

Who and What Really Counts

A Case Study of Sustainable Development in the White Meat City, Copenhagen



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Abstract

Approximately one third of the world's energy is used by the building sector for its operational activities, e.g. heating, cooling, hot water, ventilation, etc. That makes buildings the Earth's biggest contributor to GHG emission pollutions. The growing population and urban areas are prerequisite for the future even higher energy demand (UNEP, 2013). The energy consumption in the building sector in Europe represents approximately 40% of the total energy use and is responsible for 36% of the EU's total CO₂ emissions. Therefore the reduction of the energy consumption in this area is with high priority for each of the Member States and in line with the overall EU growth vision (EC, 2013a).

The present project aims at investigating the energy refurbishment process of unique business area in Copenhagen "The Meat Packing District". The scope of the research derives from identified gap between the vision for the area developed in 2005 and the existing situation nowadays, where the majority of the buildings are found in quite bad conditions due to the lack of maintenance. The investigation takes its point of departure in Stakeholder Theory and the concepts of Sustainable Development (SD) and Stakeholder Relation Management (SRM). The role and the interests of the different stakeholders are investigated, as well as the barriers that exist to the implementation of energy-efficient retrofit measures. In the end, the investigation makes recommendations on how the identified barriers to the sustainable growth of the White Meat City can be overcome.

Keywords: building retrofits, energy efficiency, listed buildings, stakeholder theory, sustainable development

Preface

The Master thesis has been produced during the fourth semester of the MSc. Environmental Management and Sustainability Science programme at Aalborg University by Hristina Chobanova.

The research was conducted for the period of 4 ½ months from April 2013 to July 2013. The references are made according to the Harvard method, where the authors' name and the date of publication are given in parentheses within the running text or at the end of block quotations (Author, date). The full reference list can be found in the end of the report.

I would like to say a big thank you to the people who were supporting me throughout the whole project period and without whose help the thesis would not have been possible. First of all, I would like to thank my family and friends for encouraging and believing in me during this last stage of my education.

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Table of Contents

Abstract.....	v
Preface	vii
List of Figures	xi
1. Introduction	1
1.1. Climate Change Mitigation Goals.....	1
1.2. Kødbyen (The Meat Packing District).....	2
1.3. Problem Formulation	4
1.4. Research Question	5
1.5. Objectives.....	6
1.6. Project delimitation	6
2. Methodology	7
2.1. Thesis Design.....	7
2.2. Research process/Case Study Research Design.....	10
2.3. Data collection methods	12
3. Theoretical and Analytical Frameworks	15
3.1. Stakeholder Theory	15
3.2. Stakeholder Identification.....	18
3.3. Sustainable Development	19
3.4. Analytical Framework	20
4. Analyses.....	23
Part I.....	23
4.1. Regulatory framework to the energy efficiency in existing buildings	23
Part II	27
4.2. Stakeholder identification.....	27
4.3. Motivations	30
4.4. Power identification.....	33
Part III.....	35
4.5. Barriers.....	35
5. Discussion and Recommendations	39
5.1. Discussion.....	39
5.2. Recommendations	44
6. Conclusions	46
Appendices.....	53

List of Figures

Figure 1: Illustration of the report structure	9
Figure 2 Illustration of case study research design as a linear process,	10
Figure 3 Three aspects of stakeholder theory	16
Figure 4 Stakeholder map of a very large organization	18
Figure 5 Stakeholder Identification in the case of White Meat City.....	19
Figure 6 Analytical Framework	20
Figure 7 Graphical visualization of primary and secondary stakeholders	27
Figure 8 Illustrates the ranking to the motivation allocated by the interviewees	30
Figure 9 Illustrates the results of the two questionnaires.....	32
Figure 10 Illustrates the ranking to the power possession of each stakeholder	34
Figure 11 Illustration of the Barriers.....	35

CHAPTER 1

1. Introduction

This chapter aims at presenting the scope and the targets of the current research. As background information, it will provide a brief overview on the existing policies promoting energetic improvements in the building sector, from EU and Danish national levels. Further on, it will elaborate on the importance of such improvements with the specific focus on the Meat Packing District, Copenhagen, which is area with high architectural and historical values. The specificity here is the status of the buildings- “listed” and that issue is detailed presented in the Problem formulation section. The chapter ends with formulation of Research question and presentation of the objectives of the current investigation.

1.1. Climate Change Mitigation Goals

Climate change mitigation activities are with a high priority in the agenda of the European Union (EU) and its Member States. With regards to that, there have been established several commitments towards the overall target of a low-carbon society.

The ambitious European climate and energy targets, known as the “20-20-20” targets in the climate and energy package frame three key objectives for the year 2020. That includes a 20% reduction of the EU greenhouse gas emissions, compared to the 1990 levels, a 20% improvement in the EU’s energy efficiency and a 20% increase in the share of EU energy consumption produced from renewable sources. These targets have been translated into national targets for each of the Member States (EC, 2013a).

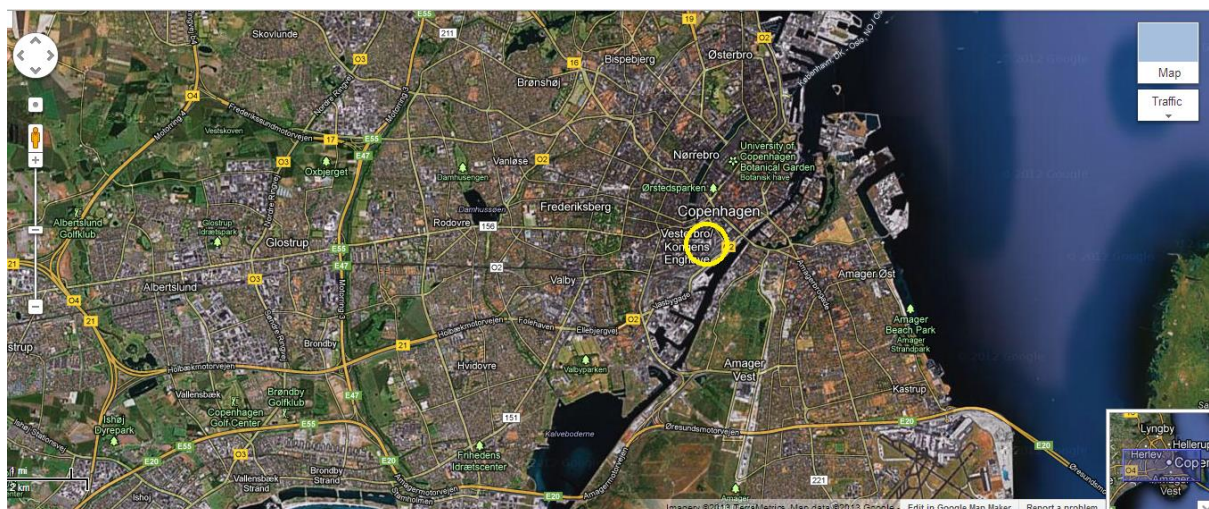
Under the first commitment period of the Kyoto Protocol in 1997, the 15 countries which were EU Member States before 2004 (EU-15) have committed to reduce the collective greenhouse gas (GHG) emissions in 2008-2012 to 8% below the basis level of 1990. The 8% collective reduction of the GHG emissions has been translated into national targets for each of the 15 EU Member States. When focusing on Denmark in particular, that meant a 21% reduction target, known as “the burden sharing” agreement. Under the second commitment period 2013-2020 the EU member states have committed to 20% reduction of their emissions compared to the levels of 1990. In a long term perspective EU strives for 80-95% reduction of the CO₂ emissions in 2050 (EC, 2013a).

Approximately one third of the world's energy is used by the building sector for its operational activities, e.g. heating, cooling, ventilation, etc. That makes the buildings the Earth's biggest contributor to GHG emissions. The growing population and urban areas are prerequisite for the future even higher energy demand (UNEP, 2013). The energy consumption in the building sector in Europe represents approximately 40% of the total energy use and is responsible for 36% of the EU's total CO₂ emissions. Therefore the reduction of the energy consumption in this area is a priority under the "20-20-20" objectives on energy efficiency and the overall EU growth vision (EC, 2013a).

Denmark has set the ambitious goal of becoming CO₂ neutral by 2050. In March 2012 Denmark has reached its new Energy Agreement, which contains different initiatives bringing the country a step closer to the target of 100% renewable energy supply in all sectors by 2050 (DEA, 2013). Some of these initiatives are "Converting to green heating" and "More renewable energy in buildings" which means that the heating consumption in the large scale power plants must be converted from coal to biomass and it also supports the phasing-out of oil-fired boilers in existing buildings. For these two initiatives were allocated 35 million kr. and 42 million kr., respectively (Danish Energy Agreement, 2012).

Copenhagen has the ambition of becoming the first carbon neutral capital by 2025. The objective of the Copenhagen Action Plan, 2009 is to reduce the GHG emission by 20% in 2015, compared to the levels of 2005. This goal can be achieved through both energy savings and an increase in the share of the renewable energy. 75% of the reductions will come from initiatives related to increase the energy share of renewable energy in Copenhagen's district heating and approximately 10% will be achieved through saving measures (EC, 2013b). There were introduced 50 specific initiatives for achieving this goal (Copenhagen Climate Plan, 2009). According to the City Council plan, approved in August 2012, the CO₂ neutrality will be achieved through initiatives related with replacement of the coal with a biomass supply in the City's power plants, adding more solar and wind electricity to the grid, increasing the efficiency in the buildings and encouraging the use of bikes, public transport and electric cars (Climate Action, 2013).

1.2. Kødbyen (The Meat Packing District)



Picture 1 Location of the Meat Packing District; Source: Google maps

The Meat Packing District in Copenhagen, known as Kødbyen, is located on Vesterbro, close to the Central rail station. It consists of three areas- The White, The Brown and The Grey Cities, called according to the dominant colour of the buildings located there. The oldest area is the brown part (Den Brune Kødby), which dates back from 1978



Picture 2 Meat Packing District, Copenhagen; Source: Google maps

and was designed by the City architect Hans Jørgen Holm.

Den Brune Kødby was built in an area where originally the butchers were selling their goods from street stalls. Although it was a huge improvement for its time, around 1930 the Brown Meat City has appeared too small and outdated for its purposes, in terms of the new food control and hygiene requirements. In 1901 Øksehallen, which is part of the Brown Meat City and also the most striking building there, was constructed as a covered market for the live cattle and 1984 it became a protected historical site. Today it operates as one of Copenhagen's most beautiful exhibition venues (Kulturarvstyrelsen, 2010).

The newer white area (Den Hvide Kødby) has been designed in order to replace the "brown" area that could no longer meet the future hygiene requirements. It consists of white modernistic structures and has been constructed in 1934 by the former city architect Poul Holsøe together with the architects Curt Bie and Tage Rue. The White Meat City claims to be one of the finest examples of industrial functionalist architecture in Denmark and can be compared



Picture 3 Den Hvide Kødby, Source: Miljø og Energy Ministeriet

with international masterpieces as, for example, Van Nelle factory in Rotterdam and Lingotto car factory in Turin. Since 1995 the majority of the buildings there are listed for preservation by the Danish Heritage Agency (Kulturarvstyrelsen) due to their historic and architectural values, which contributes to the overall uniqueness of the local urban environment (Københavns Kommune, 2007). Today, the Meat Packing District represents important phases of the of the slaughter-house industry's development and is very valuable example of the Danish functionalist architecture.

In 2005 has been developed the new vision of the area as a creative and gastronomic town. New businesses have been moved but also with respect to the existing enterprises. Nowadays we can find there different restaurants, cafes, galleries, nightclubs and shops. The transformation of the White Meat City from a “closed” to a vibrant area, home of many creative businesses, was not followed by similar development of the building stock itself. The plan “Den Hvide Kødbý-udvikling som en kreativ bydel” from 2007 describes the need for restoration of the buildings, e.g. windows, roof and facades which corresponds to dkk 200 million (Københavns Kommune, 2007). No measures were undertaken during the years, what is also seen as inconsistency between the developed vision back in 2005 and the exiting situation now. It has thus formed the basis for the variety of challenges that the district is facing.

1.3. Problem Formulation

Many of the old buildings and especially those build before 1960 have very low levels or even no insulation. That is explained by the fact that the first Danish Building Regulations were introduced and came into force in 1961. Before that, no requirements on the thermal building insulation existed. Tightened requirements to the thermal insulation of the new buildings, in order to achieve lower demand for heating and better indoor climate, resulting as well in reduction of the associated CO₂ emissions, have increased the attention to the existing building stock and its potential for improvements (Rasmussen, 2011).

There are 7059 listed buildings in total in Denmark, where 2868 of them are located in the Copenhagen region. In a municipality level, there are 1760 listed buildings in the capital (Licitationen, 2013). Having the status of “listed” means that there are restrictions on the actions related to alteration either on entire building or on its exterior. Any alterations could be made only by having a special permission of the relevant authorities, which in the particular case of White Meat City is the Danish Heritage Agency.

An example of successful renovation of historic building in Copenhagen area is the renovation of Fæstningens Materielgård complex. The study of Fæstningens Materielgård, led by Realea, aims at investigating the potential of renovating historic buildings and to explore to which extent the available technologies for sustainable renovation can be applied to listed buildings without compromising their historic and architectural values. The study proves that such a retrofit is not only possible but also can achieve substantial reductions in the CO₂ emissions, which is equal to 20% CO₂ reduction. It can also provide significant improvements in the indoor climate. Thus, also the listed buildings can contribute to the Copenhagen’s goal of carbon-neutral capital by 2025, even though they are exempt from the mandatory energy efficiency (DAC, 2012). Other two examples of bridging the gap between the European landmarks and the energy efficiency, when looking at the regional level of Copenhagen, are the Osram Building and the Masteskurene. The Osram Building is constructed in 1953 and after the energy renovation it achieved more than 60% reduction in the energy consumption. The Masteskurene is a national heritage site built between 1748 and 1829. It was awarded with Mies van der Rohe Prize as a good example of renovation that meets the users’ needs with respect to the historical values of the building. (3ENCULT, 2012)

The publication *Den Grøne Kødby*, from March 2011, commissioned by the Copenhagen City Properties (Københavns Ejendomme) and prepared by Erik Møller Architects and Esbensen Consulting Engineers uncovers the potential of the energy-efficient retrofits in The White Meat City, as well as the funding needed for these profitable energy initiatives.

It was calculated that the energy demand in the White Meat City is 2.2 times higher than in a standard building with the same size and purposes, which equals to the additional energy consumption of 9 500 000 kWh/year for the total area of 80 000 m². Despite the existing technological solutions there are different barriers to the sustainable development of Copenhagen's Meat Packing District. As already mentioned, there is a particular inconsistency between the vision for the development of the White Meat district and the actual condition of the area.

Due to the wide range of stakeholders in the White Meat City, e.g. owner, tenants, administration, legislation, suppliers and etc., who have different objectives for their commitment, basically forms the basis for their contradictory interests, despite their common vision for sustainability. But is this common vision sufficient enough to be a generator for development? (*Den Grøne Kødby*, 2011)

The thesis has a descriptive focus and takes its point of departure in the current gap between the vision for development of the White Meat City and the actual lack of it. For investigating the barriers to the implementation of energy-efficient measures, the role and the influence of the different stakeholder, the author will use the Stakeholder theory and Stakeholder relation management within the concept of Sustainable development.

1.4. Research Question

The investigation and the analyses of the thesis are built on the single-case study of the White Meat City, Copenhagen. Based on the on the description in the Problem Formulation section, the research question is outlined as follows:

How can the sustainable growth of the White Meat City be achieved within such a complex group of stakeholders and their opposed interests?

