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VALUE CREATION THROUGH SUSTAINABILITY WITHIN  
THE HOUSING INDUSTRY - A COMPANY'S VIEW

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## **ABSTRACT**

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The economy, under the condition of scarcity is meanwhile aiming at more rational economic activities that are efficient and effective. Companies need to know how to make use of new possibilities towards a more sustainable business. The right balance between risk and opportunity implies a sustainable growth and competitive advantage.

Managers need to navigate companies across the globalization, as the global economy is constantly in motion. Further, companies have to face trends since the business world is changing radically. In order to keep up with those changes, companies have to recognize new trends early and respond quickly, efficiently and smart. To gain a competitive edge is without a doubt a critical aspect of a comprehensive value creation economy that withstands the demand for value capture and sustainability.

Expectations towards a responsible economy are growing steadily. Therefore, companies have increasingly an obligation to economize more sustainable and to communicate their social and environmental commitment externally. Sustainability can live through the entire structure of value creation of a company. By reducing environmental and social risks companies can create values. This value creation thus represents a proper performance of a company and the accomplished added value through companies' activities.

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## **LIST OF ABBREVIATIONS**

A21	Agenda 21
CO2	Carbon dioxide
EC	European Commission
ICLEI	International Council for Local Environmental Initiatives
IUCN	International Union for Conservation of Nature
LA21	Local Agenda 21
PPM	Parts per million
SD	Sustainable Development
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNCHS	United Nations Centre for Human Settlements
UNCSD	United Nations Conference on Sustainable Development
UNEP	United Nations Environment Programme
UN-Habitat	United Nations Human Settlement Programme
WCED	World Commission on Environment and Development
WOM	Word of mouth

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## 1 INTRODUCTION

Each of us, whether as an individual or as a member of a globalized society has the obligation to recognize his or her own role and responsibility for the protection and preservation of our future. Sustainability is the key to a future worth living and sustainable innovations are a creative approach to develop products and services, which also benefits the health and safety of people as well as the nature and the economy. As former US President John F. Kennedy once said:

*“For, in the final analysis, our most basic common link is that we all inhabit this small planet. We all breathe the same air. We all cherish our children’s future. And we are all mortal.” (Sachs, 2013)*

Even if Kennedy could not have foreseen the challenges that face us in perpetuation of the future of our planet and the future of our children, his words are more true today than ever. Besides the means of development, sustainability has become a worldwide used term that is applied by plenty of businesses yearly. Businesses utilize it to support the environment, communicate their values and engage society. This phenomenon is worth researching because it authorizes the role of the company to engage in sustainable interactions and create value like no other trend. The company now turns into a driving force when creating value and supplying it (Zhang et al., 2011). The concept of value creation through sustainability empowers companies to participate in environmental and social activities by sharing created content with the public.

By these means, sustainability as such has gained tremendous attention. Further, the distinction of the roles between businesses, society and environment seem to merge increasingly. Whereas businesses formerly represented the producing and supplying instance as such, this function has now changed and is taken over by a new strategically approach ‘sustainable development’ (Osborn, 2013). Companies decide according to their established sustainable strategy what is worth producing and thus, convey the synthesis of an entirely new potential of collaboration and interaction between economic profits and environmental approach (Charter, 1998, 5).



The entire world seems to be talking about the phenomenon ‘sustainability’. Whether privately or for business, people seem to be extensively interacting and changing lifestyles. Sustainability seems to represent a fundamental part of the 21st century lifestyle, thus connecting sophisticated human habits with daily business operations. Also businesses discovered the benefits of the developing revolution and many of them having sensed the need to integrate sustainability in their corporate strategy to expand their reach and dedication.

This thesis shall thus be dedicated to research in the field of value creation and sustainability of housing companies since it has been an omnipresent topic in the business world; it examines how value is created through sustainability in the housing industry from a company’s point of view. Sustainability proves repeatedly to be a necessity for many businesses to consider within their strategies in order to remain competitive, as well as gaining new prospects. Within these research considerations, this phenomenon enables entirely new opportunities for both, businesses and consumers, which must be considered in an international fast paced business environment. The way of conducting business has changed, wherein modern businesses can no longer only rely on traditional strategic efforts. New strategic methods with central focus on interaction and acknowledgement of society’s and ecological needs and desires are required.

In its Communication *"A Sustainable Europe for a Better World"* the European Commission (2015) emphasizes the importance of public procurement to promote environmentally friendly goods and services (European Commission, 2015). The housing industry can look back on a long tradition and still is more present due to current reporting than ever. Diverse institutions have already dedicated themselves to the definition of sustainability. The so-called Brundtland Commission is often cited and defined sustainable development in general as *"a development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs and choose their own lifestyle"* (WCED, 1987). On the premise to consider economic, ecological and social conditions not separately, the United Nations Conference on Environment and Development formulated in June 1992 the vision of a future-oriented sustainable development in Rio de Janeiro (UNCED, 1992). The improvement of consistent economic, environmental and social living conditions has been formulated as a common goal

(UNCED, 1992). Since the announcement by the early 1990s more than twenty years have passed and already for a long time the topic of sustainability has found its way into the real estate sector (Kooymans and Abbott, 2006). Even more interesting is that only recently one important aspect comes to the fore in the evaluation of sustainability within the real estate sector, which so far played only a subordinate role: the aspect of user satisfaction (Prein, 2011). The insight of this thesis shall support this statement and justify that user satisfaction is a key indicator of productivity and thus plays an essential role in the evaluation of a building.

Today, companies want to participate in a climate in which the anticipation of social and economic impacts is an integral part in the development and provision of products and services. Companies' sustainable innovations have become a principle of their business. Implementing this principle in our own homes and helping customers and partners to take on this principle through the use of collaborative solutions is important. This thesis presents examples of the ingenuity and creativity that underlie sustainable innovations and further, experts' views for an information rich purpose are introduced.

## **1.1 Background of the Study**

The idea for this thesis arose from the need to shape our world and our actions more sustainable especially in the design of buildings; as Richter stated in his book the need for change since *"building sectors use far more energy than is necessary"* (Richter, 2010, 94). The greatest challenge of our and future generations will be, not only to keep the peace but also to ensure the sustainability of the actions of people in a broad sense. Even the 'Club of Rome' has shown the limits to growth (Meadows et al., 1972, 45). The issue of sustainability has evolved from a purely scientific topic to a specific everyday topic (Girmscheid and Lunze, 2010, 1)

In the meantime, the world population has grown from 3 billion (1960) to 6.13 billion (2000) to 7.24 billion (2014) and is expected to grow to 8.00 billion in 2024. Experts expects a further growth to about 9,5 billion people in 2050 (Worldometers, n.a.). At the same time many people in the developing countries have the desire, for the same luxury

and consumption standard like people in the industrialized countries (Girmscheid and Lunze, 2010, 1). Due to the progressive growth of the world population and rising prosperity gigantic quantities of resources are consumed. This applies both to the consumption of land by population, non-renewable resources and renewable resources. In the energy area the consumption leads to usage of crude oil and its production as a non-renewable resource means that we will soon reach the limits of today's relatively easily accessible deposits (Richter, 2010, 77). This applies to all of our non-renewable raw materials that make our lives comfortable in the industrialized countries (Richter, 2010, 3).

At the same time the CO<sub>2</sub> emissions from the huge increase of combustion of non-renewable and renewable energy sources for domestic heating, mobility and industry increases. This caused climate change that is already being felt today. The CO<sub>2</sub> concentration has increased since the beginning of industrialization from 275 to 400 ppm CO<sub>2</sub> and will continue to rise if policy measures are not implemented quickly. In addition, greenhouse gases that contribute to global warming as CO<sub>2</sub> rise increasingly (Verspagen et al., 2014).

The CO<sub>2</sub> emissions that is associated with the combustion of non-renewable fuels can lead to global warming from +0.6 to +3.6 Celsius in 2100 if the measures to reduce or to replace the non-renewable energy sources are not consistently implemented (Girmscheid and Lunze, 2010, 2). Climate change and the irreversible consumption of non-renewable resources such as oil, gas and minerals have slowly noticeable, but devastating and irreversible consequences for humanity (Rockström, 2009). The evolution of population growth and the rapid increase in resource consumption have a high dynamic. On the demand side are the exponential population growth and the desire of ever growing consumption. On the resource side (supply side) are the limited cost-efficient and accessible non-renewable resources (Girmscheid and Lunze, 2010, 2).

The subject of energy especially affects sustainability within the building sector. The fossil fuels that we use today mainly for heating are irreversibly dissipated. Other materials such as copper, steel, and gravel are stored in our building stock and can be recycled. Therefore, the path to sustainability in our building park to achieve a sustainable-oriented society is led primarily by reducing the consumption of fossil fuels. Certainly, the constructions must

be constructed in a way that the building materials can be separated easily and purely. Today, buildings can be designed largely energy self-sufficient by ideal thermal designs. Using renewable energy sources, the residual heat and cooling demand can be provided. Buildings can be even used as energy producers and energy storage through photovoltaic or through a combined heat and power coupling in connection with future smart grids of the electrical energy supply. (Girmscheid and Lunze, 2010, 3f.)

However, the difficulty with real estate is that they have an economic lifetime of 80 years and more (Murfeld, 2014, 625; 924). Buildings, which today are designed ideally for the next 20 to 30 years regarding the energy technology, will certainly generate in the first years a lower and an uncertain rate of return than buildings that are optimized only in terms of today's energy prices (Pfnuer et al., 2004). This rate of return is going to change (reverse) in the following years for the benefit of the long-term oriented buildings. Unfortunately, for many stakeholders the predictable future still plays a bigger role than the perspective future (Pfnuer et al., 2004). As a result, many opportunities are missed already, which will prospectively make a costly retrofitting of buildings necessary. The exponential increase in energy prices based on the required retrofitting will result soon to a seller's market (Girmscheid and Lunze, 2010, 4).

Furthermore, the changing lifestyles and housing requirements are to be taken in consideration as well when it comes to observe trends and challenges that a sustainable housing environment creates for companies (Schäfer et al., 2010, 46). Hardly any other area reflects social structures and needs, lifestyles and consumption patterns than the area of construction and housing (Hwang and Tan, 2012a). The tendency towards urbanization continues, whereas the proportion of the population in cities in Europe will increase from 74% (1996) to 83% (2030) according to UN estimations (Schäfer et al., 2010, 46). Many people desire an urban design of their housing and living space. Changing values but also a growth in environmentally awareness have led to changes in peoples beliefs and perception about building, housing, life and work. Additionally, an extensive economic, social, technological and social change is taking place. At the same time, the municipalities and regions as well as the construction and housing industry experiences a profound structural change that is associated with a significant impact, risks and opportunities with regard to the quality of housing, living and working conditions. These new challenges are

confronting the planning, administration and managing business (Schäfer et al., 2010, 46).

Trends resulting from the above described improvements for the housing industry can be described as follows. As the apartment is gaining importance as an expression of personal lifestyle, the tendency shifts towards individuality. Related to this trend is also the subject of increasing demands for flexibility and thus the adaptation to different users' needs. Sustainability, in the sense of awareness for responsible behavior as a user and consumer is rising steadily in the recent past. Summing up, it can be stated that a total differentiation of lifestyles and housing requirements takes place and the differentiation into different types of living lifestyles increases. For the housing sector following challenges and tasks occur, in order to avoid risks: assessment of portfolio regarding the suitability for different types of housing and target groups, analysis of trends and forms of lifestyles (to imply for location and market analysis), and greater attention to the creation or maintenance of flexibility for new and existing buildings. (Schäfer et al., 2010, 47)

## 1.2 Research Gap

As we know, research should always start with a practical or theoretical problem. The impulse for the research questions of this study are indicated by the problems in both areas, missing methods in business practice as well as gaps in the theoretical research within the housing industry. The problematic situation in practice can be illustrated with reference to the situation of traditional and long-time on the market established housing companies. Many companies generate high losses since decades and do not succeed to work sustainably profitable or generate value, even though the state of art allows a company plenty of opportunities for development nowadays.

*“The creative force for innovation is the result of leaving the beaten tracks.” This only can work if action-guiding basic assumptions are questioned and changed.” (Sackmann, 2008, 229)*

In terms of energy efficiency and renewable energies much progress has been made since decades. The technical and economic potential for housing companies is present, however, yet often insufficient used for modernization and new construction. The topic of the thesis has proven to be particularly relevant. Companies connect with the application of

renewable energies and a sustainable approach especially with the hope of a positive impact on their economic development. Companies often assume that value, which is achieved through the development of sustainable and innovative products to meet customer needs, is sufficient to be successful. But, in practice it can be observed that in many cases competitors on the market displace companies that contribute to add value with sustainable products and services. These cases make it clear that companies need to not only focus on creating value by developing sustainable and innovative products, but also on the acquisition of sustainable strategies and value capture in order to succeed.

How can some housing companies acquire more value than others, especially if they provide less or the same amount of value by engaging in sustainability? This is a central issue for practitioners and researchers in the field of strategic housing management. Recent (management) literature has been increasingly clarified that simply being in possession or access to corporate resources is not a guarantee for success of a company. It rather depends on whether companies are also able to effectively make use of their resources. Thus, this thesis examines housing companies' management, the adaptation of sustainable measures and the application of appropriate, synergetic corporate resources in order to create and capture value. However, there is only little empirical research on strategic management challenges for supporting companies to acquire values by engaging in sustainability. This thesis tries to precisely close this research gap by observed managerial strategies that are examined in the value creation process through sustainability within the housing industry.

### **1.3 Objectives and Research Questions**

The aim of this research is to reveal different types of creating value as a major driver of a company's sustainable development. Therefore, the focus of this study is on the acquisition, systematization and measurement of value creation through sustainable management methods in the housing industry. Consequently, the superior research question to govern the following analysis is:

**RQ: How value is created through sustainability within the housing industry?**

Due to the fact that this question is rather general, covering the entire intention of this

paper and since the research requires a more detailed examination, the following subordinate questions are to specify the research direction. Primarily, the subsequent questions are business-focused, leading to respond to the greater aim of the research.

SQ1: What sustainable strategies are used within the housing industry?

SQ2: How do housing companies proceed in order to create value?

SQ3: What methods are used in order to capture value?

These specified questions are to guide the practical research process. During the implementation of the examination, those questions shall be a valuable tool for not losing track of the initial research intention. The following table provides a summary and overview of the research questions, the initial objectives and the used data and methods to achieve research results and draw final conclusions.

<b>Research Question</b>	<b>Research Goal</b>	<b>Method and Data</b>
<b>Main Research Question</b> How value is created through sustainability within the housing industry?	Reveal different types of creating value as a major driver of a company's sustainable development and in order to develop a framework	Academic Literature Interview Results Secondary Data
<b>Research Sub-Question 1</b> What sustainable strategies are used within the housing industry?	Identify strategies for the achievement of strategic objectives and how companies implement these strategies.	
<b>Research Sub-Question 2</b> How do housing companies proceed in order to create value?	Identify companies activity processes and tools in order to creating value	
<b>Research Sub-Question 3</b> What methods are used in order to capture value?	identify companies activity processes and methods in order to capturing value	

**Table 1:** Research Questions, Goals and Methods and Data

The initial research problem discussed above indicates our intention to examine the impact of sustainable behavior regarding value creation of a company. This study focuses on trends and challenges that the sustainable housing environment creates for companies and what superior value companies get from investing and engaging in sustainability; without intention to provide statistical insights as to why tenants may or may not rent an apartment after housing companies state their sustainable development.

## **1.4 Structure of the Thesis**

The introduction of the research illustrates the topic, in which the background and importance of the research from a scientific and practical perspective is explained in chapter 1.1. Chapter 1.2 first is dedicated to the identification of the research gap and to illustrate the problem this work is going to approach. Based on that, precise research questions are formulated in chapter 1.3 and the expected contributions of science and practice are illustrates. The conclusion of the introduction forms the current section (1.4) with an overview of the structure of the thesis.

Chapter 2 aims to develop a theoretical framework for this thesis, which contributes to both, to limit the analysis area of the thesis and to justify the proposed research questions. Furthermore, this chapter refers to the theoretical framework of social sciences that allows a scientific progress. Chapter 2.1 addresses the definition of value creation and indentifies specific concepts and tools. In an effort to carry out this thesis on a scientifically sound foundation, sustainability aspects are discussed in chapter 2.2. Finally, in chapter 2.3 relevant theoretical approaches of the housing industry and its development from past to present is presented; challenges and opportunities for sustainable buildings are examined and the contribution towards this thesis is discussed successively.

Chapter 3 is devoted to the development of the research frameworks. Based on the obtained findings and with explicit consideration of the theoretical framework of this work, the underlying conceptual research model is derived, which lays the foundation for the later following empirical study.

Chapter 4 presents the derived research methodology of the thesis. Initially chapter 4.1 is devoted to the data collection and explains how significant data was collected. Chapter 4.2 clarifies the most important type of data collection for this research. In chapter 4.3 it will be discussed how the obtained data are analyzed and finally, chapter 4.4 presents a discussion on the reliability and validity of the collected data.

In Chapter 5, the importance of an empirical examination of the theoretical constructions is highlighted. The entire chapter is dedicated to the evaluation of the obtained data by

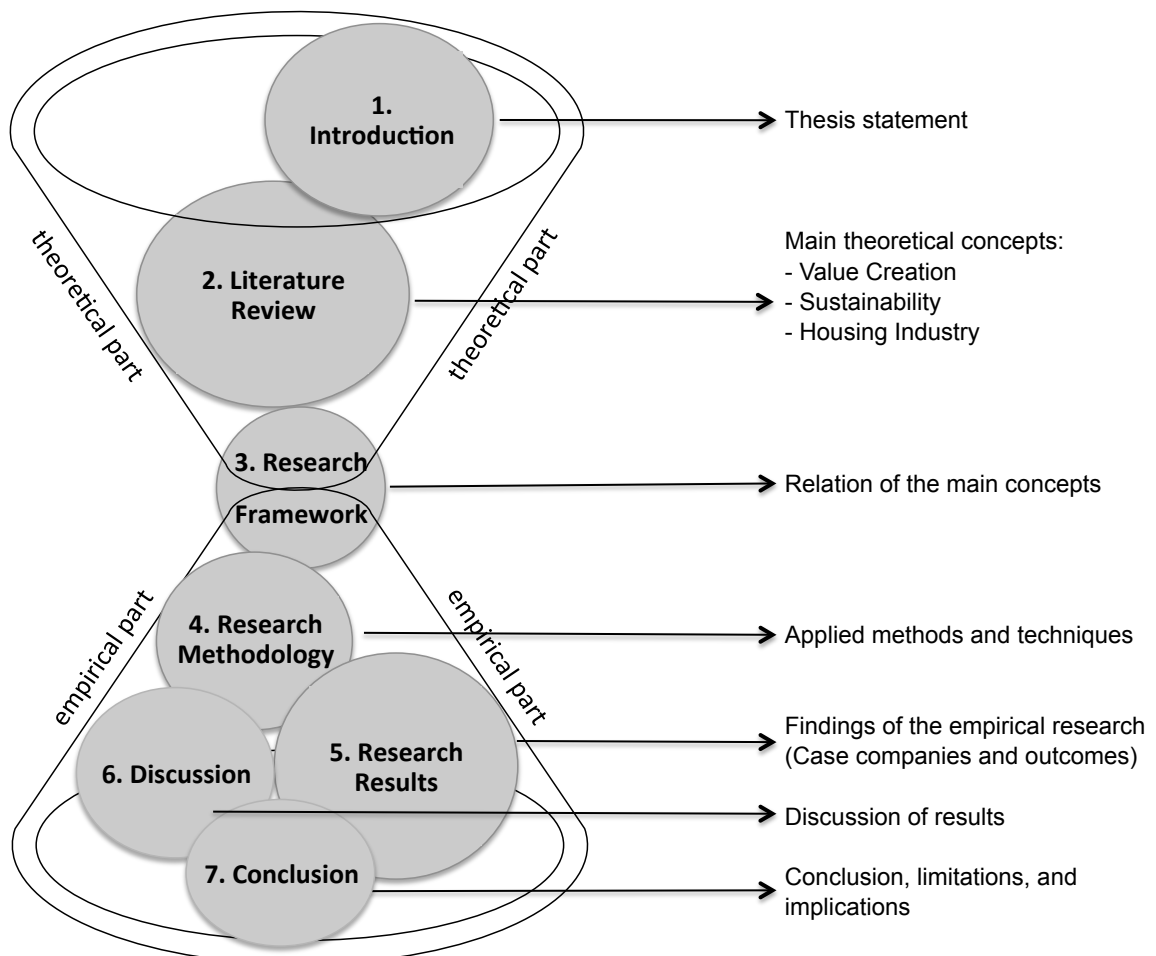


carring out a qualitative research and the evaluation of gained research results. It gives an outlook on how the way of a housing company towards a sustainable business might look. The chapter deals with the various fields of action, in which the companies are active.

Chapter 6 represents the discussion and reflects the empirical results that relate to the literature. Findings from interviews, questionnaires and secondary data are taken in consideration in order to summing up the results.

Chapter 7 forms the completion of this thesis. First, the results of the research in the background of the research questions are evaluated and discussed. Afterwards, limitations of the scientific research will be derived and implications are presented as a possible starting points for further research.

The below figure (hourglass) illustrates the structure of the thesis. It consists of the above described six chapters (excluding references and appendices).



**Figure 1:** Structure of the thesis (hourglass)

## **2 LITERATURE REVIEW**

In order to understand the complexity of value creation and sustainability, the phenomenon is introduced subsequently. Sustainability has become a necessity in many people's and company's daily lives and accordingly, they spend a significant part of their time on provided opportunities by this phenomenon. Environmentally conscious behavior and many related activities have developed and take place to a great extent. For that reason, many businesses understand the need for engaging in sustainability in order to remain competitive, approach the target audience and possibly reach prospects on new potential.

Connections between scientific concepts and the sustainability phenomenon are established and possible extensions or alternations of models due to the complexity of the phenomenon are demonstrated. Besides the means of clarifying the complexity of value creation through sustainability and discussing it from a strategic angle, the business aspect amongst this enduring environment is considered. The analysis of the fundamental aspects of strategic management needs to keep in mind the essential questions what economic value actually is, how and with what processes values are created by a company, and what processes allow a company to successfully acquire value. The structure of the literature review introduces the concept of value creation, sustainability and the housing industry. As many concepts play an important role when considering this thesis, they are as well defined and illustrated in this chapter.

