energy related products
Products & Solutions	Responsible for developing new products (in combination with partners)	Senior product developer Product developer
Market Strategy & Business Development	Responsible for strategic direction of company on a unit entity transcending perspective.	Senior manager Senior advisor Strategy advisor

**Table 6 | Respondent overview**

## 5.2 Perception on environmental dynamism differs strongly

When we asked respondents to scale the consumer market for energy between *stable and predictable* and *dynamic and uncertain* the answers differed strongly. Since the spread of the respondents' answer is so high the average value of the respondents' answers is not valuable. Therefore, we rather extract insights from the follow-up questions than the quantitative respondent output.

However some insights may be extracted from the respondents' explanation for their judgement. Almost all respondents' referred to the change that the consumer market for energy has undergone. One respondent said that "change is at hand but the market is not as dynamic as the telecom industry". A business developer at the holding level said that "the consumer market is incorporating disruptive elements but the speed of change is limited compared to other markets". Other quotes were the following:

Role of respondent	Quote/remark
Advisor at BD	"The consumer market for energy is incorporating disruptive characteristics. However, the speed of change is limited compared to other markets."
Manager at CS	"Three major causes for environmental unpredictability are consumer behaviour, technological development and regulation policies"
Manager at BD	"It concerns predictable change that we struggle to adapt to."
Product developer	"The environment has become more dynamic by lower switching barrier. However, it is still quite stable."
Manager marketing	"The market is by definition unpredictable."
Project manager at BD	"Uncertainties are increasing fast."

**Table 7 | Perceptions on the environment**

All respondents included at least a factor of change in their explanation to the question. It seems that a consensus existed on the perception that the consumer market for energy has become more uncertain and more dynamic. However, this did not lead to a coherent ranking on the proposed scale (*stable and predictable* to *dynamic and uncertain*). This may be explained by the fact that respondents implicitly or explicitly made a comparison to other industries.

Some respondents included a reference to the disruptive characteristics of the mobile industry where VOIP (red. the delivery of multimedia sessions over Internet Protocol (IP)) was introduced successfully and where text messaging was substituted by the web-based mobile application Whatsapp.

Three factors were identified that change the characteristics of the consumer environment: Legislation, consumer behaviour and how they organize themselves.

Fluctuating policy regimes is a driver for dynamism and uncertainty in the consumer market according to the perception of the respondents. Tax regimes and the new law "sustainable energy tax" are examples of policy measures that create uncertainty.

Collective purchases have been mentioned multiple times as an example of how consumer behaviour changes with respect to purchasing energy and related products. These collective organizations first gather a group of consumers that consider changing their energy-supplier. Then, because of economies of scale, an attractive discount can be negotiated. It has also happened that the collective organized a public auction in which every energy supplier can participate in order to acquire a group of new consumers (Groepsveiling.nl, 2012).

Behavioural change is also expressed in the fact that some consumers are prepared to invest in local generation capacity themselves. This development, often referred to as distributed generation (DG), is a development that (threatens to) decreases the sales of core products electricity and gas. In the perception of respondents this DG development has caused an increase of dynamism and uncertainty.

The third factor that causes dynamism and uncertainty are the technological advancements in the consumer domain. Price decreases of for example solar collectors and PV modules occurred very fast.

### 5.3 Re-activity seems to be the strategic imperative

With a much bigger consistency respondents perceived their company as *re-active*. Some quotes and remarks are set out below.

Role of respondent	Quote/remark
Advisor at BD	"We are a leading follower. Our customers are no early adopters"
Manager at CS	Argues that the culture (that is rather re-active) differs from the ambition (that is more pro-active).
Manager at BD	"We are pro-active, but not as a first mover. A first mover advantage is a nice-to-have, not a need-to-have."
Product manager	Argues that many resources are used to comply with changing legislation.
Manager marketing	The following example is illustrative for the innovatively of the consumer market: all big energy companies came up with a comparable energy device to monitor residential energy use.

**Table 8 | Perceptions on the company's strategic imperative**

Based on the explanations that were given, there is little belief that the environment can be really changed by the company and therefore re-activity is the logical strategic imperative. It was remarkable that one respondent stated that the energy market (red. consumer market) as a whole is not innovative. That leads to the question what drives change.

The rather re-active strategy of Nuon combined with the observation that the consumer market for energy is changing fits well with view that system change may be initiated from radical niche developments. (Szatow, Quezada, & Lilley, 2012)

### 5.4 Emphasis is on risk-control but speed is increasingly important

Decision speed was recognized as an important indicator of a good process. However, the emphasis in the design cycle towards the realization of a new business model was on risk control.

All respondents agreed that the emphasis in the BM process is on risk-control rather than on decision-speed. However, a couple of respondents show dissatisfaction with the existing way of encountering risk for decision proposals in the consumer market for energy. The Holding's core activity of power generation was mentioned as one of the reasons that risk assessment do not fit to the consumer market for energy.

Next to that, as a reason for sluggish decision-making the size of the company was mentioned. The size of the company implicates that responsibilities are divided and decisions above certain thresholds need to be approved at the holding level.

With respect to the role that risk-control took in the design cycle towards a BM creation or adaptation the following remarks were made.

Role of respondent	Quote/remark
Advisor at BD	"The risk of not acting is also considered when deciding on a new BM"
Manager at CS	"Traditional risk assessment is not appropriate when considering the developments in the consumer market"
Manager marketing	"Risk management slows down decision-making on new propositions." Both the <i>size of the company</i> and the fact that the company is de facto a <i>production company</i> were identified as factors that slow down decision-making.

**Table 9 | Role of risk in BM process**

Some estimations of the duration of both the creation as the implementation phase are set out below:

Role of respondent	Type of BM creation or adaptation	Creation	Implementation
Advisor at B2C	PV proposition	>2 Y	4-6 M
Manager at BD	E-manager	1-6 M	4-12 M
Manager Marketing	New sales contract type (product)	6 M	6 M

**Table 10 | Durations of creation and implementation**

Respondents indicated that speed is important to react fast on environmental change. Due to overlap in response the collection of mentioned barriers of a fast decision-making were the following. The following factors were identified.

- Limited budget and resources;
- Company size;
- Emphasise on risk-control which is inherent to the 'culture' and 'production image';
- Uncertain and fluctuating legislation;
- The business plan framework (within the framework there is room for manoeuvre but outside the framework processes are rather bureaucratic);
- Information asymmetry;
- An unceasing demand for more information for more decision confidence.

As success factors of fast decision-making the following elements were mentioned by respondents:

- Concise proposals speed up decision-making;
- Support and 'belief' at senior management level;
- High level of general acceptance and support. Some respondents indicated that many people were invited to co-think and advice on BM adaptations which caused that decisions were characterized by consensus.

#### *Paradox of information need*

One respondent identified that an unceasing demand for more information on a proposal slowed down decision-making, while another respondent identified that concise proposals are success factors for rapid decision-making. These two perceptions are contradictory and paradoxical; the current practice is that many plans are specified in great detail while some stakeholders realize that this slows down decision-making.

## **5.5 Incentives for risk-taking behaviour**

Personal incentives were identified as an indicator for the effort of a company to be pro-active. Respondents took no extreme positions with regard to the proposed scale. Most answers were "somewhere in the middle" (e.g. not very risk-taking nor very risk-averse).

Personal KPIs (key performance indicators) within the Consumer Sales unit were related to annual performance. Examples of these indicators are the number of new contracts per year and acquisition costs per client. The type of clients and products are also taken into account in these indicators. One-year contracts are for example less valuable than three-year contracts.

Role of respondent	Quote/remark
Advisor at BD	Argues that risk is encouraged in the design and experimental phase of business development.
Manager at CS	"Although targets are set, the room to take risk at an operational level is limited"

**Table 11 | Incentives for risk-taking**

## 5.6 Hierarchy has an impact but bottom-up strategy is dominant

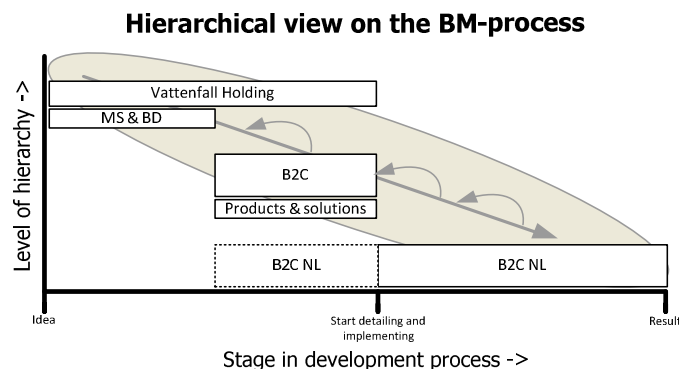
Since the acquisition of Nuon by Vattenfall a new hierarchy has been created. Large impact decisions that fall outside of existing business plan framework need to be approved at a holding level. Therefore a distinction should be made between two types of BM adaptations. Those types of decisions that fall inside the business plan framework should be distinguished from those decisions that fall outside of it. The independency has decreased to some extent as large impact proposals should be verified by committees at division and Holding level. Respondents said the following about the new hierarchy:

Role of respondent	Quote/remark
Advisor at CS	Size of Vattenfall offers an economy of scale which is important for purchasing technologies. The company size makes the organization slow and therefore a long-term perspective on a new product-market combination is needed.
Manager Marketing	Nuon CS NL is the "best practice" as a retail organization within the Holding and therefore possesses a special position in creating new products and services.
Manager at CS	The Holding' stakes have become more dominant and the process is more and more characterized by a top-down approach. Next to that, it was argued that the time horizons of different business units are incoherent.
Manager at BD	Argues that as resources have increased the capability to act has increased, while the organization size slow down makes design and decision process.

**Table 12 | Impact of hierarchy in decision-making**

One respondent sketched his view on the BM-process as followed. In this view there are rather strict borders between business units that cause grey areas.

When assessing the impact of hierarchy on the BM-process, it was noticed that decisions that fall outside the business plan framework need approval. Approval is given either by a Decision Committee at division level, the Executive Group Management (EGM) or eventually by the Board of Directors (BoD).



**Figure 34 | A respondents' view on the BM-process**

## 5.7 Number and detailing of simultaneous alternatives

According to empirical research the simultaneous generation and consideration of alternatives contributes that rapid decision-making. Based upon reactions of several respondents it was indicated that the design process is often more incremental whereas alternatives are considered sequential rather than simultaneously.

Role of respondent	Quote/remark
Manager at CS	"The number of alternatives is dependent on the type of decision that is at hand."
Advisor at BD	Argues that alternative proposals in sketch are considered simultaneously.
Product developer	"The design process is an iterative process. Some basic designs are already 'on the shelf' and waiting for a window of opportunity."
Manager Marketing	"Not many alternatives are being considered next to each other. The design process is more an incremental process where the initial idea is being tweaked to meet all necessary requirements."

**Table 13 | Level of detail and alternative sequence**

With respect to the detailing of a BM creation or adaptation, respondents argued that the level of detail was pretty high. Business cases are worked out in great detail before a decision can be made.

## 5.8 Impact of existing portfolio on business development

It was assumed that the current portfolio was experienced as either a showstopper (because for new business models resources should be made available) or as a catalyser (because existing business models do not lead to the wished performance). However, the experience was that respondents found it difficult to answer this question. Either the question was ill-formulated and therefore not understood, or the question was could not be answered due to the knowledge position of respondents.

## 5.9 Conclusions on internal stakeholder perspective

The quantitative survey output has been visualised in Figure 35. The averaged answers of respondents to the questions in the interview have been indicated orange. Next to that, indicators for successful decision-making in high velocity environments have been indicated in dark blue.

### Perception on environmental velocity

Based on different responses from internal stakeholders, the environmental velocity within the consumer energy market has increased but is not as dynamic as the telecom industry. However, the environment is environmentally volatile compared to a couple of years ago.

