Universität Zürich[UZH]

Thesis submitted for the degree of
Master of Advanced Studies in Real Estate

Corporate Responsibility

Opportunities and Challenges in the Real Estate Development Process

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List of Abbreviations

ARE	Bundesamt für Raumentwicklung
BIM	Building Information Modeling
BREEAM	Building Research Establishment Environmental Assessment Methodology
CFP	Corporate Financial Performance
CR	Corporate Responsibility
CRESS	Corporate Real Estate and Sustainability Survey
CSP	Corporate Social Performance
CSR	Corporate Social Responsibility
DGNB	Deutsche Gesellschaft für Nachhaltiges Bauen
EcoPAS	Eco-Portfolio Analysis Service
EnDK	Konferenz Kantonaler Energiedirektoren
EnEV	Energieeinsparverordnung
EPBD	Energy Performance of Buildings Directive
ESG	Environmental Social and Governance Rating
FM	Facility Management
GEAK	Gebäudeenergieausweis der Kantone
IPB	Interessengemeinschaft privater professioneller Bauherren
ISO	International Organization for Standardization
KBOB	Koordinationskonferenz der Bau- und Liegenschaftsorgane der öffentlichen Bauherren
LCA	Life-cycle assessment
LEED	Leadership in Energy and Environmental Design
MuKEn	Mustervorschriften der Kantone im Energiebereich
NNBS	Netzwerk Nachhaltiges Bauen Schweiz
NZEB	Nearly Zero Enegry Building
RICS	Royal Institute of Chartered Surveyors
RBV	Resource-based-view-of-the-firm
RE	Real Estate
SGNI	Schweizer Gesellschaft für Nachhaltige Immobilienwirtschaft
SPI	Sustainable Property Investment
TBL	Triple Bottom Line

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Executive Summary

Corporate Responsibility (CR) has an increasing relevance in the building industry; therefore real estate (RE) development firms are confronted with significant challenges and opportunities. This could be verified by means of theoretical research, desktop study and expert interviews. The main drivers are legal obligation (norms and standards), demand (owners and end users), investment (sustainable property investment) and efficiency (building and process optimization). The most obvious opportunity for RE developers to engage in CR is that such activities can benefit their business. But the central challenge is that additional resources are required to engage in CR and that these add costs and risks to the RE development project, making the opportunity economically less desirable.

The additional costs and risks of engaging in CR could be avoided by integrating CR into the conventional RE development project. This could be achieved if CR was viewed from a business perspective, focusing on the aspects of CR that are most relevant to the individual RE development firm, its business model and its stakeholders, rather than applying generic and prescribed concepts of responsible and sustainable practices that currently exist in the building industry but might not be as effective in specific cases. The identification of relevant CR objectives should not be a separate process but should be included in the core business strategy. The motives that drive the CR objectives must derive from the core strategy: making best use of the firm's resources and expertise in order to driving the business forward. There should be two levels of strategies and CR engagement: the management level strategy includes long-term CR objectives that are in line with the firm's business model, while the project level strategy includes project specific CR goals that respond to the individual circumstances of the project and the stakeholders involved.

The RE development firm requires an organizational structure that enables and incentivizes the implementation of the core strategy and CR objectives. The strategies and CR objectives on both levels need to be corresponding and connected to the RE development process.