### **2.1 VALUE CREATION**

This chapter lays one of the foundations for our research questions (Chapter 1.3). To begin with, Chapter 2.1.1 describes the term 'value' itself whereas the following chapters build on that description. Further, Chapter 2.1.2 (concept of value creation) and Chapter 2.1.3 (concept of value capture) expose the correlation of value creation and value capture.

Previously the subject of value creation was considered a structural improvement. Approaching a path that is cheaper, better and people wanted to gain faster a competitive advantage throughout the value chain. According to Innovative Management Partner (IBP,

n.a.), this logic is in the future no longer sufficient to build and maintain relevant competitive advantage. Even today it is noticeable that formerly integrated value chains begin to dissolve in more and more industries; industry boundaries blur and organizational boundaries are becoming more permeable. Under these conditions a mere work in the value creation system is not enough anymore:

*"both value creation and value capture are required for innovation to be commercially successful." (Fischer, 2011, 101).*

In particular classic industries increasingly develop towards networking value creation spaces where completely new roles emerge that are occupied by non-industry players (IBP, n.a.). This means in principal that companies have to deal intensively with questions about the kind of role they want and can adopt in these new value spaces; as there are roles like being an innovator, impersonator, orchestrator, producer, or specialist (IBP, n.a.). Further, companies need to think about how they can establish a significant competitive advantage and how the value for the company must be designed in order to successfully change conditions; according to Procter and Gamble competitive advantage *"It's the power of one and value of all"* (Procter and Gamble, 2014). In order to find conclusive answers to these core issues companies must be prepared to engage in entirely new perspectives in the context of value creation approaches (IBP, n.a.).

### **2.1.1 Concept of Value**

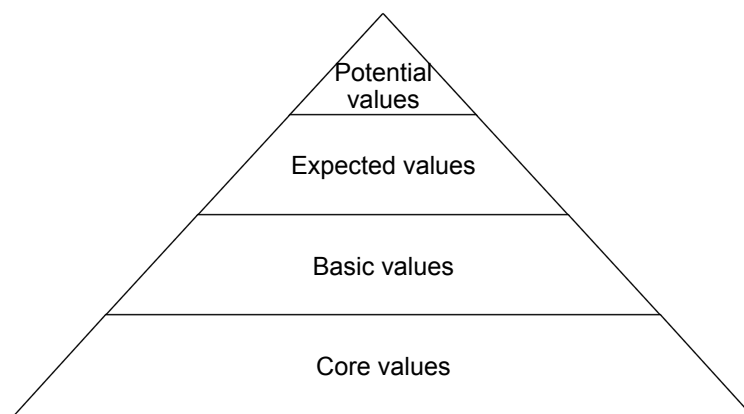
The Term 'value' itself can be defined as following. Generally spoken, value is taken as a measure of the usefulness of a product to meet a specific purpose. According to Porter (2008, 115), the value of a product corresponds to the amount of money that one is willing to pay for the product provided. Bazermann and Moore (2009, 155-156) argue that value is not a general feature of a material, but the value is the result of a subjective assessment by the evaluator. The subjective evaluation results from an interaction between object and subject. Thus, the evaluation is depending on the course for action of the reviewer and consequently is liable to a change with respect to individual preferences or the time.

*"Through the process of identifying and adding issues, the parties will have the potential to create value, thereby increasing the amount of total benefit available." (Bazermann and Moore, 2009, 156)*

Values can be characterized as fundamental or implicit conception of what is desirable. Values have to some extent the character of goals on the other hand they represent criteria for assessing goals, objects and actions. In addition, values sometimes take over the function of orientation standards, guidelines and regulate the behavior in certain directions. For Albert Einstein to generate lasting value is rather more reasonable than just aiming for great accomplishments:

*“Strive not to be a success, but rather to be of value” (McMullen, 2013, 5)*

According to Lasserre (2012, 312) changes of values occur, when new values are added to one’s value system or classified in the hierarchy of values (visualized in the figure below). A change of values is expressed basically by shifting values; shifting of individual values on a subjective ‘scale of importance’ within the hierarchy of the own value system. A change of values that is taking place in the society will be reflected in the behavior of consumers. Furthermore, the dynamics of social values or the values change is also reflected in trends. Even the shift in consumer’s favorite spending is an expression of changed values. Therefore, when examining the customer’s purchase behavior, it can result in significant challenges, which may be associated with risks or opportunities for a company. (Foscht and Swoboda, 2011, 120)



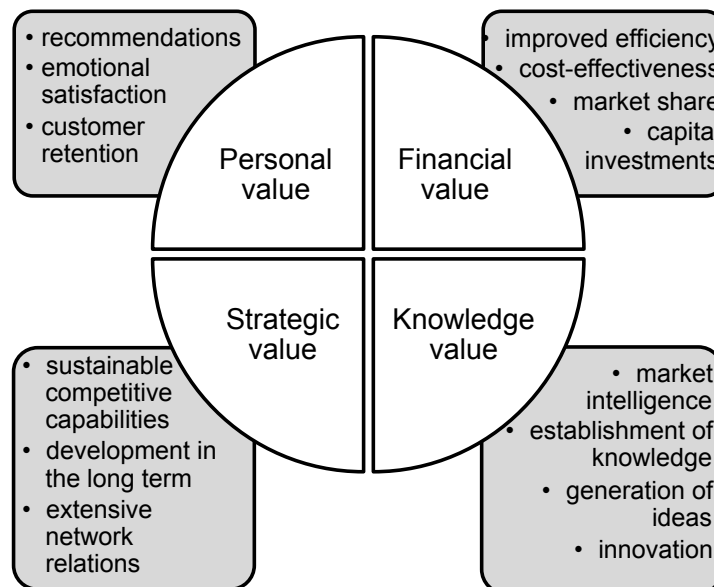
**Figure 2:** Hierarchy of values

Source: adopted from Kotler and Keller’s customer value hierarchy (2012, 326)

In strategic management, the concept of economic value is typically a supply-sided term in which each company that is involved in the vertical production process contributes its share of adding value and tries to acquire a proportional share of the profit according to their contribution of performance (Santalainen, 2006, 201ff.). Any theory of a company

assumes the pursuit of superior profits. Superior profits are the result of the appropriation of benefits resulting from the value-creating use of tangible and non-tangible factors of goods and services. The economic value determines the extent of realized competitive advantage, and therefore, the following applies in the resource-based perspective: if a company generates progressively a higher economic value than other companies in the industry, then this company must have at least one resource bundle that is the reason for the implemented value (Priem and Butler 2001, 29). If it is true that "*consumers are arbiters of value*" (Priem 2007, 241), then this is seen as an important element in the explanation of economic value as an external size of the company. In particular, Priem (2007) indicates that a demand should not just be accepted as a given size, but also the consumer end as the starting point of the concept of value and profitability of the company by value adaption needs to be considered.

According to Bagdonienė and Žilionė (2009), value has different dimensions, features and success variables (figure below).



**Figure 3:** Value Dimensions

As for instance personal value can be identified by means of emotional satisfaction, customer retention and recommendations. Financial value can be characterized as a value on the basis of cost-effectiveness, improved efficiency, company share, market share and capital investments. Further, to identify knowledge value the terms establishment of

knowledge, generation of ideas, market intelligence and innovation are used. Strategic value is recognized through variables like sustainable competitive capabilities, development in the long term, and extensive network relations.

### 2.1.2 Concept of Value Creation

Generally, value creation is defined as the enhancement in value to increase the value of a product or service. It should be noted that the increase in value does not reflect the share of expenses, which is contained in a product, but represents the value that is for example a sustainable rentable apartment for companies (Hering et al., 1997, 96). For a successful and sustained above-average profitability of a company Priem (2007) sees the process of value creation not less important than the value acquisition:

*"Value creation ... is a precondition for value capture" (Priem, 2007, 219).*

Kay (1993, 19) explains value creation as the primary determinant of a company's success, recognized as the difference between the rated output and with costs rated input. However, this perspective highlights only the part of the valuation, which includes factors that are directly controllable by companies. On the other hand, Alisch (2005) argues that value creation is the difference between output and intermediate consumption, calculated by a market producer. For Müller-Stewens and Lechner (2005, 26), however, the value creation is the process of creating value through processing. Kern et al. (1996, 1682-1696) denotes value creation as the event of a sequence of activities that lead to a logical connection to a product or service that is requested by a customer.

A differentiation of the existing literature is viewed by the different value creation concepts by Redlich (2011, 22) in the following figure. The below table shows the statement of the concept of value concerning value content, value, scale, addressable audience and benefit-creating activities according to Redlich (2011, 22). The value content is therefore dependent on the type of donated benefit. Regarding this point of view of value creation, there are no limitations, compared to Porter who only refers value to financial value sizes. Porters' believes are illustrated by adding value through a value chain (Porter, 1986, 21ff.)

Types of value creation	Characteristics
Economic value creation	Difference between output and input as benefit or performance benchmark for society
Stakeholder based value creation	Difference between output and input as benefit or performance benchmark for stakeholders of the company
Process based value creation	Value proposition on any managerial activity for operating results through appropriate use of resources and process design
Strategy based value creation	Increase in value for investors through selection of a suitable strategy
Quality based value creation	Use of performance benchmark for external and internal customers through quality
Service based value creation	Use of value performance for external and internal customers through ideal goods and services

**Table 2:** Types of value creation

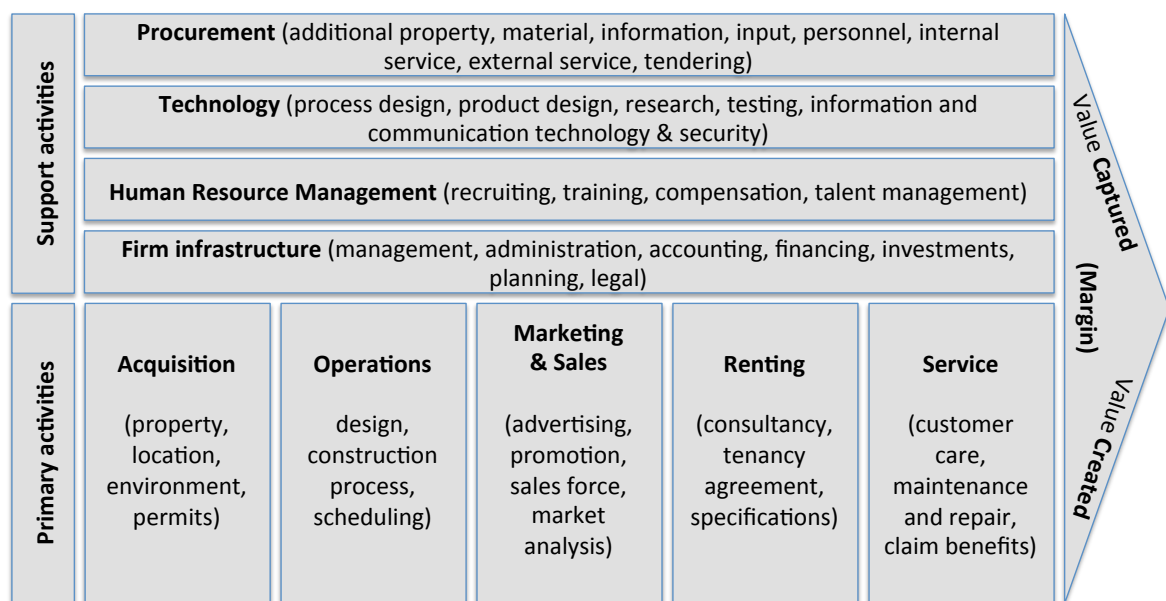
Source: adopted from Redlich (2011, 22)

Value creation aims to keep all activities and processes un wasteful and economical. Likewise, providing false goods and services in a proper way should also be avoided. Value creation in the context of strategic positioning should be discussed and examined more closely. The operational excellence that was formerly a decisive competitive advantage has become the standard in today's industry and optimization is based on the holistic value creation logic. This considers the entire value system with all actors involved in the service process and is not limited to isolated or company-specific single aspects (Berret, 2006, 73-104). Berret (2006) keeps hold of the following:

*"Only those who succeed to determine its future core competencies in line with the market and to design its location networks cost-effectively will be able to survive. The main key to meeting these challenges is an excess of consciously designed cooperation." (Berret, 2006, 104)*

The theory of operational value shall help to illustrate vividly the confusing variety of the real production processes. It should provide both, a declaration of value as well as forecasting and design options. As a basis for structuring business processes at top level, the value chain according to Porter (Porter, 2000, 64 ff.) can be used. Porter's value chain that stands for a company's business system, is represented in the form of a graph showing the sequence of purposeful combinations of production factors that with the use of input factors (land, capital, labor, information) create a marketable product, whose sales value is

greater than the sum of purchase costs of all production factors (Lasserre, 2012, 40). This is based on the idea that every company adds value through its work. A company generates value for example by combining resources, commodities, property and personnel in a way that a customer is willing to pay for the resulting product more than for the raw materials used; the margin represents the profit. Porter breaks down the various activities of a company according to its contribution to value creation. The following figure illustrates the value chain of a housing industry.



**Figure 4:** Value chain analysis – housing industry  
Source: adopted from Santalainen (2006, 192)

The activities of the above value chain are divided into primary activities and support activities. Primary activities are, for example, the creation and distribution of a product. Supporting activities are not directly involved in the product creation. However, they are necessary to carry out primary activities. The value chain has been developed as a basis for strategic analysis of a company. Individual activities of a company are studied whether these activities can be performed more cost-effective compared to competitors, or whether opportunities exist to achieve a higher performance. (Santalainen, 2006, 190ff.)

Theory implies that the economic actors behave opportunistic in order to maximize their own benefit, whereas actors are characterized by limited rationality and that efficient transactions can be a source of competitive advantage (Williamson, 1979). The value chain of a company includes the value creation activities in the order of their operational

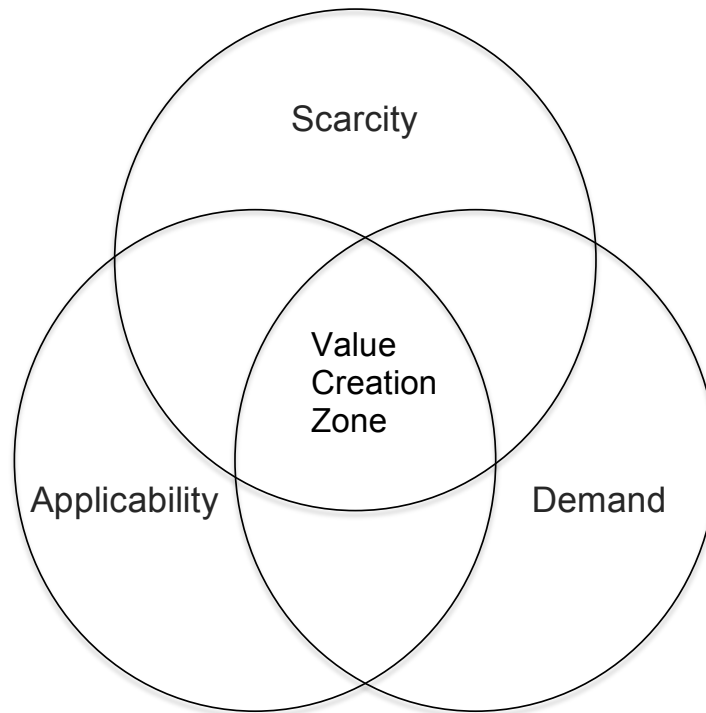


implementation. The value chain in the figure above was modified on the basis of Michael Porter's value chain (Santalainen, 2006, 191ff.). This detailed description of the value chain of a housing industry is used to analyze competitive advantages. By dividing an organization into its individual value creation activities, any of these activities will be screened on their current and their potential contribution to the company's competitiveness (Santalainen, 2006, 192f.). Activities are the basis for the company's competitiveness. A company can achieve competitive advantage when all activities are carried out efficiently and purposefully and when the connection among one another is holistically optimized and well coordinated (Porter, 2000, 66).

According to O'Cass and Ngo (2011), being market oriented is not sufficient for value creation and improvement of market advantages. Businesses must provide two categories of value: first, building relations with business clients. Second, collaborate with those customers; in order to achieve collaboration, businesses need value creating competencies. However apart from those essential value creating actions companies should not forget about the meaning to deliver values to customer's perception in the core product.

The below figure shows three dimensions (scarcity, demand and applicability) that are needed in order to create value. The interaction of those three major market forces defines the value of a resource or a competence. The concept of value creation describes how the value proposal to customers is provided through the linkage of company-internal and external resources and capabilities in a value network (Barney, 1991). The initial point of the concept of value creation is the resource-based method of the theory of the firm (Penrose, 1959; Wernerfelt, 1995): corporations are bundles of resources and building upon that skills and competencies. Resources in terms of resource-based approach described factors that go into the manufacturing process of a firm and are converted into finished goods or services (Amit and Schoemaker, 1993). Skills refer to a company's existing knowledge-based processes. These skills are allowing a company to use existing resources to achieve goals (Amit and Schoemaker, 1993). Because skills develop over time regarding complex interactions of different resources within the company, they are company-specific and non-negotiable (Grant, 1991; Madakok, 2001). For example key skills for business models can occur in product development, product design, brand management or consist in the staff improvement processes (Johnson et al., 2008). Basically

it is to differentiate between tangible resources (eg. production workshops, materials, capital, etc.) and immaterial resources (eg. expertise, reputation, etc.). These resources are tradable and not business-specific (Makadok, 2001).



**Figure 5:** Three dimensions of value creation  
Source: adopted from Collis and Montgomery (1995)

Value creation in the classical meaning is a term from the economy. Within the building sector and housing industry it refers to create a lasting value that should be preserved and maintained by building a house. The value of a building can even be increase consistently by careful combination of many factors that already begins at the planning and design phase. (Nappi-Choulet and Décamps, 2013)

## **TOOLS OF VALUE CREATION**

Bazermann and Moore's tools of value creation reveal strategies that are used to gather information in order to be able to create value ideally when negotiating and conducting business. Firstly, the authors suggest building trust and sharing information. Hereby, the information sharing is considered an easy way to increased benefits and creates value once information is revealed: within and between organizations. Building a relationship

increases the probability that negotiating partners will place their trust in you since “...*the best way to build trust is to actually be trustworthy*” (Bazermann and Moore, 2009, 161).

Secondly, the authors advise to ask questions in order to reveal information that is needed to recognize and learn about interests. Conversations are not only a method to have an effect on other people but also gives the chance to seek information and recognize interests simply by listening carefully to what our vis-à-vis is saying. Being an active negotiator and showing interest in people’s opinion is worth more than assuming to know what people want and trying to talk them into something they will not like: “*Asking questions and listening actively are the keys to collecting important new information from the other side.*” (Bazermann and Moore, 2009, 162).

Thirdly, it is recommended to strategically disclose information. It is important to know not to reveal information of major significance towards business partners in order to decrease ones own risks and pretend oneself from losing power. Rather share secondary information that is useful to gradually conclude a bargain. Sharing certain information may result gradually in building up a common business relationship, trust and a strategically progressive outcome for both business partners: “...*reciprocity can create the information sharing necessary to create mutually beneficial agreements.*” (Bazermann and Moore, 2009, 163).

Fourthly, the authors endorse to negotiate multiple issues simultaneously. Business partners conduct the best possible deal for both parties in the context of a total package of issues to be discussed; all issues shall be approached flexibly, at any time, until a deal is closed: “...*nothing is settled until everything is settled.*” (Bazermann and Moore, 2009, 163). Bazermann and Moore (2009) indicate that simultaneously conducted negotiations can reveal ones point of view, attitude and significance towards different issues and reciprocity consequently makes it possible to create value and flexibility for business partners.

The fifth recommendation is to make multiple offers simultaneously. Quite similar to the fourth advice, the device is to first gather enough knowledge about a product or service before making any rash decisions. Then bundle multiple offers in order to consider the best

suitable offer that creates value for both parties: *“Providing multiple options signals that you are willing to be accommodating and that you are interested in understanding the other party’s preferences and needs.”* (Bazermann and Moore, 2009, 164). Inappropriately, people tend to fall for the anchoring effect, which means that people are influenced in deliberately made choices of existing information from the environment without being aware of the influence. The information in that environment has an impact even if it is actually irrelevant to the decision to be made. It is also possible that one of the parties finds out that submitting an offer is not necessary if the product or service is not according to ones own wants or needs. Therefore, it is important to gather suitable information, pay attention to details and to display patience.

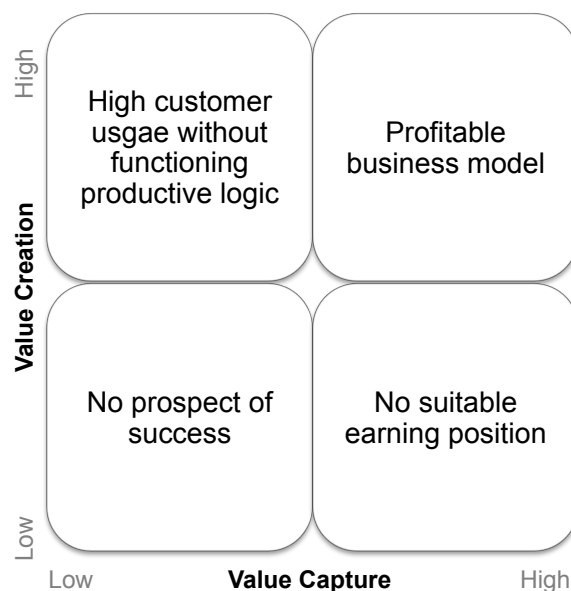
As the sixth tool to create value Bazermann and Moore (2009) recommend to search for the post-settlement settlements, which means that negotiating partners should not see the deal as closed as long as there is space for improvements or conditions seems suboptimal for one party. In case both parties agree to reopen the settlement to find relevant issues that can be developed to the advantage of both it is suggested to hire a third-party to go through the so called ‘Pareto-superior’ state, in which some individuals can make better, without disadvantage even a single individual; *“...each negotiator can reserve the right to veto any new settlements proposed by the third-party and revert to the original agreement.”* (Bazermann and Moore, 2009, 164). When an improved agreement comes into force (created by the third-party) the so-called ‘post-settlement settlement’ (PSS) reflects a sign of confidence and efficiency between both parties. (Bazermann and Moore, 2009, 161-167)

By bearing in mind all of these tools of value creation it will help to benefit from supportive strategies when negotiating. But more important is to know and remember the other side’s interests in worries when it comes to sensitive issues. (Bazermann and Moore, 2009, 165).