As formulated that way, the research question is rather broad and the answering of which covers a wide range of issues and concepts, as for instance Sustainable Development, Stakeholder Relation Management and the specificity of the White Meat City itself, it was decided to address it by incorporating two sub-research questions. These two research questions take their point of departure and are strongly based on the theoretical framework used within the investigation, more precisely the Triple-perspective typology of the stakeholder theory and the particular approach that the author of the thesis develops.

As the purpose of using sub-research questions is to provide a better understanding of the existing situation by describing the stakeholders' characteristics and how do they address a particular issues, the overall *Descriptive* aspect of the stakeholder theory was targeted while focussing on two perspectives- *Stakeholder* and *Conceptual* perspectives. In result, the two sub-research questions as formulated as follows:

- *What are the stakeholders' interests and how do they actually try to achieve their claims?*
- *Which issues of the Sustainable Development Concept do stakeholders take into account and in what way?*

1.5. Objectives

The current research has a descriptive focus and aims at investigating the role of the different actors within the energy-efficient retrofits of preserved buildings. It takes its point of departure in the Stakeholder theory looked through the concept of the Sustainable development. Through an examination of the barriers which exist to implementing energy-efficient measures in the particular area, the author aims at identify possible gaps or contradictions of the existing legislation concerned with the building sector, more specifically the listed as preservation-worthy buildings, towards the ambitious target of carbon-neutral society. Answering the defined research question will be achieved through addressing the three core objectives of the research:

- 1) To identify the involved parties, their interests, positions and roles
- 2) To identify of the most significant barriers to the realisation of energy-efficient building retrofits in the particular area
- 3) To identify possible opportunities for overcoming the identified barriers from objective 2)

1.6. Project delimitation

The paper consists of five main chapters. The current, introductory chapter aims at presenting the scope and the targets of the research, as well as the background standing for that. The next chapter-Methodology will explain the research design of the thesis, as well as the methods used throughout the investigation. The Theory chapter presents the theoretical and analytical frameworks on the basis of which the analysis will be developed. The research question and the sub-research questions will be answered through analyses of the single case study of the White Meat District, Copenhagen. In the first part of the analyses, a literature study of national policies focusing primarily on the energy-efficiency in the existing building stock and published reports about the area in question, are reviewed. The second and third parts of the analysis investigate issues concerned with the particular case and no other urban areas are taken under consideration. The final chapter of the thesis has the purpose to discuss the obtained findings and to draw conclusions upon them.

CHAPTER 2

2. Methodology

In this chapter, the thesis design and the research design of the project process will be described as well as the data collection methods used throughout the investigation. With the Methodology chapter, the investigator aims at illuminating the set of decisions taken as well as why they were taken and how they were implemented to the present research.

2.1. Thesis Design

This section is intended to describe the design of the thesis. Figure 1 illustrates the project structure from problem formulation to conclusions and it will be explained throughout this section.

Due to its attempts to describe systematically the case, situation and problem of the White Meat City towards its sustainable growth, the research has an overall descriptive focus. As mentioned in the introduction, the thesis will focus on investigating the different stakeholders, their role, interest and motivations, as well as the barriers that exist to the vision of Green Meat City. This will be done through a single embedded case study of the Meat Packing District. This has framed the problem area of the investigation and it is also the phase where the research question and thus the target of the thesis of answering this question were identified. This phase is illustrated in the first box of the figure.

The second box of the figure *Methodology* represents the present methodology chapter. The case study research design was chosen as a methodological approach mainly because of its ability to investigate in details complex social phenomena and to provide a thorough understanding of the issues considered. The case study of the White Meat City is seen as complex due to wide range of actors involved, being representatives of different levels governance as well as small and medium sized enterprises (SME), which possess legitimacy to the issues concerned with the district. It is seen as complex due to the contradiction of interests of the different parties and the difficulty of establishing a unified vision and thus strategy for development of the unique area. The research process will be detailed presented in the subsequent section *Research process*.

The next step on the research-the creation of the theoretical and analytical frameworks, on the basis of which the analysis and ultimately the conclusions will be developed, is illustrated in the third box of the figure. For the purpose of identifying the key actors in the development of the Meat Packing Districts, the stakeholder theory was chosen for a theoretical background. Additionally, the concepts of Stakeholder Relation Management (SRM) and Sustainable Development (SD) were intertwined for

the purpose of development and analytical framework for the coming analysis. The concept of SD-SRM is the basis for the development of specific set of questions in order to investigate how the different stakeholders are related, in terms of their power possession, as well as the importance of each of the three dimensions of the sustainable development to the individual vision of the diverse stakeholders. By analysing the above mentioned, the investigations aims at answering the two sub-research questions. A description of the stakeholder theory and its implementation to the present research can be found in chapter *Theoretical and Analytical Frameworks*.

The next box *Analyses* represent the phase of the project where three analyses are conducted in order to answer the research question. First, an analysis of policies promoting energy-efficient retrofits in the building sector are reviewed as well as documents related with the development activities in the Meat Packing District. The first analysis describes relevant issues from national and local level, particularly the White Meat City and the decisions taken about its revival based on creative businesses moving into the area. The second part of the analyses uses the stakeholder theory as a foundation for the principle identification of the relevant actors and their interests. This part serves answering of the first sub-research question “*What are stakeholders` interests and how do they actually try to achieve their claims?*”. Further on, incorporating the SD concept, additional research method is used. Questionnaires were sent out to the principle stakeholders in order to grade the significance of the economic, environmental and social dimensions of sustainability according to their visions and interests. By doing so, the second sub-research question of “*Which issues of the sustainable development concept do stakeholders take into account and in what way?*” was addressed.

The last part of the analysis is concerned with identification of the existing barrier to the development of the area in question. After a discussion on the barriers, recommendations for overcoming some of the barriers, developed on insights of the three analyses together, are drawn. By doing so, the main research question of “*How can be achieved the sustainable growth of the White Meat City within such a complex group of stakeholder and their opposed interests?*” was addressed.

The next box of the figure represents the final phase of the research, where the findings achieved through literature review, interviews and questionnaires and analyses throughout the report are discussed in regards to the main research question. Recommendations are made in order to contribute to overcoming some of the identified barriers with the perspective of being translated to other similar cases.

The last box illustrates the *Conclusions* chapter, where the entire project and its findings are summarized.

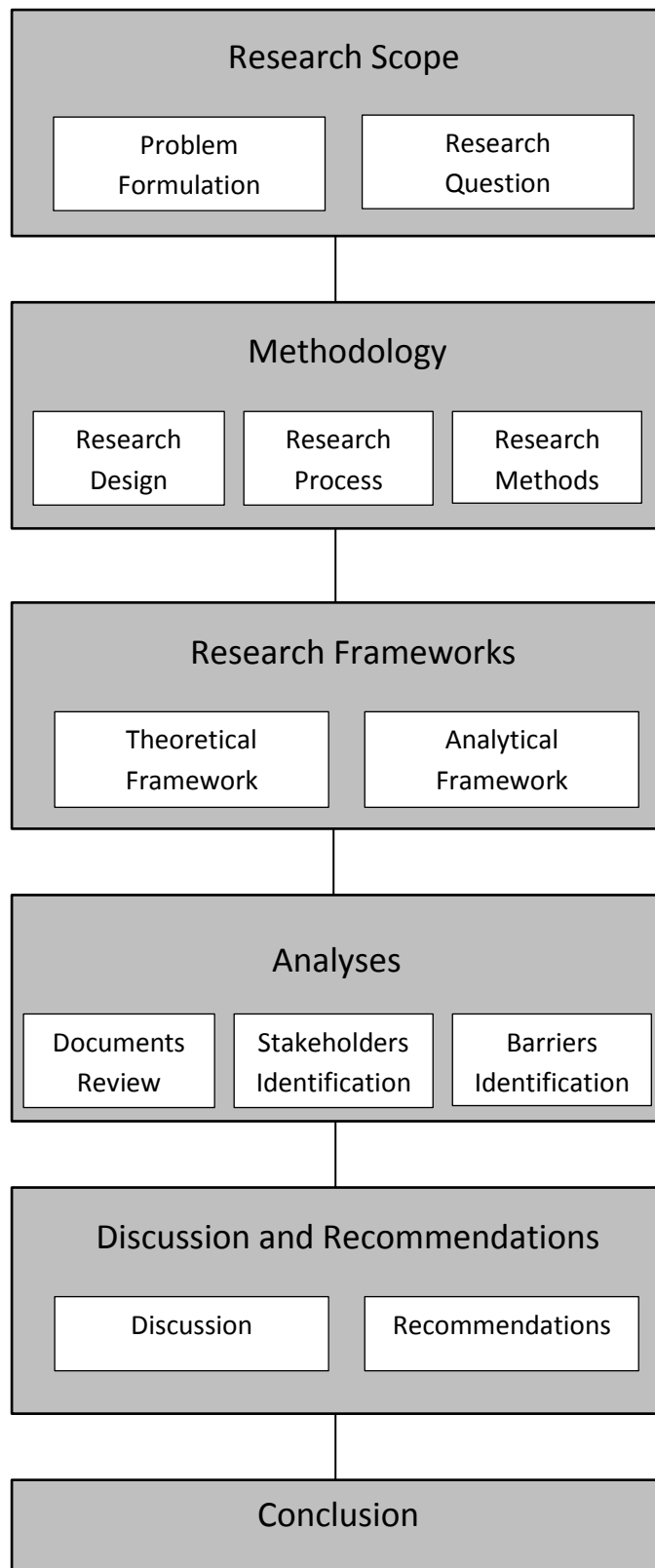


Figure 1: Illustration of the report structure

2.2. Research process/Case Study Research Design

In order to investigate the stakeholders' engagement with the development of the Meat Packing District a case study research design was chosen for research method. This choice was predetermined of the initial idea of the scope of the thesis and the main characteristics of the case studies and their abilities to provide comprehensive knowledge about real life events such as organizational process and relations. Strength of the case studies is that they can form a deeper understanding of a contemporary phenomenon within its real life context from an empirical inquiry. The case study method is used as a descriptive strategy for the purpose of the present inquiry. The choice of case study research largely depended on the type of research question the investigation seeks to answer. The research question of the thesis is a "How" question and its seeks to describe how a social phenomenon works, and more precisely *"How can be achieved a sustainable development of the meat packing district in such a complicated group of stakeholders and their oppose interests?"*. The case study method was seen as highly relevant due to its ability to allow the investigator to address the holistic characteristics of Kødbyen's transformation from "closed" to vibrant area. It also depended on the extent of control of the investigator over the behaviour events and where they cannot be manipulated (Yin, 2009).

Another strength of the case study approach is that it not only allows, but also encourages the investigator to use a variety of sources, types if data and research methods.

However, it is important also to mention some of the common concerns about the case studies and their performance. The possible lack of rigor is often cited as such. Another concern is that they might provide inefficient basis for scientific generalization and especially in the form of the single case studies. However, in defence to that, a generalization can be made on the basis of the theoretical propositions (Yin, 2009). Another disadvantageous of the chosen approach is that it focusses more on the process rather than the end-product (Denscombe, 2011).

Error! Reference source not found. illustrates the research process of the investigation and will be explained in the forthcoming text.

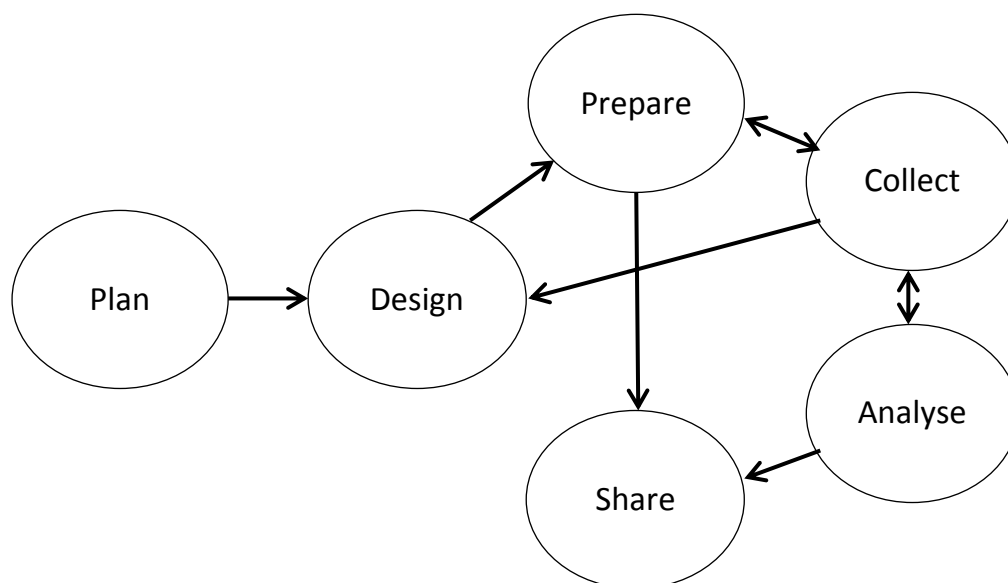


Figure 2 Illustration of case study research design as a linear process, Source: Yin, 2009

Plan

As mentioned in the introduction, the project has focused on investigating the different stakeholders and their interests as well as their power possession to the implementation of energy-efficient building retrofits towards the development of the Meat Packing District, Copenhagen. An additional investigation of the existing barriers will be developed and analysed. This picture has framed the research field and in this stage the research question of the thesis was formulated. When formulating the research question for the investigation, it was apparent that stakeholder theory would have a major role for investigating the concerned parties. Further on, the concept of SD-SRM was used in order to describe stakeholders' characteristics and behaviour regarding a particular issue, particularly the building renovations in the White Meat City. Approaching the stakeholder perspective from a descriptive aspect will provide a better understanding of the stakeholder engagement, what stakeholders expect and how they interact. Approaching the conceptual perspective of stakeholder theory will provide a better understanding of which issues of the Sustainable Development concept do stakeholders consider most significant to their individual visions. This phase of the investigation exemplifies the *Plan phase* of the present study where the research question was formulated and it is illustrated in the first box of the forthcoming Figure XX. The figure illustrates how the case study research was developed and it will be explained throughout this section.

Design

The second step of the case study's development process is the *Design* phase. The aim of this phase of the research, generally speaking, is to define unit of analysis and the likely cases to be studied. In the specific case that is the Meat Packing District. Further on, three important tasks are performed. Firstly, this phase secures the linkage between the initial research question and what relevant data needs to be collected further in the process. Secondly, the development of relevant theory is carried out and particularly the stakeholder theory, being also the basis of the forthcoming analyses. Finally, the *Design* phase investigates whether the purpose of the case study is explanatory, descriptive or exploratory. As already mentioned, the present thesis has a descriptive focus. The three tasks are featured in the both Methodology and Theory chapters of the research. By being clear with the exact research question, the needed relevant data and how this data is going to be collected and analysed, the *Design* phase prevents the situation when evidence do not address the defined research question. It also forces the researched in a way to begin constructing the theoretical approach related to the purpose of the study (Yin, 2009).

Prepare

The Preparatory phase of the case study design includes preparing for the data collection, which is the next step of the research and will be explained throughout next section. The preparatory phase here is composed of both processes of literature review and interviews conduction. The two processes will be described explicitly in the section Data Collection Techniques.

Collect

This phase of the study refers to the usage of different data collection procedures. In the present research were used two main sources of evidence: documents and interviews. In the very beginning a review of different planning documents and publications related to the Meat Packing District was undertaken in order to narrow down the focus to a single case study and to develop a better understanding of the existing situation. The literature study was used also for the development of

the theoretical and analytical frameworks. Further on, six interviews with key actors concerned with the area in question and its development were conducted.