### Fast decision-making capability

No fast decision-making capability was experienced by internal stakeholders. The BM adaptation process is characterized by risk-averseness and requires a great internal consensus. An unceasing need for more information exists before BM decisions are made. The strategic paradigm of the company is characterized by re-activity according to internal stakeholders.

### Difference in response between internal stakeholders

Given the different position within the organization and different roles of respondents in the BM adaptation process one might expect that variance in response can be explained by it. However, due to the limited number of respondents per departments it is hard to proof difference per departments. In the question on environmental velocity the variance between departments was the highest.

Consumer Sales scored the highest average (average of 5). Especially a marketing manager perceived the consumer energy market as very dynamic and uncertain. The product & solutions department seemed most detached to environmental change as their score on environmental velocity was below average (average of 3, e.g. quite stable and predictable). Stakeholders in the Business Development department scored in between the two (average of 4, e.g. not very dynamic nor stable).



### Other experienced barriers for fast decision-making

Stakeholders experienced that there are limited budgets and resources for innovative projects. Next to that, the company size was experienced as a factor that created more bureaucracy and unclear responsibility distribution.

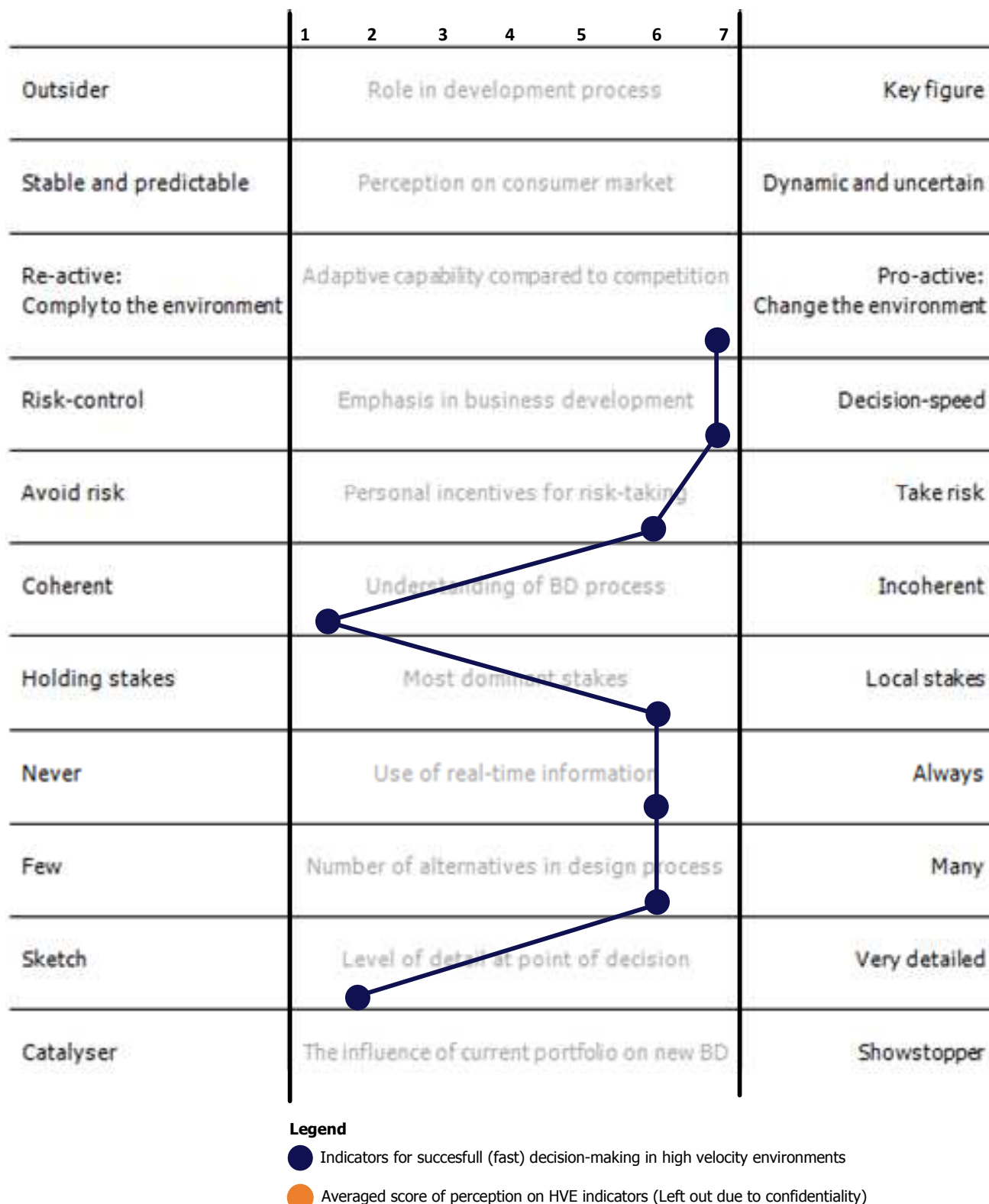


Figure 35 | Stakeholder perspective versus HVE best practice

## 6. Observational perspective – Case of recent BM adaptation

In this chapter we analyse a recent BM adaptation in more detail. By analysing a specific case, the perceptions of internal stakeholders on the BM adaptation process can be verified and validated. An intra-case study (BM adaptation process at Nuon is the case of this research) provides insight in the BM adaptation process at Nuon from a more independent point of view.

### 6.1 Case research strategy

The strategy for analysing this case is structured as follows:

#### *Step 1: Identification of recent BM adaptations*

First a collection and analysis of recent BM decisions will be assembled. With recent we mean a decision that was taken no longer than two years ago and affected the energy supplier business model in a structural way. Internet, internal documents and internal stakeholders are used to assemble this identification. The list serves as an occasion for analysing the process towards a specific BM adaptation decision.

#### *Step 2: Selection of a specific BM adaptation*

Based on opportunistic reasons a case will be chosen to be worked out. Information availability is the most important selection criterion. Next to that the BM adaptation should be of substance and not entailing a managerial add-on adaptation because we want to gain insight in the intra-organizational process of BM adaptation.

#### *Step 3: Evaluate business strategy, business model and process aspects of specific BM adaptation.*

In the case study relations between business strategy, business model and process characteristics will be sought, guided by the theoretical lens as built in chapter 4.

### 6.2 Recent decisions that affected the Energy Supplier BM

Based on diverse sources (internet, internal documents and internal stakeholders) an oversight of recent decision has been created in Table 14. Adaptations have been categorized on basis of the *type of decision* and the impact the decision has on the energy supplier BM of Nuon. With the latter we mean which part of the Energy Supplier BM is most affected by the decision (organization, finance, value proposition or technology).

Relationship	Description	BM effect
New product	The e-manager is an energy display that monitors the energy use of a house. A new service is offered to consumers.	Technology
New product	" <i>Nuon-ideaal</i> " is a new electricity and gas contract that promises a fixed contract price, but as the commodity prices decrease the contract price decreases as well.	Value proposition
Divestment	Disintegration of subsidiary " <i>Nuon-isolatie</i> " (company offers insulation services).	Organization
Divestment	Disintegration of subsidiary " <i>Feenstra</i> " (company offering installation products and services)	Organization
Divestment	Disintegration of subsidiary " <i>Nuon-beveiliging</i> " (company offering installation products and services)	Organization
New sales channel	Insulation proposition aimed at local markets	Organisation
New products	Retailing of energy saving products via a web shop	Organisation
New product	Introduction of an electric vehicle	Technology

**Table 14 | Recent BM adaptations**

For reasons of information availability the development and employment of the E-manger has been chosen to use as a case example. Two in-depth open interviews with closely involved stakeholders were used to explore the process of BM adaptation.

### 6.3 Business Strategy: "Smart Energy Enabler"

Recently a new positioning strategy was formulated for the entire Vattenfall holding that should position as a "*Smart Energy Enabler*". On a business strategy level for the consumer market this strategy implies that Nuon position themselves as an Energy Supplier that enhances distributed generation and smart grid developments. This positioning aligns well with emerging markets for products and services that are positioned "beyond-the-meter". Beyond-the-meter energy solutions (both generation as insulation) represent interesting emerging market places as the value of electricity and gas is higher than on the grid due to tax and transportation costs. Therefore, DG generation technologies pay off faster in the beyond-the-meter environment than in the grid environment.



**Figure 36 | Grid value versus Customer value of Electricity and gas**

#### 6.3.1 Home Energy Automation

The Nuon E-manager is a device that can be positioned under the umbrella of what is called home energy automation. This concerns the implementation of (IT) energy technologies around the consumer's home. Goals of home energy automation comprise energy conservation, demand response, efficiency and remote controls (HomeAutomation, 2012).

The Nuon E-manager is a device that monitors domestic electricity consumption on a frequent basis. By sending consumption data to a database via internet, the information can be accessed via multiple interfaces

like PC, tablet or smart phones. Additional smart plugs offer the opportunity to remotely manage devices either automatically or manually.

Within literature it has been suggested that energy savings may be realized by raising the awareness of the link between everyday behaviour and energy consumption (Chiang, Natarajan, & Walker, 2012). Based on this research, the E-manager is a device that has the potential to save energy.

### 6.3.2 Description of the product

Most electricity meters in the Netherlands are analogue although some grid operators have also started to introduce digital and smart meters (Wikipedia, 2013). Via sensors connected to the electricity meter, the e-manager collects electricity consumption data. Next to that, the e-manager collects consumption data of electronic devices connected through *smart plugs*. All of the gathered information is frequently uploaded to a database.

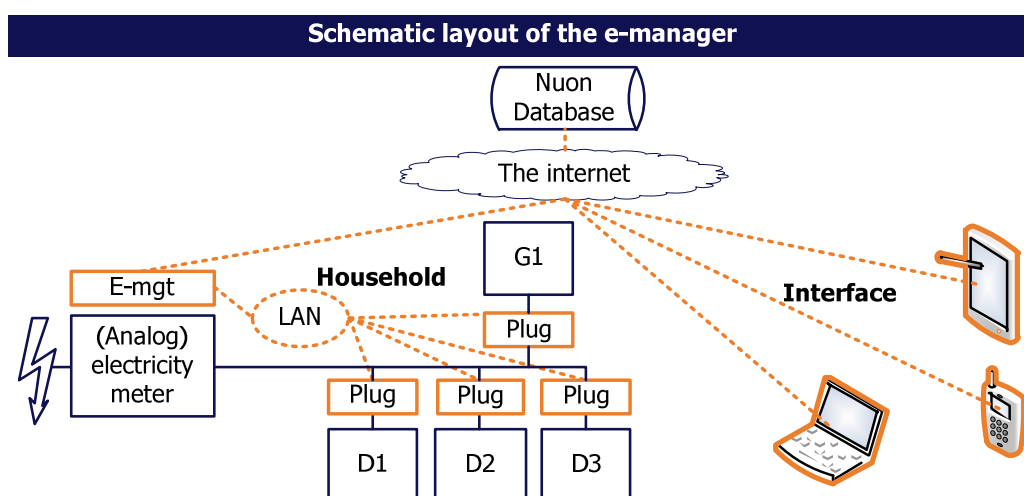


Figure 37 | Schematic overview of the e-manager layout

A web-interface that is accessible via PC, tablet or smart phone provides insights in residential electricity consumption. Next to that, it offers the opportunity to remotely control devices that are behind smart plugs.

### 6.3.3 Why was the e-manager developed?

The direct motivation for developing the e-manager was that consumers indicated that they were not able to control their energy costs well due to a lack of insight. Usually, consumers are charged a fixed tariff each month to cover the expected energy costs based on consumption in previous years. Once per year, the electricity and gas meter positions are communicated to the Energy Supplier after which consumers settle with the Energy Supplier. With the e-manager installed, consumers have a better and more user-friendly insight in their energy consumption and associated costs. Therefore, Nuon has assumed that the e-manager will solve a problem experienced by customers.