### **2.1.3 Concept of Value Capture**

Companies are presumed to be very successful when they accomplish to grow profitable in the long term (Cohen et al. 2009). Especially today more and more companies need to

realize that they rapidly reach their growth and earnings limits. Many of the currently used strategy concepts obviously work no longer. The targeted results are pushed at distant prospect. Business models describe generally how a company creates value (value creation) and monetize that value (value capture), eg. convert it into profit. Value Creation states the advantage that the company provides to its consumers. Value Capture describes how much of this added value of the company can be converted into profit or not. Thus, principally each company has a business model per se, at least implicitly. Fact is that some of these business models work and others do not work (Teece, 2010). Johnson (2010, 40) specifies exemplary results, whereas there are the following main resources for business models: *“people, technologies, products, resources, knowledge, information and distribution channels, partnerships and alliances, financing and brands”*.

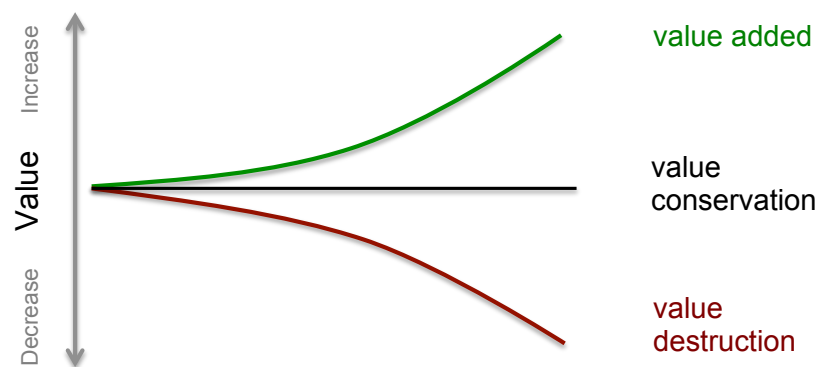


**Figure 6:** Functioning and non-functioning business models

Source: adopted from IBP (n.a.)

As the above figure shows, there are functioning and non-functioning business models with high and low outlook of value creation and value capture. Skills of strategic work lies in the architecture of the business models, which also provide a significant added value for consumers and have an inner logic to transform this added value in superior profits. Therefore, long-term profitable growth is not based solely on revolutionary products. According to Teece (2010) success is rather based on the arrangement of equally unique, sustainable and comprehensible business models. In order to create in the end a business model with a special inner logic we need to identify the composition of business characteristics, elements and dimensions (Teece, 2010).

An earning model, as a part of an adjusted structural approach of a business model, describes how the value returns in the form of revenues to the company that it creates (for its customers). An earning model characterizes the levy of value on two stages: the levy of consumer's values and the levy of corporate value (which is generated through consumer's values). Consumer value can only be skimmed off and transferred into revenues when it actually exists. In addition, techniques or channels must exist which allow skimming off the resulting value to the company (Laesser and Reinhold, 2010). Housing companies face for instance the challenge that the value that they create through modernization of property with sustainable features is skimmed off primarily through higher rents (Laesser and Reinhold, 2010). Companies can generate their earnings through the main service or ancillary services. A housing company for example can rent out apartments, parking places and charge for services.



**Figure 7:** Value curve

As the above figure illustrates, when value increases it results in added value. When value persists then it is a conservation of value; and if this value reduces, it creates value destruction (Schweickart and Töpfer, 2006, 21). The actual goal of a value-based management is therefore an increase in value, and that ideally for all stakeholders of a company or citizen of a state. Due to the fact that economic activities deal with the initiation of scarce goods, the previous named target cannot always be realized. If the scope of action is very tight due to economic, negative national or global influences, then the aim is to ensure at least to maintain the value and thus the avoidance of value destruction. (Schweickart and Töpfer, 2006, 48). For companies, conservation of value implies setting the course at the right time in order to secure a long-term qualified workspace throughout a foresighted development of the company. (Schweickart and Töpfer, 2006, 82)

## 2.2 INTRODUCTION TO SUSTAINABILITY

First, the term sustainability itself will be explained, whereas a few important historical facts have to be named in this context. The concept of sustainability originates from the forestry of the 18th century, where the increasing demand for wood led to an over-exploitation of forests (Burger and Gochfeld, 1998). Thus, it was required to find a solution to combine the economic factor of wood used with the environmental requirement and preserve timber resources. In the late sixties and early seventies of the last century the awareness grew that with further industrialization and technological progress the livelihoods could be destroyed (Adams, 2006). More than 40 years ago the International Union for Conservation of Nature (IUCN) formed the concept of sustainability when in 1969 the IUCN embraced a new mandate that was defined by the following (Adams, 2006; Roders and van Oers, 2011).

*“The perpetuation and enhancement of the living world – man’s natural environment – and the natural resources on which all living things depend”, that indicates the management of “air, water, soils, minerals and living species including man, so as to achieve the highest sustainable quality of life.” (Adams, 2006, 8)*

The above citation would be the basic to all historical indicators towards sustainable development that would follow. Turner (2008) points out that another milestone has been reached in the scientific debate and publication ‘*The Limits to Growth*’ in 1972, which was authorized by the *Club of Rome*. In this study it was found that with further population growth under constant resource exploitation and pollution, the limits of economic growth would be achieved quickly. Thus, the report concluded that the growth conditions would have to be amended in order to achieve an ecological and economic balance (Turner, 2008).

The theory of sustainable development was originally described in the so-called *Brundtland Report ‘Our Common Future’* in 1987 by the World Commission on Environment and Development (WCED), chaired by the former Norwegian Prime Minister *Gro Harlem Brundtland*, who set the foundations for the so-called ‘Earth Summit’ or ‘Agenda 21’ in 1992, in Rio de Janeiro. The work of the Brundtland Commission Report has become one of the most cited works of the environment and development literature

(UN, 1997). According to the United Nations, 172 States participated at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro (1992), whereas the adopted Agenda 21 is an action plan created for the 21st century. It is a policy paper on sustainable development and was worked out at this conference of government representatives and non-governmental organizations. Sustainable development as defined in the Agenda 21 has become a guideline of the Conference. (UN, 1997)

In 1987 the World Commission on Environment and Development, formulated the concept of sustainability, which originally derived from the forestry, as earlier mentioned. It serves as a base for international and national strategies and concepts. The openness of the formulation allows a broad international acceptance and helped to develop discussions on environment and development policies significantly. The term ‘sustainability’ is most commonly used internationally for sustainable development, like the Brundtland Report ‘Our Common Future’ (1987) reflects:

*“A development that meet the needs of the present without compromising the ability of the future generations to meet their own needs” (WCED, 1987, 45)*

The interpretation of the term ‘Sustainable Development’ (SD) is not only attributed to balancing rights to an (economic) development in developing countries, however, the obligation to comply with the Rio Declaration was internationally legally binding after ratification of the treaties. Due to the complexity and different interests, there are many interpretations of the concept of ‘sustainable development’ or ‘sustainability’. The following examples of interpretations will point this out:

*“Sustainable development refers to a process of continuous change, whose goal is the exploitation of resources, the flow of investments, the orientation of technological development and institutional change with future and current needs to reconcile (...). The concept of sustainability thus refers not only to the preservation of an intact environment, but in general, the security of livelihoods for the people (...) [and] aims in this regard to the environment, economy and society.” (WCED, 1987, 10).*

*“Sustainable development as a means of ensuring human well-being, properly shared by all people today and in the future, requires that the interrelationships between people, resources, environment and development are fully recognized, properly managed and brought into a harmonious, dynamic balance. (...)” (World Population Conference, 1994)*



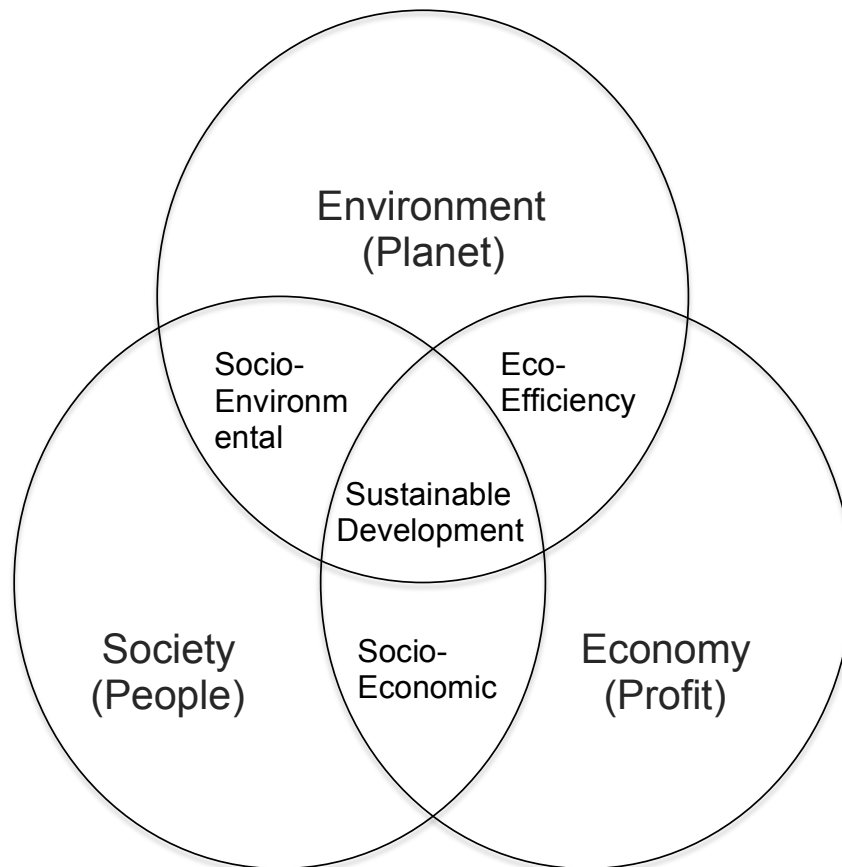
Since publishing the Brundtland Report (1987) and the following UN Conference held in 1992 on Environment and Development (UNCED) in Rio de Janeiro, the term 'sustainable development' enjoys a great popularity and gives the world simply the impression of an improved quality of life for both today's and the next generations. Despite the widespread popularity of the guiding principle of 'sustainability' there still exists no single definition for sustainable development (WCED, 1987) as mentioned above. This lack of a precise definition complicates a coordinated approach and slows down the implementation of sustainable change. The following factors are indicators for the different definitions (Göll, 2003, 136-138):

- Differences in interests of the involved actors
- Different value systems
- Different scientific understanding
- Differences in the spatial and temporal focus

Sustainability implies three dimensions: economic, social and environment. Only when these three dimensions are considered and evaluated holistically, one can act sustainably (Adams, 2006). Accordingly, a model with the three dimensions of sustainability was established that includes social solidarity, economic efficiency and responsibility towards the environment. The figure below shows the connection of the three principles environment, economy and social affairs, to clarify that sustainability can only be achieved if environmental, economic and social aspects are considered equally. The environment dimension reflects the gentle handling of raw material and energy resources of the earth, to observe the limits on the capability of the planet for waste and emissions and the limits of irreparable interference in the ecosystem. The economy dimension reflects the stable and competitive value in production, trade, and services. Lastly, the social dimension reflects the equitable distribution of resources, social justice, humanely jobs, education and skills for subsequent generations and supply for retiring generation. (Adams, 2006)

The Figure makes it clear that all three circles have the same importance and complement each other. The equal consideration and the consistency of the three dimensions of sustainability (economic, environmental and social) are considered to be the essential principle for the future development of humanity and simultaneously represent an attempt to identify the concept of sustainability in all its complexity in particular. The complexity

of the relation of the three dimensions among one another has to be taken in consideration (Tremmel, 2003, 117).



**Figure 8:** Three dimensions of sustainability  
Source: adopted from Adams (2006, 2)

Due to the existing conflict of aims, the relation between the three pillars can also be called the magic triangle of sustainability or the regulative idea of sustainability (Göll, 2003, 137). The fulfillment of a goal with a higher priority in one dimension is inevitably more or less associated with the non-fulfillment of other important objectives in other dimensions; as not all goals are reached simultaneously (Kreibich, 1996, 187ff.). A synchronous development in all three dimensions is extremely difficult due to conflict of aims that occur at all times. As a result, the principle of regulative idea was widely accepted after which the sustainable development should be the goal of development and not a static condition that can be reached. Conflicts are thus on the one hand an obstacle and on the other hand a productive challenge. Opportunities to implement measures in all three dimensions arise by identifying and highlighting solutions for conflicts.

Another aspect of the weighting of the dimensions among one another is that for example different industries operate with different intensity in one or more dimensions. Even in scientific research, the equality of the three dimensions of sustainability is not considered consistent; mostly the integral approach to sustainability is mentioned, but only one dimension is rather fully examined. In this case science talks about a "one-pillar-model" or a "multiple-pillar-model" which prioritizes one pillar (Tremmel, 2003, 118). This raises the question whether prioritizing one dimension is necessary to make specific recommendations. Depending on the interests of the observer or the user of sustainability concepts one of the target dimensions usually comes to the fore; in many cases these are either environmental or social aspects (Beschoner et al., 2003, 23).

The term 'sustainable development' is today used in many discussions and contexts. Therefore, we can speak of a societal trend of 'sustainability', which refers not only to a specific group of people or topic. Generally spoken, trends are global developments that have influenced not only the competitiveness of enterprises, but also the living conditions of people in a sustainable way. The trend of sustainability is a big part of public debates and in scientific discussions; until the mid-1990s sustainability has been discussed almost exclusively in scientific circles. Today, sustainability is part of many areas, like politics, economics and society. (Lubin and Esty, 2010)

Additionally to different interpretations of sustainability it must also be differentiated between weak and strong sustainability (Spars, 1999; Joumard, 2013; Grissom et al. 2014). While weak sustainability implies that natural capital can be substituted by other types of capital (eg. producing capital, infrastructure), strong sustainability, act on the assumption of a complementary relationship of these types of capital (Göll, 2003, 137). It is assumed that weak sustainability indicates that it is arbitrary in which dimension capital persists or is created. Therefore, in the context of weak sustainability it is acceptable if natural resources and physical capital would be depleted, and that on the opposite still adequate amounts of human capital is created, or real capital is available (Göll, 2003, 137). Strong sustainability means that natural capital is only very limited or hardly ever replaceable by human capital or physical capital (Joumard, 2013). Primarily, implementing a strong sustainability should be strived for since the loss of natural capital is a disadvantage for future generations (SRU, 2002).

## **DIMENSIONS OF SUSTAINABILITY**

The convening of the Brundtland Commission (1987) ensured an economic-political approach between industrialized, emerging and developing countries in order to meet the demands of an ever-growing human population and to work together to accomplish present threats and demands of this century. The necessary and forced consensus between economic, ecological and social interests is reflected in the realization of the contents of the three dimensions of sustainability (Harris, 2000). As the above figure (Three dimensions of sustainability) illustrates the bond between the three dimensions of sustainability, this section will explain the importance of each dimension; the order of appearance does not reflect the significance of a dimension.

### **Environmental Dimension**

The environmental dimension of sustainability is based on the assumption that an individual without a certain condition of nature and the ecological systems is not capable of survival (Harris, 2000). Thus, this condition can be defined by preserving certain natural environmental functions. The supply function implies the requirement to handle the natural resources responsibly, so that resources are available for the necessary satisfaction of basic needs of humans currently and in the future. Natural resources include raw materials, water, soil, air and primary energy sources. The support function is aiming at a reduced release of emissions. Furthermore, it is important to take into account the renewable control function of the ecology, since it ensures a long-term and continuous balance of the environment. (Harris, 2000; Joumard, 2013)

Realistically, it is to admit that natural resources are partially already over-exploited, which is implying primarily a disturbance of intergenerational justice. Nevertheless, it is important to stimulate the balance of environmental sustainability prospectively (Harris, 2000). The following items summarizes the main contents of the environmental dimension.

- Minimize use of natural resources
- Avoid overuse of renewable energies (allow to recover)
- Minimize environmental impacts, eg. air-/ water pollution (to support humans' health)
- Endorse biodiversity
- Prevent the destruction of habitats and of plants and animal diversity

### **Social Dimension**

The social dimension is based on the fundamental social standards as justice, security and peace. In order for these fundamental norms to apply it is essential to promote a socially acceptable development (Harris, 2000). Insofar, the social dimension defines the right to a decent life for all humans, intergenerational justice, and participation of all social groups. The following listing shows the areas and the content of the social dimension and to which extent a dignified life, distribution and generative justice, and comprehensive participation can be ensured (Murphy, 2012).

- Basic needs: substantial and immaterial humanly security of livelihood; fair labor
- Social resources: tolerance, solidarity, promotion of education, health protection and health promotion, opportunities to act and social security
- Equality of opportunity: reduce poverty, oppression, exploitation and discrimination (respect for fundamental rights)
- Participation: sophisticated integration, transparency and participation of individuals and societal groups (expansion and improvement of decision-making and conflict management)

Although many approaches refer to social sustainability, the social dimension is often disregarded in the whole concept of SD; the environmental and economic dimensions still dominate (Murphy, 2012).

### **Economic Dimension**

In order to embrace the attempt of sustainable development it is necessary to further develop the economic dimension so that an economical and efficient development is strived for (Harris 2000). This refers on the one hand to a permanently functioning and competitive development and ensure existence and welfare, and on the other hand, a development that is limited due to the natural capacity of the environment and compliance with social justice (Harris 2000). Thus, this dimension is devoted to a large extent directly to businesses. Economic development corresponds in this context to strengthen the economic power in order to achieve the maintenance of a sufficient and desired quality of life over time. Therefore, companies must consistently take on responsibility. This includes for example tax payments, anti-corruption, payment of appropriate and fair wages, safe workplaces and the adaption of environmentally friendly production methods

(Spangenberg, 2005). It can be indicated that a company has adapted to the dimensions of sustainable development when it produces under socially fair and environmentally compatible conditions, generates an efficient output and remains competitive at the same time.

A society should not live beyond their economical means as this would inevitably lead to a damage of future generations. The below listing exemplify how an economic strategy is generally considered sustainable and can be operated permanently.

- Increase spending on research and development (essential for environmentally friendly products and production innovations)
- Promote sustainable production and responsible entrepreneurship
- Creation of sustainable consumption patterns (wasteful consumption limit)
- Development of national policies and national strategies (encouraging a shift to a more sustainable production and consumption patterns)

It is a challenge to integrate and satisfy the previous three challenges simultaneously and further, to integrate the environmental and social aspects into the conventional, economically oriented management. This subdivision explained how to classify the approach of sustainable development according to its three dimensions and their particular objectives. The current review is transferred to the next section and explains how sustainability represents a trend within consideration of the housing industry sector.

## 2.3 HOUSING INDUSTRY

The large consumption, production and socio-economic value of living in our affluent society is in an unexpected contrast related to the still reserved attention by the economic and social sciences towards the housing industry (Berger et al., 2012, 147; Murfeld, 2014, 81). Since the entire housing industry has been long neglected in the microeconomic literature there are only few definitions. The reason for this remote consideration was among other things the fact that the housing industry was not considered a real market-based economy sector for many years it was rather seen as a highly regulated area, which was established between market and state (Murfeld, 2014, 19). Consequently, an intensive examination of the industry sector was not appealing to many economists. This has changed in recent years because an increased need to catch up in this sector exists (Stibbe and Voigtländer, 2014). However, the housing industry is often only settled as part of the real estate industry in recent literature. The classification as a part of the real estate industry is officially certainly correct but conceals the immense importance that the housing industry has. In politics and economy the term *housing industry* is used as a collective term for all possible political and economical references for the production and commercialization of apartments (Abidin et al. 2013). The economical meaning of an institutional housing industry highlights that housing companies and their economic behavior in the housing market serve to meet the housing demand of a broad population (Abidin et al. 2013). Therefore, politically and economically, the housing industry defines all institutions and methods that provide public and private services to meet the housing demand in compliance with economic principles (Abidin et al. 2013).

This study focuses on the corporate housing industry, which Murfeld describes as an industry that in the narrow sense is a provider of housing options that are companies (Murfeld, 2014, 151). Therefore, solely those companies are understood as part of the corporate housing industry whose purpose is exclusively or mostly dedicated to one or more core functions of housing management (apartment creation, property management and housing support) (Murfeld, 2014, 151).

### **2.3.1 Characteristics of Real Property and Housing**

In general, an apartment can be defined as an enclosed unit of interconnected rooms within a residential building, constructed for durability (Murfeld, 2014, 328ff.). The premises must meet the physical, psychological and social needs of its residents and enable them to management a household (Murfeld, 2014, 4; 21f.). The apartment can be viewed both as an economic good and a social asset (Murfeld, 2014, 17; 105). For the tenant it additionally represents it a consumer good (Murfeld, 2014, 329). According to the law of Engel-Schwabe the apartment is a relatively inferior good; a good that characterizes and differentiate itself from other goods that the demand for those goods changes in a specific manner according to a change in income of consumers (Kofner, 2005). The product apartment identifies the following most important characteristics that differ from other products.

#### **Location Bondage (Immobility)**

The asset apartment is immobile and tied to land with the result that the asset accommodation can only be consumed where it was built (Murfeld, 2014, 329). Therefore, the marketing (like renting and a sustainable use) is dependent on a regional economic situation, technical and cultural infrastructure as well as environmental factors (Murfeld, 2014, 327). Thus, the value of real estate and land property always depends on neighboring buildings and their infrastructural facilities (Pfnür, 2000). Hence, a careful market and location analysis is necessary before choosing a location. For existing properties, the location aspects can be decisive for the rentability and the attainable amount of rent (Murfeld, 2014, 329). The current location aspects can provide useful information on the market attractiveness and the future market potential (Murfeld, 2014, 224). For the longevity of property investments, the consideration of a sustainability approach is necessary (Murfeld, 2014, 1249). The same applies for the estimation of future housing demands to make the supply and use of housing more flexible (Murfeld, 2014, 654).