1 Introduction

1.1 The Relevance of Corporate Responsibility in the Real Estate Development Process

Corporate Responsibility (CR) essentially means that a firm develops its business in a responsible manner, striving to minimize the negative impacts and maximize the positive impacts it has on society and the environment. While this is relevant for any business it is especially relevant for real estate development. There is almost no other business activity that has such direct impacts on people's lives as well as on their immediate environment and that is played out so openly in the public sphere. From the moment a development project becomes publicly known through the planning process it will be scrutinized not only by immediate neighbors but also by the general public, politicians, business rivals and community and conservation groups. Most of these will have an interest in influencing the project and at worst try to stop it. Take the project of the Claraturm in Basel as an example, here an investor wanted to demolish a late 19th century corner building in order to construct a 96m high apartment building. This plan spurned a public campaign to stop the project and led to a public vote, which in the end narrowly came out in favor of the project. While other businesses are open to public scrutiny few others depend so directly on public support and goodwill in order to deliver projects successfully. Developers have to demonstrate more clearly than other business managers what the positive and negative impacts are that their project will have on the community and how they will deal with them. They might have to be able to answer these questions at a project stage when the details are not yet resolved. If they don't have a track record of delivering projects responsibly it will be difficult for them to gain the political and public support they need and the process will become much harder, take longer and will less likely end successfully. But it's not just about getting public support; they also need to be able to deliver sustainable buildings. On the one hand building codes and legislation demand ever-higher efficiencies on the other hand there is a growing demand from end users. While this is also true for the car industry the building industry has to deal with a much more disintegrated supply chain, less developed means of production and segregated markets. It is the developer's task to meet the increasing high standards and demands despite all these difficulties. Real estate

(RE) developers who follow a proactive and responsible business strategy are therefore not tree hugging environmental activists but smart businesspeople.

1.2 The Scope of this Study

There is a growing recognition of the importance of CR in the building industry, but the research that has been done so far focuses mainly on the building industry as a whole and doesn't sufficiently address the concerns of RE developers. This study examines CR from the perspective of the RE development firm and how CR could affect its business. Some larger RE development firms already publish reports addressing aspects of CR and sustainability. While this demonstrates that aspects of CR have become accepted practice in the industry it is less clear how these aspects are incorporated in a comprehensive RE development process and into their business model. This study aims at answering the following questions:

1. Does CR play an increasingly important role in the building industry?
2. What are the challenges and opportunities of incorporating aspects of CR in the real estate development process?
3. In order to overcome the challenges of incorporating CR in RE projects, can CR become part of a comprehensive development process?

This study focuses mainly on the Swiss real estate market but takes a look at developments in other countries, if these provide insights into future developments that are likely to have an impact on Switzerland. Also Anglo-Saxon businesses and scholars have pioneered the concept of CR and thus there are valuable lessons to be learned by looking at developments there.

In order to extract more concrete and tangible results this study focuses on commercial office developments. This provides also the opportunity to look at the link between the CR objectives of the end users and the buildings they are looking for.

The terms Corporate Responsibility (CR) and Corporate Social Responsibility (CSR) are used synonymously in this thesis. While CSR has in the past been defined as the integration of environmental, social and economic considerations into business strategies and practices, it has more recently been used to focus on the social aspects. Thus Corporate Responsibility is used here to include all three aspects equally.

1.3 Methodology

This thesis will mainly consist of theoretical research and desktop study. In a first part the current debate behind CR will be explained, a second part will analyze the specific relevance of CR for real estate development. It will then look at important drivers of CR in the building industry. This is underpinned by the results of expert interviews which have been conducted with senior representatives of Swiss project developers[1]. Finally a comprehensive strategy will be developed which will be illustrated by means of a project flow chart to show which aspects of CR should be applied at what stage in the development process.

2 Concepts of Corporate Responsibility

Corporate Responsibility (CR) has been the subject of numerous academic papers and theories since the 1950's and in recent years more attention has been devoted to its strategic implications. Many businesses recognize the impacts they have on the environment, on society and on the economy and they are keen to show their commitment to acting responsibly. But the question has to be asked: why should businesses be concerned with anything else but value creation while obeying the law but leave all other responsibilities to the government? This section will on the one hand present an overview of concepts of CR that are most relevant to the real estate (RE) sector and present arguments why businesses should engage in such activities.

2.1 Justifications for Corporate Responsibility

The proponents of CR have used mainly four arguments to make their case: moral obligation, sustainability, license-to-operate and reputation.

Moral obligation broadly asks businesses "to do the right thing". In some areas this concept is quite easy to put into practice by operating within the law and following proper procedures. It is the nature of moral obligations to be absolute mandates, however, while most corporate social choices involve balancing competing values, interests and costs (Porter and Kramer, 2006). The recent construction of the new Messehalle in Basel had created a moral conflict for the Canton Basel-Stadt and the construction firm HRS when it emerged that a sub-contractor had not paid its

[1] The guidelines and results of the expert interviews are included in the appendix.

construction workers. Although the Canton and HRS were not legally obliged to pay the outstanding wages the public pressure grew to such an extent that they did finally give in. This example shows that being involved in construction, which takes place so visibly in the public realm, could mean that you take on duties that go beyond your legal obligations because you are directly associated with the effects the project has, not necessarily legally but in the public perception.