### 6.3.4 How can the e-manager be positioned in a Business Model?

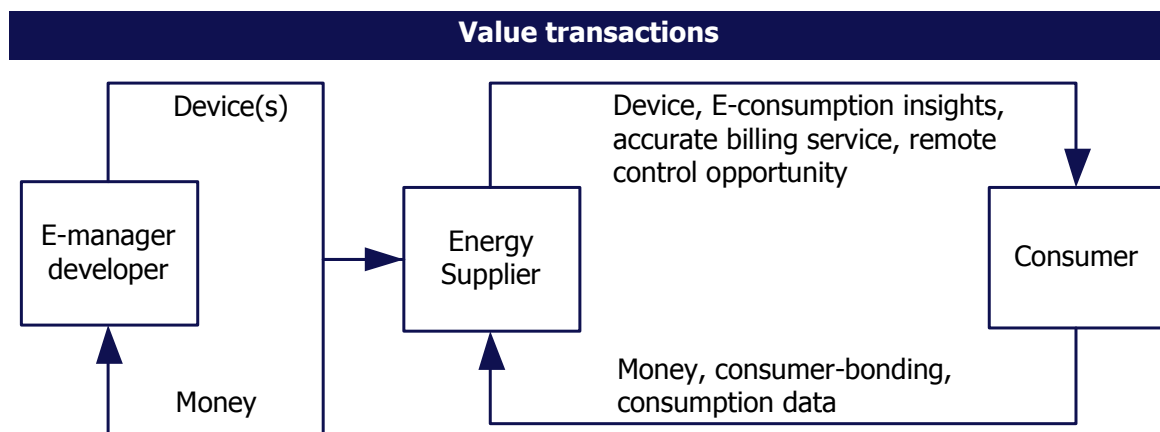


Figure 38 | Value transactions around the E-manager

The initial business model associated with the E-manager was based on selling the E-manager as a product and making business out of selling the device. However, later on the e-manager was also accompanied by an obliged subscription for accessing information via different interfaces. Now, the product is also being coupled with long-term electricity and gas contracts. Therefore, it can be concluded that in the business model around the e-manager is in transience. Furthermore, there are ideas on how the e-manager may deliver additional value to customers by developing the quality of advice based on consumption patterns.

### 6.3.5 Trajectory before implementation: incremental

The idea of creating the e-manager as a novel consumer product was developed about 8 years ago by a couple of innovators within Nuon. Since the organizational structure differed from the structure now, it is hard to indicate which department initiated the development. The development of the e-manager was new for Nuon as an organization. There was little experience and few capabilities present within the company for the development of a technical product. For that reason, Nuon worked with partner companies to develop the product.

The following decisions within the development process of the e-manager could be identified:

Type of decision	Description	Decision impact	Time of decision
Investigate product	Assemble project team; conceptualize idea.	Low investment	~2005
Develop product	Product development; prototyping & testing; business model creation.	Low investment	~2005-2011
Pilot project	Pilot project with energy display in a consortium with <i>IBM, Cisco, Home Automation Europe</i> , universities and grid company <i>Liander</i>	Med investment	~2009
New partner	Selection of <i>Greenwave</i> ; leave out display focus on online interface	Low investment	~2011
Go-to-market (final gate)	Implement business model around the product for product commercialization.	High investment	~2012

Table 15 | Process decisions of E-management development

In the process overview in Table 15 it can be observed that the development of the e-manager was characterized by a rather erratic process as during the product development phase partners had been switched. Two steps in the development can be distinguished: In the first step the e-manager was developed

in a consortium with IBM, Cisco and others. In the second step the product was developed (in a different layout) with a new partner: Greenwave. The processes of these trajectories are described hereafter.

### First trajectory: Development in a consortium

In 2009 a pilot project was started in a consortium of actors (Nuon, 2009). The development was characterized by an incremental test and validation trajectory. Eventually, this pilot project did not manage to pass the final gate and become commercialized and therefore the consortium was dissolved. The main reason was that the e-manager lay-out in this phase contained an energy display. According to internal stakeholders, this energy display as an interface was considered to be outdated due to the market penetration of tablets (I pads) and smart phones.

A salient detail is that one of Nuon's pilot partners '*Home Automation Europe*' continued to work (under the new name *Quby*) with the competing energy supplier *Eneco* (Quby, 2013). This eventually resulted in the competing energy management system *TOON* that does include an energy display.

### Second trajectory: Development with a single partner

In 2011 the development of an e-manager was rushed. A start-up company Greenwave was selected as a partner in the development of the e-manager. This company did translate the Nuon constraints and goals into a product. However, this product design game was played between *Nuon's unit products and solutions* and *Green-wave*. *Nuon Consumer Sales* can be viewed as an internal client of *the products and solutions* department as they were charged with the task to market the product.

According to two closely involved stakeholders (from *product & solutions*) the final go-to-market decision was postponed several times. This postponement resulted from problems with e-manager supplier and doubts on business model feasibility. Finally, in 2012 the E-manager (in combination with an e-thermostat) was introduced on the market.

### Timing of E-management introduction

Another remarkable process characteristic concerns the timing of product introduction. Other energy suppliers such as *Eneco* and *Essent* came up with comparable energy management systems around the same time. Next to that, some smaller independent parties are offering comparable products. The market place for e-management systems seems to be crowded with suppliers and in development.

#### 6.3.6 Adoption of the e-manager

The E-manager (and comparable devices) is (not yet) a mass product. The product finds itself in an innovation phase and is currently only adopted by innovators. The product can therefore, even though the product was developed upon the assumption that consumer wanted more insight in their energy use, be characterized as a technology push product. The demand for more energy insight might still be there, but the perceived costs (both transaction as financial) seems to be too high for mass adoption.

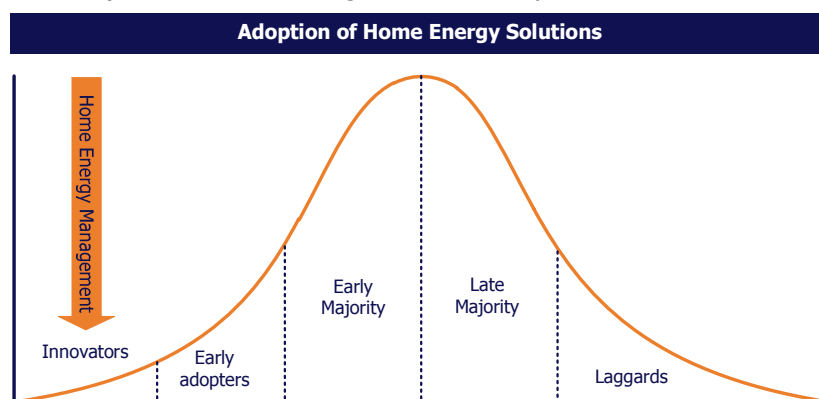


Table 16 | Adoption curve of E-Manager

### 6.3.7 Score on HVE process characteristics

In chapter 4 and 5 indicators for a fast decision-making capability were identified. Based on the process descriptions of two specific internal stakeholders (see above) indicator scores have been qualitatively described hereafter. It must be noticed that the first trajectory (consortium) was characterized by quite a different process than the second trajectory (with a single partner) that led to a market introduction.

#### 1. Indicator of environmental velocity

Although many innovators are developing energy management systems, the adoption by consumers is still only limited. Demand is therefore not developing very rapid and discontinuous as one would expect in a high velocity environment. However, it must be noted that the market for energy management solutions is only a fragment of the energy consumer market.

#### 2. Emphasis in the BM adaptation process

There is little indication for decision speed in the consortium phase. However, when *Greenwave* was involved as partner the decision speed for market introduction increased.

#### 3. Use of simultaneous alternatives

The E-management development showed a bit of both. Before the cooperation with *Greenwave*, the product development was rather based on incremental innovation in a consortium. After that failed, *Greenwave* was selected in a tender on basis of multiple criteria such as time-to-market, functionality and technical requirements in 2011. In 2011 *Greenwave* was selected as partner while in 2012 the E-Manager was brought to the market. This was quick considering that product development for a similar product started already in 2005.

#### 4. Use of real-time information

The use of real-time information at point of final gate decision-making is hard to observe in hindsight. However, the energy display was left out as more tablets and smart phones penetrated in the consumer domain. That was a decision in which market information was incorporated.

#### 5. Level of detail at point of final gate decision

A total development trajectory of 8 years led to an excessive information in the form of plans and business cases. However, uncertainty remained.

#### 6. Level of process centralisation

Development of the e-manager was started before the acquisition by Vattenfall. Therefore the emphasis within the process was at local market conditions.

#### 7. Individual risk incentive

Project developers were urged to seek internal support for the E-manager project. However, the market introduction was not driven by individual risk takers but rather by a need to comply with the environment (other energy suppliers developed comparable products).

#### 8. Level of adaptive capability compared to competition

The development phase in the consortium was rather driven by research and development while the new partner phase was driven by a need to comply.

### 6.4 Conclusions on E-manager case

All in all the Business Model adaptation process was characterized by incrementalism which is demonstrated by the long development trajectory. Especially when compared to more usual adaptations such as customized electricity and gas contracts that are closer to the existing capabilities. During the trajectory many detailed plans and business cases were made, but the final decision was driven by a need to comply with the environment as competitors came up with comparable products.

The initial motivation was to develop new revenue sources but the current line of thought is that the E-manager is above all a positioning product that endorses the additional service image of the company. Thus, during development strategic motivation changed to a mean for acquiring and retaining.

# 7. Synthesis

Three dominant theoretical concepts dominated this study; business models, strategy and decision processes. In this synthesis we aim to further connect the concept of business model adaption with processes applied to the specific case of Nuon's consumer business. By doing so, this may lead to a better insight and mutual understanding of how internal stakeholders may think and deal with change for competitiveness.

## 7.1 Modes of organizational business model adaptation

The Energy Supplier BM, of which we have analyzed the process of development, has a wide scope. All organizations, either explicitly or implicitly, employ a particular business model (Teece, 2010). Nuon's consumer business in the Dutch energy market has not been explicitly designed for but rather evolved from historic events such as liberalization. Therefore, Nuon's consumer Business Model can be viewed as an inheritance from the past. Based on theory and interviews with internal stakeholders it was noticed that different modes exist of adapting the existing organizational business in order to remain competitive. This chapter explores different modes of BM adaptation and its implication on the BM adaptation process.

### 7.1.1 Outside-in versus inside-out BM adaptation

Two opposing perspectives on BM adaptation are the *outside-in perspective* and the *inside-out perspective* on the business development process. Within strategy literature these two opposing perspectives are referred to as the paradox of market and resources (Wit & Meyer, 1998). This paradox boils down to the question whether firms should be market-driven or resource-driven in strategy process. The two approaches to business model adaptation are described hereafter.

#### Outside-in process – the reaction paradigm of BM adaptation

In the outside-in process of BM adaptation is focused on incorporating market opportunities within the organizations BM. This process is *externally-oriented* and *market-driven* (Wit & Meyer, 1998). This process perspective is also known as the positioning approach (Wit & Meyer, 1998).

The outside-in perspective on business model formation takes external environmental change and expectations on the future as a starting point for strategy and BM design. The process of an outside-in business model adaptation process may follow the following steps:

1. External environmental change requires a new strategic position;
2. Given the expectations a desired BM adaptations are designed;
3. By implementation, the energy supplier business model will be adapted.

#### Inside-out process – the creation paradigm of BM adaptation

According to this view, a firm should develop its business around company's strengths instead of around external opportunities (Wit & Meyer, 1998). The inside-out approach has its ground in the theoretical umbrella



of what is called the *resource-based view (RBV)* of the firm. According to this theory the basis of a competitive advantage lies primarily in the application of the bundle of valuable resources.