Analyse

After the data has been collected, the research moves on to the next phase: *Analysing* the data. In this phase the theoretical background and the empirical evidence are combined in order to identify the different stakeholders, their role, interests and relations to the subject in terms of their power possession. The analyses follow the developed Analytical framework, which is explained in chapter Theory. The general function of the analysis is to display the data apart from the interpretations and to support the researcher to draw empirically based conclusion on the foundations of it. A tool used for the data displaying in the research are the graphs, where a comparison between the different issues can be achieved, as for instance the significance of the different motivation and barriers.

Share

The *Share* phase is the stage of the research when the textual and the visual materials are composed. In this phase the reporting and the presentation of results and findings is made. The present study will be presented in problem-based university theses. The analysis of which will be developed on the basis of the stakeholder theory and SD-SRM concept along with the collected empirical data. As a result, the project will try to suggest possible strategies or recommendations for overcoming the identified barriers to the development of the Meat Packing District, Copenhagen. The report and its findings will be presented also by a poster and it will be available in the Aalborg University's database.

2.3. Data collection methods

The data collection in this inquiry was gathered through multiple data collection methods- literature study, interviews with six participants and four questionnaires. Using different methods of data collection contributes to the validation of the gathered information and they will be discussed throughout this section.

Literature study

The literature studies have been an integral part of the entire project process and they have been used in different ways. This section explains how the literature studies have been carried out the ways they have been used.

Basically, the literature studies have been used for identifying the scope of the research and to narrow down its focus to a single case study of the Meat Packing District. As an initial step of the process, the investigation of planning documents and publications related to the District had an essential part for gathering the needed background information and forming the thesis' point of departure. Later on, the literature provided information about the relevant theory and the development of both theoretical and analytical frameworks. In this phase, books and publications about stakeholder theory, the concepts of Sustainable development and Stakeholder Relation Management have been reviewed. Further on, literature has been the basis for the development of the six interviews. Additionally, it has been used in Part I of the analyses where investigation of policies, legislation and regulations has been made.

The literature studies have been carried out by using internet search engines like Google, where all the documents, published by European Commission, Danish Energy Agency, Danish Heritage Agency, Copenhagen Municipality and etc. were available. Additional information was gathered through hard copies of books provided by Aalborg University's library and other (Andersen, 2009).

Interview

For the purpose of the thesis six interviews were conducted with representatives of the different stakeholders groups. Three of them were interviews in person, one via Skype and two via e-mail correspondence upon a structured set of questions. The interviews were seen as a capable method for reflecting upon the issues concern with the development of the Meat Packing District. They give also a different angle to a raised problem and exemplify the personal viewpoints of the different actors.

The four interviews that were based on verbal communication were conducted as semi-structure interviews. In order interviewees to have the general idea about the question to be asked, an interview guide was prepared beforehand and sent out to the participants. In order to serve as empirical evidence the interviews were recorded and further used in the analysis of the research.

Questionnaires

Questionnaires are used to provide information on particular point of interest, more precisely, to grade the significance of the identified drivers, motivations, sustainable development relativeness and power possession do the process of development of the White Meat City. The structure of the questionnaires is based on using closed questions, where the only allowed answers are the ones fitting into a category. For the ranking options was used the Likert scale (Denscombe, 2011).

3. Theoretical and Analytical Frameworks

As stated in the publication Den Grøne Kødbý, there are various barriers to the sustainable development of the Meat Packing District in Copenhagen. The new vision for the area and was approved by the City Council in 2005, when it was decided that the Meat Packing District is on its way of transformation from “closed” to a vibrant area with lots of new creative businesses and social life activities (Den Grøne Kødbý, 2011). Due to the early construction period of the building – 1934 the lack of insulation on the original construction and lack of maintenance during the years, the current users experience high energy consumption and thus costs for the heating purposes. That has led to certain resentment of the tenants. The current inconsistency of the vision and the actual situation, the oppose interests of the concerned parties, which is also seen as a possible barrier to the sustainable growth of the area, was seen as an interesting subject for investigation. By applying stakeholder theory to this case it is possible to identify the different actors and their role in the building retrofits process towards the sustainable growth of the area. By applying the theory of stakeholder relation management it is possible to identify the most influencing parties, their relationship and thus to identify options for possible collaboration and overcoming the identified barriers to the common vision towards a low-carbon society.

3.1. Stakeholder Theory

The earliest definition of stakeholder found in the literature is from 1963 produced by Stanford Research Institute and states as follows: *“Those groups without whose support the organization would cease to exist”* (Freeman 1984:31). The classic definition of stakeholder was popularized by Freeman in 1984 with his landmark book *“Strategic Management: A Stakeholder Approach”*: *“Any group or individual who can affect or is affected by the achievements of organization’s objectives”* (Freeman, 1984: 46). Later in the years Freeman uses another definition of stakeholder, which is *“Those groups who are vital to the survivors and success of the corporations”* (Freeman, 2004:58). Another, even broader definition was proposed by Gray, Owen and Adams (1996:45): *“Any group or individuals that can be influenced by, or can itself influence, the activities of organization”*. Starik (1944) uses different, narrowed definition of stakeholder: *“Individuals or groups with which business interacts who have a “stake”, or vested interest, in the firm”*. He also proposed that non-living entities or such with no physical form can be considered as stakeholder, as for instance the concepts of love, honesty and community. Following this, the current research interprets the legislation as considerable stakeholder. In Appendix 1 is presented a table with a summary in chronological order

of the majority of definitions developed through the years and by wide range of authors. There are listed 21 definitions from 16 authors.

The stakeholder theory is found applicable for the purposes of this project due to its quite broad spectrum and the interpretations that can be made. The literature shows that incorporating stakeholders` opinion is valuable for improving decision making process and project implementation (Deelstra, Nooteboom, Kohlmann, van den Berg & Innanen, 2003). Renovation measures on the buildings in Den Hvide Kødby can be approached as a business opportunity, where the interested parties (building owners and tenants) make an investment and have short- or long-term financial return on the same investment. There are, of course, some other positive by-outcomes of the building retrofits that the economic gains, e.g. better indoor climate for the occupants, as well as green branding and a better image.

The stakeholder theory and the stakeholder relation management can be approached from three different perspectives: corporate, stakeholder or conceptual perspectives. The corporate point of view focuses on how corporations deal with stakeholders, the stakeholder perspective focusses on how stakeholders try to influence corporation and the last one- the conceptual perspective explores how a particular concept relates to business-stakeholders interactions (Streuer, 2005).

In 1995 Donaldson and Preston popularize their second-order theory by distinguishing three aspects to the stakeholder concept: normative, descriptive and instrumental (see Figure 3). Where:

The *Normative* aspect says: “Do (Don’t) this because it is the right (wrong) thing to do”. (Donaldson and Preston, 1995:71); How managers should act. The *Instrumental* aspect examines the connection between the practice of stakeholder management and the achievement of the corporate goals, e.g. profitability, growth (Friedman and Miles, 2006:29). It says “If you want to achieve (avoid) result X, Y, Z, then adopt (don’t adopt) principles and practices A, B, C (Donaldson and Preston, 1995: 71). And the *Descriptive* is used for describing corporate characteristics such as the nature of the firm, how the corporations are managed or how the managers and the board members think about the interests of the constituencies (Friedman and Miles, 2006:29); How managers and stakeholders actually behave. Since Donaldson and Preston have developed their work until defining the three aspects within the corporate perspective, Streuer further adapts the normative, instrumental and descriptive aspects to the characteristics of the stakeholder and the conceptual perspective.

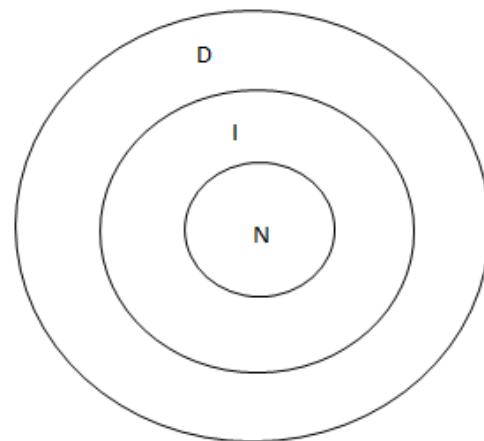


Figure 3 Three aspects of stakeholder theory; Source: Donaldson and Preston (1995:73), Where N=Normative, I=Instrumental, D=Descriptive

By incorporating the Donaldson and Preston second-order theory, in particular the three aspects of the stakeholder theory-normative, descriptive and instrumental, it is possible to identify nine ideal-typical stakeholder research approaches to the business-society relations. In **Error! Reference source not found.** the nine stakeholders theory approaches are characterized by description of their focus and the most frequently asked questions (FAQ) (Steurer, 2005).

The most developed concept in the literature is the one approaching corporations from the normative aspect (see Friedman, 1970; Humber, 2002; Collins, 2001, Zadek 2004). A good example for analysis, which covers all three heuristic aspects of the conceptual perspective, is presented by Steurer *et al.* (2005) and Konrad *et al.* (2005) for the concept of sustainable development. A very rare example of approaching the conceptual perspective from the instrumental aspect, e.g. to “which extent can the stakeholder relation management facilitates an issue in a concrete concept”, is the work of Cespedes-Lornete *et al.* (2003) and Konrad *et al.* (2005). (Steurer, 2005)

For the purpose of the current thesis, the author establishes a blend between the stakeholder and conceptual perspectives within their descriptive aspect. The focus thus is to describe stakeholders’ characteristics and behaviour regarding a particular issue of the concept sustainable development, particularly the building renovations in the White Meat City.

Approaching the stakeholder perspective from a descriptive aspect will provide a better understanding of the stakeholder engagement, what stakeholders expect and how they interact.

Stakeholder theory perspectives					
Stakeholder theory aspects			Corporate	Stakeholder	Conceptual
	Normative	Focus	Interprets the function of the corporation the wider society and SRM	Interprets the function and legitimacy of stakeholders and their claims	Interprets the normative characteristics of concept X and its significance for SRM/Stakeholder theory
		FAQ	Why and how should corporations deal with stakeholders?	What makes stakeholders legitimate and how should they try to accomplish their stakes?	What issue of concept X should corporations and stakeholders take into account?
	Descriptive	Focus	Describes corporate characteristics and behaviour regarding stakeholders	Describes stakeholder characteristics and behaviour regarding corporations	Describes how particular issue of concept X play a role in SRM/stakeholder theory
		FAQ	How do corporations actually deal with stakeholders?	What do stakeholders expect or claim and how do they actually try to achieve their claims?	Which issue of concept X do corporations and/or stakeholders take into account?
	Instrumental	Focus	Analysis the connection between SRM and traditional corporate objectives	Analyses the connection between stakeholder’s strategy and its ability to meet stakeholder’s claims	Analysis the connection between SRM/stakeholder theory and the realization of concept X
		FAQ	How can SRM contribute to a corporation’s performance?	How can stakeholders accomplish their claims best?	To what extent can concept X be achieved through SRM?
	Overall	Focus	Corporations and SRM	Stakeholders, claims and SRM	Concept X and SRM/stakeholder theory
		FAQ	How do corporations relate to stakeholders?	How do stakeholders address corporations?	How does concept X relate to SRM/stakeholder theory?

Table 1 Triple-perspective typology of stakeholder theory, Source: Steurer, 2005

3.2. Stakeholder Identification

The method used in the current paper, for dealing effectively with the comprehensive stakeholders relationships within the context of sustainable development in the White Meat City, focusses on i) identification of the stakeholder and their role, ii) analysis of the stakeholders interests and motivations and iii) evaluation of the level of stakeholders` power.

Inspired by Freeman, 1984 and his Stakeholder map of a very large organization (see **Error! Reference source not found.**) the author of the current research interprets and implements it to the case of Meat Packing Districts (see **Error! Reference source not found.****Error! Reference source not found.**). The principle stakeholder are identified and presented in Chapter Analysis.

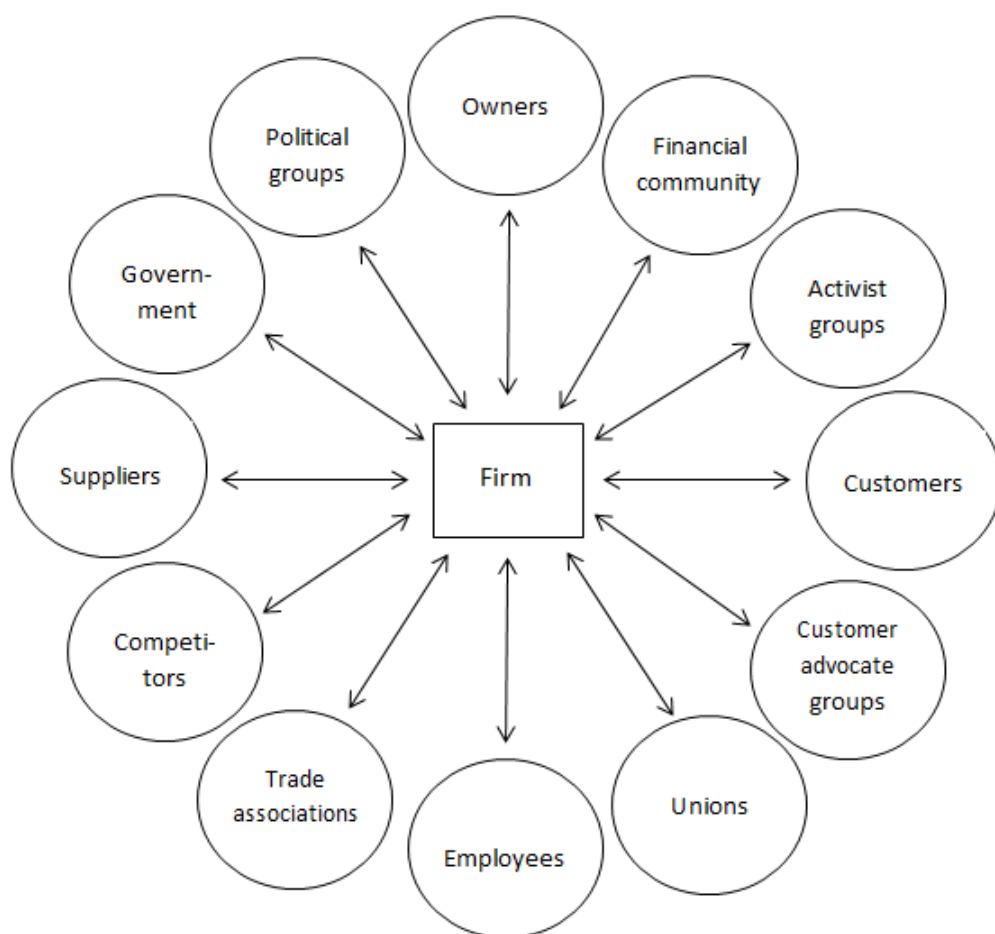


Figure 4 Stakeholder map of a very large organization, Source: Freeman, 1984: 55

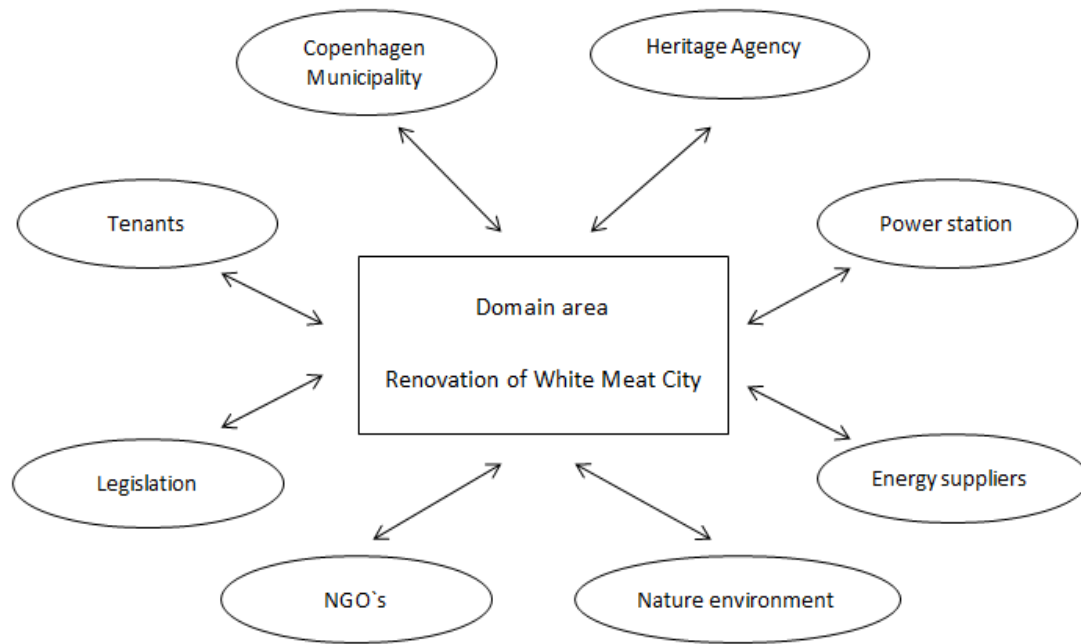


Figure 5 Stakeholder Identification in the case of White Meat City, Inspired by Freeman, 1984

3.3. Sustainable Development

The most quoted definition of Sustainable Development (SD) is the one developed in 1987 by United Nations in the report *"Our Common Future"*, known also as *"Brundtland Report"*. SD is defined as "Development that meets the needs of current generations without compromising the ability of future generations to meet their own needs and aspirations" (WCED, 1987:43). The concept asks for integration of economic, social and environmental issues in a multiply beneficial way, in short- and long-term (Steurer *et al.* 2005). However, the concept of sustainable development (SD) can be pursued in many different ways. The chosen approach in this thesis is by implementing a stakeholder relation management (SRM), through which the economic, environmental and social claims of the multiple stakeholders can be investigated. By bringing together the concept of SD and the SRM for a specific issue, the author establishes the framework of the forthcoming analysis of the question *"How can be achieved a sustainable growth of the White Meat City, Copenhagen within such a comprehensive group of stakeholders and their oppose interests"*.