The principle of sustainability asks companies to operate in ways that secure long-term economic performance by avoiding short-term behavior that is socially detrimental or environmentally wasteful (Porter and Kramer, 2006). This principle is most widely accepted within the building industry but it is not always clear how it is put into practice and what its real outcome is. Is a building with a LEED certification more sustainable than one without such a certification? How do those buildings compare after a couple of years in operation? Is a large building firm that issues an annual sustainability report really sustainable or is it just putting its operations into a more favorable light? There needs to be a better understanding within the industry what sustainability actually means in the context of a building project, what the necessary short term costs and actions are and what the long term benefits are and how these can be measured and monitored.

License-to-operate is a very pragmatic approach of identifying the interests of local stakeholders (neighbors, activists, local government) and addressing these in order to gain their support or at least their consent to operate in the neighborhood. This can be a very successful strategy especially when faced with local opposition that many building projects encounter. But this approach needs to be followed with caution because one risks of ceding control to outsiders and although their views are important they never fully understand a developer's competitive positioning or trade-offs it must take. Nor does the vehemence of a stakeholder group necessarily signify the importance of an issue – either to the company or to the world. (Porter and Kramer, 2006)

Reputation is very similar to license-to-operate as it seeks public approval, but in contrast reputation functions more like insurance for the future that will temper public criticism in times of a crisis. The danger here is that it is seen solely as a public relations exercise that is detached from the business strategy. A positive example is the publication "Komplex" that is published annually by the Swiss construction company Halter AG. Besides presenting current projects they address issues of public interest regarding city planning and the building industry. They state their positions on these

issues and present their vision for the future that is very closely linked to their business strategy. Although not everybody might agree with it this sort of transparency could foster dialogue avoiding all out opposition and it also likely to strengthen the brand.

2.2 Sustainable Development

Of all the justifications for CR sustainability resonates very strongly with public opinion and is high up on political agendas worldwide. The 1987 "Brundtland Report" prepared by the World Commission on Environment and Development led by the Norwegian prime minister Gro Harlem Brundtland described sustainable development as "meeting the needs of the present without compromising the ability of future generations to meet their own needs." In economic language, it means we should live off the Earth's interest, not its capital. (Willard, 2002)

In 1994 John Elkington, co-founder of consultancy firm SustainAbility, coined the term triple bottom line (TBL). "We felt that the social and economic dimensions of the agenda – which had already been flagged in 1987's Brundtland Report (UNWCED, 1987) – would have to be addressed in a more integrated way if real environmental progress was to be made. Because SustainAbility mainly works, by choice, with business, we felt that the language would have to resonate with business brains. (…) In the simplest terms, the TBL agenda focuses corporations not just on the economic value that they add, but also on the environmental and social value that they add – or destroy." (Elkington, 2004) The concept therefore extends the familiar concept of economic accounting by two more balance sheets: the social and environmental. Businesses are required not to be solely economically profitable but to also account for the social and environmental bottom lines. These three balance sheets are also known as the 3 P's (profit, planet, people) and 3 E's (economy, environment, equity). Bob Willard in his 2002 book "The Sustainability Advantage" summarizes the subjects that could be addressed on these balance sheets as follows:

Economy/Profit – Sustainable Business

- Profits
- Taxes/Expenditure
- Jobs, R&D
- Compensation/Benefits

- Training/Productivity
- Fair trade
- Ethical Behavior
- Core values

Environment/Planet – Eco-Efficient Business

- Manufacturing eco-efficiency
- Supplier eco-inspections
- Operations eco-efficiency
- Product eco-characteristics
- Cradle-to-cradle product responsibility / take back
- Beyond compliance
- Restorative to nature

Equity/People – Ethical Business

Internal Employees

- Respect for diversity
- Respect for human rights
- Health & safety protection
- Empowerment & caring