1. An novel idea has been conceptualized and prepared for decision-making;
2. If there is ground to assume that the BM adaptation contributes to a sustainable strategic advantage the idea may be implemented;
3. By implementation, the energy supplier business model will be adapted.

The two opposing approaches also link to what we have called the paradox of compliance and choice. Whereas the outside-in approach is characterized by reaction on (compliance) the external environment, the inside-out approach is characterized by the creation (choice) of the external environment.

Interviews with internal stakeholders (chapter 5) indicated that Nuon is rather re-active in its BM adaptation process for the Dutch consumer market. This implies that BM adaptation mainly follows the outside-in approach; the business model is adapted in order to comply with the external environment.

Within the outside-in approach, it is crucial for firms to position precisely and to be fast in adapting to environmental change. Predicting environmental change and fast adaptation are therefore crucial capabilities in the outside-in process of BM adaptation.

### 7.1.2 Product innovation versus business model innovation

A categorization can be made on the source of business model adaptation. Product innovation may be distinguished from business model innovations (Markides, 2008), even though they both change the same organizational BM. Product innovations (accompanied by a value proposition business model) may be a form of innovation that reconfigures the existing organization Business Model. However, the organizational business model may also be reconfigured by innovations within the BM organization itself or the introduction of an entire new and potentially competing BM.

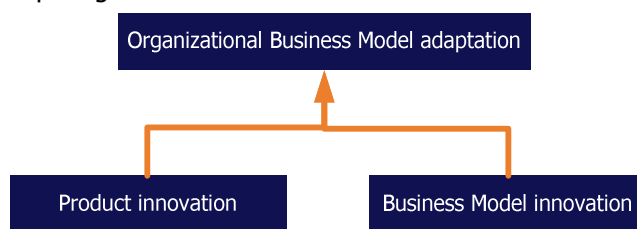


Figure 39 | Product innovation versus BM innovation

Examples of product innovations within the Energy consumer market may be the E-manager. An example of business model innovation would be the replacement of door to door sales channel by internet sales as an existing in-between party would then be disintermediated. Another example, which not materialised at Nuon, would be the establishment of another competing energy supplier label differently positioned. These are both examples of organizational business model adaptation but they come from different sources.

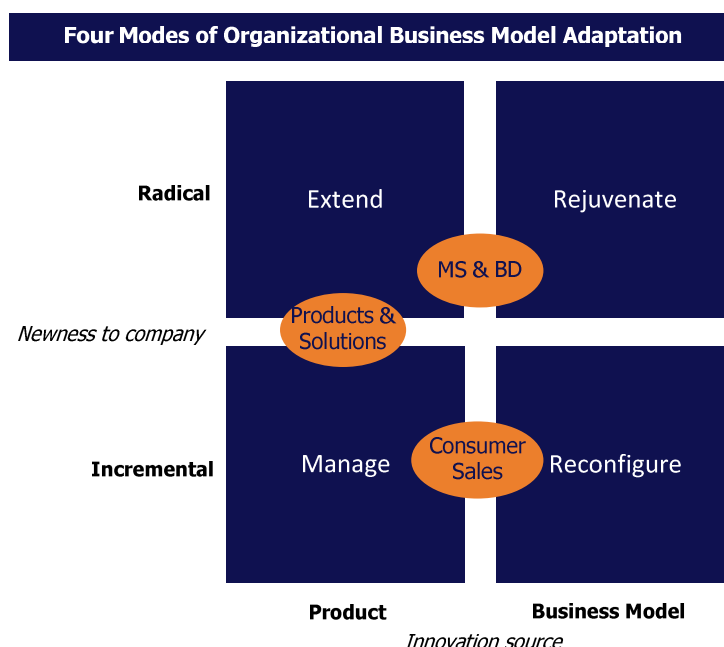
### 7.1.3 Radical versus incremental BM adaptation

Incremental adaptations can be distinguished from radical (for the company) new product introduction. For *Consumer Sales* a new electricity and gas contract was perceived as a new product. *Products and Solutions'* perception of a new product was for example the E-manager or a DG technology proposition. For *MS&BD*, the perception of a new product was not yet specified and defined at an abstract level.

Therefore we differ between incremental adaptations and radical (for the firm) adaptations. Incremental adaptations are product extensions, or the creation of new brands that tend to build on a firms' existing skills, competences, mind - sets, and culture (Markides, 2008). Radical innovations such as the creation of radical new products or business – model innovations, tend to undermine the firm's existing skills, competences, and values and may therefore also be characterized as "disruptive".

## 7.2 Tentative framework for business model adaptation

In section 4.4.1 it was explained why the increased complexity requires fast decisions in order to remain competitive. However, due to the complexity in the consumer energy market, also different modes of BM adaptation are possible. Different variations have been described in the previous section. On basis of the analysis of how BM adaptation may differ, a categorization of BM adaptation modes have been conceptualized in Figure 40. Different departments within Nuon have been indicatively positioned within the figure.



**Figure 40 | Four Modes of Organizational Business Model Adaptation**

Within the figure, four modes of BM adaptation are identified; manage, reconfigure, extend and rejuvenate. We will briefly describe the scope of the modes of BM adaptation and the implication for the BM adaptation processes for each of the adaptation modes. It should be noticed in advance that the categorization of BM adaptation modes are tentative and that borders between the BM adaptation modes are soft and may be crossed.

### 7.2.1 Manage mode of BM adaptation

The manage mode of organizational BM adaptation concerns the generation of add-on product extensions. This mode of organizational BM adaptation builds on existing competences within the company. In the case of Nuon the design and implementation of new electricity and gas contracts for specific consumer segments may be positioned within this quadrant. This is a typical task for marketing managers within the sales unit of Nuon.

#### *Process in manage mode of BM adaptation*

Adaptations within this quadrant are unlikely to structurally change the consumer energy market because incremental product innovations are hard to protect and easy to copy by competition. Fast movers adapt benefit from a first-mover advantage. Within this quadrant process design practices from firms in HVE may be used to facilitate fast decision-making as speed is important to benefit from first mover advantages.

The generation of incremental product innovations may be encouraged by improvements in the organizational environment such as (Markides, 2008):

- Culture of the company;  
*Encourage experimentation, tolerate failure to some extent*

- Structure of company;  
*Remove bureaucracy, create flat structures*
- Incentives in the company;  
*Reward good ideas etc.*

### **7.2.2 Reconfigure mode of BM adaptation**

The reconfigure mode of BM adaptation is still about incremental decisions and is therefore in line with the capabilities present within the company. Adaptations however do not concern the introduction of new products offered but are caused by an innovation in the BM.

For example, focussing on internet sales rather than on door-to-door sales would be an example of incremental business model innovation that adapts the overall BM.

Incremental BM innovation is needed if the performance of the BM as it was, does not meet with expectations. This may be caused by disintermediation by third parties (such as the organization of energy auctions).

#### *Process in reconfigure mode of BM adaptation*

In re-action of BM innovation in the environment of Nuon, fast decision-making is required in order to disrupt or enhance this BM innovation. Doing nothing may disrupt the BM.

As speed is needed in incremental BM innovation, process design practices from firms in HVEs may be used to facilitate fast decision-making as speed is important.

### **7.2.3 Extend mode of BM adaptation**

The extend mode of BM adaptation covers the introduction of radical product introductions. Radical (for the company) products undermine existing skills, competences and values of the company. Examples of these products would be for example distributed technologies and smart energy home solutions. Within the energy supply side of Nuon there is little technological experience in the field of distributed technologies and smart home energy solutions. Therefore, when introducing these products the product portfolio will be enlarged but as a consequence also requires new capabilities.

#### *Process in extend mode of BM adaptation*

The process for radical product innovation does not per definition require fast decision-making. However, when the firm's business is disrupted by a new product innovation within the external environment fast adaptation is required. Otherwise, a firm may want to follow an incremental pathway of prototyping and testing before a product is introduced. Moreover, it will take some time to acquire the competences needed for managing these new products when done in-house. Therefore, closing partnerships are specific types of decisions that may be important within this mode of BM adaptation.

### **7.2.4 Rejuvenate mode of BM adaptation**

The rejuvenate mode of BM adaptation would imply the creation of a whole new business model involving other products and another relations between consumers and suppliers. The new business model would be disruptive as existing experience and knowledge would be undermined by the new business model. A rejuvenate mode of the energy supplier business model would be the creation of a community micro grid business model. Within such business model, consumers and institutions take the initiative to deploy multiple DG technologies within a particular geographical area (Sauter & Watson, 2007). This model will require a high level of consumer involvement. The role of energy supplier will be marginal but business may be found in technology supply, maintenance, financing, insuring etcetera.

#### *Process in Rejuvenate mode of BM adaptation*

Pro-active creation of a rejuvenate business models that disrupt the current way of working is a bridge too far for established firms (Markides, 2008). Rejuvenate business models require totally different resources and capabilities and, moreover, conflict with business model in place.

However, there might be situations thinkable in which environmental urges a firm to implement rejuvenate business models. Markides (2008) proposes possible solutions for dealing with rejuvenate BMs:

- Develop rejuvenate BM in separate business unit;  
*Drawback is that synergies cannot be exploited (no strategic alignment)*
- Subcontract BM development to start-up firms.  
*If proven consolidate BM innovation into a mass market*

The process of BM adaptation with regard to rejuvenate business models requires quite some flexibility and a dose of intrapreneurship. The problem is that decisions cannot be based on routines and intuition as the need for the establishment of rejuvenate BMs only occurs incidentally. For that reason, the applicability of process design practice from firms HVEs is limited. However, as the rejuvenate BMs requires different resources and capabilities the process at least needs an outward stance towards possible partners for creating a rejuvenate BM.

### **7.3 Conclusions on BM adaptation framework**

In this chapter a distinction has been made between different modes of BM adaptation. A managing, reconfiguring, extending and rejuvenating mode of BM adaptation have been identified. Whereas managing and reconfiguring concern incremental decisions building on existing capabilities, extending and rejuvenating decision require new capabilities.

The exploration of different modes showed that especially the manage mode and reconfigure mode of BM adaptation requires fast decision-making. Furthermore, it was identified that literature on decision-making in HVEs did not treat with decisions that would destroy its own business. Therefore the applicability of fast decision-making in HVEs has its limitations.

Transposing these observations to Nuon would imply that incremental decisions, answering questions like “how to deal with energy auctions” and “should we introduce a new incremental product”, are in the scope of the management team of Nuon Consumer Sales. The implementation of introducing a new product may, whether or not in conjunction, be positioned at Products & Solutions. These types of decisions require a fast decision-making process. Questions on whether or not to develop a rejuvenate business model, requiring totally different capabilities and resources, are then types of processes that initiate from the business development department within Nuon.

Given the variance between BM adaptation modes for the Dutch consumer the process should become Nuon’s dynamic capability. This capability should not only build on routines but also requires the creation of new, situation specific knowledge by using real-time information. This enables the management’s understanding on the changing markets and therefore builds intuition. This facilitates fast decision-making while facing ambiguity and enables accurate BM adaptation.

## 8. Conclusions & recommendations

The research objective of this study was to find a guideline for Nuon on how to organize its business development process for the Dutch energy consumer market.

In order to reach this goal, theoretical research and empirical research have been intertwined. In this section conclusions to the main research question will be formulated guided by the sub-questions. The main research question of this research was formulated as follows:

**How can the business development process for the Dutch energy consumer market be aligned with the changing energy landscape?**

After answering this question guided by sub-questions, recommendations will be formulated on how Nuon can start with its business development process. Reflections on this research as well as directions for future research are described in chapter 9.