3.4. Analytical Framework

Based on the approach of the stakeholder theory in the context of sustainable development, it is possible to establish an analytical framework in which the analysis of the research will be conducted. In **Error! Reference source not found.** the analytical framework is graphically visualised and it will be explained in the forthcoming part of the section.

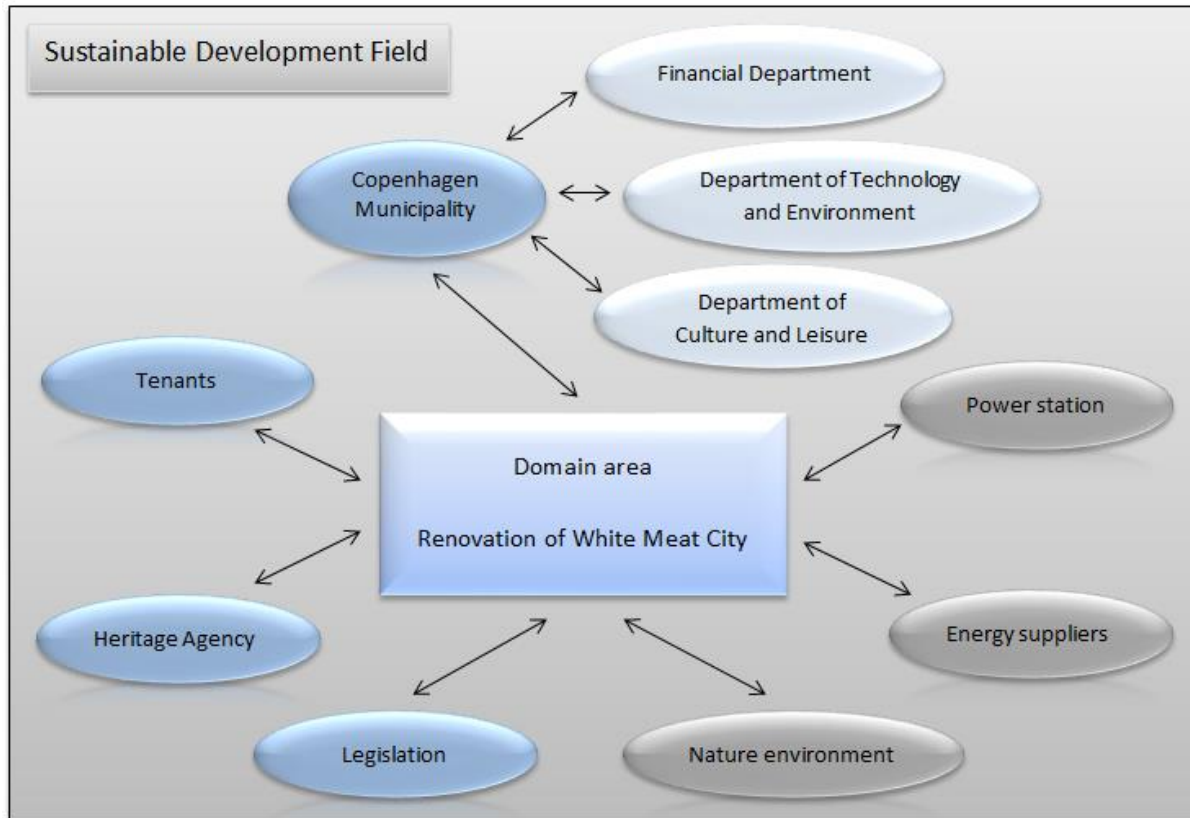


Figure 6 Analytical Framework

In order to frame the coming stakeholder analysis, it is important to clarify the perspective from which they will be performed. First, it is needed to identify who are the principle stakeholders, being an objective of the coming analysis. In order to identify them, a literature review and interviews with different actors were made. As mentioned above, **Error! Reference source not found.** visualizes the analytical framework of the research, where the principle stakeholders are shown with blue colour and the stakeholders that are considered with secondary importance and thus not being objective of the thesis are shown with grey colour.

For serving the purpose of answering the defined research question “*How can be achieved a sustainable growth of the White Meat City, Copenhagen within such a comprehensive group of stakeholders and their opposed interests*” and inspired by the triple-perspective typology of the stakeholder theory, the author develops an approach by intertwining two perspectives of the stakeholder theory: the stakeholder and the conceptual perspectives (see **Error! Reference source not found.**).

Stakeholder perspective

In his triple-perspective typology of the stakeholder theory, Steurer presents the FAQ from the descriptive aspect as *“What do stakeholders expect or claim and how do they actually try to achieve their claims?”* (see **Error! Reference source not found.**). The answer of this question in the current research will be approached through identification of stakeholders’ motivations which correspond to their overall vision and by identification of activities, common or individual, for moving a step further to the overall target of sustainable growth in the White Meat City. The stakeholder perspective here will also be used in order to gain a better understanding of the principle stakeholders and their relevant power. For that purpose the analysis will focus on i) identification of the concerned parties and their role, ii) analysis of their interests and iii) evaluation of the level of stakeholders’ power.

Conceptual perspective (SD-SRM)

The SD-SRM perspective focuses on managing business-society relations from the point of view of a particular concept, in this case SD concept (Steurer, 2005). In line with the descriptive aspect, which is the aspect from which the analysis will be developed, Steurer presents the most frequently asked research question as *“Which issues of SD are taken into account by corporations or stakeholders and it what way?”*. The description here approaches both corporate and stakeholder behaviour. In contrast to that, the thesis will focus only stakeholder behaviour and in regards to that the different motivations will be sorted into social, environmental and economic groups, which will lead to identification of which issue of SD is with highest concern from the multiple stakeholders. A degree of similarity between the two concepts is found at i) *SD and SRM both build on normative foundations*, ii) *The both concepts rely on participation* and iii) *SD and SRM both aim at the integration of economic, social and environmental issues*. As Harrison and Frieman (1999) state “One of the original ideas behind the stakeholder management approach was to try a way to integrate the economic and the social” (Steurer 2005). However, the two concepts differ at the point that in the SD concept the development is seen as sustainable only if the requirements of the three pillars are met (conceptual principle), in contrast to what the SRM is a result of interactive process- it tries to cohere the different stakeholders claims.

CHAPTER 4

4. Analyses

Part I

This part of the analysis aims at providing an overview of the national legislation and some instruments promoting energy-efficient renovation measures in the building stock as well as document raising important issues for the Meat Packing District. The information presented here will be used in the Discussion and Conclusions part of the thesis.

4.1. Regulatory framework to the energy efficiency in existing buildings

Danish Climate and Energy Policy

Denmark has set the ambitious goal of being carbon neutral by the year of 2050. With the climate policy Denmark has committed to reduction of the GHG emissions by 20% in 2020 compared to levels of 2005. When comparing to the basis year of 1990, the government aims at cutting the emissions by 40% by 2020. The energy policy long-term goal is the entire energy supply, including electricity, heating, industry and transport to be covered by renewable energy by 2050. One of the most emblematic documents supporting this vision is the Danish Energy Agreement from March 2012, which clearly sets the frames for the future activities within the area of energy and environment. With the wide range of initiatives presented there, Denmark moves a step closer to the target of 100% renewable energy by 2050 (Danish Energy Agency, 2013).

EPBD

The Energy Performance of Building Directive (EPBD) is a directive of the European Parliament and Council on energy efficiency in buildings that obligates the EU Member States to set minimum energy performance standards for both new and reconstructed buildings. The Directive aims at contributing to increase the energy efficiency of the buildings and the heating and air conditioning systems. The EPBD contains a wide range of provisions to the improvement of the energy

performance in the building stock. Furthermore, it obligates the Member States to introduce energy performance certificates, which label the buildings in accordance to their energy demands, as well as makes recommendations on which energy-saving measures will be cost-effective to implement. In Denmark the implementation of EPBD is responsibility of the Danish Energy Agency. In Denmark, EPBD was implemented in the legislation in June 2005 with Act no. 585.

Energy labelling scheme

The energy labelling scheme is an executive order that has followed up the EPBD. The energy performance certificate assigns an energy performance label on the buildings and their products and it is statutory for constructing, selling or letting buildings. The labelling scale consists of seven classes from A to G, where “A” stands for the highest and “G” for the lowest energy performance (Energy Agency). As mentioned above, the labelling indicates a property’s energy consumption and the possible saving to be achieved. It also means that there is a financial motivation for the building’s owners and users to implement the recommended measures. There are many studies presenting the link between the energy label of a property and its market price. Generally speaking, by achieving energy-efficiency through lowering the operating costs for electricity, heating and hot water the owners get in addition a higher price of the property in the future market. The energy labeling is an important tool which provides the current and the future building owners with information on the efficient energy saving investments that could be made.

Danish Building Regulations

The Danish Building Regulations implement the EPBD and stipulate that when a major work is performed on the building envelope elements, the insulation should be increased to a level comparable with the levels required for the new building constructions. Before the introduction of the first Danish Building Regulations in 1961, there were no existing requirements for the thermal insulation of the buildings. The latest Danish Building Regulations, up to date, is BR10 which came into force on 1 January 2011. Compared to BR08, there is a general tightening of the energy performance frameworks by 25%, as well as for the insulation requirements for the different building elements. The U-value requirements apply to measures related to conversions, maintenance or replacement of the individual components. In general, the Building Regulations are obligatory for all new and existing buildings with an exception for the listed buildings that have high heritage values and it is important to be kept in their very original conditions. This is the case of the Meat Packing District and here the regulations are seen as being incompatible with the heritage values of the buildings and the area as a whole (Parok, 2013).

Carbon 20

Carbon 20 is an example of successful initiative targeting the small and the medium-sized companies to address energy-efficient improvements for their energy utilities. Carbon 20 is EU funded project, where 100 companies from seven Danish municipalities joined the project with the overall target of achieving 20% GHG emissions reduction through energy savings. Five of the big companies in the White Meat District have participated in Carbon 20, where they engage themselves with a Voluntary Agreement to cut their GHG emissions, as mentioned with 20%. In return, the companies are provided with free of charge energy screening and consulting. However, the consultants can be compensated for their contributions by the project (Holmfeld, 2012). Some of the Kødbyen’s companies have seen the joining in Carbon 20 as a good opportunity to find more information about

their energy consumptions as well as to achieve certain savings (Interview # 4). One of the interviews with a tenant companies indicates that there are some uncertainties in the way of calculation the rent, heating, hot water and electricity, which has evolved in a motivation of being clearer with these consumptions, as well as to raise that issue and to make the Municipality aware of it (Interview # 4). The companies have achieved the obligatory 20% GHG emissions reductions and also indicate the much bigger still uncovered potential of the buildings mass in Kødbyen. By having implemented small scale adjustments, as for instance the change of the light bulbs and turning off the ventilation during the night, one of the biggest companies significant savings in its electricity consumption. However, for achieving improvements on a bigger scale, there is needed a support from both Municipality and legislation (Interview # 4).

Vision 2005 “Meat and Creativity”

With the decision of BR-20-01-2005 the City Council approves the vision about the White Meat City as a home of creative industries. An essential part of the development strategy is that the transformation of the area into creative and gastronomic town should happen in interaction and with respect to the existing businesses. In the strategy of 2005 it was also stated that the building envelope (roof, windows and walls) and the sewer system need a restoration which was calculated for the years 2007-2016 corresponding to 200 million kr.

The vision “Den Hvide Kødby - udvikling som kreativ bydel” included the following decisions:

- Meatpacking District as an integral part of Vesterbro with a high concentration of new eventful urban spaces
- A unique opportunity for profiling of two sector group (the food and the creative industries)
- With focus on the importance of the Danish architectural heritage
- An entirely new type of trade and growth zone in Denmark for the development of design and gastronomy
- Opportunity profiling of Copenhagen nationally and internationally (Den Hvide Kødby, 2007)

Vision 2011 “More Meat and Creativity in Attractive Buildings and Urban Spaces”

Copenhagen Municipality has established a strategy for the White Meat City, which describes the following vision for the Meatpacking District: *"Meatpacking district must continue to be a unique attraction in Copenhagen, which is home to butchers, restaurants, creative businesses and artists, with a dynamic urban life."* The common slogan for the vision is *"More Meat and Creativity"* and it is based on the vision developed and adopted by the City Council in 2005. The vision of the new strategy sets some objectives that Copenhagen needs to work further on:

- That there continues to be a place for food producers and creative businesses
- The Meatpacking District remains an ever-changing, international experience destination with space for unique bets.
- The meatpacking district opened more widely and the new passenger into the Meatpacking District shall create better flow through the area
- That the urban space serves as a common space for the area's users. The area should be used for cultural events and stay, while ensuring parking facilities for the industries
- Any new construction should be done taking into account the protected buildings.

Strategies for the Meat Packing District

A new strategy that updates the vision for the White Meat City was developed in 2011. It describes the urban development opportunities and identifies four scenarios for future activities. These scenarios have the focus of future ownership options in order to finance the development of the area. The three administration of Copenhagen Municipality: Økonomiforvaltningen, Teknik- og Miljøforvaltningen, Kultur- og Fritidsforvaltningen, having responsibilities over the activities in the White Meat City, recommend that the city council decides upon the "*Strategi for Den Hvide Kødbý*", where four strategies, providing the basis and initiate the work in the district, are proposed. They have the focus on insuring investments for addressing the existing maintenance backlog. However, the four scenarios have different advantageous and disadvantageous and are worded as follows:

- Scenario 1: *Municipal development*- Copenhagen Municipality keep the White Meat City and invest in the property
- Scenario 2: *Partial sale*- Copenhagen Municipality sells the buildings that are not under preservation and invest the incomes in renovation of the listed premises of the White Meat City
- Scenario 3: *Completely sale*- Copenhagen Municipality divest all assets of The White Meat City
- Scenario 4: *Partnership* - Copenhagen Municipality forms a partnership with an external investor, who undertakes fully or partially the finance and restoration.