Rest of the world

- Charitable contributions
- Corporate relations
- Closing the gap between rich and poor

These are generic examples of how the three balance sheets can be defined. Every business needs to make their own decisions what is relevant in their individual case and how they want to account for these balance sheets. The aim of this concept is to encourage integrated approaches, although John Elkington himself has stated that it hasn't always been successful in this respect: "In the process, the TBL language may sometimes be unhelpful, encouraging parallel activities rather than true integration. (…) The message was that the challenges of integration will increasingly play out in four key areas (…) these are the realms of balance sheets (transparency, accountability,

reporting and assurance), boards (ultimate accountability, corporate governance and strategy), brands (engaging investors, customers and consumers directly in sustainability issues) and business models (moving beyond corporate hearts and minds to the very DNA of business).” (Elkington, 2004, p.15)

The concept of TBL has been widely adopted; it also forms the basis for the sustainability strategy of the Swiss Federal Office for Spatial Development (Bundesamt für Raumentwicklung, ARE) as illustrated by the Three Dimensions Model.

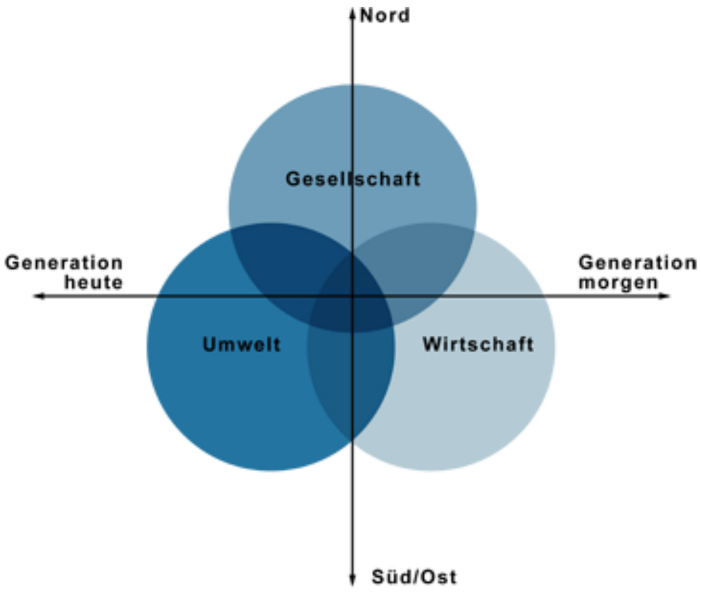

Figure 1: The Three Dimensions Modell (ARE)

This Model contains the three dimensions environment (Umwelt), economy (Wirtschaft) and society (Gesellschaft) according to the concept of TBL. It is further extended by the addition of two axis: the x-axis signifies that todays actions must take the needs of future generations into consideration, thus reflecting the ideas of the Brundtland Report, and the y-axis signifies the global interdependence between the developed and developing world and the need to achieve a globally sustainable standard of living.

2.3 Corporate Responsibility and Profitability

Milton Friedman (1970) stated that CSR was a misuse of corporate resources that would be better spent on value-added internal projects or returned to shareholders. His conclusion was that CSR was diminishing profitability because it encouraged businesses to engage in activities that weren’t part of their core business and expertise

and thus weren't adding any value. This echoes an earlier statement by Theodore Levitt (1958) who wrote in his article "The Dangers of Social Responsibility" that "government's job is not business, and business's job is not government". The counter-argument has been that narrow neo-classical theories of the firm neglect the contribution of human and social capital to corporate financial performance. (Cajias et al., 2011) Empirical studies on the relationship between corporate social performance (CSP) and corporate financial performance (CFP) have been so far inconclusive or contradictory; some studies found a negative relationship (Wright and Ferris, 1997), a positive relationship (Posnikoff, 1997) or no relationship (Teoh et al., 1999). The most recent study by Cajias, Fuerst, McAlister and Nanda (2011) tested empirical evidence against the question whether responsible real estate companies outperform their peers. They compared the CSP and CFP for a sample of publicly traded US real estate companies based on their Environmental, Social and Governance (ESG) ratings. The findings were mixed; although a high ESG rating affects the company's market value positively it affects total returns negatively. The problem here seems to be, apart from the reliability of the base data, that there is a mismatch between short-term investments in ESG and the long-term returns. Although the short-term investments will affect total returns immediately the long-term benefits are more difficult to quantify. This sentiment was mirrored in an interview with the director of a Swiss real estate developer; being a private company made investment in sustainable technology easier because the business model was geared towards future returns rather than maximizing annual profits and pay dividends. Company structure and shareholders appear to be important factors in determining a firm's ability to incorporate CR in their business strategy.