### 8.1 Conclusions

Per sub research question a conclusions that may be drawn from this research will be defined. The first sub-question was defined as follows:

**1. Within Nuon/Vattenfall, how and which stakeholders are involved in the business development process for Dutch energy consumer market?**

Within Nuon/Vattenfall different departments are involved in the process of business model adaptation in the consumer segment. The organizational lay-out is quite new and all involved departments are still seeking for their role in the process.

*Market Strategy and Business Development (MS&BD):*

This department is focussed on the longer term (5 years and more ahead). This department has a broader view on business development than solely the consumer market. The scope is on holding level and is focussed on creating synergies between Vattenfall's focus countries and different business units. Next to that, pilot projects that have the goal of developing leads or new business are positioned within this unit.

*Products and Solutions (P&S):*

This department operates on a holding level and is developing energy-related products and solutions for consumers. The focus of this business unit is focussed on developing products and solutions for the middle long term (2 years ahead). The E-manager is an example of a product in which this department had the lead during the development phase.

### *Nuon Consumer Sales:*

This department is primarily responsible for the business of Nuon in the consumer energy market. The goal is to effectively use marketing budgets for acquisition and retention of customers. Supreme value propositions are favoured as this facilitates effective marketing.

All involved internal stakeholders have own interests and targets. This creates an intra-organizational multi-actor setting that makes decision-making on BM adaptations complex. Clear rules and specified responsibilities are therefore needed in order to allow for effective decision-making.

## **2. How and in which direction is the Dutch energy consumer market changing?**

The change in the consumer energy market stems from the liberalization and the emerging adoption of distributed technologies. The energy system changes rapidly not only because of the adoption of new technologies on a household level, but also because of new forms of competition in the energy consumer market.

### *Adoption of domestic electricity and gas demand substitutes*

The adoption of energy measures at a household level reduces the electricity and gas demand from the grid. A wide-spread adoption of insulation measure, PV systems, Energy Management Programs, energy-efficient appliances has the power to replace domestic energy consumption from the grid up to 35%. Many technologies are still in a learning curve which means that prices will decrease. Especially photovoltaic systems become increasingly competitive.

Within the energy system a trend has established of bottom-up initiatives; up to 400 have been established in the Netherlands. These initiatives, often organized by individual citizens and cooperatives, whether or not in conjunction with local governmental bodies, manage to apply distributed generation technologies in a commercial way. The initiatives often get accompanied by the establishment of local energy companies.

### *Increasing level of market competition*

Within the consumer energy market the competitiveness continues to increase as a delayed effect of the energy market reforms in 2004. The market entrance of new energy suppliers drives the number of annual switchers and with that the market for commodities (electricity and gas) becomes more price-driven. Furthermore, trusted organizations (like consumer associations) manage to bind large groups of consumers that are willing to participate in public energy auctions.

### *Governmental energy policies*

In general, Dutch policies for the consumer energy market are aimed at making the energy system more sustainable. However, within the Netherlands policies originate from different hierarchical governmental bodies. Therefore, investment climates are differentiated and local.

On a national level a decision for smart meter roll-out on facultative basis has been made. This offers energy suppliers the opportunity to incrementally develop new ways for creating value for customers.

In sum, liberalization, new technologies, IT enabled services and scattered energy policies make the business environment of Nuon more complex and ambiguous. However, ongoing developments also offer the opportunity for new business models. Nuon is challenged to develop business in such way that they remain competitive in the consumer energy market. This is a strategic challenge involving the design and implementation of new business models.

### **3. How are business models related to strategy and which factors do influence the process of generating and deciding upon them?**

#### *Strategy concept*

Strategy is an ambiguous concept; many definitions and interpretations exist to describe its scope. In this study the interpretation of strategy is deliberate and defined on a business strategy level. Business strategy in general answers the question how an organization will compete in the business that it is, or will be in. Following Porter (1996) it answers the question how a company will be unique, how it will achieve a competitive advantage and how this advantage may be sustained over time.

#### *Business Model (BM) concept*

Every firm either explicitly or implicitly employs a particular BM. BM as a concept are typically used to explicate how companies do (analysis and evaluation) or may (design) capture value from its business activities. Most BM approaches contain meta-definitions and define which elements should be included in a BM such as *value proposition*, *supply chain*, *customer interface* and a *financial model*.

Next to a different the function of BMs, BMs may be perceived at different units of analysis:

- Firstly, a BM may be perceived around a specific value proposition, being a promised value to customers (can be a product);
- Secondly, a BM may be perceived on the level of an organization or a business unit.

In this research the BM scope is the established Energy Supplier BM of Nuon in the Netherlands. It is this BM that is subject to strategic change and thus adaptation.

#### *Business Model in relation to Business Strategy*

The relation between strategy and business model design depends on the organizational context. For a start-up company, strategy analysis in combination with a BM design is limited to the design of an isolation mechanism that complicates imitation and disintermediation. However, when designing a BM for an established organization, the new BM should also be strategically aligned with the established organizational BM.

#### *BM adaptation process*

BM adaptation refers to the process of designing and moving to the desired BM, and thus represents business change. Decisions are focal points within this process, because a decision is required before firm's business activities are changed. From strategy literature it was learned that a wide range of factors influence the process of BM adaptation. The following categories of factors that influence the process of BM adaptation are represented in the figure below:

1. Environmental context;
2. Strategic context;
3. Organizational context;
4. Performance on Key Performance Indicators (KPIs);
5. Process characteristics;
6. Issue characteristics.

#### 4. What may be an applicable lens for exploring the process of business development for the Dutch consumer energy market?

Recent developments in the consumer energy market indicated that environmental complexity and velocity is increasing. Furthermore, there is little reason to believe that this development is reversible as (DG) technologies will continue to develop, innovations will continue to be created and the liberalized market model will remain for the foreseeable future.

For that reason High Velocity Environments (HVEs) was adopted as a normative theoretical lens for analysing the process of business development. HVEs are environments where "changes in demand, competition, and technology are so rapid and discontinuous that information is often inaccurate, unavailable or obsolete" (K.M. Eisenhardt, 1989, p. 816). Successful firms in HVEs manage to decide and adapt quickly. Based on literature on decision-making in HVEs and guided by the categorization sub-question 3, the following indicators for environmental velocity and fast decision capability have been selected. The underlined value represents the value that is associated with firms in HVEs having the capability to decide and adapt quickly.

Indicator for environmental velocity

- **Perception on consumer energy market**  
Stable and predictable *versus* Dynamic and uncertain

Indicators for fast decision-making capability

- **Emphasis in the BM adaptation process**  
Risk-control *versus* Decision Speed
- **Use of simultaneous alternatives**  
Few *versus* Many
- **Use of real-time information**  
Never *versus* Always
- **Level of detail at point of decision**  
Sketch *versus* Very Detailed
- **Level of process centralisation**  
Holding Stakes *versus* Local Stakes
- **Individual risk incentive**  
Avoid risk *versus* Encourage some Risk
- **Level of common understanding of BM adaptation process**  
Coherent *versus* Incoherent
- **Level of adaptive capability compared to competition**  
Re-active/Comply with the environment *versus* Pro-active / Change the environment

#### Use of HVE lens and indicators

By using HVE as a theoretical lens for analysing the BM adaptation process at Nuon, the process analysis led to both a description of the existing process as to a normative comparison. 'Final gate' decisions are crucial points in the business model adaptation process because these decisions really change the business model.

#### *Data from interviews and intra-case study*

Based on a perceptions of internal stakeholders and an intra-case study it was found that Nuon has possesses quite different BM adaptation process characteristics compared to what one would expect from organizations in a HVE:

- **Risk averseness;**  
The focal firm has a relative risk-averse culture.



- **Adaptive capability;**

Although the firm expanded business there is hardly a track-record of inside-out innovation and Nuon can therefore better be characterized as being re-active.

- **Level of common process understanding;**

The process understanding is troubled due to re-organizations. However, it caused that everyone was invited in BM adaptation which leads to a great demand for consensus.

- **Use of real-time information;**

At the point of decision-making some real-time information but it is not a common practice on all organizational levels.

- **Use of simultaneous alternatives;**

In many cases alternatives are evaluated but typical business development process are rather incremental than rigorous. This was also well illustrated by the E-management case in which incremental development in a consortium did not lead to a successful market introduction.

- **Level of detail at point of decision;**

BM adaptation decisions are only made after deep analysis to minimize risks. Intuition does not play a large role in decision-making.

- **Level of centralisation.**

After internationalisation the distance of decision responsibility has grown with respect to sales operations.

#### *Environmental velocity*

The environmental velocity within the consumer energy market has increased but is not as dynamic as the telecom industry. However, the environment is volatile compared to a couple of years ago. Perceptions of internal stakeholders depend on the position within the organization. The closer the stakeholder is connected with operations and sales, the higher they rank environmental velocity of the consumer energy market.

#### *Fast decision-making capability*

No fast decision-making capability was observed. The BM adaptation process is characterized by risk-averseness and requires a great internal consensus. An unceasing need for more information exists before BM decisions are made. The strategic paradigm of the company is characterized by re-activity.

#### *Applicability of HVE lens*

The consumer market environmental was not as dynamic compared to what one would expect on basis of HVE literature. However, this doesn't mean that the HVE decision-making characteristics do not provide useful guidance on process alignment at all. After all in the introduction it was noticed that BM adaptation at Nuon takes too long.

Following this line of reasoning, the BM adaption process at Nuon does not need to be as rigorous as HVE literature suggests. However, as the current process seems to take too long, the BM adaptation process may be aligned by implementing some of HVEs process characteristics.

- Increase common understanding of BM adaptation process;
- Involve sales & marketing in BD adaptation process as they are most exposed to externalities;
- Create incentives for thinking of new values for customers to feed BM adaptation funnel;
- Decrease information asymmetry between different involved business units.

Further recommendations for Nuon have been formulated in section 8.2.

## 5. Which recipes for the business development process can be extracted from the explorative analysis?

In chapter 7 a BM adaptation framework has been constructed distinguishing between incremental (for the organization) and radical (for the organization) BM adaptation. Next to that, the framework distinguishes between product innovation and BM innovation. Based on these distinctions, an exploration of the connection with BD processes has been made.

On basis of that categorization a distinction has been made between the *managing*, *reconfiguring*, *extending* and *rejuvenating* mode of BM adaptation. Whereas *managing* and *reconfiguring* apply to incremental decisions building on existing capabilities, *extending* and *rejuvenating* decision require new capabilities.

The exploration of different modes showed that especially the manage mode and reconfigure mode of BM adaptation requires fast decision-making. Furthermore, it was identified that literature on decision-making in HVEs did not treat with decisions that would destroy its own business. Therefore the applicability of fast decision-making in HVEs has its limitations.

Transposing these observations to Nuon would imply that incremental decisions, answering questions like “how to deal with energy auctions” and “should we introduce a new incremental product”, are in the scope of the management team of Nuon Consumer Sales. The implementation of introducing a new product may, whether or not in conjunction, be positioned at Products & Solutions. These types of decisions require a fast decision-making process building on intuition and cognitive capabilities of the management team.

Questions on whether or not to develop a rejuvenate business model, requiring totally different capabilities and resources, are then types of processes that initiate from the business development department within Nuon.

Given the variance between BM adaptation modes for the Dutch consumer the process should become Nuon’s dynamic capability. This capability should not only build on routines but also requires the creation of new, situation specific knowledge by using real-time information. This enables the management’s understanding on the changing markets and therefore builds intuition. This facilitates fast decision-making while facing ambiguity and enables accurate BM adaptation.

## **8.2 Recommendations for Nuon/Vattenfall**

Preliminary interviews indicated that a feeling exists that the business development process for the Dutch consumer energy market takes too long. This section suggests some recommendations based on the literature on fast decision-making in high velocity environments.

However, no process flowchart is presented here as a process, but rather a set of “rules of the game” are suggested by which the business development process may be played. This is precisely as intended because a strict process does not provide the flexibility that is required to react to the rapidly changing energy market.