The administrations recommend that Copenhagen Municipality accepts strategy Scenario 2 for partial sale and investment into the renovation of the buildings, which is also found as the most economically advantageous scenario to the Municipality. However, there are various options in scenario 2 that should be further clarified and the overall vision is that the Meat Packing District should continue being a unique attraction, home of various types of businesses and a dynamic urban life (KK, 2011).

Part II

This part of the analyses aims at identifying the principle stakeholders, their role and interests as well as their power possession to the development of the White Meat City.

4.2. Stakeholder identification

After a thorough literature review and on the basis of the information gathered during the interviews, it was possible to identify a wide range of stakeholders, concerned with the White Meat City and its development. The broad spectrum of stakeholders is graphically visualized in **Error! Reference source not found.**, presented in chapter Theoretical and Analytical Frameworks. After investigating their level of influence and relative power to the issue of sustainable development of the White Meat City, a limitation to the stakeholders investigated is made. For understanding better the comprehensive landscape, the investigation focuses on the

principle stakeholders (inspired by Den Grøne Kødby). The forthcoming section aims at describing their roles, interests and motivations.

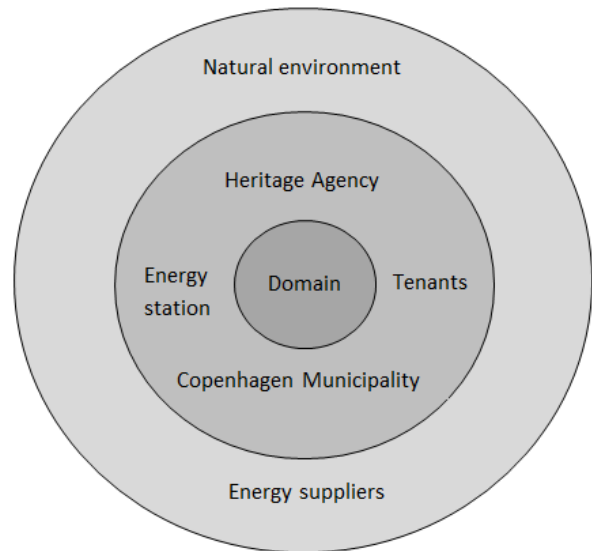


Figure 7 Graphical visualization of primary and secondary stakeholders

Copenhagen Municipality

Copenhagen Municipality (*Københavns Kommune*) is the owner of the White Meat City, whereat three administrations are responsible for performing activities in the area. These are the Finance Department (*Økonomiforvaltningen*), the Department of Technology and Environment (*Teknik- og miljøforvaltningen*) and the Department of Culture and Leisure (*Kultur- og fritidsforvaltningen*). However, these three administrations are separated local authorities and have their own responsibilities and institutional characteristics. The Copenhagen Properties (*Københavns Ejendomme*), which is part of *Kultur- og fritidsforvaltningen*, stands for the rental of the premises. “*Københavns Ejendomme is acting as a landlord. That means that we handle letting, maintenance, controlling, and administration along with a long list of other associated tasks such as handling tenants and other stakeholders’ day to day challenges. In addition Københavns Ejendomme also runs the central cooling and heating systems supplying the tenants. Københavns Ejendomme also plays a central role in providing information for the political level to make decisions concerning Kødbyen.*” (Interview # 6).

Due to the currently on-going lack of maintenance of the buildings structures and the outdoor areas, the Copenhagen Municipality is working on solution for overcoming the economic challenges that the White Meat City is facing. Examples for such solutions are the *freedom of letting*, which means that there are neither requirements for the type of tenants nor limitation of the number of leases, in favour of the running economy. Another solution is the *full or partial divestment*, with which the Municipality is exploring the possibility of divestment of the non-protected areas for property

development. By doing so, the Municipality will be able to invest the incomes in maintenance and restoration of the protected buildings and outdoor area. The last scenario will be selling of the whole property (Den Grøne Kødby, 2011:26).

Tenants

The White Meat City tenants are a heterogeneous group of companies with different energy usage behaviour, comfort requirements, size and character. Moreover, they can be divided into two main groups: Food industries and Creative industries.

The food industries are representatives of the original “old” tenants, although part of them have moved in the recent years due to the high rent increase. The well-developed cooling facilities, the central location of the area and the good access to parking are beneficial for the industries, but however, the same conditions are also cause for the way to high rental price.

In accordance to the vision from 2007 for a vibrant area, the creative businesses are the ones that should attract life to the Meat Packing District. However, there are number of factors that make the leases difficult to rent. For instance, the creative businesses have higher requirements for the indoor climate and comfort. In line with that, an upgrading of the physical facilities for most of them is necessary. Business with relatively short-term rental contracts are in a way kept back from making investments in renovation measures due to the normally longer pay-back time of such investments. Further on, the high rental price per square meter makes it difficult for the new tenants and businesses to establish themselves (Den Grøne Kødby, 2011:29).

In 2008 the tenants of the White Meat City have created the tenants association (*Lejerforeningen*), the Association of Professionals in Copenhagen’s Meat Packing District. The Green Meat City (*Den Grøne Kødby*) initiative has emerged as a response to the buildings conditions- poor insulation and windows, the high energy consumption and the untapped potential of the area. Since then, there has been an increased pressure from the tenants, in order to move a step forward to achieving the vision for Green Meat City. The overall approach of the initiative is a user-driven. The publication *Den Grøne Kødby*, itself, has been commissioned by Københavns Ejendomme and prepared by Erik Møller Arkitekter and Esbensen Rådgivende Ingeniører, whereas funded by Copenhagen’s municipal energy and environmental resources for 2008-09 . The purpose of it is to uncover the potential of the energy-efficient initiatives and to describe the possible solutions towards the sustainable growth of the area, as well as, the funding needed for these actions. It is also worth mentioning that the proposed solutions have all raised out of the tenants’ visions and desires (Den Grøne Kødby).

Heritage Agency

The Heritage Agency, one of the key stakeholders in the building renovation processes in the White Meat City, is responsible for preserving the cultural values of the buildings in Kødbyen and the plant as a whole. The Meat Packing District is appointed as national industrial heritage and it is thus largely preserved. By being listed for preservation, there is a restriction on any new constructions, renovation or alterations in the area. Despite the conditions laid, the Heritage agency is supporting the vision of Kødbyen remaining an active trade area.

In order to assure that any operations on the building structures and within the area will be performed in a way that does not threaten the values and the uniqueness of the area, the Heritage Agency has developed a Manual for the Construction work. This manual was produced back in 1998, before the decision for the transformation of the district into a vibrant area and thus it does not

include any information about the energy-efficient or generally sustainable solutions (Den Grønne Kødbby: 31).

Machine Central

The Machine Central (*Maskincentralen*) is seen as individual actor in the White Meat City, since the it is Kødbyen's own energy production system, responsible for the production and distribution of heating, cooling, vapour, cold and hot domestic water. The plant is a native part of the Meat Packing Districts since 1934. All of the power-generating units are located in the Machine Central which is the reason for achieving the good synergies between these units (Den Grønne Kødbby). The plant is composed of power station and about 7km long underground pipe system, both based on ammonia-refrigeration liquid. However, in its existing form, the plant does not fulfil the security requirements, which makes it illegal. In order to limit the chance for any major accidents, there has been put prohibition on the leases and thus any new users/tenants coming into the area, as well as to the organization of activities with attendance of larger group of people for a longer time. These restrictions on the use of the area will remain in force until the end of 2014 when the project for conversion of the ammonia-based cooling system with other less risky refrigerant will be finalized. Due to that, this centralized heating and cooling system is treated with a special attention, since it has been identified as a certain barrier to the sustainable growth of the area by the local tenants (Køleanlæg, 2013).

4.3. Motivations

Having provided an overview on the principle stakeholders and their role in the White Meat City, the current section aims at exploring their main motivations, seen also as drivers, for implementation of energy-efficient renovation measures on the building mass in the area. A list of the different motivation was developed on the basis of the conducted interviews, where after the interviewees were asked to rank the identified motivations according to their significance and own visions. As a ranking method, it is used the Likert scale. The results of this ranking are visualised below in Figure XX and each point is discussed underneath. The findings are organized within the framework of the SD concept which allows a grouping of the motivations in terms of their economic, environmental and social dimensions. By intertwining the SD-SRM perspective here, the author approaches the stakeholder theory from a conceptual perspective, and in particular applying to it the concept of sustainable development. In other words, the analysis in this section will explore the significance of the different dimensions of the SD concept to the key actors in the White Meat City. By doing so, it will be possible to answer the question of *“Which issues of SD do stakeholders actually take into account and in what way?”*, which is in accordance with the descriptive aspect of the stakeholder theory (see Table 1).

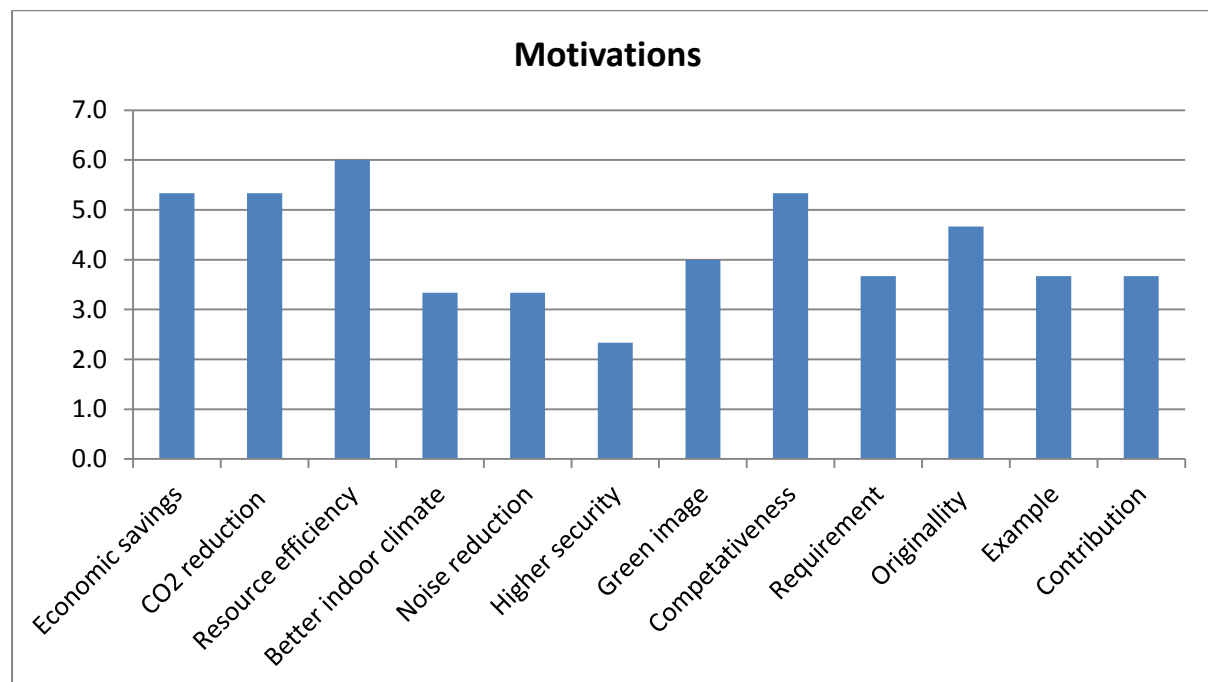


Figure 8 Illustrates the ranking to the motivation allocated by the interviewees

Ranking levels	Answer categories
1	Not important at all/ not a priority
2	Low importance/ priority
3	Slightly important/ somewhat priority
4	Neutral
5	Moderately importance/ moderate priority
6	Very important /high priority
7	Extremely important/ essential priority

Illustration of the values of the Likert scale used for ranking the motivations

Economic sustainability

The economic dimension of the SD framework is represented by four issues in the current investigation: savings, competitiveness, green image and requirements. The issues of economic savings and competitiveness have relatively alike and high rating scores. This is explained due to the high relativeness to all interviewed stakeholders, as the overall value of the premises rises and thus long term benefits and higher future market price are assured. The issue of the green image, which is understood as “good branding of the food and other companies” is ranked in lower terms. This is explained by the fact that the green image is not with high relevance to all stakeholders, for instance, the Municipality of Copenhagen. The same reason applies to the issue of “requirements”, since it is also related to the demands of the business partners and suppliers of the end-user in White Meat City. Here, we observe that by the implementation of environmental protection activities, it is possible for the White Meat City and thus its stakeholders to enhance their economic performance.

Environmental sustainability

The environmental sustainability maintains the natural capital to a certain degree (Konrad *et al.*, 2006). The environmental dimensions of the SD framework, investigated here, consist of three issues: emissions, resources and environmental damages/risks. The latter one can be associated also with a human risk in the particular case. As shown in Figure 8, the resource efficiency issue is rated with the highest score, followed by the issue of the CO₂ emission and the issue of environmental damages and risks has the lowest score not only in this dimension but in overall view. That can be explained by the fact that during the whole operational period since 1934 and until now, the Kødbyen’s energy plant has been working properly without any prospects of malfunctions or risks. The resource efficiency issue here is closely related with economic performance, since the principle of “use less-pay less” is very applicable to the particular case.

Social sustainability

The social dimensions of the SD framework here are understood and represented by six issues: better indoor climate, noise levels, security, originality, positive example and contribution. As Figure 8 shows the “originality” is ranked with the highest score in this group, as well with a high importance compared to overall picture of the graph. By originality here is understood a development that keeps the uniqueness of the district without transforming it in a mainstream/commercial area, which is also in line with the Copenhagen’s vision for the district and the regulations for preservation of the area. The next two issues example and contribution, e.g. presenting the area as a successful example of sustainable development which could be translated into other similar projects and Contributing to the Copenhagen vision of first green capital by 2025 and the national 2050 target of carbon neutral society are ranked with one idea lower compared to the issue of originality. The last, but not least, in the meaning that they are also ranked with certain level of importance, the issues of better indoor climate and comfort are standing a bit above the “slightly important” label. Moreover, by identifying the social dimensions presented here, we observe that the environmental norms and values are disseminated in a broader context.

Inspired by the triangulation method, the author verifies the plausibility of the results by a comparison with a second questionnaire. By combining the two questionnaires one of which addresses directly the three pillars of sustainability and the other does it indirectly with interpretations made by the investigator. Since the upper graph in Figure 9, shows the results of the

first questionnaire, where different issues are individually graded and later on grouped within the frames of the three dimensions of the sustainable development: economic, environmental and social, the second questionnaire asks the participants to rank the importance of each of the pillars in particular, without a concrete object illustration.