#### **Uniqueness (Heterogeneity)**

Each apartment is unique. Apartments cannot be completely identical to one another. This uniqueness is due to the location bondage. Even with the same floor plan in the same house, each apartment is unique, eg. due to differences in light exposure. Heterogeneous



assets are those that are not alike in their characteristics, but still compete with one another because they are substitutable to some extent. The benefit of an apartment depends on subjective and objective aspects that include features such as equipment, environment, location, and price. (Murfeld, 2014, 329)

### **Durability (Longevity)**

Unlike most other goods a property is characterized by its durability or longevity. This means that properties are often bought and sold several times during their lifetime. Thus, there is a competition between real estate portfolio and new buildings. However, quantitatively the real property portfolio is dominating compared to newly built houses. The apartment is the most durable of all essential consumer goods and is mostly used by several households successively. (Murfeld, 2014, 329)

Depending on the approach, the technical and economic useful life is to be distinguished whereas the economic useful life is usually of significance for science and practice. It includes the period from the completion of the property up to the point at which the cost of the usage (maintenance) can no longer be sustainably covered through rental income. Depending on the technical quality of a building a service life of 80 years and more can be achieved, which is often exceeded (Murfeld, 2014, 625; 924). However, often it cannot be achieved because there is no longer demand for the usage. The longevity implies that an apartment remains effectively on the market for a long time. From this follows that apartments are steadily adjusted to market reactions since apartments are offered several times on the housing market over time. Moreover, tenants' increasing demands for comfort and energy efficient modernization is recognizable, which makes product adjustments as renovation and modernization necessary and implies additional financial burdens for investors. (Murfeld, 2014, 329)

### **Non-Substitutable**

One of the most distinctive features of the housing market is that households must reside, therefore this basic need cannot be substituted. This is an essential difference between housing and other needs. The fact that housing for a household is not substitutable means that there can be no renunciation of consumption. The demand for habitation cannot be compensated or replaced by another asset. (Murfeld, 2014, 328)

### **Long Production and Payback Period**

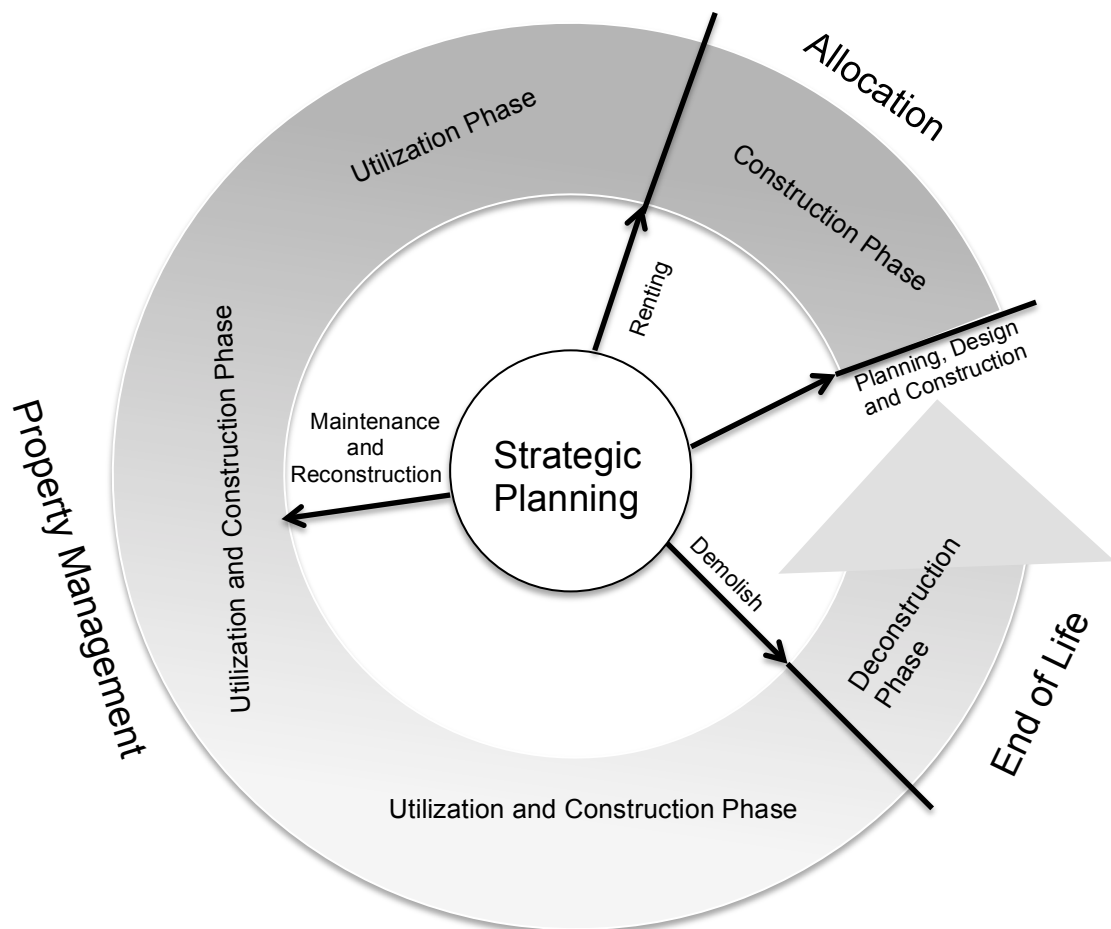
The production process of residential buildings can be characterized as longsome because it involves a relatively large period of time until completion. Depending on the size of the project usually two years pass by between investment decisions and completion of the building due to the long planning, approval and construction phase; whereas a time lag is not uncommon (Murfeld, 2014, 329f.). Therefore, it is rather problematic to adapt rapidly to different market situations. The frequent large investments require a long payback period, thus, the investment risk is higher than for other goods (Murfeld, 2014, 620). Between the recognition of an increased demand, the response, reaction and the effective implementation through appropriate offers lies a time lag (mentioned in the above paragraph) (Murfeld, 2014, 119).

### **PROPERTY LIFECYCLE**

Sustainable residential real estate management goes far beyond ideal action in the duty of society. There is an ongoing optimization process on a single object and the property portfolio. Over the entire lifecycle social, economic and environmental developments are proactively involved in order to keep the building as adequate as possible for future challenges (Andelin et al., 2015). Thus, the value and return on investments are secured, at the same time a contribution against unwanted developments such as global warming or the depletion of fossil resources is provided (Becker and Pearce, 2003). This section describes the different phases of a property lifecycle. Further, all individual stages of the lifecycle are taken in consideration and are displayed, which are important for buildings in order to become more sustainable.

An examination of the lifecycle of real property is of great importance considering the focus of sustainability. The reason for this is the longevity of properties and their immobility. Their establishment and use are associated with large resource expenditures (Becker and Pearce, 2003). Therefore, the sustainable handling of residential buildings necessarily considers of the entire lifecycle since the use of various tools and measures is depending on the individual lifecycle phases. The lifecycle of real property can thus be subdivided into the following three phases as displayed in the figure below:

1. Allocation
  - Property designed and construction
2. Property Management
  - Maintenance & use, conversion, reconstruction, modernization & renovation
3. End of Life
  - Deconstruction and demolition



**Figure 9:** Property Lifecycle  
 Source: adopted from Lifecycle Thinking, Ristimäki (2013)

As the figure of the property lifecycle above shows (to read counterclockwise), the lifecycle of real property can be divided into three main phases: allocation, property management and end of life. In the center, the strategic planning runs as the superior process. The figure illustrates the three phases of the real property process. The allocation phase is comprised of sub-phases with the corresponding planning, design and construction processes. During the property management phase the building undergoes a constant

transformation: maintenance, operating, repairing, and conversion. Construction does not only take place in the allocation phase of a building, but also in the context of maintenance and reconstruction during the property management phase. The end of life phase completes the lifecycle. The processes that are used to manage a single object or even the entire portfolios are relevant across all stages in the lifecycle of real property.

## **DEVELOPMENT OF THE SUSTAINABILITY DISCOURSE IN THE FIELD OF HOUSING**

In recent decades, the discussion of the understanding of sustainable development has continuously developed. Issues of construction and housing has been included and discussed in a variety of national and international events and committees. Two elements are specially notable: one element is generally concerned with environmental aspects, the other considers explicitly linking the relationships between land use and sustainability. Through an integrative observation of sustainability at the United Nations Conference on Environment and Development in 1992 in Rio de Janeiro, the two elements were brought together successfully. The following paragraphs will illustrate topics of international conferences and programs, which defined the framework for a global approach towards sustainable development that also concerns the housing industry. The topics are presented in chronological order.

### 1976 – Habitat I (Vancouver)

The first ‘United Nations Human Settlement Programme’ on housing and sustainable urban development took place in 1976 in Vancouver, Canada. This Habitat conference addressed issues of housing supply and housing shortage. As a result of this conference the UN Centre for Human Settlements (UNCHS) was established in Nairobi in 1978 (UNCHS, 1976; Murfeld, 2014, 5).

### 1992 – UN Conference on Environment and Development (Rio de Janeiro)

The objective of this conference was to develop goals of sustainable development continuously through recommendations in political and legal targets. Relevant for the sector of construction and housing, are regulations concerning climate protection and the Agenda 21 (UN, 1992). The commitment of reducing greenhouse gas emissions is relevant

for the housing industry, since households are responsible for approximately one third of Germany's total energy utilization (Anderson, 2013). Agenda 21 (A21) forms a detailed action plan for the housing industry to work eg. against further deterioration of human conditions, provide adequate housing for all, provide environmentally friendly energy supply and to promote sustainable construction (UN, 1992).

#### 1994 - Aalborg Charter and Local Agenda 21 (LA21)

Based on the contents of Agenda 21 municipalities are encouraged to design programs, actions plans, and projects simultaneously in an environmentally friendly, socially acceptable and economically viable way. Proposals for action in dialogue with its population, private sector and society were to be developed in order to resolve a communal A21. The LA21 deals with almost all areas of municipal action such as the municipal environmental protection, urban planning or economic development. (ICLEI, 2015).

#### 1996 – Habitat II (Istanbul)

The contents of the agenda include the objectives and principles and requirements of a global development of settlements. Mainly Chapter I is relevant for the housing industry, which deals with sustainable human expenditures improvement in an urbanizing world; sustainable land and energy use, social development and preservation of historical and cultural heritage. (UN, 1996)

#### 1998 – Committee of Inquiry "Protecting People and the Environment"

The committee of inquiry (at the German Federal Parliament) was assigned to develop and discuss the controversial debate on sustainability in various fields and set up viable strategies for a sustainable society. The committee put the focus as well on construction and housing. The committee of inquiry focused on selected topics in the context of reducing the land use. The committee realized that the following approaches are of particular strategic importance: Strengthening of urban structures towards urban sprawl and suburbanization; Focusing on the housing portfolio; Resource-saving building and living. (Committee of inquiry, 1999; Deutscher Bundestag, 1998, 126-129)

#### 2001 – UN General Assembly "Istanbul +5" (New York)

In 2001, an extraordinary meeting, the UN General Assembly (Istanbul +5), was convened

on which the participating nations were able to report their achievements and progress in relation to the 1996 Habitat II agreements, related to sustainable housing policy and sustainable settlement development. (UN, 2001)

2012 – Rio +20 (Rio de Janeiro, Brazil)

At the United Nations Conference on Sustainable Development (UNCSD) an almost 50-page long statement “*The future we want*”, is an economic model that conserves natural resources intensely (UN, 2012) and aims at making households more sustainable. In addition, it was agreed to develop universally valid sustainability goals until 2014 (Sustainable Development Goals). Further, the existing environment programme of the UNEP shall be strengthened and upgraded (Osborn, 2013).

### Conclusion

It was a long way to both the first definition of the principle of sustainable development by the Brundtland Commission as well as its preliminary operationalization in the field of construction and housing within various declarations and agreements. Certainly, the approached issues like housing supply, land use and reduction of urban sprawl, reducing energy consumption, residential environment designing and asset development are of great significance for the housing industry. Yet, it must be emphasized that in the discourse of the concept of sustainable development a variety of topics had been addressed with a great relevance for the national housing industry.

### **2.3.2 Sustainable Strategies within the Housing Industry**

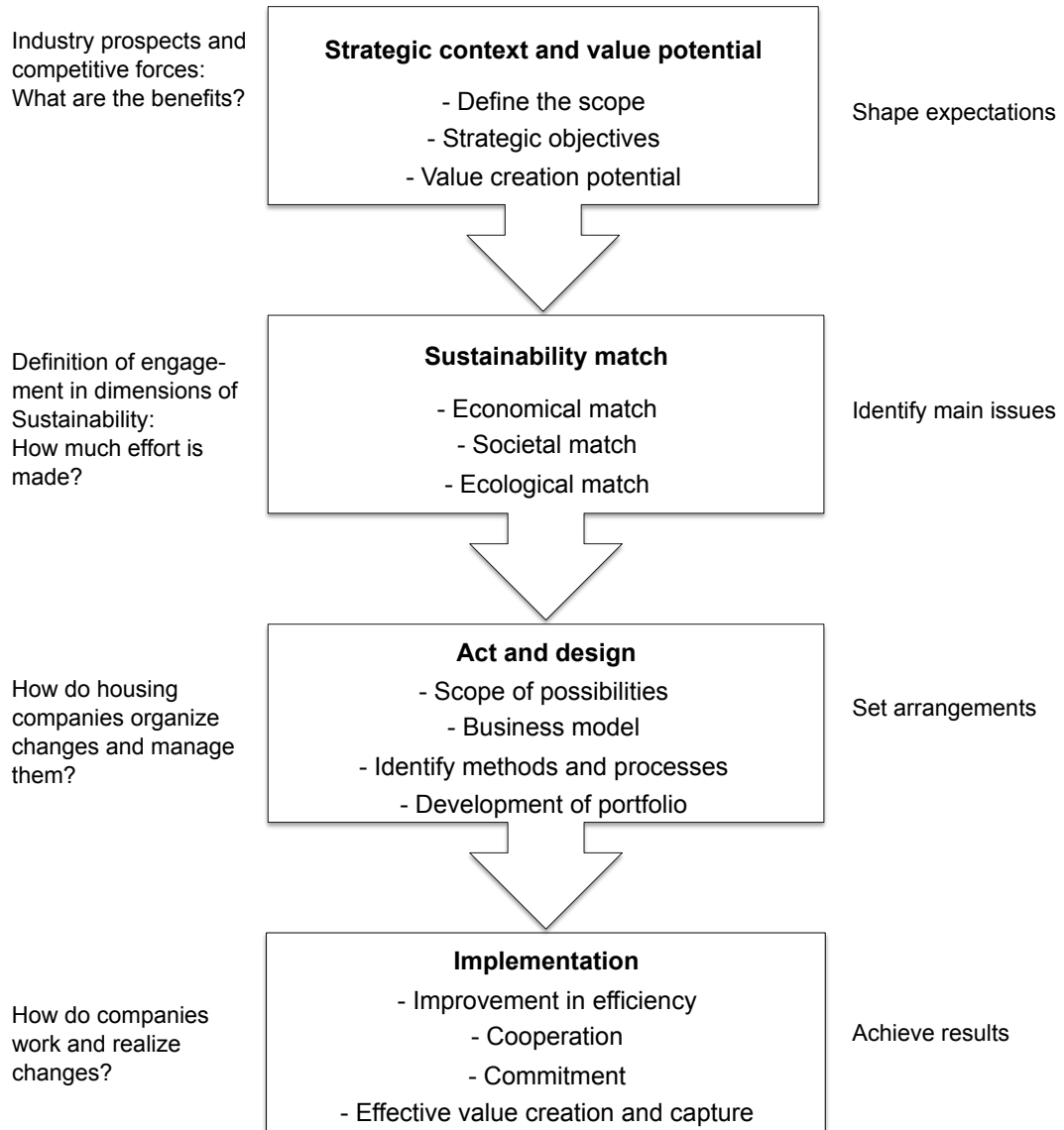
According to Mintzberg et al. (1998) a strategy is a detailed plan of ones own approach, which is used to achieve a goal. In business environment, strategies can be described as a basic approach for the achievement of strategic objectives, which are derived from corporate policies (Johnson et al., 2006, 9). In contrast to the strategy, which defines general procedural guidelines for the utilization of success potential, tactics concern the identification of procedures at dispositive stages and the determination of individual steps (Ulrich, 1987, 106f). Simplified it can be said that pursuing a strategy means to make the right things (effectiveness) and tactic means to make things right (efficiency) (Kotler and

Bliemel, 1995, 85). Hinterhuber understands strategy as a framework within which decisions are made that determine the type and direction of a company. On the basis of its strategy a company must be able to explain what it wants to be in the future for what reasons (Hinterhuber, 1990, 15). The clarification of how a company is accomplishing its approach is part of the strategy implementation. Therefore, the strategy concept of Hinterhuber incorporates the formulation of objectives, the allocation of actions and resources as well as defining control mechanisms to verify the achievement of objectives (1990, 15).

In recent years, society and policy have increased their demands regarding companies' social and environmental responsibilities. Many companies respond to this development by integrating sustainability into their business activities. While many companies offer permanent available services and information, other businesses are uncertain whether green strategies can lead to success for them; whereas success only applies if objectives are sustainable, solve problems, promise benefits and are part of the value creation. (Hwang and Tan, 2012a)

A sustainable strategy is a believe to devote all business activities to a sustainable future. The green guiding principle is therefore formulated as an explicit goal that effects as well the value creation of a company (Zhang et al., 2011). Today, the focus is on the potential for success, which is a requirement for sustainable operational success (Eschenbach and Kunesch, 1996, 5). According to Zhang et al. (2011) certain strategies must be considered to advance the sustainable development. The use of green strategies has gained a wide recognition and is characterized as the methodology to secure environment, natural responsiveness and social obligation by enhancing and achieving sustainable competitive advantages (Zhang et al., 2011). In order to be able to apply values of sustainable development, viable strategies help censoriously to aim at improving the environment. Within the housing industry green elements are a financially effectual decision to housing companies while decreasing the negative ecological impacts of improvement. The purpose of todays buldings is to be more sustainable, cut down on operational costs, be more energy saving and maintain the wholesomeness when applying sustainable strategies (Zhang et al., 2011).

Figure 10 illustrates the strategic framework of housing companies. The four main phases demonstrate the implementation of a strategic approach in the context of sustainability.



**Figure 10:** Sustainable Strategic Framework

Source: adopted from Lasserre (2012, 108)

An adapted classic strategic analysis offers many starting points for the development of sustainable strategic options. Suitable analytical tools hereby help assessing companies' objectives in the light of sustainability; eg. target group analysis, trend analysis, CO2 footprint. Generally, the various individual coordinated analyses are aiming at the need to change requirements and starting points for integrating sustainable aspects and to identify appropriate strategic options. (Ryu et al., 2015)



## OBJECTIVES AND STRATEGIC APPROACHES OF SUSTAINABLE HOUSING

Additionally to the ongoing globalization and the demographic development, sustainability is a trend in the residential real estate industry. As one of the most important sectors of the economy, the housing industry contributes to material use, energy consumption and waste production (Lützkendorf and Lorenz, 2005). The housing industry is where life takes place; thereby, about one third of our energy and resource consumption is provided and consequently one third of climatic impact. Insofar is this industry of great importance for the issue of sustainability and the weight of this sector plays a key role for the sustainable development (Cajias, 2012). Through the enormous consumption only in this sector a lot of energy could be saved.

	Economic Dimension	Environmental Dimension	Social Dimension
Planning and construction	cost-saving planning and construction	energy- and resource efficient construction	adjusted supply of living space (incorporate needs)
Maintenance and utilization	property management	resource and environmental management	social management
Reconstruction, modernization and renovation	cost-efficient reconstruction, renovation, modernization	ecological reconstruction, renovation, modernization	adjusted supply of living space (adaption to needs)
End of life	dismantle and demolish	ecological recycling	socially acceptable process for demolition

**Table 3:** Sustainable spheres of activity within the housing industry

The housing industry receives a key role on the path towards sustainable living and building because its fields of action (eg. social management, facility management, business management and economic growth) consider all dimensions of sustainability (Murfeld, 2014, 121). Property cannot adapt overnight to new circumstances. As mentioned in Chapter 2.3.1 (Characteristics of Real Property and Housing), it generally takes several years from a project idea to a new or renovated building. Each investment decision thus has long-term consequences (Murfeld, 2014, 636). This is where sustainable property management comes into play. Social, economic and environmental aspects are foresighted integrated. Due to this holistic and forward-looking approach, success factors and risks can be integrated in phases (Murfeld, 2014, 174; 648; 723).

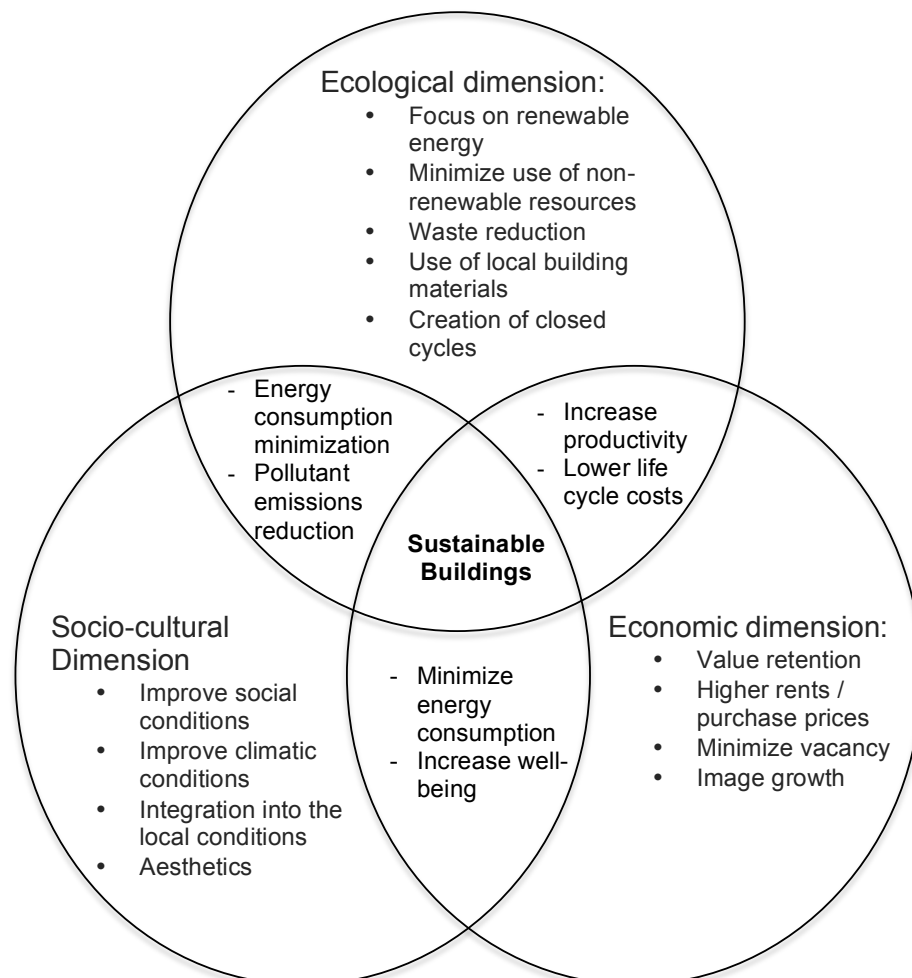
Sustainable housing management is an optimization process on a single object or the real estate portfolio and ensures that the properties remain adequate for the future and maintain

their competitiveness in the market (Murfeld, 2014, 224f.). At the same time sustainable housing management contributes to reduce overall societal problems such as global warming or resource consumption. The better the long-term orientation, and the better the decision-making bases are, the more likely win-win situations arise for companies, the society and the environment (Murfeld, 2014, 57). The sustainability strategy for property must also match the values of related institutions. As part of the strategy development, it is important to select relevant sustainability objectives, weight them against each other and then, implement and monitor measures for the portfolio strategy (Murfeld, 2014, 158; 218). Sustainable corporate management in the housing industry contributes to reduce overall social problems, for example through optimization of energy efficiency that as well leads to reduce the resource consumption. A Long-term alignment of measures and carefully analyzed principles result in a triple-win situation for the building owner, environment and society (Murphy, 2012). The goal of an energetic and utilization-oriented optimization of a building in the context of its design and use as well as the life expectancy is to consume non-renewable energy as little as possible (Murfeld, 2014, 803). For strategic approaches to optimize resources of buildings it is necessary to operate within the business system at optimal costs; regarding investment costs as well as operating and maintenance costs (Murfeld, 2014, 927). This includes the building envelope and the production and distribution of renewable energy and the use of renewable and non-renewable energy for heat, light and power (Murfeld, 2014, 474). In order to reduce the use of non-renewable energy sources the energetic optimization of a building must consist of two major strategic actions. First, increase the production and use of renewable energy sources in the building and second, reduction of total energy consumption and CO<sub>2</sub> emissions of the building (switch of energy sources) (Murfeld, 2014, 525; 803; 952; 962).