### **#1 Use an adaptive process and develop dynamic capability**

One of the observations made in this research is that developments within the competitive environment of the consumer energy market (energy auctions etc.) should be seen separately from the adoption of distributed generation in combination with local initiatives. Given the different nature of these developments a custom and adaptive BM adaptation process is required. Traditional project management for new initiatives in a stage-gate-like process does not offer this required flexibility.

### **#2 Incorporate real-time market data on local energy initiatives**

The abundant use real-time market data within has been associated with the development of intuition on market developments. At Nuon Consumer Sales the controls of existing business are strong in the form of KPI monitoring such as churn, number of new customers. However, the effect of DG on annual electricity and gas sales is indirectly and besides dependent on annual temperature averages.

Therefore, within the field of local energy initiatives the sensing mechanism may be extended. By incorporating real-time market data on these developments the intuitive decision capability of the management team can be built and extended. This is important for fast decision-making.

### **#3 Agree upon the level of uncertainty which is tolerated**

Slow decision-making on BM adaptation was amongst others caused by risk-averseness and an unceasing demand for detailed plans. Based on empirical data, it seemed that the process was characterized by a tendency to make full rational and risk-mitigating decisions. However, in face of the uncertainty of the consumer energy market in which ‘known unknowns’ remain, the process should tolerate some level of uncertainty. Agreement upon the level of uncertainty that is tolerated can reduce the demand for extra plans and cases.

### **#4 Create separate budgets for BM innovations**

By creating separate budgets for innovations within the consumer segment a share of risky projects can be initiated, speculating on alternative market developments, without interfering with planned business in the consumer market (e.g. the business plan framework). Respondents within Nuon Consumer Sales argued that initiatives that fall outside of the business plan framework are condemned to a bureaucratic process as they need support on a holding level; either in the Executive Group Management (EGM) or eventually by the Board of Directors (BoD).

## #5 Empower and involve local business units

Distributed responsibility (for instance in separate business entities) creates the ability to be responsive and adapt quickly because at a distributed level the environmental sensing mechanisms are strongest. Using these sensing mechanisms is crucial for Nuon's agility in the consumer energy market.

Observations indicated that the track-record of business development within the consumer market was characterized by a bottom-up approach. However, the integration of Nuon within Vattenfall shows indicators that the distance to decision authority is growing causing a decrease in Nuon's agility and adaptive capability.

It is in Nuon's interest to empower Nuon Consumer Sales' at least to some extent, because organizational growth threatens decision speed which can be a killer in the rapidly changing consumer market. Keeping the mutual conversation between units going and agree upon the distribution of responsibilities. The room for bottom-up initiatives should remain.

## #6 Build confidence and intuition of management team

A strong counselling role of middle management creates confidence to act for the deciding management team of Consumer Sales. Centralisation of decision power may speed up decision-making but power centralisation makes decision-making a more person-driven phenomenon. Therefore, fast decision-making is dependent on the top manager's personal decision-making capabilities. In isolation, decisions tend to be delayed due to anxiety, inadequate information and a lack of time. Therefore the role of middle management and the link with market sensing mechanisms are important for creating trust to decide. Consensus on BM adaptation is a nice-to-have, but should that not be the case, a decision is needed anyhow. If necessary, external consultants may facilitate decision-making.

The recent creation of the *Business and Product Portfolio Management Committee* can be regarded as an example of centralized decision power. Based on some respondent's perceptions, this authority is positioned at quite a distance from operations and market sensing mechanism and therefore faces the threat of operating in isolation.

The recommendations may seem rather abstract and leaving questions on how the recommendations should be implemented. However, besides recommendations for redesigning the process they can at the very least be used as a provocation for discussing and elaborating upon the current practice of BM adaptation design and decision-making. By doing so, a mode of BM adaptation may be established that suits with the culture and people within the departments involved in the process of business development for the Dutch consumer energy market.

## **9. Discussion, reflection & future research**

The research was executed in the sequence of how the report has been documented. Different choices and assumptions have been made in order to arrive at a satisfying result to the objective of this study. Therefore, in this chapter we reflect upon the research development and execution.

In this research a first approach has been made to develop a lens on business development; namely the process of BM adaptation in high velocity environments. This lens was used to analyze the business development process at Nuon for the consumer energy market.

### **9.1 Reflection on consumer energy market as environment**

The focus in this study was to align the process of business development for the consumer market with the changing environment of the consumer energy market. In order to do this we explored the consumer energy market as an environment, we explored and connected theories on business development and we investigated the process of business development within Nuon. The theoretical construct on BM adaptation in high velocity environments is a generic theoretical contribution and is not limited to the casus of business development at Nuon.

Throughout this study we have attempted to determine the environmental velocity of the consumer energy market. An assessment of environmental velocity was needed to explore to what extent best practice process characteristics from HVE studies are useful for Nuon.

Determining environmental velocity on an absolute scale was not really possible. No real established guidelines were found in literature on when an environment is or is not a high velocity environment. However, it was possible to indicate environmental velocity on a relative scale. The consumer energy market is slower than the telecom industry but faster than the consumer energy market of say 10 years ago. The direction of change in the consumer energy market is known but the velocity of it is uncertain.

The implication of the disability to categorize environmental velocity is that it was hard to argue how and to which extent best practice process characteristics from HVE should be implemented at Nuon.

#### **Different environments within consumer energy market**

Throughout this study it seemed that the environmental velocity in the consumer energy market could even be further broken down to "micro-environments". This was illustrated by the case on the E-manager. The market for E-managers may even be considered to be an environment in itself and therefore having a different environmental velocity than other micro-environments within the consumer energy market.

Next to that, assessing the environmental velocity is limited because it only perceives the current state of environmental velocity (through perception and observation) and doesn't take the future expectation of environmental velocity into account.

### **Limitations of HVE best practice**

The implication of these nested environments within the consumer energy market is that the process should be made dependent which type of environment within the consumer market the decision will affect. In other words, the BM adaptation process should be made responsive. Further investigation in these nested environments was not in the scope of this study.

By transposing HVE process characteristics to Nuon's organization, business success is not guaranteed. The success of an adapted BM adaptation process can only be proven by its first execution in the specific organizational setting of Nuon/Vattenfall.

## **9.2 Reflection on used theories for business development**

This research uses theoretical concepts from different scientific schools. Theories on business models, strategy, strategic management and decision-making have been combined and connected. This is the strength and the weakness of this study lies and therefore is worth some reflection and discussion.

For business model literature, this research contributes to the underdeveloped scientific understanding of how to move from an existing business model to a desired one, in other words BM adaptation. Current literature is focused on meta-definitions and approaches for designing BMs from scratch. Other studies that treat with strategic change (of a firm) appear to refer to similar issues as those that are applicable in BM adaptation.

### **Business Model concept – unit of analysis**

Different BM approaches such as STOF, CANVAS or other BM theoretical approaches do not encounter the unit of analysis of BMs. This is a shortcoming, as when using a BM concept for understanding (analyzing) the established business model of an organization. We propose that the unit of analysis of a business model (either on a specific value proposition level or on an organizational level) to be a standardized attribute of the BM concept.

### **Relation Business model and strategy – Difference in observation and design**

Strategy in this study has been interpreted on a business level was assumed to be deliberate, following Porter's definition of strategy. In a strict way business models were assumed to be an implementation of a business strategy.

However this relation doesn't count when designing a new strategy or business model. When designing business, strategy and business models should be coupled. When designing business from scratch, strategy analysis should indicate how the business model is going to be protected. When designing business from the point of view of an established organization, strategy analysis should be extended with strategic alignment within the established organization.

Therefore, it is argued that the relation between strategy and business model is dependent on whether the concepts are considered in an analytical perspective or in a design perspective.

### **Business Model Adaptation and fast strategic decision-making – limitations**

This study specifically rests on borrowing theory from a couple of studies on strategic decision-making in high velocity environments. Although the study of K.M. Eisenhardt (1989) is highly valued in the scientific society, it doesn't distinguish between types of decision and their impact on the organization's business model. Typical decisions were described as "*develop new product*", "*form alliance*", "*strategic shift into new market*", "*strategic shift in distribution*". These decisions clearly concern decisions that affect the organizations business model to which they apply. However, it is unclear how these decisions may be categorized: Do these decisions

change the environment in a structural way or is the decision a result of environmental compliance? Are the decisions in line with existing capabilities (incremental) or do the decisions disrupt existing capabilities (radical)? Are the decisions a product or business model innovation?

In the synthesis of this research (chapter 7) a tentative exploration has been made of different modes of BM adaptation and their link with BM adaptation processes. It was found that the processes and types of decisions described in HVE literature do not fit with what we have called decisions on “rejuvenate BMs”: Innovative BMs that disrupt existing capabilities.

### **Limitations of the BM adaptation framework**

In chapter 7 a BM adaptation framework has been constructed distinguishing between incremental (for the organization) and radical (for the organization) BM adaptation. Next to that, the framework distinguishes between product innovation and BM innovation. Based on these distinctions, an exploration of the connection with BD processes has been made.

This framework is highly tentative and does not pretend to include all possible modes of BM adaptation. Next to that, the distinctions between the modes of BM adaptation are not strict and may be crossed. The framework is only useful to make an illustrative categorization on different modes of BM adaptation and its requirements to the BM process per category.

### **Explanation - Dating of combined key research literature**

The absence of a connection of HVE decision-making to business models can be explained by the fact that Eisenhardt’s empirical work was conducted before the interest of practitioners and scientists in BM analysis and design boomed. Eisenhardt’s earliest work on fast decision-making in HVE dates from the late 80s and early 90s: a period in which Business Models almost received no attention in scientific literature (K.M. Eisenhardt, 1989; Kathleen M. Eisenhardt & III, 1988; Slater, 1993). Scientific interest in Business Models started in ’96 and really boomed in the late 90s until now (Timmers, 1998). The difference in earliest dating and nature of earliest researches may partially explain why a connection between HVE strategic decision-making and Business Model concept is underexplored. Only a couple of years ago some exploratory and solely theoretical research effort has been made to combine Business Models with fast strategic decision-making. See for example (A. Dottore & Corkindale, 2009; A. G. Dottore, 2009).

## **9.3 Reflection on research methods**

In this research started with a case at Nuon in which was questioned how the process of business development could be aligned with the changing environment. For this it was necessary to determine the current state of the business development process. Next to that, constraints needed to be formulated given the change in the energy consumer market.

### **Market research method**

Market research has been considered an appropriate method for assessing change in the energy consumer market and formulating process constraints.

The method proved useful for indicatively assess the rate, direction and type of change in the energy consumer market. However, the consumer energy market’s scope is broad and it is easy to lose yourself in further detailing market estimations and growth potential. Therefore, the environmental analysis had to be limited in terms of scope and depth.

### **Literature analysis and theory construction**

Literature research has been considered an appropriate method for developing a lens for analysing the process given the external environment. Literature research on BM, strategy and strategic decision-making offered a guideline for structuring the empirical data mining process. Furthermore, it provided a theoretical optimum, given the external context.

However, the pluralism in the theoretical field as it was chosen was dazzling, and therefore it was hard to find the right scope. A couple of literature review studies and more specifically literature on strategic decision-making in HVE were useful to convert to a more specified theoretical framework.

### **Interview method**

A combined interviews/survey has been considered an appropriate method for determining the current practice of business development.