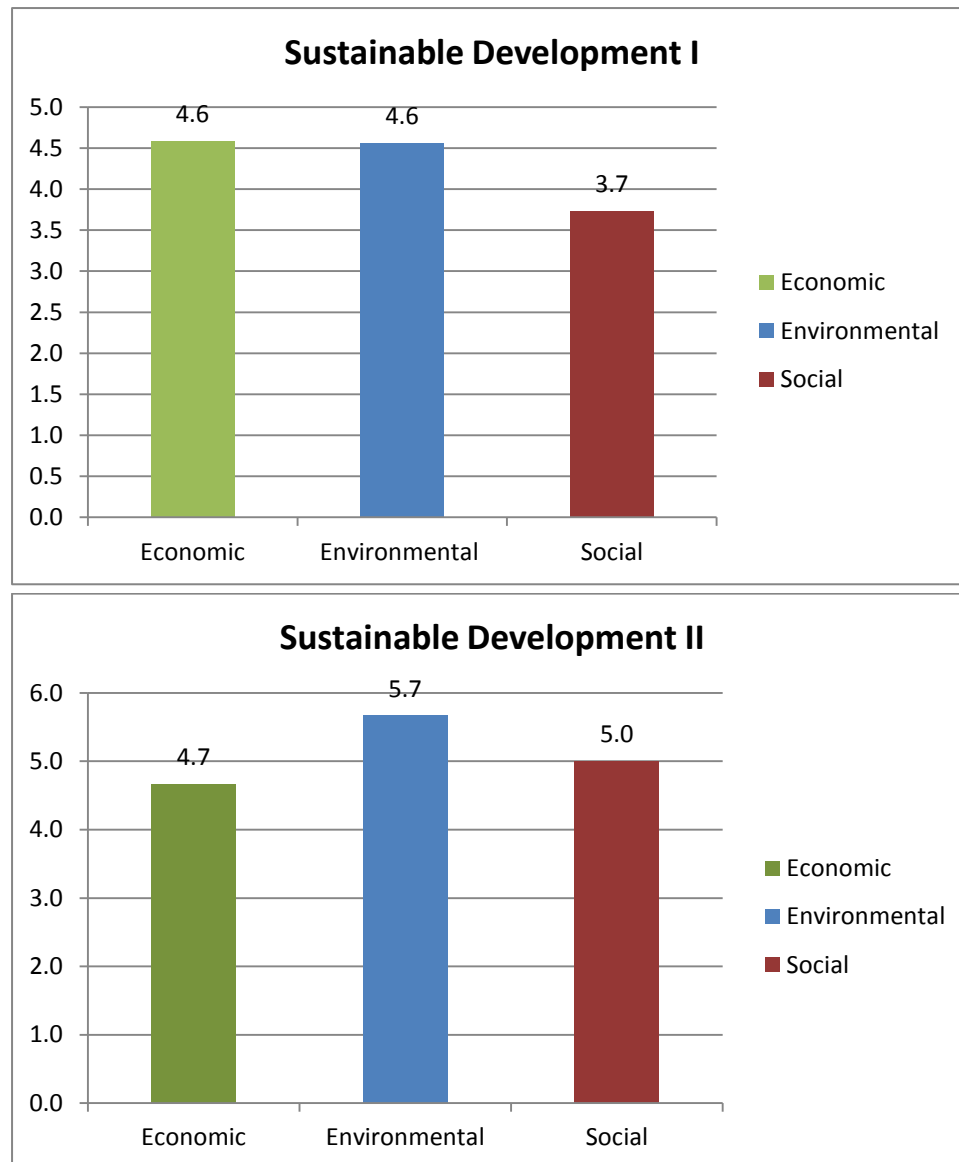


Figure 9 illustrates the results of the two questionnaires, where a comparison is made in order to verify authenticity of the results

In the first questionnaire, the economic and the environmental dimensions are ranked equally high, where the social dimension stands below. In the second questionnaire the environmental dimension has the highest result, followed by the social and the economic dimensions, respectively. The results of the second questionnaire are in response to the question *“How important/relevant do you see each of the three pillars of the sustainability to your own vision and company’s performance?”*.

The difference in the results can be explained by the participants’ individual interpretation of each of the dimensions without specifying to what exactly their vision refers to.

Fields of uncertainties

It is worth mentioning that the values obtained by the ranking method and presented in Figure 8 result are in an average numbers from all interviews, where it is possible more than one participant to be a representative of the same stakeholder group. Due to that, it is difficult to understand from the graph the individual stakeholders' interests. However, the results exemplify the relation of the SD concept to the overall intentions and interests of the stakeholders in the White Meat City, as well as it answer of the question of interest *"Which issues of SD do stakeholders actually take into account and in what way?"*. Another field with possible degree of uncertainty is general low response rate being the basis of the obtained results.

4.4. Power identification

According to the Business dictionary, *power* is the ability to cause or prevent an action, to make things happen. It can also be described as *"a relationship among social actors in which one social actor A, can get another social actor B, to do something that B would not otherwise have done"* (Dahl, 1957: 202-203). Generally speaking, stakeholders may influence an activity through a wide range of mechanisms, for instance incentives, complaints, penalties and etc. That can be achieved also to different degrees. Stakeholders may assign a certain level of importance to the sustainability issues, but they may not have the needed power to achieve their claims. Due to that, the capacity of power is a core attribute of stakeholders' identification model. In return, the *use of power* concerns the extent to which the key actors attempt to influence an activity (see Mitchell *et al.*, 1997) (Lorente *et al.*, 2002).

For understanding the stakeholders' relationship to the particular intention of implementing energetic improvements on the building mass in the White Meat City, the investigation will use a power-dependence framework, where the different stakeholders and their influence to the particular issue will be investigated. In this section, stakeholders will be identified according to their power possession. For that purpose the interviewees are asked to rank the key stakeholders according to their influence on the particular case. Copenhagen Municipality is represented by three administrations and they are ranked separately, although they collaborate in some aspects.

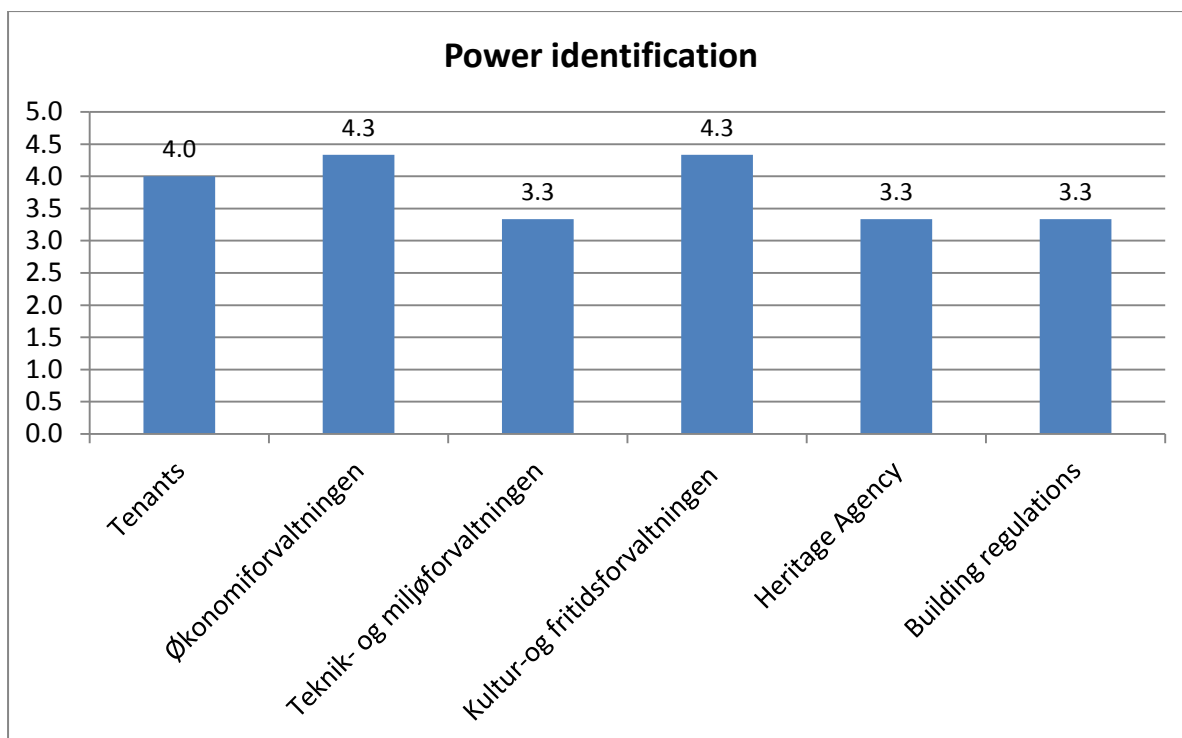


Figure 10 Illustrates the ranking to the power possession of each stakeholder allocated by the interviewees

Ranking levels	Answer categories
1	Not at all influential
2	Slightly influential
3	Somewhat influential
4	Very influential
5	Extremely influential

Illustration of the values of the Likert scale used for ranking the power possession

As shown on Figure 10, the most powerful stakeholders are identified to be the Financial administration and the Culture and Leisure administration in Copenhagen Municipality. On second place, according to their power possession are listed the Tenants and on third place are placed Department of Technology and Environment in Copenhagen Municipality, the Heritage Agency and the Building Regulations, which can also be understood as legislation.

Part III

This part of the analyses aims at identifying the most significant barriers to the development of the White Meat City.

4.5. Barriers

Having provided an overview of the principle stakeholders, their role and interests, the current section aims at exploring some of the barriers that exist to the implementation of energy-efficient retrofit measures in the White Meat City. Six interviews with the different stakeholders are carried out in order to identify the current barriers, in follow-up of which the interviewees were asked to grade the identified barriers according to their significance by using the scale: not a barrier, minor barrier, moderate barrier and extreme barrier. Figure 11 illustrates the results of this ranking. A discussion of the barriers is presented in the forthcoming section.

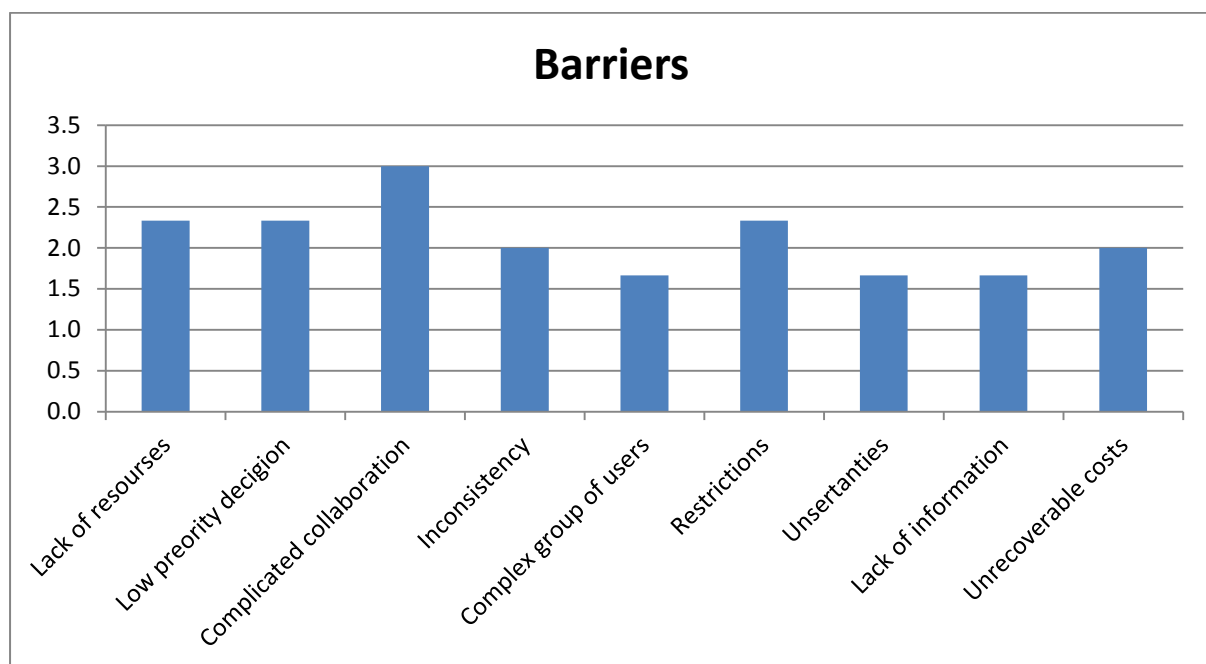


Figure 11 Illustration of the Barriers identified, ranked by the interviewees according to their significance

Ranking levels	Answers categories
1	Not a barrier
2	Minor barrier
3	Moderate barrier
4	Extreme barrier

Complicated process of communication and procedures

The highest ranked barrier is the one of *complicated collaboration process*. Making improvements on the building envelope or any alterations concerned with the building mass and the outdoor areas in the Meat Packing District should be first in accordance with the Manual for maintenance and second approved by the responsible authorities, particularly the Heritage Agency and both departments in Copenhagen Municipality- Copenhagen Properties and the Centre for City Design. However, when applying for a certain alteration activity, there is no a specified order in which the application should

be sent to the different authorities. This results in long time application process and higher resource and efforts usage (Interview # 1).

As a second highest barrier are ranked *lack of resources, low priority decision and the restrictions*.

Lack of resources

The lack of financial resources is indicated as a second highest barrier. In Den Grøne Kødby publication are reviewed two cases as a possible solution to the barrier, with the focus of keeping the same functions of the area. In the first one, the building owner, in that regards Copenhagen Municipality, is responsible for the building retrofits and the investment needed for their implementation. Generally the outcome for the investor is achieving a higher rent by investing in sustainable initiatives. The Colliers International study shows that the final increase for the green lease will be approximately 2% and the outcome for the investors is the higher price of the green property, which corresponds to about 16% higher selling price. In the second solution, the building users, in that regards the tenants, make the needed investments and benefit from the lower operation costs, the better indoor climate and the green image. However, the businesses with short-term contracts and the new businesses cannot afford such an investment due to long payback time of the investment and the lack of resources, respectively.

Low priority

The barrier of the *low priority* in the decision making is ranked on second place. The development of the Meat Packing District depends on funds allocated via the political system. *“This implicitly means that request for funds for the development of Kødbyen are competing with funds for other municipal projects for instance the construction of day-care centres etc.* That means that there are other project with wider societal values and thus with higher priority for allocation of resources. This is pretty much a political decision in accordance to Copenhagen’s vision (Interview # 6).

Restrictions

The barrier of *restrictions* to the measures allowed to be implemented is also ranked on second place. Due to the status of the buildings as “listed” for preservation, there is a limitation to the opportunities of implementation of profitable energy-efficient renovation measures. For instance, Kødbyen’s regulations do not allow any alterations on the external walls. Following that, no additional insulation can be added, except from inside. When looking at the case of windows replacement, there are solutions, but due to the restrictions they are a way too costly to implement. In principle, energy-efficient retrofits can be made on listed buildings and thus to achieve significant benefits for users and environment. A prerequisite for these actions is that they are performed with respect to the building special qualities and without compromising their value (Den Grøne Kødby, 2011).

Inconsistency

By a barrier of *inconsistency* is understood what the tenants and what the landlords have to pay for the implementation of a measure. For instance, when looking at the window replacement, the process is quite complicated and a profitable final result is difficult to be achieved. One reason for that is the oppose interests of the different stakeholders. This opposition of interest is represented by the incompatibility of regulations and available resources, e.g. Heritage Agency and Copenhagen Properties. For example, if a tenant company want to refurbish the indoor space and elements, in

order to achieve better indoor climate and comfort, it does not make much sense to invest in internal wall insulation when there is a big leakage through the poorly insulated windows. In this situation, for the maintenance of the windows-to be painted and to keep it in conditions that it is airtight are responsible Copenhagen Properties, but for the glass itself are responsible the tenants. Contradiction of interests here appears when Copenhagen Properties cannot finance the type of windows that the Heritage Agency allows and vice versa. The existing windows can be changed only to the type of the original ones, which are made of slim steel construction and one layer of glass and the glass itself to be replaced with an indoor thermal glass, which is three times as expensive as the ones the aluminium windows. As cited in the one of the interviews “the limit of what the tenants and what the landlords are supposed to pay does not go together” (Interview # 1).

Unrecoverable costs

The barrier of *unrecoverable costs* is ranked on third place with the level of “somewhat barrier”. This barrier is mostly seen related to the smaller and new businesses that do not have the needed resources to invest in energy-efficient renovation measures. It is also not profitable for those that are engaged with a short-period contract due to the longer payback time of such investments.