While the building envelope has significant influence on the energy consumption of a building an effectively design of the heating and ventilation system can increase the share of renewable energy sources (Murfeld, 2014, 506; 962). In the medium to long term, it must be the goal to become energy self-sufficient in terms of non-renewable energy sources by reducing the energy consumption to a level that can be covered by renewable energy sources (Berger et al., 2012, 37; Murfeld, 2014, 957; 965f.). With regard to the increase in production and use of renewable energy sources for energy supply of buildings great potentials of renewable energy sources still remain largely unused (Girmscheid and

Lunze, 2010 p. 97ff.). It can be predicted that by means of this potential the share of renewable energy sources in the current energy demand can be more than tripled. (Girmscheid and Lunze, 2010 p. 97ff.)

The figure below shows that the implementation of the concept of sustainability needs goals that serve as the basis for the understanding between all participants involved in the sustainable housing process. Consequently, agreements for the preparation of decisions and measures of accomplished achievements can be derived from these goals. This approach is not new, however, in contrast to the current business practice additional aspects with sustainability objectives can be implicated and extends the time horizon (Feige et al., 2013). The demand for sustainable buildings has increased in recent years. Sustainable systems are in demand and have a positive effect on the image of the property owners. Changes must now be made to be able to adapt to an object or portfolio onto sustainability (Rashid et al., 2012).



**Figure 11:** Three dimensions of sustainable buildings

In terms of a residential real estate development under the different concepts of sustainability, it is essential to deal with future developments of the social, economic and environmental factors and to analyze how they affect the quality and usability of a building (as figure 7 displays).

The basis for a successful implementation of a sustainability strategy in a company is to bind the goals of sustainability within the principles and approaches of the company (Cajias et al., 2012). Especially the housing-related sustainability aspects need to be planned and integrated in a long-term. The continuation and control of these objectives and the practical implementation at the operational level in daily business is an important factor (Cajias et al., 2012). The corporate sustainability policy as part of the corporate strategy relates to all phases of the lifecycle of a property. Also subsequent controlling must support these goals, since this provides an important basis for the continuous adaptation of the sustainability strategy. The strategy defines the relevant guidelines for the management of a property portfolio. (Murfeld, 2014, 283; 305)

The implementation of sustainability goals within the housing industry will take place through the product 'property' itself as well as the entrepreneurial activities of the housing company. Especially in the real estate industry, sustainability in terms of energy savings is also an issue that directly affects the marketing of properties (Murfeld, 2014, 330ff.). In addition to the general positive effect that sustainability offers a company, sustainable businesses and their products have furthermore an economic competitive advantage (Murfeld, 2014, 352f.)

## **TASKS AND OPPORTUNITIES OF SUSTAINABLE BUILDINGS**

The background of this study (Chapter 1.1) has already pointed out that sustainability represents a trend that can be observed also within the housing industry and reveals extensively social and environmental barriers. The aim of this section is therefore to explain the situation of the industry-specific sustainability challenges and discover potential conflict situations.

Trends such as globalization, climate change, green buildings and the shortage and higher cost of raw materials challenge companies (Hwang and Tan, 2012a). The increase in raw

material and energy productivity and a possible widely decoupling of resource use and growth must become the center of economic and environmental actions (Hwang and Tan, 2012a). The aim is to reduce the use of raw materials and energy at large.

When natural resources are further depleted in today's fast pace, it destroys the basis of the economy, our livelihood and that of our future generations; about which international committees and conferences warn since years. Companies are highly involved in the maintenance of our planet because the lifestyles of consumers in industrialized countries and the companies that provide the products and services for these lifestyles considerably contribute to these problems. Due to globalization, companies have a large impact on economic, social and environmental conditions all over the world. Companies build houses and offer their services and buy large portions of their revenues from suppliers. The social and environmental impacts are even noticeable in our business operations and strategies. (Hwang and Tan, 2012a)

Firstly, the central sustainability challenges need to be discussed. Sustainability management is based on entrepreneurial tasks to meet all challenges successfully. In order to successfully implement a sustainable development within the housing industry companies have to cope with certain challenges like eg. recognition and awareness of stakeholders, costly building materials, technical changes and modification of obsolete technology, implementation and process duration, close networking with adequate suppliers, and active participation in implementing changes of each department of the company. (van Reedt Dortland et al., 2014; Andelin et al., 2015)

Furthermore, fundamental challenges and opportunities of sustainable buildings, which have to be considered, are specified hereafter. The choice of the location for a building is one of the major tasks since location, orientation, site development, exposure of sunlight, and influence of wind are important. The spatial planning represents the high quality of life, a compact development and creative solutions. In order to generate comfort, a vibrant atmosphere of the room, climate, and pollution have to be considered. The aesthetics of a property is classified by identification, differentiation, functionality, and organization. Bearing in mind the healthiness of a building, daylight, color, air quality, water, and building materials are relevant for well-being. Lastly, construction, statics, adaptability,

and variability are very important factors when it comes to the lifecycle of a building. (Hwang and Tan, 2012a)

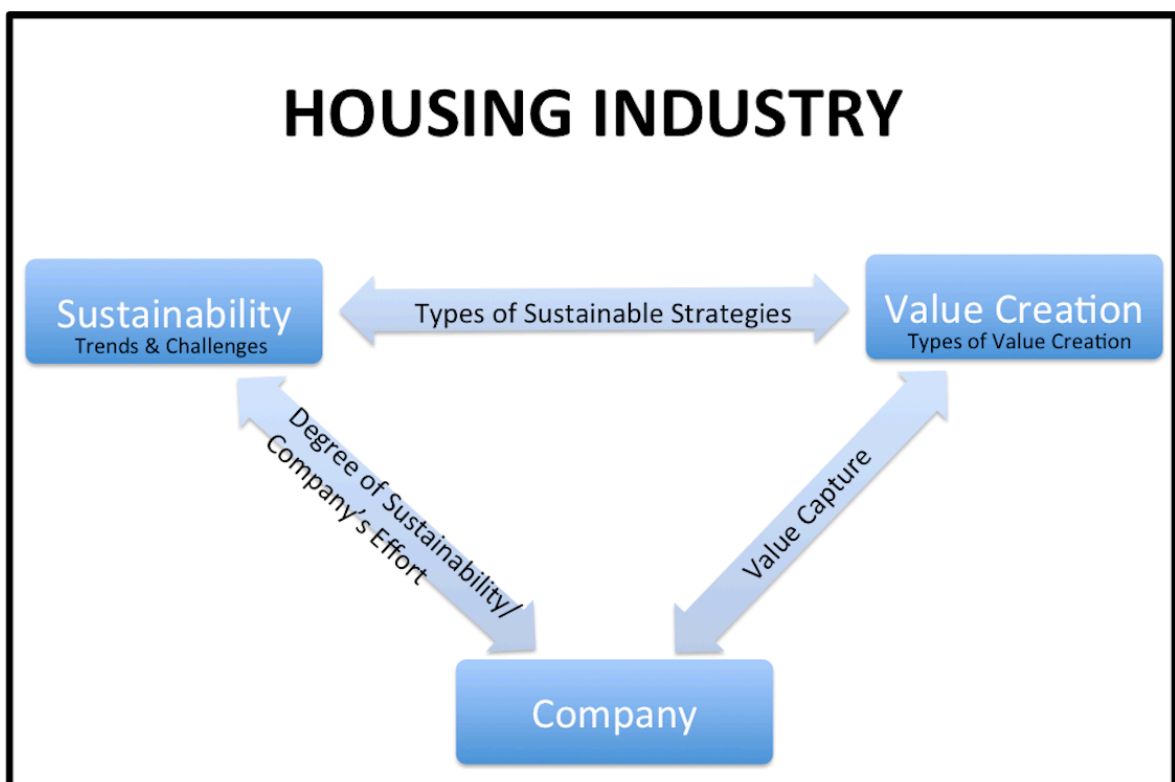
However, well before having the idea of planning a building there are certain factors that have an even larger influence on a company's development. Companies have to bundle resources (financially and personnel), coordinate activities and demands, concert action against erroneous developments, discuss standardization of standards, consider general conditions, and be conscious of having a (role) model character. A single building is codetermined by a variety of stakeholders like eg. building owner, architect, construction manager, operating units, manufacturer of building materials, policies, legislation, standards, guidelines, and financing models. All these groups of interest have to collaborate in order to cope with all challenges. (Hwang and Tan, 2012b)

Resulting opportunities from the successful implementation of sustainable development within the housing industry are mentioned as follows. An adequate knowledge of owners and well-established expert advice will lead to gain in comfort and investment costs can be amortized within a few years because of the energy savings (Glumac et al., 2015). Technical applications and further developments will be the key factors for sustainable development of companies and especially society (Glumac et al., 2015). Moreover, urban, regional planning and aesthetic factors are decisive for success. Considering sustainable spatial planning aspects include even more opportunities for companies (Ristimäki and Junnila, 2015). A proper compacting of the building inwards means a positive influence on the infrastructure, high quality housing in less space, more sense of community and communal feeling, area and landscape is preserved, and very high energy savings (Ristimäki and Junnila, 2015). Developing a proper network around a housing company can lead to a benefiting and complex sustainable environment for companies and further helps against undesirable developments.

As already mentioned, sustainability includes long-term thinking. Since buildings are regularly made for a long time and are to generate significant benefits, sustainability in the management of real estate and to market the product accurately plays a central role. To ensure long-term benefits it is important to anticipate future trends in decisions and reduce risks within the market (Morris, 2000).

### 3 RESEARCH FRAMEWORK OF THE STUDY

Having discussed the contents and the importance of value creation through sustainability within the housing industry in Chapters 1 and 2, a research framework on how these contents relate and stimulate one another and are recognized by the housing industry's needs to be presented. The below figure illustrates the implementation of sustainability through the value creation process of a housing company within the housing industry.



**Figure 12:** Framework of the Thesis

Housing companies as a provider of living space play a significant role on the housing market. They administrate a significant part of their portfolio that is available on the market for households. However, housing companies are also facing significant challenges and scarcity. Due to the limitation of companies' resources, they need to find a sustainable way in order to minimize the use of resources and still be able to make the most of it in terms of value creation. Therefore, a sustainable approach helps to implement this idea.

By following trends and incorporate sustainable strategies, a company's sustainable developments can lead to changes in the demand for housing and thus advantage the rental

situation. Portfolio is being modernized, reconstructed or demolished to reduce the structural vacancy for housing companies. In connection with future prospects it is clear that there are major changes of the portfolio and structures of housing companies compared to past circumstances.

According to Bazermann and Moore (2009, 73) ownership makes property more valuable for companies. Thus, the contribution housing companies make in the individual areas of value creation and sustainability is an indicator for performing a more profitable business, value stability or increase in value. The main idea is to strategically optimize real estate portfolios sustainably to improve the income effect from properties and increase the value of companies' properties. All the more interesting is that the housing companies proactively consider a sustainable development in their fields of action.

Today, different courses of actions are available for housing companies in order to achieve respective objectives. The perception of different strategic alternatives have a corresponding impact on the portfolio of housing companies and thereby lead to changes within the entire industry.



## **4 RESEARCH METHODOLOGY**

The growing importance of implementing sustainable efforts in business operations is discussed from a theoretical perspective in Chapter 2. The research chapter shall clarify the practical application of the discussed means, executed on a precise case by the diverse housing company's presence in terms of value creation through sustainability. The research method involves the forms of data collection, analysis and interpretation, which are used for each particular research (Saunders et al., 2009, 5). Depending on the research design different methods or instruments are applied. The most commonly applied research tools of a qualitative research design include qualitative interviews or surveys, focus groups, case studies and document analyzes (Saunders et al., 2009, 485).

Primary data collection can be performed by means of a survey or an observation. Conducting interviews is one of the most commonly used methods in the field of qualitative research as it has a high degree of flexibility. During qualitative interviews, the opinion and the attitude towards certain issues on the part of the interviewee are of priority. In addition, this method offers the possibility to integrate possible questions during an interview, which might provide a valuable contribution to answer the research questions, but were not planned. The aim of this procedure is to obtain comprehensive and detailed responses from the interviewees (Saunders et al., 2009, 320ff.). For these reasons, the use of interviews represents the most appropriate method in order to answer the research questions of this study. The combination of the insights of the interviews and questionnaires incorporates in the conceptual framework and the associated assumptions. (Saunders et al., 2009, 145ff.)

### **4.1 Data Collection**

The research data collection was conducted through searching for a combination of literature review, existing research reports, questionnaire surveys and face-to-face interviews with housing managements. The literature review and questionnaires are tools to examine value creation through sustainable development of housing companies. Existing research reports and case studies help to demonstrate if sustainability approaches

and development of sustainable projects can offer companies this specific value it is targeting at. In order to find out more specifically what companies value and aim at, face-to-face (semi-structured) interviews with experts of the housing industry and questionnaires will help to reveal and get a deeper insight into that.

### **Semi-Structured Interview Guideline**

According to Saunders et al. (2009) qualitative interviews can be differentiated between the structured, unstructured and semi-structured interview. The development of a semi-structured interview includes an interview guide through using pre-defined questions about certain topics; the order of interview questions can be changed during the interview process. The semi-structured interview is from advantage when the interviewer already has an accurate idea of the interview process and is focused on the analysis of specific topics (Saunders et al., 2009, 320f.). The questions for the preparation of the semi-structured interview guide were prepared on the basis of the findings of the literature review. The following issues were identified, which were relevant to prepare the research question catalogue. These dimensions provide as well a content structure of the relevant topics:

- Business strategy and management
- Assessment of portfolio potential
- Sustainable processes
- Value creation potential
- Future trends and perception of opportunities

The area of business strategy and management, sustainability and perception of opportunities are mainly important for an opinion about main obstacles for the implementation of sustainable strategies as well as the achievement of value creation and value capture. Questions towards sustainability and portfolio formed the largest set of questions. Since semi-structured interviews enabled the greatest scope for interviewees for answering questions and further give access to more detailed information for the interviewer (Saunders et al., 2009, 320f.; 371ff.). The interview questions were developed for the survey of (project) managers, a.k.a experts. Since the specified questions were merely intended as a guideline the order could vary along the interviews and depending on the interviewee, amendments of the questions were made. The interview guideline is provided in Appendix 1.

## Experts

Since this study examines the business of housing companies', in the context of applying appropriate, synergetic corporate resources and adapt sustainable measures in order to create and capture value, there was a need to find exemplary interview partners that can be considered. The chosen experts connect with the application of renewable energies, a sustainable approach and the realization of a positive impact on the economic development. All three experts have been known for their economic success as well as a forerunner for diverse sustainable projects and were selected accordingly. The exemplary experts confirm that companies need to focus on creating value by developing sustainable and innovative products, but also keeping in mind the acquisition of sustainable strategies and value capture methods in order to succeed.

Inter- view	ID	Job Title	Experiences		Recognition within the Housing Industry
			Housing Industry	Sustainability	
1	Expert 1	Managing Director	20 years	20 years	<i>Project: "Multi-Generational Housing"</i> Honored with the German Home Builders' Award in 2014 (category: new buildings)
2	Expert 2	Managing Director	19 years	14 years	<i>Project: "Non-Smoking Housing Complex"</i> applied for the next German Home Builders' Award, to be awarded in 2016 for innovative projects
3	Expert 3	Division Manager	20 years	10 years	<i>Project: "IBA Project 2010"</i> Honored with the German Home Builders' Award in 2011 (category: renovation) ; International awarded with the European Prize for Architecture

**Table 4:** Overview interview partners, experiences and recognition

The table above gives a general overview of the chosen experts and their experiences in the discourse of sustainability within the housing industry, and recognition of achievements. In total, three face-to-face interviews were conducted at the interviewees' workplaces.

## 4.2 Data Analysis and Research Strategy

By means of interviews, an analysis of the value creation methods and strategies of companies through the application of sustainability aspects and tools with regard to increase and capture a company's value is intended. After having selected the experts

thoughtfully, the following steps of the evaluation process are illustrated in the table below.

1.	Collecting data Primary data (interviews, questionnaire) Secondary data (case study, scientific literature)
2.	Transcribing and cleaning data
3.	Categorizing and coding interview data
4.	Analysis and interpretation
5.	Drawing conclusion

**Table 5:** Data evaluation procedure

For the implementation of the interviews experts were interviewed on the subject of value creation through sustainability within the housing industry. This required the development of interview questions that included a high level of flexibility in order to ensure the applicability and reliability. For this reason, the implementation of semi-structured interviews was preferred since this method enables optimal insights in the opinion of the interviewees and offers new findings (Saunders et al., 2009, 322f.).

After successfully subsequently transcribing and cleaning the data the next step is to get meaningful results from the obtained information, which requires specific evaluation methods in order to extract the data. An extraction enables the gathering of information from linguistically, captured data. A suitable method is categorical analysis in which the focal point is the analysis of key issues (Saunders et al., 2009, 485f.; 492f.). This qualitative analysis allows to systematize statements of the interviewee and to identify differences in the statements. In addition, this procedure is particularly suitable for editing large amounts of text (Saunders et al., 2009, 491ff.). The principal of this analysis is to develop subject categories that have a reference towards answering the research questions. Subsequently, significant text passages of the analyzed interviews are allocated to these categories by coding. By coding, an index of key words is being developed that will help to systematize and arrange the data. Consequently, that data is not only summarized but also an intensive analysis of the correlations is supplied (Saunders et al., 2009, 491ff.).

The coding within this study is based on the already gained insights from the theory and on the other hand the analysis of the interviews provide indication for coding possibilities.

The sum of all coding elements form a category system, which could be changed or expanded during the analysis. The determination of which passages were assigned to the defined evaluation categories was carried out by interpretation of the data. (Saunders et al., 2009, 305ff.). In order to facilitate the procedure for the implementation of the thematic analysis computer programs (Word and Excel) were applied that corresponds to a qualitative data analysis with the assistance of a computer. Significant text passages could be labeled (coded) without much effort. Further, the use of a computer-assisted analysis facilitated the process of data preparation significantly. The aim of the analysis of conducted interviews is to produce an overview of the approaches and opinions of the experts on specific topics and combine them with the findings from the theory and the analysis of interviews.

### **4.3 Validity and Reliability**

In any research it is essential that the procedure is reliable and valid. The validity refers in a broad sense to the adequacy of the applied research instrument in order to answer the research questions. The assessment of the reliability or the dependability of the research describes whether a consistency within the research prevails when the applied research method is repeated. (Saunders et al., 2009, 274ff.; 326ff.; 373)

In terms of interview material, this research utilizes data of the year 2015, since these information are based on a completed statement process and are yet rather up-to-date. Due to the nature of sustainable benefits from a fast-paced environment, studies within this area generally feature the shortcoming that their results are only applicable over a long-dated period as their validity is likely to increase fairly slowly. The procedure of the individual interviews and the interview questions were the same in each survey. In addition, every conversation was recorded and transcribed carefully. When evaluating the surveys, a detailed description has been made to ensure the traceability of executed steps. The development of categories for the evaluation of individual text passages is not only based on findings from the literature but also with reference to themes that emerged during the interviews.

When carrying out the interviews, the quality of the obtained information was dependent on the interaction between the interviewer and the interviewee. The competencies of interviewees might affect the validity and reliability; however, the interviewees are very professional and trustworthy, so that any form of information can be excluded from being deceptive. Even though the quality of the answers varied and made it difficult to compare results, it gave plenty of insights and uncovered consolidated knowledge. Since the surveys did not provide a definition of sustainability, it should be noted that the companies might assume different concepts of sustainability when answering the interview questions; companies might for example focus only on one of the three dimension of sustainability (economic, ecological, social). Another risk exists in the extraction of the data, as these are subject to interpretations, whereas the difficulty was not to incorporate personal opinions or expectations within the evaluation.

Nevertheless, the validity of the results supplied by this research is limited to a small number of experts. Hence, those findings cannot be generalized to the whole housing industry as such, due to the fact that drivers of value creation depend on several sustainability issues and take circumstances, individuals and situational aspects into account. Also, the sample material, analyzed by qualitative means holds a biased character toward an existing connection between the value creation process and the experts.

Taking the above aspects into consideration, this study provides a solid base on value creation analysis from a scientific point of view. It approaches the sustainability phenomenon from a business perspective without neglecting the processes, happening inside a company organism. Assuring continuous track keeping of inclusion of sustainability related aspects, the Three Dimensions of Sustainable Buildings, which was initially introduced in Chapter 2.3.2, is of great support. By reason that this model allows considerations of internal sustainability processes, it facilitates the derivation of causation drivers. Additionally, it enables a subsequent evaluation of the companies' particular means to address and support these drivers. Even though this study cannot be generalized for the housing industry in its entirety, certain aspects do hold significant findings, which may be utilized as starting point for further research on this issue. Lastly, further research approaches may utilize the identified outcome and either enlarge its applicability or limit the focus to certain aspects.