2.4 Strategic Implications of Corporate Responsibility

The resource-based-view-of-the-firm (RBV) has been used by opponents of CR as well as its proponents. The first argue that any resources assigned to social concerns are counterproductive as they negatively affect profits and long-term competitiveness of the firm (Friedman, 1982). The latter argue that CR can constitute a resource or capability that leads to a sustained competitive advantage (Hart, 1995) and that, if there is a demand for CSR, managers should conduct a cost/benefit analysis to determine the level of resources to devote to CSR activities and attributes. (McWilliams and Siegel, 2001)
Although the proponents seem to win the argument it is still not clear what the strategic implications are for companies. In their article "Strategy and Society" in the *Harvard*

Business Review Michael E. Porter and Mark R. Kramer criticize that the efforts by companies to address the social and environmental consequences of their business activities haven't been as effective as they could be. They name two reasons for this: firstly business and society are seen as two opposing aspects while they are actually interdependent, and secondly companies are seeing CSR as a generic issue and not as something that must be tailored to the specific business strategy of the company. They also suggest a solution to these problems on a strategic level: "The fact is, the prevailing approaches to CSR are so fragmented and so disconnected from business and strategy as to obscure many of the greatest opportunities for companies to benefit society. If, instead, corporations were to analyze their prospects for social responsibility using the same frameworks that guide their core business choices, they would discover that CSR can be much more than a cost, a constraint, or a charitable deed – it can be a source of opportunity, innovation, and competitive advantage." (Porter and Kramer, 2006, p. 79)
They further argue that because society and corporations are mutually dependent all business decisions must follow the principle of shared value, which means that they must benefit both sides. Because no single company can solve all social and environmental problems the individual company should identify those shared values and create a CR agenda based on these. A construction company for example could use its expertise and resources to change from a conventional construction method to prefabrication and thus improve the working conditions of its labor force, minimize waste to landfill, increase productivity and reduce the amount of time the neighbors have to live with a construction site next doors. Each company needs to look closely at the resources it has available and make the right strategic decisions to put these resources to best use, for the benefit of the company and society. "When a well-run business applies its vast resources, expertise, and management talent to problems that it understands and in which it has a stake, it can have a greater impact on social good than any other institution or philanthropic organization." (Porter and Kramer, 2006)

2.5 Stakeholder Perspective

A stakeholder is defined as "any group or individual who can affect or is affected by the achievement of the organization's objectives" (Freeman, 1984, p. 46). From a firm's perspective the most important stakeholder is the shareholder, because he has a direct interest in the success of the business. It also makes sense for a firm to act in the interest of the shareholder, because if they don't shareholders will ultimately withdraw their

investment and harm the business. This is usually well understood among managers and they are adept at identifying the shareholder's interests and include them in their business strategy. But there are a number of additional stakeholders who can also affect the success of the business. In the case of a RE development firm there tend to be more stakeholders than in other industries that can have a significant influence on the business, due to the complexity of the building process, the long lifespan of buildings and their considerable impact on communities (Feige et al., 2011). The most relevant stakeholders could be grouped into three categories, although the categories and stakeholders here are generic and could differ depending on the firm's specific circumstances, its development projects and its long-term business strategy:

- **Business stakeholders** (affect core business interests)
    - Business partners / shareholders
    - Employees
    - Investors
    - Banks and financial institutions
    - Corporate tenants
- **Project phase stakeholders** (affect mostly project based business interests)
    - Architects
    - Consultants
    - Construction companies
    - Manufacturer / suppliers
- **External stakeholders** (can affect business interests due to legal obligation, public support/opposition and cooperation/innovation)
    - Public authorities
    - Community / neighbors
    - General public
    - Media
    - Research and education (i.e. cooperation with universities or research institutes in developing new building technologies)