The data gathered from interviews demonstrate some weaknesses. Given the subject of the research and the role of a student respondent anonymity had to be ensured. This enabled respondents to talk more freely. The interview method had limitations in multiple ways:

- **Threat of socially acceptable answers;**  
Respondents may tend to answer social acceptability rather than provide an independent and accurate description of the past.
- **Limited number** of suitable respondents;  
The number of suitable target respondents was limited due to time availability, career moves of internal stakeholders, recent re-organizations etcetera. Due to this limited number the answers could not be compared in terms of significant differences.
- **Limited time** availability;  
Limited time availability and the need for planning the interviews limited the time frame in which empirical data could be gathered.
- **Knowledge position** or interviewer.  
A knowledge gap with respect to the respondent was present. In combination with the limited time frame this limited the data gathering.

### **Intra-case study**

An intra-case study has been considered an appropriate method for verifying the current practice of business development as argued by internal stakeholders.

Due to time limitations only 1 intra-case study has been conducted. For data gathering the intra-case study strongly relied on the perception of two specific highly involved stakeholders and internal documentation. However, it was quite a challenge to get the story straight as due to the long trajectory much data left the collective memory of the organization.

## **9.4 Future research perspectives**

Future researches building on this research may address the following issues:

- Further investigate the limitations of fast decision-making in HVE as a process design guideline;
- Further investigate BM adaptation in the design phase as this research focussed mainly on final gate decisions;
- Further investigate the BM adaptation modes and combine further with respect to the required desired process per BM adaptation mode;



- Further investigate the concept of High Velocity Environments and its impact on organization's business development processes;
- Hopefully this thesis inspired some to build their research upon the work done.

## 9.5 Personal reflection

Looking in hindsight the entire graduation project was a tough challenge but was very informative as well. In the entire process, from research design towards report delivery some valuable I was taught some valuable lessons.

### Research design phase

In the beginning of the research project a strategic challenge experienced by Nuon retail unit was the starting point. It was a tough process to translate this rather practical and non-scientific problem into a problem worth a master thesis project. In hindsight, much could have been done faster and more clear. Most crucial is to take decisions along way and keep all research stakeholders both within the Nuon as within TU delft informed and "on board". The following lessons were learned:

1. Create **concise minutes** after each meeting containing the main conclusions;  
Some meetings that I had were open-ended. Because no real conclusions were drawn at the end of the meeting the follow-up steps did easily blur.
2. **Draw conclusions and make decisions** after each meeting with stakeholders and **communicate** line of reasoning to supervisors;  
Designing a research appeared to be a journey. In order to retain support from all supervisors (TU Delft and Nuon) I could have communicated better about the choices I made throughout the research design phase. However the all-together meetings were pretty useful in the research.
3. Make appointments with supervisors on a **regular basis**;  
Appointments with supervisors on a regular basis and making appointments on deliverables could have better facilitated research progress. Working in solitaire on a research appeared to sometimes be a challenge.
4. Try to start with an **end-product** in mind. This will allow more efficient research conduction.  
The end-product I had in mind was too vague. Creating expectations on what the end-product will be could have allowed me to be more focused in choosing what and what not to do.

### Research execution phase

Conducting the research project was a challenge in the sense that it the conduction of interviews and the connection of literature from different fields of expertise. Conducting interviews, however, was one of the most instructive experiences within the research.

1. Deal with student position in **relation to expert** in interview  
The interviews/surveys could have been improved by anticipating more accurately on a respondents role, position and experience within the organization. The relation between me as a student-interviewer and "expert" respondent was sometimes underestimated. It was an effort to create trust to mine insightful data.  
Next to that, sometimes I could have been more persistent in really getting to the core of what I wanted to know. Don't fill in the answers for the respondent but keep the conversation open and objective.

## **2. Combining practice with theory**

While conducting this project I experienced difficulties to combine practice at Nuon with science and theories. This is was a challenge that built upon the notion that the research design process appeared to be a journey.

Although I made efforts to integrate both, integration of practice and theory could have been more accurate.

All in all, this research project was a nice challenge. It allowed me to experience how business development works in practice at Nuon. Besides, it enabled me to get an accurate view on the developments within the energy consumer market. Finally, I got me excited about the ongoing transition within the energy system as a whole as it creates interesting multidisciplinary challenges for all kinds of actors within the energy system.

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# Appendices

## Contents of the appendices

A1	Guideline for semi-structured interview
A2	Responses to semi-structured interviews



## A1 Guideline for semi-structured interview

	1-----2-----3-----4-----5-----6-----7	
Outsider	Role in development process	Key figure
Stable and predictable	Perception on consumer market	Dynamic and uncertain
Re-active: Comply to the environment	Adaptive capability compared to competition	Pro-active: Change the environment
Risk-control	Emphasis in business development	Decision-speed
Avoid risk	Personal incentives for risk-taking	Take risk
Coherent	Understanding of BD process	Incoherent
Holding stakes	Most dominant stakes	Local stakes
Never	Use of real-time information	Always
Few	Number of alternatives in design process	Many
Sketch	Level of detail at point of decision	Very detailed
Catalyser	The influence of current portfolio on new BD	Showstopper

### *Introduction*

For my graduation project I am conducting a research on the process of business development for the consumer segment.

The motivation for investigating this process is that the ongoing changes in the consumer market possibly pose new requirements to the business development process.

The goal of this combined survey-interview is to analyse how new business models are being developed within Nuon. Next to that, this survey may function as an assessment of how involved stakeholders within Nuon perceive the velocity of the consumer energy market. This survey should lead to an evaluation of the existing process and an identification of improvement factors.

### *Business Model*

A business model (BM) provides a holistic view on how a company creates and markets value. It contains at least the following elements:

1. *Value proposition*: the value of the product and/or service;
2. *Supply chain*: upstream relationships with suppliers;
3. *Customer interface*: downstream relationships with customers;
4. *Financial model*: costs and benefits from 1, 2, 3 and their distribution across the entire value network.

### *Environment*

By “the environment” we mean the competitive arena of a company. Changing regulations, new technologies, and market developments are examples of factors that change the environment of a company and with that the environment of its business model(s).

### *Anonymity and confidentiality*

This research is being conducted as a TU Delft graduation project. All answers will be treated anonymously.

**1. How would you rank your role in the development process towards new or adapted business models?**

Outsider		Key figure
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> Can you describe how you are involved in business development process for the consumer market with an example?

**2. The environment (i.e. market dynamics, changes in legislation and technological advancements) of the consumer market can be scored as follows:**

Stable and predictable		Dynamic and uncertain
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> Which factor(s) have the greatest impact on environmental uncertainty?

> How would you regard the environmental velocity compared to other volatile markets like the Telecom Industry?

> How is environmental uncertainty taken into account when developing new business models?

**3. The way of adapting our business to fit 'the environment', when compared to other companies in the industry, can be characterized as:**

Re-active: Comply to the environment		Pro-active: Change the environment
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> Does the answer above correspond to what, in your opinion, the ambition should be?

> If not, what are the main barriers to comply with this ambition?

**4. The current process of business model creation emphasises:**

Risk-control		Decision-speed
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**5. With respect to risk-taking in developing new business models please state if involved stakeholders are encouraged to:**

Avoid risk		Take risk
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> In your perception, should people be encouraged to take more or less risk in the development process towards new business designs?

**6. The general understanding of business development process amongst involved people is:**

Coherent		Incoherent
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> In your opinion how do strategy, business models, products and business plans relate to each other in practice?

**7. Which stakes are most dominant in the process of business development in the Dutch consumer market?**

Holding stakes		Local stakes
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> Is the process very hierarchical or does it leave room for bottom-up initiatives?

**8. How often is real-time information used as an input factor during the process of business model creation?**

Never		Always
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**9. In general, how many alternatives are being created for the development of new business model per offering category (i.e. new product)?**

Few		Many
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> Which factors do influence the number of alternatives that are being created?

**10. How detailed is a new business proposal just before a decision on whether or not to implement it is made?**

Sketch		Very detailed
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> Please describe your answer with an example.

**11. What is the impact of the established portfolio on the decision-making of new or adapted business models?**

Catalyser		Showstopper
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> To what extend do portfolio considerations complicate decision-making on new business models?

**12. How is a decision on a new product-market combination made? What are decisive factors?**

> What specified methods are used to facilitate decision-making?

> How important is intuition?

> To what extend it the added value for the network of partners taken into account when developing new business models?

**13. Additional open questions:**

- How are requirements from different departments (i.e. marketing, IT, strategy) included in the design cycle towards a new business model?

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## **A2 Response to semi-structured interview**

### **Respondent 1**

Role	1	
Environment	2	
Re/Pro-activity	3	
Process risk	4	
Individual risk	5	
Coherency	6	
Hierarchy	7	
Real-time info	8	
Alternatives	9	
Portfolio impact	10	

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#### **Role**

No real decider but strong advice position. Positioned at business development at Vattenfall level.

#### **Environment**

- > The consumer market for energy is incorporating disruptive characteristics;
- > However, speed of change is limited compared to other markets;
- > Technology, regulation and consumer behaviour (purchase collectives) are driving forces behind disruptive character.
- > Sensitivity analysis is conducted on new proposals.

#### **Re/Pro-activity**

- > Nuon is a leading follower. "Customer segment of Nuon are no early adopters, as they already left"

#### **Risk/speed**

- > The process emphasises the distribution of scarce resources amongst innovative projects.
- > Creation phase: Risk-taking is encouraged
- > Implementation phase: Risk is eliminated.
- > Risk of don't acting is also emphasized when proposing new models.
- > IT is bottleneck (ed. subject to controversy?)
- > Budgets are limited
- > There are points of no return.
- > "The process for new business development is a power game."

## **Respondent 2:**

Role	1	
Environment	2	
Re/Pro-activity	3	
Process risk	4	
Individual risk	5	
Coherency	6	
Hierarchy	7	
Real-time info	8	
Alternatives	9	
Portfolio impact	10	

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### **Environment**

Auctions for energy supply threaten the stability of the consumer market for energy. Change is at hand but market is not as dynamic as mobile telephone industry.

Governmental policies have a big impact on development process. Fluctuating policies delay decisions on new product-market combinations.

### **Vattenfall vs. Nuon CS NL**

Size of Vattenfall offers an economy of scale which is important for purchasing technologies. The size makes the organization slow and therefore a long-term perspective on a new product-market combination is needed.

### **Time of introduction**

"Time of market introduction is critical. However, a distinction should be made between *time of marketing* and *time of implementation*."

Example: Eneco has promoted the e-manager "TOON" as an important new "green" product for energy consumers. However, the device 'TOON' could only be supplied to about 200 households while other potential consumers were put on a list. In fact, the TOON introduction was rather a marketing and branding instrument than a real market introduction.

### **Design process versus implementation process**

The duration of the design and decision process takes around 1-2 years while the implementation takes around 4-6 months.

### **Culture with respect to new products and solutions**

We don't want to move boxes around. Nuon CS NL is most of all a marketing organization. Value added services should lead to a better

Nuon is very careful with 'new things'. Time to market is dependent on

**Respondent 3:**

Role	1	
Environment	2	
Re/Pro-activity	3	
Process risk	4	
Individual risk	5	
Coherency	6	
Hierarchy	7	
Real-time info	8	
Alternatives	9	
Portfolio impact	10	

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Responsible for VAS strategy, PV strategy at Market Strategy and Business Development.

**Environment**

It concerns predictable change. However we struggle to anticipate on that.

**Reaction on environmental change**

Proactive, but not as a real first mover. The energy landscape is not changed by Nuon's market introductions. And this ambition is not really present. A first mover advantage is a nice-to-have, not a need-to-have.

When it concerns distributed initiatives, governmental regulation is often an enabler. However, the

**Coherency**

There is a coherent understanding that being the first is not a goal in itself. Learning from the past led to an intuitive judgment capability on what market introductions do and which does not work.

**Internationalisation**

Nuon under Vattenfall changed a couple of things when it concerns new product-market combinations:

**Decision**

"The less information, the faster a decision is made and not necessarily a negative decision".