## **5 RESEARCH RESULTS**

This chapter presents the interpreted research findings of the implemented qualitative content analysis in a conditioned way. In chapter 5.1 (Interview Results and Findings) results from the interviews and questionnaire are being evaluated and interpreted. This chapter reveals empirical outcomes of companies' value creation performances and strategies. Expert-related insights are presented and shall reveal specific value drivers on how companies create and capture value through sustainability in the housing industry. Further, companies' sustainability performances are evaluated. Hereby, emphasis is put on whether companies are able to conform their role in terms of sustainability. Significant opportunities and risks, emerging from the respective development approach are stressed. This section contains business-related insights. The evaluation and interpretation of the collected data and the presentation of the interview results is carried out thematically and thus does not comply with the order of the interview questions.

### **5.1 Interview Results and Findings**

The following sub-chapters present the results of the analyzed semi-structured interviews, considering supportive questionnaires (Appendices 2 and 3). Results of both, interviews and questionnaires from a business perspective produce an overview of approaches and opinions of experts on relevant topics, to form a relative significant value. On the basis of the evaluated categories the most important information are captured and substantiated with individual quotes of the interviewees (Expert 1, Expert 2, and Expert 3).

#### **5.1.1 Evaluation of Companies' Sustainable Strategies**

As we have learned from the theoretical part of this study, sustainability means long-term thinking, adapts to future trends and implies professional risk management. Long-term thinking is especially important for the management of real estate, since buildings exist generally over a long period. In order to ensure a sustained use, it is necessary for companies to anticipate future trends and counteract risks. Managers of companies affirm these propositions with their sustainable real estate management and an ongoing

optimization process of individual property and the whole portfolio. It is ensured that the properties are adequate for the future while contributing to the reduction of overall social problems such as climate change, resource consumption or demographic change.

*“We must look at the residential area and its portfolio and then ask ourselves the question, what is needed in order to further keep the portfolio functioning. As we have been thinking about the sustainable living in our residential area, we do not just consider our portfolio, we also look at the portfolio around ours.” (Expert 1)*

Since many years, companies consider target groups for their portfolio, both during construction phase and as well during the service supply; the target groups play a dominant role. About a decade ago, companies have not much thought about target groups, back then it was only about renting apartments to people who wanted to move into an apartment.

*“Today, we have to know to whom we want to actually rent our apartments and who we want to address and with which methods.” (Expert 2)*

*“A building needs to be suitable for all audiences and also for all generations on the part of the structural measures, so that people are not forced to move. The accessibility is important; elevators are essential for young and old. Apartments must have individual floor plans.” (Expert 3)*

As the experts reveal, the management of companies is well developed for long-term considerations and the basis for decision-makings are well established. It implies that win-win situations can develop rather soon for companies when significant aspects are followed strategically:

- Sustainability means thinking ahead
- Know and understand your market
- Balance trends, opportunities and risks
- Consider consequences for the management

*“We always have a long-term planning of at least 10 years and the specific population development is considered – the development of rental prices that can be achieved underlies the market trends – a company is well positioned in our field of business if it creates forms of housing for young and old. And all the investments that are made for the following years are made in the long-term and of course underlie a long-term financing to avoid risks for a company.” (Expert 1)*

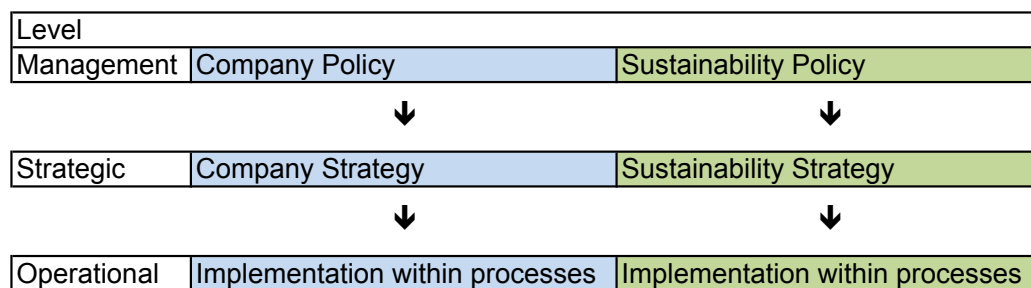
*“As soon as a project differs from the standard floor plan, prospective customers are available who also wants to pay an appropriate price.” (Expert 3)*

Results show, companies that act now, are one step ahead. From a project idea to new or



renovated buildings it typically takes several years. Companies have recognized the opportunity to optimize their portfolio gradually in terms of energy efficiency and social objectives. Thus, experts ensure that the investments are sustainable, which means to stay profitable in the long run. The three dimensions society, economy and environment might not always be equally involved in decisions, however there is no decision or service that is not sustainable.

Experts confirm that companies perform the implementation of sustainability to a certain extent differently, however, sustainability goals are anchored in companies' philosophy and are defined in companies' strategy. Further, companies notice what people need and demand during the renting. Therefrom, companies develop long-term strategies, eg. the sustainable design of buildings and sustainable resource consumption; and companies are always focusing on supplying well-equipped and affordable homes. The experts anticipate the needs of humans; companies listen carefully and observe how the lifestyles and needs of people develop. Furthermore, companies are also concerned about things that have not been experienced yet, and think carefully about how the future needs to be shaped. Such thoughts shall bring repeatedly input into companies' work in order to generate new ideas on how to structure certain things for the future.



**Figure 13:** Sustainability aspects incorporate in all levels of a company

Since the concept of sustainability is part of the strategic planning, construction planning and management processes must be integrated from top to bottom into all processes. The above figure illustrates how sustainability is incorporated into the different levels of companies.

The scope of action for implementing sustainability goals is the biggest at the beginning of a lifecycle. This applies to both, with regard to companies' choice of location and the chosen quality of the building, as well as in relation to the cost implications over the entire lifecycle. Strategic decisions in favor of sustainability are met deliberately already at the

beginning of the lifecycle. Companies involve various stakeholders of the property lifecycle right from the beginning so that they can contribute their perspectives effectively.

*“Investigations of expanding within existing residential areas reveal, how much these areas should be condensed in order to stay attractive – and according to that we make arrangements to extend locations.” (Expert 1)*

*“Also tenants have a say in certain matters when apartments are renovated and reconstructed. Therefore, the human factor should not be neglected when renting apartments, because this is a very important factor for the industry.” (Expert 2)*

*“To make an object permanently sustainable and to have tenants in the long-term, the property must be in a perfect condition, the tenant must be able to use public transport, have shops nearby, and kindergartens and playgrounds nearby. Everything that describes infrastructure at the site has to be accurate, otherwise it makes no sense to invest at the location.” (Expert 3)*

Earlier, primarily the management of the portfolio stood in the foreground; however, the task today is to improve the quality of living and tenants’ loyalty by an attractive living environment and additional services. New options and a networked living environment offer tenants the opportunity to be supported by their housing companies in various life situations and stages of life. Those service bundles include the apartment, technical assistance and networking with housing-related, individualized services.

*“Everytime when tenants approach us with a request we take it and the tenants seriously, and thus we have created an additional "monitoring instrument" that is designed by tenants – ‘pro-active living’ through tenants.” (Expert 1)*

*“Reconstruction and modernization are carried out carefully, so the people do not feel uncomfortable, rents are not raised unnecessarily, tenants’ wishes are considered and tenants are slowly introduced to the company’s planning and strategy.” (Expert 2)*

*“Employees have to know the company’s portfolio well enough to rent appropriate apartments for prospective tenants – close to schools, accommodation for elderly, accommodation for students – the service is to be expanded according to target groups and needs.” (Expert 3)*

Table 5 below clarifies four key areas that were identified, in which the state of art in combination with services is relevant and demanded. According to analyses, technologies that bring real relief and improvement in a tenant’s everyday life and are easy to operate are accepted. Services in the areas of safety, comfort and health, especially for target groups, are in demand. Cost saving technologies through measurement and control of

heating, ventilation, hot water, or electricity are of great interest.

Health	Safety	Service and Communication	Comfort and Technology
Use of adequate building material (to prevent health issues)	24/7 emergency service	Information via newsletters and notices, consultation hour	Application of new technology (to prevent noise, heat loss, safe energy)
Personal care (medical consultation)	Security locks	Leisure activities and community services	Establishment of an enjoyable living environment
Supply of sport gears and facilities	Sustain rental contract (of problem tenants)	Social worker support (eg. compulsive hoarder, alcoholics, debt counseling)	Smart metering: automated distant reading and billing of electricity/heat consumption
Innovative stimulus for a healthy way of living	Smoke detector	Congratulations (significant birthdays or membership)	Commercial facilities resided appropriate for tenants' needs
	Intercom system	Use of tenants feedback for further development	Heating, hot water and ventilation control
		Guest apartment	
External service partners			

**Table 6:** Key areas of housing management in demand

Strategy	Strategic relevant findings
<b>1</b>	<b>Improved and sustainable services</b> Customers are tied to the companies with improved and sustainable services. Those companies that provide special services, distinguishes themselves from competitors. At present, the most important target group is elderly people who want to stay as long as possible in their familiar environment. Barrier-free reconstruction of the property is sustainable and financially feasible in the long run; whereas different services and smaller measures to adapt an apartment are faster and also effective. Improved service enhances the safety feeling in the apartment and neighborhood, which is especially important for the elderly. All services need to ensure acceptance and technical solutions do not replace the personal contact.
<b>2</b>	<b>Encounter rising energy costs</b> Encounter rising energy costs with saving support for tenants. The cost of heating and hot water limit the potential for adjustment of the basic rent. The use of linked technologies can save a large amount of energy costs. As housing companies provide smart technologies that allow their tenants to change their behavior, tenants can self-determined achieve cost benefits and to protect the climate. Further savings result intelligent building technologies.
<b>3</b>	<b>Portfolio development according to target groups</b> Portfolio development is focused on target group (eg. singles, students, elderly, families) oriented technology offers. The market for sustainable services grows and becomes differentiated. Customers now actively get involved with new technologies and express new demands. A target group oriented portfolio development relies on inexpensive access to apartments and barrier-free solutions. Thereby, the technology adapts to the lifestyle of people.
<b>4</b>	<b>Affordable rents &amp; cost savings</b> The limited ability to pay affordable rents requires cost savings. In the facility management of housing companies an improved workflow significantly reduces the administrative costs for services, billing and customer management. In addition, costs can be saved through the professionalization of claim management; services to help and support tenants with debts exist as well.

**Table 7:** Present and future strategic areas for housing companies

Table 7 presents and explains demanded strategic areas for the present and future, which developed from the results of the previous Table 6. The business activities of companies are always focused on the necessary measures by considering the long-term effect of their activities. By investing in and maintaining property, a sustainable effect for securing companies' livelihoods can be achieved. Companies can only achieve appropriate rents in the market if the property is well-preserved, functional and reliable.

### **Conclusion**

Services in connection with appropriate technologies result in customer loyalty within the housing industry. However, services have to serve certain purposes: they need to be sustainable, solve problems and guarantee the user benefits. Particularly promising are models that actively involve the tenant as a 'smart customer' to participate in the value creation process. Companies work with resources that are available. The location of companies' portfolio was chosen from the ancestors and in most cases that choice was done very well. All three experts pursue the opinion, that 'in doing what a company knows and can do best, a company knows the risks and can initiate appropriate measures so that there are no risks and opportunities predominate'. Companies are constantly concerned about what they must do in order to preserve their portfolios sustainable, and in what direction they must develop. Each housing company has its special features and services and that is ideal because people shall choose specifics according to their needs and in order to live where they feel most comfortable; and in the end it does not need more than that.

### **5.1.2 Evaluation of Value Creation Processes and Value Capture Methods**

The permanent availability of services and information changed the value creation. The user is an active part of the business models of housing companies when an appropriately equipped apartment can save energy consciously. Even though the focus is on portfolio and urban redevelopment, tenants are offered specific services. The experts mention viable partnerships and cooperations with service providers and social workers that can be found in all companies. Not only the return on investment is essential for the commitment and the sustainable development of companies' portfolio. Also housing companies' efforts in urbanistic, social, demographic, environmental, and cultural areas is improving the overall

quality of life.

Furthermore, the ecological aspect increasingly acquires a greater significance; the experts note that the use of renewable energy sources also implicate climate protection. The increasing importance of climate protection can be illustrated as an apparent conflict of objectives that also benefits companies very well. Energetic refurbishments that include the upgrading of heating systems and primary energy demands initially demand a significant financial effort but also generate economically appropriate results. Generally, companies can generate significant reductions of energy costs and thus operating costs, which directly benefits the residents, increases the competitiveness of the property and is reasonable for the housing companies', because the reduction of operating costs allow flexibility in pricing.

Simultaneously, housing companies have a clear supply function depending on market conditions and other factors, and are important for the urban development. Central areas of social responsibility within the housing industry include a moderate rent pricing policy, the supply of disadvantaged consumer and the preservation and creation of stable residential structures. By means of a comprehensive housing supply, the companies meet different needs of the general population.

*“A building must be tailored to the specifications of the clientele and hence possibly to statistics on demographic development.” (Expert 1)*

*“The company is close to its tenants, cooperates with them, and tries to keep the volunteering on a high level.” (Expert 2)*

Especially one aspect of the valuation of sustainability within the housing industry has become only in recent years quite relevant, the aspect of user satisfaction. User satisfaction is a key indicator of productivity and thus plays an important role in the value chain of a building. All three experts revealed during the interviews practical examples that make it clear that user feedback uncovers a versatile usable potential, which can be used actively in the value chain of real property. The potential for optimization and particular opportunities for improvement that derive, not only results in a higher user satisfaction and a higher efficiency. Valuable insights that derive from the assessment of weaknesses and adjustments of a building, are embedded in the optimization of lifecycle costs.

*“Towards customer feedback we respond open-minded – we like to be on a par with tenants. Customer feedback is used for further development. Remarks that we receive are noted down on a checklist, which is intended to support the company when discussing new ideas and implementations; the management tries to implement things that are brought up. However, if requests cannot be implemented we do not just tell our tenants that it is not possible – the tenant will be invited to a personal meeting to give explanation of why certain requests cannot be implemented and we will provide alternative solutions, so that tenants can still go home satisfied in spite of everything.” (Expert 1)*

*“Commercial establishments in the residential area are selected carefully, appropriate for tenants: eg. health center, coffeehouse, bakery, pharmacy, physiotherapy, logopedics, travel agency, hairdresser.” (Expert 2)*

*“At all events where the company comes together with tenants, employees are prepared to ask tenants questions and to ask for their level of satisfaction. The feedback is evaluated and courses of actions are derived, in which the management is very interested.” (Expert 3)*

Companies increasingly take the necessity of the demographic development in consideration and steadily expand the offer of elderly-friendly and barrier-free apartments. The housing industry is concerned about the demographic change. Companies act anticipatory and started early to align their offerings and services to the needs of elderly people. Housing companies with a wider services portfolio also address the rapidly growing older population in the renovation projects. Companies are well aware of planning the infrastructure and thus economic future for their communities. Thus companies fulfill socio-political and social demands. At the same time they secure in the long term the existence and renting of their portfolio and thus balanced financial statements throughout an economically viable manner. Through regular feedback of the tenants companies know tenants' wishes and demands. As a logical consequence, companies optimized their service portfolio accordingly. Thus, companies cannot only set themselves apart from competition, but also comply with their sustainable mission. The degree of companies' own values is an important dimension of the corporate identity.

Economic objectives are from priority as well for housing companies. Especially in the context of sustainable preservation and development of the portfolio it is indispensable and reasonable. The sustainable service within the housing industry is an important sector within business operations; if companies would think differently they would not take additional costs into account.

*“A building must always be the subject to ongoing maintenance, it must conform the latest customer requirements, and it needs to be managed through an administrative system – necessary processes and actions at the individual buildings are the subject of our management system. For example: maintenance of heating systems, examination of the water for bacteria, maintenance of solar thermal systems. If a company considers these things in the regular cycles, then its system is organized effectively and thus always corresponds to the customer's needs.” (Expert 1)*

*“Buildings need an intensive care. A compact portfolio is appreciated (short walking distances for the prompt rectification of defects), for the satisfaction of the building and tenants.” (Expert 2)*

Housing companies do not avoid free competition, however, are very open when it comes to exchange of experience, learning from others mistakes and accurate observation of the competition. Since housing companies are operating in a buyer's market under a high economic pressure, operating cost awareness and an efficient management of resources have a significant influence on companies' activities. That reveals that only economically successful companies can face further demands. Obviously, decisive chances of housing companies over their competitors are due to additional tasks that are managed. Every company has found its niche and performs what suits the company best; nevertheless, every company keeps track of the competition and if competitors fail, then other companies can learn from their mistakes.

*“We do not withhold our knowledge. We pass on our knowledge and believe: if we regularly ‘empty’ ourselves, then we will be incited to generate something new. We understand this approach as noncompetitive – we look after ourselves and that everything is implemented as good as possible for the own company.” (Expert 1)*

*“We are in a constant exchange with other housing companies; we can benefit from the experiences of others, but we also share our own experiences.” (Expert 2)*

*“If other companies are interested, we will pass on our knowledge (passive). The company appreciates it if positive things appear in the press and are broadcasted to the public interest. The concept of sustainability and everything the company records positively helps to improve the image.” (Expert 3)*

Companies are in constant contact with fellow companies to exchange opinions, reflect on approaches, implemented projects, and experiences. If doubts occur for companies, certain things will first be observed from other companies before imitating them. Each company has different objectives, realizes other projects, defines the concept of sustainability differently, and has thus different values.

Housing companies pursue a business model that is focused on a sustainable rental and maintenance policy and a long-term oriented commitment towards the portfolio. This strategy, in accordance with a long-term portfolio and location development is striving for capturing and enhancing the value of portfolio. Through a consistent portfolio management, continuous process optimization, use of synergies in all business areas, sustainable employee training as well as a value creation oriented investment policy, sustainable returns are generated.

Table 7 illustrates the value creation and value capture parameters and objectives that were discovered from the interviews; for each value creation process occurs a value capture method and the resulting objectives. The steering drivers are the main factors that appear in this study and are also considered as main elements in the framework.

<b>Steering Driver</b>	<b>Parameter Value Creation Processes</b>	<b>Parameter Value Capture Methods</b>	<b>Objectives</b>
Companies	Portfolio Service portfolio Background Resources Core Processes Investment /Asset Costs advantage Strategy Information sharing Contracting (suppliers) Create new workplace Acquisition	Improvement Scope of supply and services Commitment Regenerative resources Process optimization Return on investment Cost reduction Strategy development Transparency Cooperation Assignments (maintain jobs) Produce	Success Enhance services Positioning Preservation of natural resources Standardization Increase in capital Economize Opportunities outweigh risks Trust Endorsement Lower unemployment rate Deliver
People & community	User satisfaction Recommendation Consumption (energy, water) Activities Demographic change Security	Loyalty Renting Reduction Solidarity Target groups Assurance	Low vacancy Earn money Cost reduction Social cohesion Serve and satisfy Comfort and safety
Buildings	Usability Diversification Low energy consumption Infrastructure Location Environment Affordability	Demand Individualization Performance improvement Autonomy Expandable/ adaptable Waste management Adequacy	Structural change Applicability Self-supply Flexibility Competitive advantage Sustainability Livelihood

**Table 8:** Value creation and value capture parameters and objectives

## Conclusion

The utilization phase represents the main part in the lifecycle of a property. Planning and optimizing living conditions user-oriented in the first place has a considerable economic potential. Aspects of user satisfaction and comfort should therefore be considered in the



planning and operation of a building and be assessed accordingly as part of the value chain. The path taken by housing companies, considers sociocultural factors and thus considers humans as important part of business activities, which is central and important in the discourse of sustainability and in order to create values for companies. Increasingly more value creation is provided by high-quality housing supply and services. There are many opportunities for housing companies because portfolios complements current issues such as barrier-free and family apartments. Still, the reason for applying sustainability in companies' business operations is to maintain the business and also business growth. This is and should be the basis, because sustainability must be financed in some form, and that is only possible if companies generate revenues. According to the experts, companies can only distinguish themselves by the service they offer. Plenty of service must be offered to attract customers nowadays. Companies are doing a lot in the social sector to keep tenants and to secure the revenue and companies' existence. The exchange values for the offered services and housing supply are loyal tenants. Housing companies' business operations may sound always very socially, especially related to the social dimension, however, it only can be socially, when companies' business works economically. A company can only make good decisions with achieving good numbers.

Finally, we can say that companies create value by considering the economic value from benefitting the society, and process based value creation occurs from managerial activities for operating results through appropriate use of resources and process design. Through an adequate selection of suitable strategies, companies achieve a strategy based value creation. The application of quality for customers leads to a quality based value creation, and the use of value by ideal goods and services indicates a service based value creation.

### **5.1.3 Evaluation of Companies' Sustainability Performance**

In order to be able to answer the main research question ("How value is created through sustainability within the housing industry?") the sustainability performance of companies needs to be evaluated. Therefore, the intention was to find out whether sustainability is an issue for the housing industry and what the fundamental significance of the issue of sustainability in companies is. A certain definition of sustainability was deliberately

avoided in order not to influence the respondents by a predetermined direction. While the first intention is aiming at the acceptance of the concept of sustainability within the housing industry, the second intention seeks to capture the integration or importance within companies. In this context, it is not about the assessment of the respondents' attitude towards sustainability, but rather about a distinct positioning of companies in general.

*“The concept of sustainability generally becomes increasingly the center of attention. Anything we do, we do to make it more sustainable. Everything for the short term only is not the business objective of the company. For a company, sustainability is very important.” (Expert 3)*

*“A sustainable long-term goal is to secure a good living for tenants, as well as the maintenance and improvement of existing buildings. The portfolio itself is appropriate to achieve the sustainability goals of a company; a very good structure of the buildings, that can still exist in 100 years.” (Expert 2)*

Generally, the issue of sustainability is considered by companies to be important for the housing industry. The experts' answers confirm that this opinion does not only apply for the housing industry but also for each company. Sustainability is very important for housing companies of all sizes. However, the methods differ from one company to another.

Sustainable development is important for the housing industry. As the interview results show, companies are in particular concern about one dimension of sustainable development, the social dimension. The reason behind the domination of social concerns is due to the business area; housing companies' main business is to rent out apartments to tenants and further to deal every day with tenants' concerns, in order to generate revenues.