Complexity

The barrier of *complexity* is related to complexity of the variable types of building users. This barrier has been ranked quite low as a barrier. The heterogeneous group of tenants in the White Meat City is also a prerequisite for the barrier of the oppose interests. This particular barrier is overcome up to date overcome due to the unifying vision for the sustainable growth of the area, which has provided the basis for cooperation between the tenants. The sustainable vision provides also a framework leading to better conditions and helps all stakeholders to achieve their objectives.

Uncertainties

The barrier of *uncertainties* between the national targets for energetic improvements in the building sector and reduction of the energy consumption and the status of the Meat Packing District as a “listed” for preservation area and thus being an exempt from regulations and requirements is not seen as a practical barrier to the particular case.

Lack of information

This barrier is associated with the *lack of information* about the energy saving potential of in the White Meat City and how it can be achieved. Some of the tenants do not have the knowledge of the potential in the sustainable-user behaviour and how actually to improve it. This particular barrier has been overcome in some companies through their participation in the EU project Carbon 20. These companies have recognized that value can be generated through the development of greener profile, in terms of their internal attempt to be proactive users in regards to the electricity consumption.

Machine Central

The Meat Packing District has its own heating and cooling system. Additionally to the above listed barriers, Kødbyen's machine central has been identified as such, due to i) its content of harmful substances-both the power station and external system, including 7km of pipeline are based on ammonia liquid and ii) the mandatory heating and cooling supply of the tenants from the system.



Source: København Kommune

The Machine Central is an integral part of the Meat Packing District and its high values of industrial heritage. Keeping the plant functional means keeping the traditions of the area (Interview # 1). The power plant is appreciated mostly by the food industries, which are supplied with refrigeration and freezing from Kødbyen's Machine Central. The plant contains approximately 12 tons of ammonia and has been functioning since 1934. In its existing form, the plant does not fulfil the security requirements, which makes it illegal. That means that the system is a subject to a risk assessment and must have an environmental permit under the Environmental Protection Act to run legally.

This barrier has been partly overcome by the project for re-development of the cooling system, which aims at achieving an agreed-safety document, so that the cooling system becomes legal in regards to the applicable safety regulations. For achieving this, the ammonia is going to be replaced by other less risky refrigerant, as for instance glycol. The Copenhagen Municipality has allocated funds (43 million kr.) in the budget for 2013 for the conversion of the cooling system in the White Meat City. At the moment and until the end of 2014 when the project will be finalized, there is a veto on new users/tenants coming into the area, as well as organising activities with attendance of larger group of people for longer time. The technical changes are intended to ensure that the plant can achieve risk acceptance and environmental approval, and those restrictions on the use of the area can be minimized. However, after the project is finalized, there will remain certain restrictions on the use of land and buildings near the power station.

Discussion

It is also point of prioritizing the efforts, and in thus difficult for some companies to implement structural measures on the interior, if they should stop their daily routines from which they actually earn their money, for implementing these measures.

Since some of the original tenants have moved and not all of the available premises are rented out, there has been a reduction in the number of users. That has led to a practical oversizing of the system. In result, the power station no longer can provide energy at competitive prices, as the operational costs for heating and cooling have not been reduced accordingly. These conditions also make it difficult to attract new tenants. It is either not very motivational for the existing ones to undertake energy-saving initiatives due to the contract engagement and the price per square meter but not actual consumption that they are paying for. Despite the achieved individual energy consumption reductions, the final bills remain high due to the mandatory price per square meter.

5. Discussion and Recommendations

The present investigation has aimed at enhancing the understanding of the complex group of stakeholders and their interests and whether the sustainable approach could be the key of establishing a closer collaboration between the concerned parties.

This chapter is developed upon the single-case study of the White Meat District in Copenhagen and aims at answering the main research question of *“How can the sustainable growth in the White Meat City be achieved within such a complex group of stakeholders and their opposed interests?”*. The discussion reflects on the previous chapters and identifies areas for further work in relation to the development of Kødbyen.

5.1. Discussion

Addressing the gap

Giving a brief overview on some of the national policies and regulatory tools concerned with the energy efficiency in the building stock, the first part of the analysis aimed at raising the importance of the building sectors' commitment to the national energy targets. Furthermore, with presenting the municipal vision of the area in question, the investigation has identified a gap between the approved in 2005 vision *“Kød og Kreativitet”* for the transformation of the Meat Packing District from closed to a vibrant area and the nowadays existing situation. This uncertainty of the vision for development without actual development and lack of maintenance in the recent years has provoked a lot of dissatisfaction among the tenants. The problems that the area is facing today are to a large extent based on the unrealized vision where Copenhagen Municipality follows a strategy without sufficient investments in the White Meat City, which gives uncertainties about the time perspectives of any investments in Kødbyen's development. That once again reflects on the tenants as making them vulnerable to the future higher leases due to the projected increase in the energy prices (Den Grøne Kødby). Another inconstancy has been observed between the very initial idea of the architect of the Meat Packing District for a modern architecture and *“area that moves with the time”* and the present situation when the area is perceived as being *“static”* (Interview # 4).

Furthermore, an analysis on the identification of the different stakeholders was carried out in order to detect the key actors to the development of the district as well as their interests and motivations. For doing so, the Stakeholder theory was used together with the concepts of Sustainable Development and Stakeholder Relation Management. An analytical approach, covering the stakeholder and the conceptual perspectives within the descriptive aspect of the Stakeholder theory

was developed. By addressing the stakeholder perspective within the descriptive aspect of the stakeholder theory, the investigation aimed at answering the first sub-research question of “*What are the stakeholders’ interests and how do they actually try to achieve their claims*” (see Table 1). This question was answered through the conducted interviews, where the stakeholders’ interests were identified. Further on, the ranking method was used in order to examine the most significant drivers for the implementation of energetic improvement on the building mass toward the development of the area. These issues will be discussed in the forthcoming section *Addressing Motivations*. By addressing the conceptual perspective within the descriptive aspect of the stakeholder theory, the investigation aimed at answering the second sub-research question of “*Which issue of the Sustainable Development concept do stakeholders take into account and in which way?*”. The answer of this question was achieved through a ranking method where questionnaires were sent out to the different stakeholders in order to rank how relevant each of the three dimensions of the sustainability is to their own visions. However, it was difficult to assess which dimension is seen as most relevant to the perceptions of the stakeholders due to the complexity of the implementation of building renovation measures and the stakeholder groups

Finally, throughout the present chapter there will be outlined some of the key issues that have emerged during the interviews as well as it will underline the identified barriers towards the development of the Meat Packing District. Furthermore, suggestions for dealing with main barriers will be made, where possible. By doing so, the main research question of the thesis will be addressed. The outcome of this chapter will be to contribute to the better understanding of the complex situation as well as to address the main research question by proposing recommendation for overcoming the identified barriers.

Addressing Stakeholders

A point of departure of the discussion will be the principle stakeholders and their role in Kødbyen. As described in the chapter Theory, incorporating the stakeholder’s opinion is very valuable for improving the decision making process and any project implementation. Approaching the activities in the Meat Packing District as a business-society relationship from the point of view of the Sustainable Development concept, provides a better understanding on the complex situation, as well as it gives insights on the different motivations looked through the perspectives of the wide range of stakeholders involved. In order to gain more detailed understanding of the role and interests of the concerned parties, the principle stakeholders were identified through interviews with key actors. The three main stakeholders being focus of the analysis are identified to be Copenhagen Municipality with its three administrations (Department of Finance, the Department of Technology and Environment and the Department of Culture and Leisure), the Heritage Agency (which is seen as a representative organ of the legislation) and the Tenants of the White Meat City.

One of the most important activities that the tenants have undertaken to the development of the District is the initiative of *Den Grøne Kødby* report in 2011. The report has been established through the collaboration between Erik Møller Arkitekter, Esbensen Rådgivende Ingenører and Københavns Ejendomme. Besides the thorough description of the White Meat City, the report indicates the high potential for energy savings as well as economic engagement needed for the different measures. The result of it is development of wide range of opportunities that could be implemented with detailed calculation of the savings that could be achieved. The publication *Den Grøne Kødby* and the

conducted interviews with the principle stakeholders have indicated that the sustainable development of the White Meat City is not hindered by a lack of technologies or methods, but is instead bounded by financial resource availability and motivation. A discussion on the different barriers that exist follows in the section *Addressing Barriers* in this chapter.

As stated in *Den Hvide Kødby* report, the energy optimization potential in the Meat Packing District is very large and should be utilized. The report *“Energioptimering af fredede kulturejendomme i Slots- og Ejendomsstyrelsen - Introduktion til de centrale problemstillinger (2009)”*, has the Slots and Properties Agency assessed that there is a great energy saving potential in actions incumbent tenants and users. In response to that and due other reasons, five of the biggest companies in the White Meat district have joined the EU project Carbon 20 and through their participation in the project they have achieved reduction in the energy consumptions and thereby the targeted 20% GHG emissions reduction. However, the main motivation for the companies to participate in this project was the existing disorder in the calculating the heating, hot water and electricity consumptions and thus to find out more about their consumptions as well as to make visible for the Municipality the saving potential in the buildings. After the screening provided by the energy consultancies within the framework of Carbon 20, savings were achieved through simple measures as changing the light bulbs to more efficient ones and turning off the air conditioning system during the night. Presenting the results in absolute terms, the company *SOHO* was able to achieve about 100 000 dkk for the yearly run (Interviews #3, #4).

As mentioned in the Analyses, Copenhagen Municipality is the landlord of the White Meat City and thus responsible for the letting, maintenance, administration, etc. of the buildings in the area. The owner of a listed building is required to responsibly maintain the property. However, the owner is not obligated by the legislation an energetic refurbishments. There are other reasons that might be influential on that decision, as for instance the push from the tenants, being in line with the overall vision for development of the area and economic and environmental benefits of the implemented measures.

Addressing Motivations

The list of motivations has been developed on the basis of the information gathered during the six interviews with the different groups of stakeholders. The *resource efficiency* was identified as being the most significant motivation to the energy-efficient building retrofits in the White Meat City. However, the resource efficiency is closely related to the economic savings that could be achieved through reduction of the energy consumption as well as reduction of the associated emissions on the principle “use less-pollute less”. Here, we can observe the interdependence of the economic and the environmental dimension of the sustainability concept. It is worth mentioning that motivations being high relevant to one stakeholder might not be relevant at all to another. An example for this incoherence of the stakeholders` visions is the motivation of “green image”, which is from high interest for the tenants and not motivational at all for the Municipality and the opposed for the motivation of being a positive “example”.

Although all stakeholders have been aware of the issue with the ammonia based cooling system being also the reason for the restriction on letting premises in the area and thus new businesses moving in White Meat City, the “higher security” was ranked with low importance. That can be

explained by the fact that during its whole operational life since 1934, Kødbyen's cooling and heating plant has not have malfunctions or prerequisite for damages. The reason for Machine Central being a barrier to the development of the area is analysed in previous chapter and will be further discussed in the next section *Addressing Barriers*.

Addressing Barriers

This section takes its point of departure in the third part of the analyses of the present research, where all identified barriers to the development of the White Meat District were presented.

Lack of resources and Low priority decision

When interpreting the analysis of the identification of barriers and the power possession of the different stakeholders, the most significant barriers are seen those identified by the stakeholder having highest influence. After stakeholders being asked to rank the key actors according to their level of influence, the most powerful stakeholder is seen to be the Copenhagen Municipality. Following that the most significant barriers to the implementation of energy-efficient retrofits on the building mass in Den Hvide Kødby is the *lack of resources* and *low priority decision*. As stated in an interview with a representative of Copenhagen Municipality *"Funds for the development of Kødbyen are allocated via the political system. This implicitly means that request for funds for the development of Kødbyen are competing with funds for other municipal projects for instance the construction of daycare centers etc. That also means that sometimes Kødbyen is not priority number 1"* (Interview #6). This automatically pools the attention to the higher, political level for solving the identified barriers.

Another interview with a tenant company identifies that the problem Meat Packing District is facing can be seen existing in two main aspects- lack of resources and lack of long-term vision (Interview #3). This directly brings the attention again to the political level decision for allocating of resources, as well as the municipal vision of the future, more sustainable development.

Machine Central

Kødbyen's tenants are hampered by safety issues in regards to the ammonia cooling system. It has been decided that the already established business in the area will remain open, but some of them are directly affected by the conditions during the period of risk assessment and the measure that need to be implemented afterwards. In absolute terms this period is expected to continue until the end of 2014 when the ammonia will be replaced by a less risky substance and risk zone will be diminished. As a consequence, large scale events, such as the Nordic Taste had to be cancelled in 2012 which has further hampered area's development (Copenhagen Post).

Complex groups of users

Despite the heterogeneity of the types of tenants, they have overcome the barrier of the diverse typologies and thus interest. The more conservative "old" food companies and the more recently moved into the area creative businesses have overcome this barrier through the uniting common desire for low operating costs for electricity, heating, cooling and water.

By the consulting that the companies participating in Carbon 20 have received, another very common barrier of the knowledge, or with other words, the actual lack awareness of the sustainable user behaviour potential has been overcome. After the screening of the companies' energy behaviour, they were able to reduce their electricity consumption with a significant percentage. Some of the measure which they implement was a simple change of the light bulbs or turning off the ventilation system during the night (Interview # 4).

However, when looking at the individual leases, it is up to the tenants themselves to acquire an environmental and energy-saving behaviour. For doing so, they have to invest in initiatives that help the reduction of energy consumption. From tenants' perspective, it is not seen as very motivational to undertake regardless what initiative, when they can physically feel the heat disappearing through windows, walls and the roof (Den Grøne Kødby, 2011; Interview #1).

In principle, it is possible to implement energy-saving measures, including listed buildings and thereby achieve significant economic and environmental benefits as well as better indoor conditions. As stated in Den Grøne Kødby report, the energy optimization potential in the Meat Packing District is very large and should be utilized. However, a prerequisite for energy optimization in listed buildings is that interventions can be implemented without compromising the buildings special qualities.

The results of the interviews and the analyses suggest that all stakeholders are positive about the development of the White Meat City and the adoption of environmental management practices in the area, but there are also significant barriers to the implementation of such. As observed in the questionnaires, one of the participants has not graded any of the barriers with a highest significance, which can also be understood as there are no insurmountable barriers. Following that, the implementation of energy-efficient building retrofit measures is not impossible but rather hard achievable. As indicated in interviews #3, #4 and #6, the allocation of resources for the municipal projects as well the legislation that frames the regulatory conditions of the White Meat City is a political decision and thus the issues have to be brought to a higher level of governance, e.g. further assessed by the local politicians.

5.2. Recommendations

This section serves the purpose of answering the main research question of the investigation. This research has identified key issues concerned with the sustainable development of the White Meat City, Copenhagen. Based on the analyses and the discussion, the present section aims at providing recommendations for further work with the focus of overcoming the identified barriers.