Criteria are amongst others:

- NPV
- Stand Alone Value
- Synergetic Value
- Strategic Value (including real options for creating value in the future)

**Portfolio**

Decisions are being made in a Business and Product Portfolio Management Committee. Within this committee budgets are being set within three categories: E-transport, Micro-generation and E-management & optimization.

## Respondent 4

Role	1	
Environment	2	
Re/Pro-activity	3	
Process risk	4	
Individual risk	5	
Coherency	6	
Hierarchy	7	
Real-time info	8	
Alternatives	9	
Portfolio impact	10	

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### Role

Opinion: CS NL has an outside-in perspective on business development, while other units occupied with designing business strategies are more occupied with inside-out perspective.

Inside-out: based on capabilities and resources;

Outside-in: based on market opportunities.

### Environment

B2C NL has an outside-in perspective towards business development. At B2C NL environmental changes are sensed as first. Three major causes for environmental unpredictability:

- Consumer behaviour in the energy market is changing;
- Technologies are getting competitive at a rapid pace. Example of solar collectors;
- Regulation complicates long-term planning:
  - The separation of Nuon's commercial and grid activities have had a large impact while this (fulfilled) separation is still under judgement of the <http://www.minbuza.nl/ecer/nieuws/2012/03/hoge-raad-legt-splitsing-energiebedrijven-voor-aan-eu-hof.html>
  - Tax regimes and the "opslag duurzame energie" measurement are regulations with large impact.

### Re/Pro-activity

Culture is re-active and focussed on risk-control. Ambition is however to be pro-active and become the number 1 in distributed generation and energy services.

### Risk control

Nuon is traditionally a production company. The retail department has evolved over time. Risk considerations for power plants are fundamentally different than risk considerations for business development in the consumer market. The respondent has the idea that traditional risk assessment is not appropriate for developments in the consumer market.

### Individual risk

No incentive is there. Although targets are set the room to take risk at an operational level is limited. This is mainly due to bureaucracy in human resource management etcetera.

### Coherency of process understanding

It is a rather vague process in which information from the floor is not used adequately in the business development process.

### Hierarchy

The stakes of Vattenfall Holding have become dominant and the process is more and more characterized by a top-down approach.



In the example of a DG strategy from Holding-level, the process would probably focus on pre-selecting technologies and measures while the implementation would only start towards the end of the deadline.

### **Real-time**

Somewhere in the middle was the answer.

### **Alternatives**

Realistic number of alternatives. Depends on product subject.

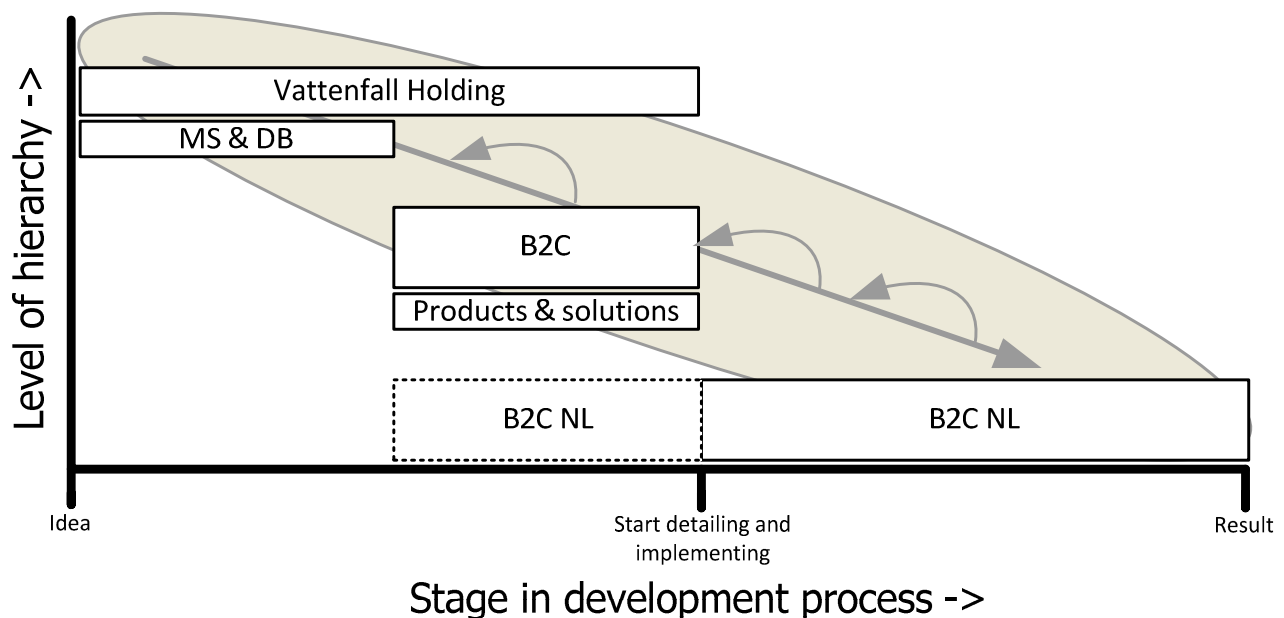
### **Established portfolio**

The feeling is that the organization is focussed on new business development while old business models are maintained. In other words, the organization has difficulties with choosing between product-market combinations and tends to choose for every product-market combination.

### **Perspective on hierarchical approach of business development**

-> There is a grey area in the business development process. In the perspective of the respondent the perspective of time that units are working with are incoherent. In other words, the time perspective that different units are working with do not connect well to each other.

-> Next to that, the design process is not a linear process.



The focus in this research is on the process of business model development and not on a business model itself.

## Respondent 5

Role	1	
Environment	2	
Re/Pro-activity	3	
Process risk	4	
Individual risk	5	
Coherency	6	
Hierarchy	7	
Real-time info	8	
Alternatives	9	
Portfolio impact	10	

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### Role Products & Solutions

Interpretation: Real product developer. Formerly at business development. Idea generator. Conceptualizer  
Active within Business Unit: Products & Solutions.

### Perception on strategy formation:

> Strategy was being formed from bottom-up. Innovations within Distribution & Sales were enhanced in a strategy.

> Design quadrant for new product developments

Customer	Technology
Operations - resources - capabilities	€-case

> Respondent argue that the process can be regarded as a stage-gate model.

> Strategy versus product development;

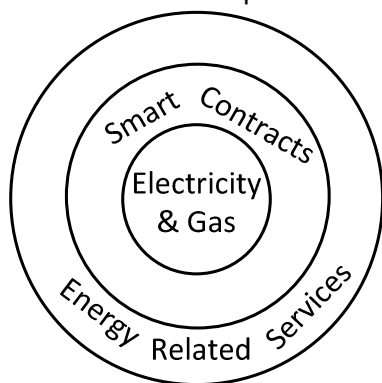
> Sales department gave the initiative for the development of the e-manager;

> The respondent identified the need for a flat decision structure;

> Product & Solutions Works for an internal customer: B2C (Marketing);

> Marketing requirement should be taken into account when designing new products;

> There is room for product innovation but projects need to fit within strategic business plans.



**Environment of consumer market**

- > Environment has become more dynamic however it is still quite stable.
- > A driver for more dynamics is a lower barrier to switch. Consumer organizations has stressed that consumers would be better off when switching more often.
- > Transparency in the consumer market is increasing which causes more switching behaviour.
- > Local initiatives threaten the sell amounts of power.

**Pro-activity**

- > Company is reactive, however, at certain points pro-active because Nuon is still market leader in many points of view.
- > Essent for example reacts faster (sometimes).
- > Local initiatives offer the opportunity to invest in a wind turbine.
- > Nuon doesn't change the market. It for example has no white-labels, which is different from Eneco that possesses several white-label energy suppliers.

**Risk**

- > Business plan is being determined a year in advance. Within the borders of the business plan a lot is possible.
- > Innovative new and risky ideas are encouraged to work out, however real risk-taking is only applicable when a decision is made to develop a new product and service.

**Real-time info**

- > Business Intelligence plays a crucial role in gathering and distributing real time information amongst business developers (Osterwalder, 2004)
- >

Business model development is an iterative process. I.e. Example of the solar case.

### Respondent 6 AN

Role	1	
Environment	2	
Re/Pro-activity	3	
Process risk	4	
Individual risk	5	
Coherency	6	
Hierarchy	7	
Real-time info	8	
Alternatives	9	
Detail level	10	
Portfolio impact	11	

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#### **Role**

Sustainable cities. Lead generator. Antenna of the organization and towards cities.

#### **Environment**

Uncertainties are increasing fast.

#### **Re/Pro-activity**

**Respondent 7 AK**

Role	1	
Environment	2	
Re/Pro-activity	3	
Process risk	4	
Individual risk	5	
Coherency	6	
Hierarchy	7	
Real-time info	8	
Alternatives	9	
Detail level	10	
Portfolio impact	11	

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**Role**

B2C, Product House. International team for synergies and best practice exchange.  
Solar, e-car. Now distributed generation. Collective wind/solar power investment.

Believers at senior management are crucial.

A distinction between contract variation and new product development should be made.

**Environment**

Distributed initiatives through collectives are

**Re/ proactivity**

Many resources are used to comply with new and changing legislation.

## Respondent 8 MG

Role	1	
Environment	2	
Re/Pro-activity	3	
Process risk	4	
Individual risk	5	
Coherency	6	
Hierarchy	7	
Real-time info	8	
Alternatives	9	
Detail level	10	
Portfolio impact	11	

**Intentionally left blank due to confidentiality**

### Role

Marketing & acquisitie consumenten. Others are VAS, E&G base (retentie), Small Business  
KPIs are: # new contracts, €acquisition costs/client, type of clients, type of products.

Introduced "proposition" geintroduceerd.

-> Client driven proposition development. Nuon Ideaal, Power Ideaal

-> Basis for development is client research.

Sources for innovation:

1. "Design from client needs" (example e-manager: clients needed insight in energy use)
2. Innovation from technical capabilities

### Environment

"Market is per definition not predictable"

> Market has disruptive characteristics (KPN failed to foresee the success of Whatsapp that destroyed the business model for text messages.

> Size of the company is a limitation to its capability to change.

> Stand-alone initiatives may be succesfull.

### Re/Pro-activity

In comparison to other industries the energy industry is not innovative. The e-manager is illustrative: All big energy companies (Essent, Eneco) came up with a comparable device.

### Process risk

Risk management slows down decision-making on new "propositions". Size of the company and the fact that Nuon is de facto a production company slows down decision-making on new propositions for the consumer market for energy.

### Individual risk

Not real risk-taking incentives. Trademark and price setting are most important variables in designing new propositions.

### Coherency

Fairly coherent.

New product innovations should engage consumers for longer periods than 1 year.

### Hierarchy

Nuon B2C NL is leading. Nuon B2C NL is the "best practice" for its Holding and therefore has a special position in creating new products and services.

**Real-time info**

Client info is used. In general an atmosphere exists where new products and services are designed that comply with the requirements and preferences of clients. For example the e-manager that creates insight in energy use throughout the year and per appliance.

**Alternatives**

Not many alternatives are being considered next to each other. The design process is more of an incremental process where the initial idea is being tweaked to meet all necessary requirements.

**Detail level**

There is a culture in which **more and more information** is required before a final decision can be made. According to the respondent intuition should play bigger role in new business development.

**Portfolio impact**

When it concerns the entering of radical new markets (e.g. like the e-car) **the belief** of senior management is crucial.

### A3 Overview of response

PERCEPTIONS	Question	R1	R2	R3	R4	R5	R6	R7	R8	R9	Average	SD	MIN	MAX
Role	1													
Environment	2													
Re/Pro-activity	3													
Process risk	4													
Individual risk	5													
Coherency	6													
Hierarchy	7													
Real-time info	8													
Alternatives	9													
Detail level	10													
Portfolio impact	11													

**Table 17 | Quantitative response to the survey – Intentionally left blank due to confidentiality**