*“Tenants like the simplicity when we approach them. They appreciate that we take them serious and that we take care of requests within a short period of time.” (Expert 1)*

*“Not only people with lots of money are renting our apartments, but also people with little money, and also those people we want to provide apartments.” (Expert 1)*

*“Social workers primarily take care of rent debtors, that they do not lose their apartment, and assist with the job search. There are many people who cannot overlook their emergency situations and cannot act.” (Expert 3)*

*“Employees often take on a role of social workers; the work as a property manager is no longer the same as 20 years ago. The society has changed a lot and it is increasingly expected to be on the spot and perform an advisory function. Tenants are very thankful about that and trust our company.” (Expert 3)*

Overall, companies designated a wide spectrum of actions for the social dimension. This illustrates the intensified emphasis on the social dimension in the implementation of sustainable development. The most mentioned activities are related to consulting and support services for tenants; especially for financial, but also personal problems. Generally, the results indicate that sustainability has found its way into the mindset of housing companies. In the further process of the analysis it is important to observe how important the statements of companies are and how this attitude finds expression in their actions.

In the supply of housing for specific groups of people, primarily older people are taken into account. In this context, care and leisure time activities for seniors are often mentioned. Cooperation with associations and other institutions and funding is already established in many companies. The surveys reveal that companies appreciate the opportunity to expand their social commitment in cooperation with local initiatives, clubs and associations and to minimize shortcomings in this area.

*“The service that we offer has a wide range. The most important are: full-time care for elderly people; apartments are available for leisure activities and gathering for the elderly. In these apartments, residents can get together and spend their days together; volunteers take care of these apartments, further, these apartments are equipped and furnished by the company, and we gain no rental incomes from these apartments.” (Expert 3)*

The experts' statements about companies' main activities within the environmental dimension are yet less diverse and thus easier to subsume. Against the background of reducing operating costs mainly measures are carried out for energy conservation, such as the thermal insulation of buildings for low-energy standard, the installation of efficient heating systems and other economic measures. The reduction of energy consumption seems to be an ultimate goal within the environmental sustainability for companies.

*“Currently, about 12 percent of the portfolio are equipped with solar thermal systems (as of April 2015) and we will have nearly 20 percent by the end of this year, when the remaining projects are implemented.” (Expert 1)*

Even though companies are actively using renewable energies, it is yet seen insufficiently as a perspective. A high weight is attributed to waste separation and avoidance. In addition to the recognizable distinctive positive ecological consequences, companies also have a strong economic interest. The green environment and space design,

which is also from high priority for companies, are more of a social background. Companies are particularly active in order to enhance the quality of living for their tenants and the community.

*“It is not just the standard of the apartments that needs to be adapted, but also the environment around us – the residential environment and the tenants are very important. Due to the preservation of sites of historic interest there are partly no balconies attached to apartments. Since many people would like to have a balcony, green spaces and local parks are available for tenants. There are gardens available for tenants, as compensation for flats that have no balconies, available only for a small rental price of 1 Euro per month.” (Expert 2)*

The use of sustainable building materials seems to play a fair role in the context of modernization and repair measures. However, environmental measures with economic benefits are very important for companies: long-term cost-benefit analyzes in building materials and component selection; operating cost management; maintenance cost management; portfolio management; contracting with local and regional companies; renovation to low energy standard; use of renewable energies; use of ecological building materials; roof and facade greening; living environment revaluation; rainwater utilization; need-oriented housing supply; social services; leisure and communication services.

*“When portfolio is being modernized, we try to preserve many old components: original wooden doors, original floors, plaster in the staircase.” (Expert 2)*

To concretize the overall concept that companies are striving for, the three sustainable dimensions and already made achievement are presented below.

#### ECOLOGICAL DIMENSION

- Reduction of land consumption and urban sprawl
- Lower additional soil sealing and exhaustion of urban sprawl
- Material flows in the construction sector with the goals of conserving resources
- Avoiding the use of pollutants in building constructions, reconstruction and utilization
- Reduction in carbon dioxide emissions of buildings

#### SOCIAL DIMENSION

- Securing demand-oriented living space by age and household size
- Affordable rents for target groups with lower income

- Creation of a suitable living environment, social integration, avoiding ghettos
- Linking work, living and leisure in the settlement structure
- Healthy living inside and outside the apartment
- Creating or safeguarding jobs in the construction and housing sector

#### ECONOMIC DIMENSION

- Reducing the subsidy burden
- Reduce investments in renovation and maintenance; comparison with new construction
- Optimization of expenses for technical and social infrastructure
- Minimize the lifecycle costs of buildings (construction, maintenance, dismantling, etc.)

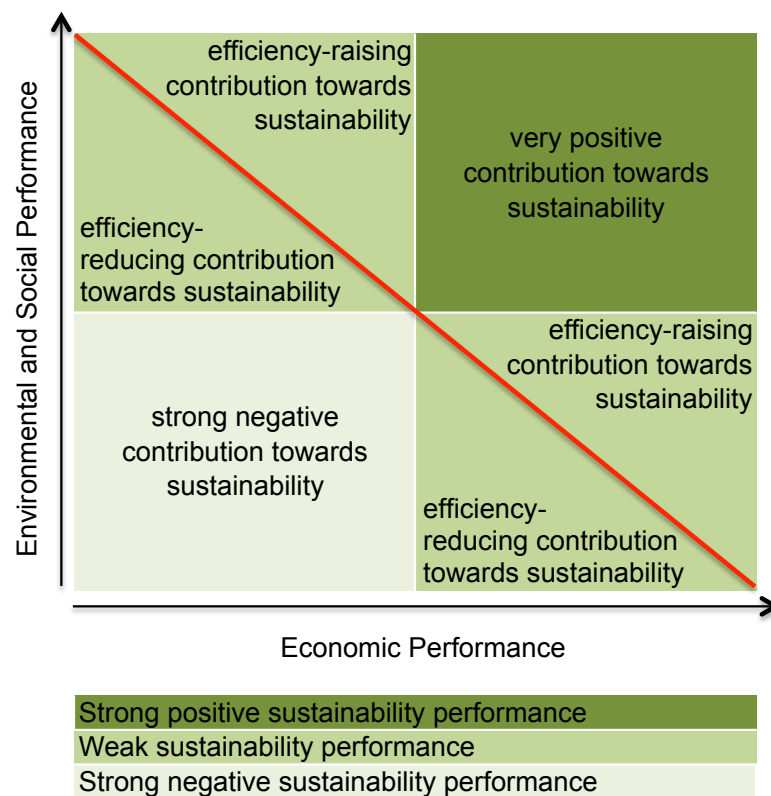
<b>Ecological</b>	<b>Social</b>	<b>Economical</b>
natural resources	individualization	service portfolio
building waste	diversification	resources
energy consumption	structural change	asset
water consumption	social psychological	cost (benefits)
(difficult) waste	autonomy	value creation
renewable energies	cooperation	value capture
autonomy	healthiness	risk assessment
preservation	contribution	productivity

**Table 9:** Dimensions and areas of companies' sustainable development

Companies achieve environmental, social and economic objectives, and thus make a contribution to sustainability. That experts provide insights of a very strong positive contribution towards sustainability cannot be justified in this study for the time being, due to insufficient background information and insights in all business operations. However, arising from the interviews, insights revealed companies' dedication towards sustainability and therefore show definitely an efficiency raising contribution towards sustainability. Companies have different preferences with respect to environmental, economic, and social performances (some have more likely an economic motivation others a more ecological or social motivation). However, companies generally try to identify and make use of the causality between environmental, social and economic performance.

Figure 14 illustrates the various cases for sustainability dimensions. In this figure, social and environmental dimensions are summarized to one dimension. The red line represents the barrier between a positive and negative sustainability. Companies can be evaluated according to their sustainable efficiency; through an environmental-social and economic

performance. According to the interview results of the experts, companies that are sustainably active are evaluated to be above the red line and therefore are sustainable active in all three dimension of sustainability. However, an exact positioning of a company can only be arrogated, if sufficient background information and insights are available.



**Figure 14:** Sustainability Matrix

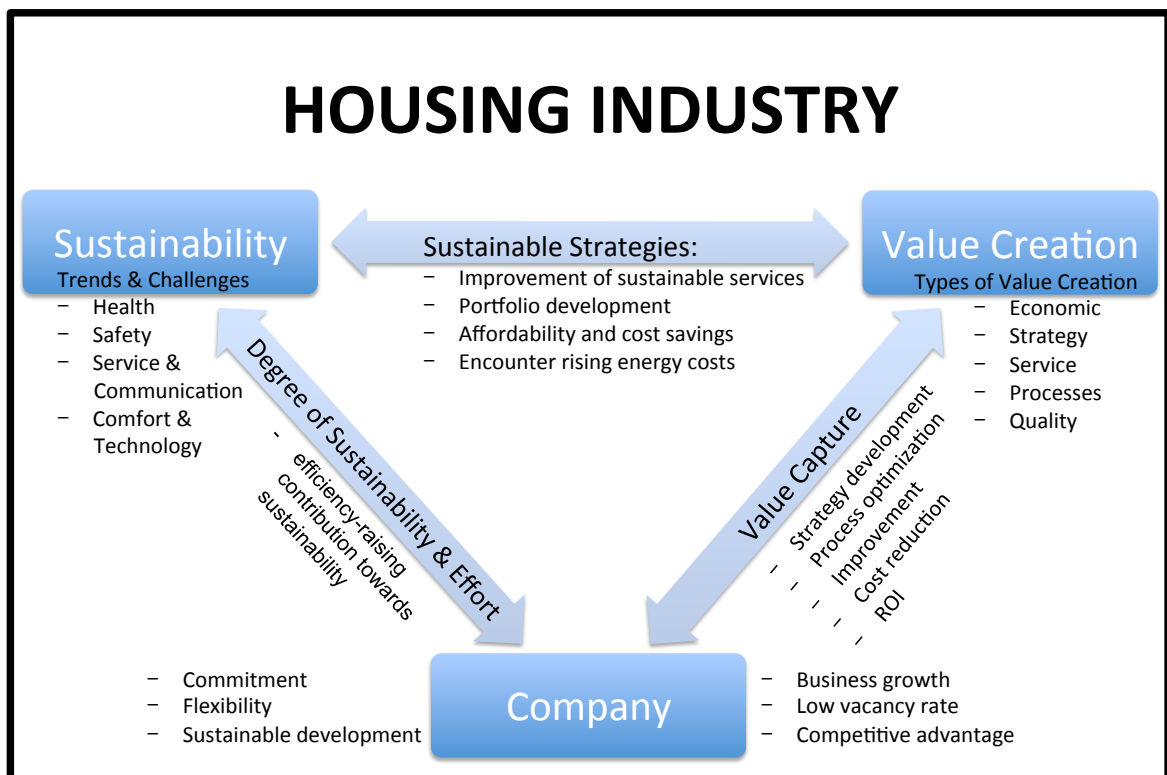
## Conclusion

Working with customers is especially important to companies in terms of a sustainable living environment and durability of a building. The interviewees expose that tenants like the unconstrained atmosphere and cooperating with companies; it is a give and take. For companies the human factor is what the housing business is about. Circumspection, vision and social actions are thought through and planned with great foresight. In principle, companies offer no service, which is not sustainable, and each service, which is offered, is furthermore target group oriented. The investments in modernization or project ideas are logical, and ensure existence. However, experts agree that not all trends need to be implemented. A housing company as a member of the social market economy has a supportive character in the economy that represents social aspects: revenues serve residents consistently. Thus, experts cannot picture a market economy structure being more social.

### 5.1.4 Summarizing Framework

Considerations and results for how value is created are based on the interviews with the three experts. Therefore, the assumption for the study was that there is a significant impact on companies' value creation when engaging in sustainable business operations and its development within the housing industry. It implies that companies are efficient and that there is no interruption to the commitment towards sustainability. That said, the theoretical framework is supportively illustrating these assumptions in Chapter 2. Since it is hard to assume of whether value creation leads to a more profitable business for companies within the housing industry, exploratory data from the interviews was considered in order to develop clear results.

The below figure illustrates the original framework, modified with findings and results according to the research questions. It gives an overall view that supports the specific idea of the value creation process through sustainability within the housing industry and therefore considers decisive factors and drivers.



**Figure 15:** Cycle of value creation through sustainability within the housing industry

## **6 DISCUSSION**

This chapter describes the main findings that develop from the previous chapter and relate to the research questions. Respective findings from interviews, questionnaires and secondary data are taken in consideration in order to summing up the results, whereas the discussion reflects the empirical results against the literature review.

### **SUSTAINABLE STRATEGIES**

As interview results reveal, sustainability is becoming more relevant for housing companies and their existence, and is already a trend of businesses strategic approaches. Companies aims are to create sustainable buldings, cut down on operational costs, be more energy saving and create an attractive living environment and additional services to improve the quality of residents. Zhang et al. (2011) support these objectives when applying sustainable strategies where all business activities are devoted to a sustainable future and an explicit goal that effects as well the value creation of a company.

Companies have recognized opportunities to optimize portfolio gradually in terms of energy efficiency and social objectives. Thus, they ensure that investments are sustainable, which means to stay profitable in the long run. By developing long-term strategies, eg. the sustainable design of buildings and sustainable resource consumption, companies are always focusing on supplying well-equipped and affordable homes. The three experts anticipate the needs of humans, to listen carefully and observe how the lifestyles and needs of people develop. Also, companies are concerned about things that have not been experienced yet, and think carefully about how the future needs to be shaped. Such thoughts shall bring repeatedly input into the companies' work in order to generate new ideas on how to approach and structure certain things for the future. The task today is to improve the quality of living and tenants' loyalty by an attractive living environment and additional services, thinking ahead, balance trends, opportunities and risks and consider consequences for the management. Kotler and Bliemel (1995, 85) support these objectives and state that a business must operate effective (make the right things) and efficient (make things right) by following a strategy and implement a tactic. Also Lasserre's strategic framework (2012) supports these findings; housing companies indeed pass through the



four main phases concerning the implementation of a strategic approach within the context of sustainability. Each company is unique with its strategic approaches, goals, and value creation potential. Therefore, expectations, issues, arrangements and results are exclusive. However, the willingness to achieve changes comes with an immense responsibility and challenge. The key sustainable strategies that were determined within this study are to improve and generate sustainable services, encounter rising energy costs, develop portfolio according to target groups, and offer affordable rents and enable cost savings.

On the basis of its strategy a company must be able to explain what it wants to be in the future for what reasons (Hinterhuber, 1990, 15). Empirical results relate to Hinterhuber's understanding that a strategic approach is a framework within which decisions are made that determines the type and direction of a company. Experts reveal that most importantly for implementing a strategy is that companies have to know to whom they want to actually rent apartments and whom they want to address, and with which methods. Companies know and understand the market and aim for offering suitable portfolio for all audiences and all generations, and thereby take the population development and target groups well in consideration, during construction phase and service supply. In order to bring additional real relief and improvement in the everyday life of tenants, target groups oriented services in the areas of safety, comfort and health, are offered.

According to Cajias (2012) the housing industry alone requires about one third of energy and resource consumption and is of great importance for a sustainable development. Lützkendorf and Lorenz (2005) indicate that the real estate industry contributes to material use, energy consumption and waste production. For companies, cost saving technologies through measurement and control of heating, ventilation, hot water, or electricity are of great interest. The business activities of companies are always focused on the necessary measures and always consider the long-term effect of their activities. However, the technologies that are applied by companies are not yet sufficient enough to either outweigh the enormous energy consumption of the industry, which is mentioned by Cajias (2012) nor to self-supply buildings with energy. Even though companies apply certain technologies (eg. photovoltaics, waste management, solar thermal systems, geothermal heat pumps) it still is considered being insufficient in terms of utilization of non-renewable energy sources to reduce the energy consumption. Regarding this issue,

there is plenty of room for improvements within the industry based on the application of energy saving and producing devices.

As results reveal, the characteristics of property, as Murfeld (2014) describes it in the literature, are always considered and applied well by housing companies. The management of companies is well developed for long-term considerations and the basis for decision-makings is well established. Since buildings are tied to a certain location (Murfeld, 2014, 329), companies investigate and take all issues into account before investing in a location. Due to the fact that the process to establish or maintain property usually underlies a long period of time and requires a long payback period (Murfeld, 2014, 329f.), all activities and investments that are made by companies, underlie a long-term financing to avoid risks. Companies' apartments are unique and apartments that vary from standard floor plans always attract customers and are in demand; which also affects companies' vacancy rate positively.

Based on the characteristics longevity and immobility of property, one significant strategic aspect that was noted during the evaluation of the results is in connection with the lifecycle of property. The lifecycle has basically everything to do with the management of the property. Depending on the phase in which a property is positioned (construction, utilization or end of life), a certain strategic approach needs to be implemented in order to manage and preserve the building. The scope of action for implementing sustainability goals is the biggest at the beginning of the lifecycle. This applies to both, with regard to a company's choice of location and the targeted quality of a building as well as in relation to the cost implications over the entire lifecycle. Strategic decisions in favor of sustainability are met deliberately already at the beginning of the lifecycle. According to Andelin et al. (2015) social, economic and environmental developments needs to be involved proactively in order to keep building as adequate as possible for the future. Whereas Becker and Pearce (2003) add that the proper implementations of strategies add value and secure return on investments.

## **VALUE CREATION PROCESS**

Today, housing companies offer tenants new options for various life situations and phases where they offer a bundle of housing-related services as well as individualized services.

The permanent availability of services and information modifies companies' values positively. According to the literature, this only applies if objectives are sustainable, solve problems, promise benefits and are part of the value creation (Hwang and Tan, 2012a).

Companies' values have the character of objectives and represent the criteria for assessing goals, objects and actions. Especially the aspect of user satisfaction has become relevant. Identified values that companies perceived from engaging in a sustainable customer relationship are profit, capacity, securing business, know-how, higher market share, access to tenants circumstances, and arising innovations from tenants' demands. Kontoleon et al. (2002) describes this as the subjective assessment of results from an interaction between object and subject. For Priem (2007, 241), the consumer end is the starting point of the concept of value and considers companies profitable by adding value. User satisfaction is a key indicator of productivity and thus plays an important role in the value chain of a building. Experts revealed during the interviews practical examples that make it clear that user feedback uncovers a versatile usable potential, which can be used actively in the value chain of properties and to identify competitive advantages.

The potential for optimization and opportunities for improvement develops towards a higher user satisfaction, higher efficiency and thus value creation. Companies always consider for how long they still can implement changes at current locations and for how long tenants remain that are paying the rent, since everything needs to be refinanced. Companies always closely monitor the market: what the competition does, if there are enough potential tenants, what is needed and wanted. The empirical results are in accordance with Porter's theory (1986, 19) that individual value creation activities will be screened on their current and their potential contribution to the company's competitiveness, and that activities are the basis for a company's competitiveness.

The value that housing companies create for their tenants through modernization of property with sustainable features and other services is skimmed off primarily through higher rents. Companies generate their earnings through main services and additional services. Laesser and Reinhold (2010) explain that consumer values actually need to exist in order to be able to skim them off and transfer it into revenues.

Primarily, the reason for participating in the sustainability is business growth; it must be a profitable business at favorable conditions. The experts stated that a company could only make good decisions when it achieves good revenues and works economically. Companies

do not just try to keep revenues at one level; they pursue to generate new revenues. A building must have no specific requirement, but the value of a building must be preserved and must always be adapted to modern and new conditions in order to be demanded. Companies pay attention to the latest trends and the equipment of the apartments, so that they can offer innovative products and generate rents in the long-term. Companies increasingly take the necessity of the demographic development in consideration and steadily expand offers of applicable apartments for all target groups. A careful selection of tenants and acquisition of information serves as security not only for the companies but also for all current tenants within the portfolio. If the company wants to ask ordinary rents, then the satisfaction and safety of the tenant must be given. The literature supports the arguments, because in order to create value, Collis and Montgomery (1995) implicate that a company must be able to interrelate three market forces: scarcity, demand, applicability.

The types of value creation according to Redlich (2011, 22) that were discovered from interviews with the experts were economic, strategy, service, process and quality based, which reflects companies' orientation of their value creation process. And the value creation processes of companies correspond with Bazermann and Moore's (2009, 161-167) tools of value creation. Companies share information, are transparent, able to build trust and thus, are able to increase benefits and create value. The companies' objectives and measures are to ask tenants more precisely what they need or want in order to build or adapt their portfolio and services future-proof. Revealing information assists companies to recognize and learn about tenants' interests. Conversations are not only a method to have an effect on other people but also gives the chance to seek information and recognize interests simply by listening carefully (Bazermann and Moore, 2009, 162). Companies are aware of the fact that everything they do is associated with a risk. However, if key informations are available, companies' own risks can be decreased and pretend them from losing control. In order to create value and flexibility for their businesses, companies accommodate tenants with offering multiple options to choose from.

Methods in order to capture values were discovered, for eg.: strategy development, process optimization, portfolio improvement, scope of supply and services, cost reduction, and return on investment. Planning and optimizing living conditions user-oriented in the first place has a considerable economic potential. According to the experts, companies can only

distinguish themselves by the service they offer. Companies provide sustainable services to keep tenants and to secure revenues and the companies' existence. Companies pursue a business model that is focused on a sustainable rental and maintenance policy and a long-term oriented commitment towards the portfolio. This strategy, in accordance with a long-term portfolio and location development is striving for capturing and enhancing the value of the portfolio. Through a consistent portfolio management and continuous process optimization, companies develop a profitable business model. This approach can be attributed by the literature, whereas business models describe generally how a company creates and captures value. Value Creation states the advantage that the company provides to its tenants. Value Capture describes how much of this added value a company can convert into profit (Teece, 2010). A long-term profitable growth is not based solely on innovative products; according to Teece (2010) success is rather based on the arrangement of equally unique, sustainable and comprehensible business models.

A valuation of properties is a modern approach that is developed to partially compensate the disadvantages of investments in sustainability of conventional valuation methods. Portfolio can particularly be tested if it is suitable for being sustainable; thus, sustainability affects the value of real property positive. Investment in sustainability can lead to higher rents, creates value and has a positive impact on the image of a company. Companies are well aware of planning the infrastructure and thus economic future for their communities. Thus companies fulfill socio-political and social demands. At the same time they secure in the long term the existence and renting of their portfolio and thus balanced financial statements throughout an economically viable manner. Finally, we can say that companies create value by considering the economic value from benefitting the society, and process based value creation occurs from managerial activities for operating results through appropriate use of resources and process design. Through an adequate selection of suitable strategies, companies achieve a strategy based value creation. The application of quality for customers leads to a quality based value creation, and the use of value through ideal goods and services indicates the service based value creation.