Considering the positive outcomes of the project Carbon 20 for the participating companies, the research recommends:

- *Attempts for the attraction of higher number of similar initiatives into the area*
- *Sharing the gathered knowledge about the potential of the sustainable-user behaviour from the participated companies to the other business in the White Meat District. This can be achieved through informational common meetings of the tenants*

The EPBD in Denmark is implemented through the Building Regulations but they do not impact the energy-efficiency in listed buildings. There are no specific regulations concerned with the energy supply and consumptions in the listed buildings, but however:

- *Energy-saving measures might be considered when a building element needs to be refurbished or replaced and this measure would not affect the cultural values of the buildings.*

As one of the most significant barriers was identified to be the lack of resources, the research recommends:

- *A financial assistance may be targeted through EU or national initiatives concerned with the protection of landmark*
- *The financial mechanisms need to be harmonized with the intentions for preservation of operating listed buildings, as for instance through the allocation of national public founding for energy-efficiency in historic/listed buildings*

Since the Meat Packing District's manual for construction work has been established 1998, when the vision for a vibrant area was not yet introduced, the research recommends:

- *Development of new, updated manual for the construction work, which to be in line with the vision for future growth of the area.*
- *Further on, appropriate energy demands for the retrofits to be established.*

As identified in the interviews, not all of the key actors are aware of the high saving potential in Kødbyen, neither of who is doing what for supporting the vision of future growth (Interview #4). Following that, the investigations encourages:

- *A common meeting for representatives of the different stakeholder groups, where fields for possible collaborations can be discussed.*

When looking at the average results, illustrated in Figure XX, the highest significance has the barrier of "complicated process". As identified in interview #1, the application process for retrofits work in the Kødbyen is very complicated, time and resource consuming. The research suggests:

- *To be established a pattern for the most consistent sequence of actions concerned with the applications processes for performing actions in the particular area. By consistent is understood the least time and resources consuming procedures.*

Since the listed buildings are exempt of the Building Regulations but principally energy-efficient measures can be implemented on them with high success of achieved savings and based on the reliable evidences for the high savings potential in Kødbyen, presented in the publication Den Grøne Kødby together with the idea that the positive experience can be translated to other similar projects, the research recommends:

- *An advanced political discussion on possible anchoring initiatives to the combination of climate protection and cultural heritage activities. The connection between the energy-efficiency and the listed for preservation buildings needs to be clarified.*

In one of the interviews it was stated that the Municipality itself is a huge barrier to the development of the area. This barrier can be seen twofold. Firstly, due to the responsibilities of København Ejendomme as landlord to properly maintain the buildings and the longstanding absence of such and the comprehensiveness of the collaboration process between the three responsible administrations (Interview #2).

- *The three administrations of Copenhagen Municipality, responsible for the activities in the Meat Packing District need to be more harmonized toward the realization of the common target.*

The thesis has identified key areas in which Kødbyen's stakeholders can work further in order to achieve the development of the area which to be performed in a sustainable manner. The present chapter has provided a list of recommendations on how some of the existing barriers can be overcome. The research has clearly identified that a better collaboration between the concerned parties is needed in order to achieve the vision developed back in 2005 of a vibrant, thriving and unique urban area. By providing this list of recommendations, the main research question of the investigation *"How can the sustainable development of the White Meat City be achieved within such a complex group of stakeholders and their opposed interests?"* has been answered.

CHAPTER 6

6. Conclusions

The Meat Packing District in Copenhagen is a unique area with high historic and architectural values. It consists of three parts- the White, the Brown and the Grey Meat Cities and the majority of the buildings there have been listed for preservation as a national heritage. In January 2005 the City Council has approved the new vision for the development of the White Meat City as a vibrant urban area, home of both food and creative industries. The change of the characteristics of the users in the area has not been followed by a similar in concerned to the needed upgrades on the building mass and the public areas. In the plan "*Den Hvide Kødbý – Udvikling som kreativ bydel*" from 2007, the economic needs for the restoration of the building stock which to be performed in the period of 2007-2016 is amounted to 200 million kr. However, no sufficient retrofit measures were undertaken during the recent years, which has resulted in bad indoor conditions and high energy consumption for the building operation processes. The gap between the vision for development of the area and the current situation where there is a lack such is the basis for the wide range of challenges that the White Meat City is facing. This particular issue has framed the scope of the present investigation.

Within this problem field, the research has developed a research question, answering of which is the main target of the thesis. Following that, the research aimed at answering the question of how the sustainable growth of the Meat Packing District can be achieved within such a complex group of stakeholders and their opposed interests.

Answering the defined research question has been achieved through addressing the three core objectives of the research:

- 4) To identify the involved parties, their interests, positions and roles
- 5) To identify of the most significant barriers to the realisation of energy-efficient building retrofits in the particular area
- 6) To identify possible opportunities for overcoming the identified barriers from objective 2)

Two sub-research questions were developed in order to contribute to addressing the first objective and thus answering to the main research question. They were developed within the theoretical framework provided by the Stakeholder theory and the SRM-SD concept and were formulated as follows:

- *"What are the stakeholders` interests and how do they actually try to achieve their claims?"*
- *"Which issues of the Sustainable Development Concept do stakeholders take into account and in what way?"*

The first sub-research question had the purpose to, first of all, identify who are the principle stakeholders to the development of the White Meat City and secondly to investigate their roles and interests. Analysis on the actors involved in the development of the White Meat City and in relation to their power possession indicates that the principal stakeholders are Copenhagen Municipality with its three responsible administrations (the Financial Department, the Department for Culture and Leisure and the Department of Technology and Environment), the Heritage Agency (which is the representative body of the legislation concerned with the preservation of the national heritage) and the tenants.

The second sub-research question was meant to elaborate on the importance of the Sustainable Development Concept to the stakeholder's overall visions for development. For that purpose questionnaires were sent out to the different stakeholders and based on the results, presented in the second part of the analyses, the investigation concludes that the Environmental issues are the most motivational for implementation of the energy-efficient building retrofit measures in the White Meat City. However, as underlined in the discussion, the environmental and the economic benefits of such actions are closely related and in most of the cases overlapping.

The second objective of the research- the identification of the existing barriers to the development of the White Meat City was addressed through literature review and the conduction of six interviews with representatives of the different stakeholders' groups. Furthermore, the participants were asked to grade the significance of each barrier according to their own visions. However, most of the barriers are to a high extent interrelated and their significance greatly depends of the interviewees' perceptions as well as to responding rate of the questionnaire. When looking at the average results, presented in Figure 11 in the chapter Analyses, as a most significant barrier was graded the barrier of *"complicated collaboration process"*, due to the wide range powerful of actors involved with legitimate issues to be considered when an action needs to be undertaken. Another questionnaire was sent out in order to identify the most influential stakeholders according to their power possession. According to the results, presented in Figure 10, these are the Financial and the Culture and Leisure administrations in Copenhagen Municipality. Considering the Municipality of Copenhagen as being the most influential stakeholder, it is important to look into barriers identified as most significant according their vision. Identified as such are the barriers of *"lack of resources"* and *"low priority decision"*. However, some of the identified barriers were already overcome, as for instance the barrier of *"complex group of users"*, which was achieved through the common target of lower operational costs in the building in the White Meat City and the common vision that this target can be achieved by the implementations of energy-saving measures.

The third objective of the investigation- the identifying of possible opportunities for overcoming the identified barriers from objective 2) was addressed in the chapter *Discussion and Recommendations* and serves the purpose of answering the main research question *"How can the sustainable growth of the Meat Packing District be achieved within such a complex group of stakeholders and their opposed interests?"*. The recommendations developed in this thesis are based on data gathered during the interviews with the different stakeholders, as well as a thorough literature review of planning documents and publications related to the Meat Packing District and are formulated as follows:

- Initiatives similar to Carbon 20 may facilitate user-driven improvements in the area.
- Knowledge sharing of the high potential of the sustainable-user behaviour may be an “eyes opener” for the companies being not aware of the existing potential.
- Energy-saving measures to be considered when a building element needs to be refurbished or replaced and this measure would not affect the cultural values of the buildings.
- A financial assistance may be targeted through EU or national initiatives concerned with the protection of landmark
- The financial mechanisms need to be harmonized with the intentions for preservation of operating listed buildings, as for instance through the allocation of national public funding for energy-efficiency in historic/listed buildings
- Development of new, updated manual for the construction work, which to be in line with the vision for future growth of the area.
- Furthermore, appropriate energy demands for the retrofits to be established.
- Encouraging a common meeting for representatives of the different stakeholder groups, where fields for possible collaborations can be discussed.
- To be established a pattern for the most consistent sequence of actions concerned with the applications processes for performing actions in the particular area. By consistent is understood the least time and resources consuming procedures.
- Encouraging an advanced political discussion on possible anchoring initiatives to the combination of climate protection and cultural heritage activities. The connection between the energy-efficiency and the listed for preservation buildings needs to be clarified.
- The three administrations of Copenhagen Municipality, responsible for the activities in the Meat Packing District need to be more harmonized toward the realization of the common target.

The presented list of recommendations aimed at enlightening some aspects for further work towards the development of the unique Meat Packing District, and focusing particularly on the White Meat City. Most of the suggestions are not up to only one stakeholder responsibilities and abilities, but rather a collaborative process involving combinations of two or three of the principle actors, even addressing a higher level of political issues and decisions. Gathering the proposed recommendations, an idea of how the sustainable growth of the White Meat City can be achieved within the complex group of stakeholders and their opposed interest was given and thus the answer of the main research question was provided.

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Appendices

Appendix 1

Stakeholder definition

Stakeholder definition	Author	Year
Those groups without whose support the organisations would cease to exist	Stanford Research Institute	1963
Are dependent on the firm in order to achieve their personal goals and on whom the firm is depending for its existence	Rhenman Steadman and Green	1964 1997
Driven by their own interests and goals are participants in a firm, and thus depending on it and for whose sake the firm is depending	Ahlstedt and Jahnukainen	1971
Can affect or is affected by the achievements of the organization`s objectives	Freeman	1984
Can affect or is affected by business	Freeman and Gilbert	1987
Asserts to have one or more of these kinds of stakes, which range from an interest to a right (legal or moral) to ownership or legal title to the company`s assets or property	Carroll	1989
Contract holders	Freeman and Evan	1990
Have an interest in the actions of an organisation and have the ability to influence it	Miller and Lewis	1991
Constituents who have a legal claim on the firm...established through the existence on an exchange relationship. They supply “the firm with critical resource (contributions) and in exchange each expects its interest to be satisfied (by inducements)”	Hill and Jones	1992
Those whose welfare is tied with a company	Palgrave et al.	1992
Any naturally occurring entity that affects or is affected by organisational performance	Starik	1993
Bear some sort of risk as a result of having invested some sort of capital, human or financial, something of value in a firm...[or]...are placed at risk as a result of a firm`s activities	Clarkson	1994
Participants in “the human process of joint value creation ”	Freeman	1994
Investors who provide specific capital or opportunity capital to a business	Schlossberger	1994

Interact with and give meaning and definition to the corporation	Wicks, Gilbert, and Freeman	1994
Have, or claim, ownership rights, or interest in a corporation and its activities	Clarkson	1995
Interact with the firm and thus make its operation possible	Näsi	1995
Everyone in the community who has a stake in what the company does	Frederick	1998
Those groups of individuals with who the organisation interacts or has interdependencies and any individual or group who can affect or is affected by the actions, decisions, policies, or goals of the organisation	Gibson	2000
Contribute valued resources...which are put at risk and would experience costs if the firm fails or their relationship with the firm terminates...and have power over an organisation	Kockan and Rubinstein	2000
Moral actors...relationships cannot be reduced to contractual or economic relations. Include social characteristics	Hendry	2001

Appendix 2

Table of Motivations

Motivation	Definition	Significance (from 1 to 7)**
Economic savings	Reduction of bills for building operational purposes	
CO ₂ reduction	Less pollution	
Resource efficiency	Usage of less resources for the same purposes	
Better indoor climate	Better indoor climate and comfort	
Noise reduction	Reduction of the noise from the outside or from the installations	
Higher security	No dangerous/harmful substances are used for heating/cooling purposes	
Green image	Good branding for the food and other companies	
Competitiveness	Higher competitiveness on the market	
Requirement	Having a green profile is a requirement of the business partners/suppliers	
Originality	Development which keeps the uniqueness of the district without transforming it in a mainstream/commercial area	
Example	Showing the area as a successful example of sustainable development which could be translated into other similar projects	
Contribution	Contributing to the Copenhagen vision of first green capital by 2025 and the national 2050 target of carbon neutral society	
Other*		
Other*		

**Please, rank the significance/priority of your motivation for the implementation of energy-efficient measures in the White Meat City from 1 to 7, where:

- 1- Not important at all/ not a priority
- 2- Low importance/ priority
- 3- Slightly important/ somewhat priority
- 4- Neutral
- 5- Moderately importance/ moderate priority
- 6- Very important /high priority
- 7- Extremely important/ essential priority

*If you have other drivers, please write them under "Other".

Appendix 3

Table of Barriers

Barrier	Explanation	Significance (from 1 to 4)**
Lack of financial resources	The building owner does not have the needed finances for the building retrofits	2
Low priority in decision-making	There are activities with higher priority than the building renovation of the particular area	2
Complicated process of communication and procedures	For making a change in the Meat Packing District, there should be approval from the Heritage Agency and both departments in Copenhagen Municipality- Copenhagen Properties and the Centre for City Design	3
Inconsistency	Inconsistency of what the owners and what the tenants have to pay, for instance, for a window replacement	2
Complexity of the types of building users	There are different types of business located in the White Meat City. Some of them are quite conservative, as for example the old butchers, while others- the café and bars owner have more commercial vision.	2
Restrictions on the measures allowed to be implemented	Due to the characteristics of the majority of the buildings in the White Meat City- "listed", there is a restriction on any alteration of the building elevations.	3
Uncertainty between the building regulations and the planning process	Confusion about the energy-efficiency requirements in the retrofitted buildings and the actual status of the buildings – "listed for preservation" and thus being exempt from the requirements	2
Lack of information	Lack of information about the energy saving potential of the renovation measures	2
Unrecoverable costs	The biggest benefits of the investments are seen from the users, in terms mostly of economic savings, but usually the investments should be made from the owners/developers.	2
Other*		
Other*		

**Please, rank the significance of the barriers to the implementation of energy-efficient measures in the White Meat City from 1 to 4 from your own perspective, where:

- 1- Not a barrier
- 2- Somewhat of a barrier
- 3- Moderate barrier
- 4- Extreme barrier

*If you identify other barriers, please write them under "Other".

Appendix 4

Stakeholders ranking, in terms of their power/influence on the implementation of sustainable growth in the White Meat District, Copenhagen

Stakeholder	Power,Influence (1- 5)
Tenants	
Municipality-Økonomiforvaltningen	
Municipality-Teknik- og miljøforvaltningen	
Municipality-Kultur-og fritidsforvaltningen *	
Heritage Agency	
Building regulations	
Other **	
Other**	

*Københavns Ejendomme is part of Kultur-og fritidsforvaltningen

Please, rank the different stakeholders from 1 to 5, according to your own vision for their power/influence performance within the sustainable growth in the White Meat District, Copenhagen, where:

- 1- Not at all influential
- 2- Slightly influential
- 3- Somewhat influential
- 4- Very influential
- 5- Extremely influential

**If you identify any other relevant stakeholders, please write it in the cell "Other" and rank it respectively.

Any other comments are highly appreciated!

Appendix 5

Importance of the economic, social and environmental issues of sustainable development for the selected stakeholders in the White Meat City development:

How important/relevant do you see each of the three pillars of the sustainability to your own vision and company's performance?

Pillars of SD	Definition	Level of importance (1-7)*
Economic	Financial performance-savings, Competitiveness	
Environmental	Resources efficiency , Emissions reduction, Environmental preservation	
Social	Green image, Indoor comfort	

Please, rank the importance of each of the three pillars from 1 to 7, where:

- 1- Not at all important
- 2- Low importance
- 3- Slightly important
- 4- Neutral
- 5- Moderately important
- 6- Very important
- 7- Extremely important

Appendix 6

Interviews list

Interview #	Interviewee	Company/Organisation	Date
Interview # 1	Morten Ørsager	EMA	07.06.2013
Interview # 2	Lars Arndt	Inco	21.06.2013
Interview # 3	Bagge Algreen-Ussing	Fiskebaren	27.06.2013
Interview # 4	Christian Wad	SOHO	27.06.2013
Interview # 5	Rasmus Sanchez Hansen	Copenhagen Municipality	21.06.2013
Interview # 6	Mikkel Sjørlev	Copenhagen Municipality	12.07.2013

Audio record of the conducted interviews