## **SUSTAINABILITY PERFORMANCE**

For companies it is not only a challenge to integrate and satisfy all three dimensions

simultaneously equally, but it is rather impossible. Companies achieve environmental, social and economic objectives, and thus make a contribution to sustainability, whereby environmental and social aspects are integrated into the economically oriented management. However, taking the three dimensions society, economy and environment into account they are not equally involved in decisions of companies. Companies have different preferences with respect to the economic, environmental and social performance. Even in scientific research, the equality of the three dimensions of sustainability is not considered consistent; mostly one dimension is rather prioritized (Tremmel, 2003, 118). Depending on the interests of the user of sustainability concepts one of the dimensions usually comes to the fore; in many cases these are either environmental or social aspects (Beschoner et al., 2003, 23).

Especially the social dimension dominates within the housing industry. Within the business management of companies, the social dimension is one of the most regarded in the whole concept of sustainable development; many approaches refer to social sustainability. The reason behind the domination of social concerns is due to the business area; housing companies designate a wide spectrum of actions to the social dimension because it refers to their main business. This illustrates the intensified emphasis on the social dimension in the implementation of sustainable development. The domination of the social dimension is somewhat surprising, because the literature does not quite conform this view; here it is stated that the social dimension is often disregarded in the whole concept of sustainable development and that the environmental and economic dimensions still dominate (Murphy, 2012). The most mentioned activities are related to consulting and support services for tenants; especially for financial, but also personal problems and security. Companies turn out to actively promote a socially acceptable development according to Harris (2000). Results reveal that basic needs, social resources, equality of opportunity, and participation of individuals and societal groups are all taken in consideration by housing companies.

In terms of energy efficiency and renewable energies, much progress has been made since decades. The technical and economic potential of companies were exploited and reveal yet technical improvements and capability but rather insufficient implementation; for the experts yet sufficient as a novelty for modernization and new constructions but still insufficient in terms of energy saving measures and the state of art. Even though

companies have a strong ecological interest buildings are created and managed in a manner that constitutes risks with regard to the optimal use and environmental objectives. Harris (2000) and Joumard (2013) refer the environmental dimension to preserving certain natural environmental functions, whereas the supply function implies the requirement to handle the natural resources responsibly, so that resources are available for the necessary satisfaction of basic needs of humans. Even though environmental measures with economic benefits are very important for companies the interview results uncover that this dimension is probably the weakest of all three dimensions and needs to be improved; especially in context of application of energy-saving technologies, renewable energies and preservation of resources.

Against the background of reducing operating costs mainly measures are carried out for energy conservation, such as the thermal insulation of buildings for low-energy standard, the installation of efficient heating systems and other economic measures. The reduction of energy consumption seems to be an ultimate goal within the environmental sustainability for companies. Economic considerations are an important factor in deciding on an investment, but are often based on incomplete assumptions. In order to obtain a comprehensive picture of the economy of a measure, it is important to include all relevant factors.

The bases of decisions are to be obtained through the careful selection of analysis and calculation methods; investment decisions for sustainability are also an issue of the long-term maintenance of value and economically sustainable investment decisions need solid foundations. Increased investments for renovations can also be easily financed if at the same time an additional value leads to higher revenues. The investments in modernization or in project ideas ensure the companies' existence and revenues that companies generate serve consistently the residents and their well-being. Generally, companies can be seen as having an efficient impact on the economic dimension. Companies are competitive and do not avoid competition, the vacancy rates of the companies are low and return on investments is generated. The business activities are secured and innovative products are successfully implemented. Harris (2000) also sees the necessity to further develop the economic sustainability dimension so that an economical and efficient development can be achieved; and in order to embrace the attempt of sustainable development.

## 7 CONCLUSION

The real estate industry is a relatively young business as such, but a rapidly growing level of professionalism characterizes this economic sector with the emergence of new tasks and finally occupations in the industry. This development is the paradigm shift that is taking place since decades. Globalization processes, increasing costs and intensified pressure means that properties increasingly become a commodity for companies. The enhancement or additional value from properties while optimizing ongoing managerial investments is the focus of property owners.

Against the background of the outlined social, ecologic-energetic and economic requirements, the question is answered, what significance sustainability issues for the housing industry in terms of value creation have. As a result, insights on how the housing industry is preparing for complex requirements of a sustainable strategic portfolio development in their structures are presented. To understand, which methods are already applied for the development of resources in planning, economic and user-related aspects, it is important to know, now and in the future, how relevant sustainability goals for companies are regarding the portfolio development. Also, it was researched in particular, to what extend value creation processes have already been developed in housing companies and how these processes can be improved; especially towards the immense developed state of art.

The objective of this thesis was to study the value creation processes of housing companies through the implementation of sustainability within the housing industry. It was intended to aim at companies' acceptance of the concept of sustainability within the housing industry, with the meaning to create and capture value within a company itself. The analysis is mastered by the entirety of research questions.

Above all, the superior research question presents the leading matter to guide the research and direct subsequent interpretations. The subordinate questions are utilized by auxiliary means to account for a more complex research approach since they take strategically reasoning of housing companies into consideration. Thus, presented results gain a more credible character and allow for insights on all drivers of value creation that are involved.



In order to achieve the objectives, the below research subquestions were mainly valued and implemented on the basis of the empirical analysis and supported by means of the theoretical framework.

*SQ1: What sustainable strategies are used within the housing industry?*

*SQ2: How do housing companies proceed in order to create value?*

*SQ3: What methods are used in order to capture value?*

The entirety of the subquestions help to answer the main research question ‘*How value is created through sustainability within the housing industry*’ and therefore reveal different types of creating and capture value as a major driver for the companies’ sustainable development. The findings and the discussion mainly answer the research questions.

The housing industry is in a conflicting field of diverse social, economic and political requirements. Demographic changes and trends, globalization, a differentiating society with changing values and lifestyles, the consequences of economic processes and rising climate protection requirements challenge companies today. However, developments and the increasing focus on portfolio and additional services has changed the traditional business models of the housing industry, the field of activities, and especially the provision of suitable housing for the broad population.

Product-related services are highly suitable for differentiating from competing companies. Through additional offers, the satisfaction of current tenants increases (in addition to the opportunity to attract new tenants), which leads to an increased binding and increased loyalty towards companies. Older tenants can stay longer in their own homes, without having to move into a home for the elderly, through various services offered by housing companies. This is not only a positive social factor but also saves the transaction costs for companies, by reducing the fluctuation of tenants.

In addition, companies’ images significantly improve through services especially in the social sector. Housing related services also add additional values to tenants’ lives, which hardly can be monetized. Companies provide services free of charge too, which is associated with additional financial burdens. However, companies act with foresightedness, as measures eventually reduce the profits in the short term, but prove to be economically

advantageous in the long run. According to the researcher, housing related services offer huge potential and it is desirable if such agreements could be introduced on a broad basis.

Matters that also make properties and thus companies valuable is the possibility of a centrally located housing with short distances to the city center and yet quiet environment; a good infrastructure with access to kindergarten, school, health center, pharmacy, fitness clubs, parks, shopping areas and good transport connection; the use of diverse architectural styles with reconstructed facades within the area; and partnerships with nursing services that guarantee services for the disabled and elderly.

Technical and economic potential are the foundation for housing companies to make use of their resources efficiently. Even though, many companies do not generate yet enough values by integrating all dimensions of sustainability into their strategies, the examination of managerial strategies reveal varieties of value creation process through sustainability within the housing companies. To be sustainable in the long-term, companies adjust and maintain buildings by applying supplementary energetic efficient methods (eg. geothermal energy, photovoltaics).

As mentioned earlier, property is an important security because of its durability. However, fundamental and permanent value stability or increase in value is no longer assumed. An effective development through specific creation and actual configuration of the property takes place. These aspects have gained importance in the value of residential real estate. Further, properties are in direct competition with all other money and capital investments; especially the indirect investment in properties competes directly with all other assets. The paradigm shift in the residential real estate industry is met by the development of adequate property management responsibilities. The portfolios or individual properties are optimized to improve the income achievement or increase the value of a company; whereby users influence a sustained use of properties.

Generally spoken, sustainability can create value and further create new business models when housing companies are realizing to improve and transform their strategy. In order to create value, companies increasingly react toward trends of the residential real estate market and gradually adapted to specific users' needs. It seems that the more differentiated

the requirements of tenants are, the greater the variety of companies' services, the greater the competitive advantage for companies shall be. In shorter periods of time, companies carried out user-specific adjustments (alterations, improvements) in order to generate a sustainable and growing income from properties. Since ownership makes properties more valuable for companies, implementing sustainability within the value creation processes is on the every day business agenda. Housing companies are able to create and capture value by conducting a sustainable business. Therefore, the value creation process leads to a more profitable business within the housing industry. This thesis thus is dedicated to close the research gap by means of observed managerial strategies that are examined in the value creation process through sustainability within the housing industry. Businesses should focus on their core competencies, professionalize those, offer residential support services selectively according to the needs of tenants and thus round off the business profile.

The following sections present a critical examination of theoretical contributions and managerial implications. Lastly, limitations and starting points for further research are mentioned.

## **7.1 Theoretical Contribution**

Whereas the main research question '*How value is created through sustainability within the housing industry*' is answered within the results and discussion chapters of this thesis, the research has important theoretical implications that support existing literature by providing insights on value creation processes and sustainability.

Generally, the interviewed experts revealed that housing companies actively and purposefully engage in a long-term oriented value creation processes throughout the whole property lifecycle and housing activities by identifying and adding fundamental or desirable conceptions. Thereby, companies increase the amount of total benefits that are available; especially by engaging in trends towards an attractive living environment and additional services to improve the quality of housing. This behavior reveals in terms of the value creation dimensions by Collis and Montgomery (1995) that buildings are created and managed in a manner that constitutes capabilities with regard to needs, individual and

practical objectives, relevant apartments for target groups and competitive advantage, whereas there are indicators that increasingly also the potential and the optimal use of assets are considered to be a driver of value creation.

Further, results reveal and support the theory of Tremmel (2003) and Beschorner et al. (2003) of the inequality application of the dimensions of sustainability, as housing companies' business processes do not equally involve the three dimensions. The equal consideration and the consistency of the three dimensions of sustainability may be described with the importance towards a development and identification with the concept; however, to combine all three equally within the courses of actions and strategic approaches of a housing company is nearly impossible. The housing companies operate with a higher intensity within the social dimension, which clearly is the industry-sector-specific dimension. It may have already become apparent that one dimension (social) is dominating within housing companies; nonetheless, there is no refusal or exclusion of applying the other two dimensions (environmental and economic) as well (just with a different weighting). Therefore, the increase of acceptance of the inequality of sustainable dimensions should exist and rise among scientific literature.

## **7.2 Managerial Implications**

This study and especially the results reveal plenty of interesting and significant insights. The experts' share the thought that being satisfied with the current state of sustainable housing offers means stagnation. Therefore, relevant and valuable implications can be used for businesses to further adapt and develop.

It was observed that increasingly elderly live alone in apartments. Here the implication of the social sustainability is complex. The challenge is, to shift from a mere management of the apartments towards an extended management that integrates especially tenants' feedback and concerns. Housing companies must use strategies within the housing industry, to distinguish themselves with extended services. Findings reveal that customers value an attractive living environment, additional services and energy efficient property. If companies can satisfy these demands in combination, only then they seem to be able to

create value for its customers and consequentially for themselves. The insights shared by the experts show that sustainable services are used for customer relationship management in the modern housing industry. Companies are concerned about the fast developing market and therefore build a transparent and authentic business approach for the public. Results show that tenants strengthen their commitment and trust, when they are certainly influenced by a company's positive outcome on engaging in sustainable measures.

Surprisingly and due to high competition, the engagement of users is becoming essential; even though housing companies are the supplier of residential property, (potential) customers are the ones who choose apartments they live in according to their specific needs; consumers have become selective and demanding. However, companies should not excessively focus on tenants' demands but also focus on economical and environmental aspects that conduce to companies. Even though tenants build the main and valuable source for housing companies to remain their businesses, a better balance of environmental measures that can enlarge the value creation of a company can be found. With companies' daily business performance and activities, the idea stream towards social measures seems to work in an automatic manner and is passed on to companies by its stakeholders.

Another observable practical implication is that companies connect with the application of renewable energies and a sustainable approach especially with the hope of a positive impact on their economic development. Companies often assume that value, which is achieved through the development of sustainable and innovative products to meet customers' needs, is sufficient to be successful. However companies need to not only focus on creating value by developing sustainable and innovative products and services, but also on the acquisition of sustainable strategies and value capture in order to succeed.

Another important practical implication is that companies try to minimize risks in general through pilot projects; new solutions are first implemented and observed on one object in order to find out whether the effects that companies have planned can be fulfilled. Consequently, if the risk of failure is too high, companies play safe and even dismissed project ideas; financial disasters cannot be afforded.

Companies always consider for how long they still can implement changes at current locations and for how long tenants remain that are paying the rent, since everything needs to be refinanced. While closely monitoring the market, if there are enough potential tenants, companies expand their environmental and social management (value-oriented sustainability activities), to enhance their market position and gain competitive advantage. The portfolio shall be organized in such way (efficient and effective) that it is always demanded in the market and that tenants have everything they need for their current life situations; because life circumstances change consistently.

### **7.3 Limitations and Further Research**

In order to assess both, reliability and validity of the research, this section covers the study's shortcomings related to both, methodological limitations and restrictions experienced by the researcher, which have occurred during the composition of this thesis. The results of this study provide new starting points for a discussion of the opportunities and limitations. Further research approaches may utilize the identified outcomes and either enlarge its applicability or limit the focus to certain aspects.

The shortage of earlier research studies of the subject made it once more difficult to compare findings or even to continue on a nonexistent base of sources. The search for appropriate sample material, complying with the guidelines set for the research has turned out to be rather time consuming. The analysis is limited and therefore, more demanding to interpret in an adequate way. Limited access to required data makes it difficult to filter relevant secondary data and focus on an extended expert base for the qualitative research. The selected interviewees for this study represent the opinion and presentation of just three experts; therefore, opinions and results might not be appropriate for generalization. The application of a broader database for evaluation is therefore desired in further research.

Since the surveys did not provide a definition of sustainability, it should be noted that the experts might assume different concepts of sustainability when answering the interview questions; as well the researcher when assessing results. Thus, meaningful and important findings or even tendencies are partly difficult to interpret as well as conclusions to derive.

It is natural and consistently to consider the aspect of user satisfaction in the evaluation of a building. The utilization phase is the main component in the lifecycle of a property. To plan and optimize living conditions user-oriented in the first place has considerable economic potential. It is suggested, that aspects of user satisfaction and comfort should be considered as part of the value chain in planning and operation of a building and assessed accordingly. It is important to realize that users' feedback provide a tool that can be used flexibly during operating business as usual and is likely to increase the value creation chain significantly within existing portfolio. It is an effective tool to reduce life cycle costs, and already now it has become more important in assessing the sustainability of a building.

To what extent can user-friendly parameters be involved in the planning of new buildings? The parameters that describe user satisfaction and comfort relates primarily to structural-physical parameters. These can be specifically optimized while planning a building and adapt to the specific user requirements. It is important to ensure that some of the living comfort parameters do affect each other sustainably; eg. large windows indeed lead to a good supply of daylight, but can also lead to a greater heat input by solar energy. Principally both, architectural and technical decisions have an impact on the comfort in apartments. The aim is therefore, to identify and detect with an integral view all parameters and their interactive influences, and to identify the relative optimum for users. Taking the value of property in the future into account, trends of the residential real estate market indicate that properties must be adapted to specific users' needs increasingly in order to generate a sustainable and growing income from properties.

In the further process of analyses it is important to observe how important statements of companies are and how this attitude finds expression in their actions in terms of sustainability. Companies have to communicate their sustainable strategies from the very top to the very bottom, to clearly understand their possible potential with regard to a long-term business model development; the sustainable positioning of a company has to be communicated clearly and precisely.

An imaginable prospective approach may for example concern an even more detailed examination of companies' value drivers from another perspective. Also, an investigation of the role of the consumers within the value creation processes may demonstrate a stimulating appeal for additional studies.

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## APPENDICES

### APPENDIX 1: INTERVIEW QUESTIONS

#### Background of the expert

- Position and tasks of the expert's workplace
- Experiences regarding sustainable housing business
- Achievements regarding sustainable housing business

#### Expert's opinion about...

- The significance of green elements to gain competitive advantage
- Major barriers of applying green elements
- Trends and challenges
- Objectives of sustainable housing
- Management of sustainability
- Company policy
- Strategy as a guarantor of success (long-term thinking)
- Processes as the engine for implementation
- Practical examples regarding the management of sustainability
- Roles and aims of actors within the property lifecycle
- Rating matrix to analyze synergies and conflicts of goals

#### Expert's opinion about sustainability at different levels of the industry:

##### Level of the building

- What requirements must a building meet in order to be sustainable, eg. to be sustainable and to keep its value?

##### Level of the site

- How can potential sites be evaluated in reference to the aspect of sustainability?
- Does a potential site hold long-term risks or opportunities for planned investments?

##### Level of real estate processes

- What organizational conditions lead to a smooth functioning of portfolio and to simple but effective solutions in maintenance?

##### Level of the portfolio

- Can the entirety of portfolio be suitable to achieve sustainability goals?
- How must companies adapt their portfolio?
- What are the cumulative risks and what opportunities are available?

##### Level of the owner / investors

- Is it possible to achieve a permanent sustainable effect for securing a company's existence by investing in and maintaining property?
- Does property provide additional risks or does it help to compensate other risks (diversification)?

##### Societal level

- How can a single building or the entire portfolio contribute to solve social problems or to achieve social objectives?

### Expert's opinion about sustainability within management decisions

#### Sustainable service supply

- What kind of sustainable services are offered?
- How would you describe the development process of sustainable housing services?
- What are important requirements/ preconditions in order to ideally provide sustainable housing services?

#### Influence of sustainability within the housing industry

- What are decision-making processes?
- How are benefits and risks seen in the process?
- Are there drawbacks or risks inside sustainable housing services?
- Which tasks are particularly important?
- What sustainable aspects influence the design and construction?

#### Business and strategic influence of sustainable housing services

- What kind of influence do sustainable housing services have on business activities?
- Do sustainable services differ from non-sustainable services?
- How are sustainable housing services taken into account in companies' business activities?
- Are sustainable services an important segment of the business?
- What are the reasons for housing companies to participate in sustainable development of the industry (common interest, distribution of knowledge, business growth)?

#### Future trends

- Are you satisfied with the current status of sustainable housing offers?
- How would you describe your view in relation to competitive advantage?
- How do you see the development of sustainable development within the housing industry in the future?
- What are the goals and what kind of action is needed?

#### Customers' view and participation

- How popular are sustainable housing services for tenants?
- Why do you believe customers use sustainable housing services?
- Are tenants generally satisfied with the services that are offered?
- What kinds of feedback do companies received from customers?
- How do companies respond towards customer feedback?
- Is feedback used for further development?
- What are the results from participating in sustainability related to tenants (loyalty, word-of-mouth recommendation)?
- Why do tenants use sustainable housing services? Why is it popular?

## APPENDIX 2: QUESTIONNAIRE – PART I

Code	Green Element (importance of green elements to gain competitive advantage)	Degree of significance				
GE1	Considering environmental impact when selecting project site	1	2	3	4	5
GE2	Design for better microclimate and environmentally responsible housing	1	2	3	4	5
GE3	Optimizing building orientation and configuration for better energy performance in design stage	1	2	3	4	5
GE4	Application of underground space development technology to save land resources	1	2	3	4	5
GE5	Green landscape design	1	2	3	4	5
GE6	Application of solar system technology	1	2	3	4	5
GE7	Use of environmental friendly materials for HVAC systems (Heating, Ventilation and Air Conditioning): Avoid oversupply, minimize distribution losses and increase energy efficiency of modern heat generators, such as heat pumps, solar systems)	1	2	3	4	5
GE8	Optimizing thermal performance of the building envelope	1	2	3	4	5
GE9	Application of waste management technology	1	2	3	4	5
GE10	Minimizing the disruption of living environment (environment technology)	1	2	3	4	5
GE11	Application of Low E insulation window technology	1	2	3	4	5
GE12	Application of decentralized rainwater technology	1	2	3	4	5
GE13	Application of geothermal heat pump technology	1	2	3	4	5
GE14	Application of innovative wastewater technology	1	2	3	4	5
GE15	Application of prefabricated concrete technology (use of functional materials)	1	2	3	4	5
GE16	Application of green monitor and maintenance system technology	1	2	3	4	5
GE17	System for green facility management (Management system, energy performance certificate for competitive, energy-efficient buildings in the market)	1	2	3	4	5
GE18	Active social participation in the context of social sustainability strategy	1	2	3	4	5
GE19	Offer of sustainable residential service	1	2	3	4	5
GE20	Corporate Social Responsibility (voluntary contribution of business to sustainable development)	1	2	3	4	5
GE21	Sustainability in general (environmental protection, resource conservation, safe and sustainable energy supply, protect prospects for future generations)	1	2	3	4	5

(1-least significant, 2-fairly significant, 3-significant, 4-very significant and 5-extremely significant)

In the following questionnaires, there are two major parts. In part I, there is a list of green elements and technologies applicable in the process of housing development. Please indicate the degree of significance of each element for helping businesses to gain competitive advantage. Part I Significance of green elements for gaining competitive advantage.

## APPENDIX 3: QUESTIONNAIRE – PART II

Code	Barriers for applying green elements	Degree of seriousness of barriers				
		1	2	3	4	5
B1	Higher costs for green appliance design and energy-saving material	1	2	3	4	5
B2	Insufficient policy implementation efforts	1	2	3	4	5
B3	Technical difficulty during the construction process	1	2	3	4	5
B4	Risks involved because of different contract forms of project delivery and changed site practices and behaviours	1	2	3	4	5
B5	Lengthy planning and approval process for new green technologies and recycled materials	1	2	3	4	5
B6	Lack of knowledge and awareness to the green technologies	1	2	3	4	5
B7	Lack of efficiency for implementing green building regulations and byelaws	1	2	3	4	5
B8	Higher cost in relation to customers demand	1	2	3	4	5
B9	Unfamiliarity with green technologies resulting in delays in the design and construction process	1	2	3	4	5
B10	Interests conflicts between various stakeholders in using green measures	1	2	3	4	5

(1-least significant, 2-fairly significant, 3-significant, 4-very significant and 5-extremely significant)

In part II, there is a list of barriers that affect the application of green elements in the process of housing development. Please indicate the significance degree of each listed barrier.