The firm could determine the relevance of stakeholders according to their ability to affect the business either negatively (i.e. withdrawing investment or support, public opposition, hurting reputation) or positively (i.e. cooperation/win-win, innovation, public support). Feige et al. (2011) have identified stakeholder contribution as being

instrumental in the development and implementation of a sustainable built environment in Switzerland. Their argument is that absent knowledge of benefits, the presence of conflicting interests and the lacking involvement of all relevant stakeholders obstruct the development of a sustainable building sector. Although they look at the RE industry very much from an outside perspective this line of thought could also be applied to the perspective of the RE developer. It could be advantageous to RE developers to engage with relevant stakeholders and identify possibilities to improve processes and business performance based on shared interests and benefits.

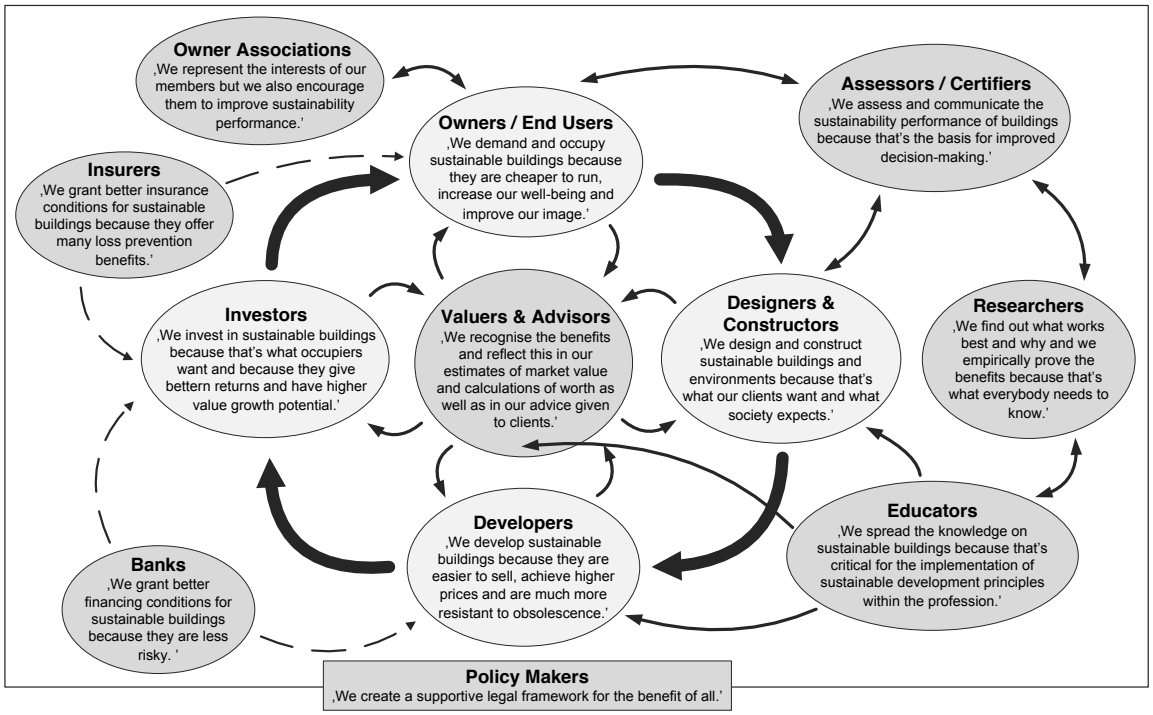

Figure 2: Virtuous loops of feedback and adaptation (Lorenz and Lützkendorf, 2008)

Cadman (2007) described the negative effects that misaligned interests between stakeholders could have, taking the construction of sustainable buildings as an example. He argued that developers are caught in a circle of blame, a negative feedback loop of investors not funding sustainable buildings because there is no demand, end users not occupying sustainable buildings because there is no supply, contractors not supplying sustainable buildings because they aren't asked to do so and developers not asking for sustainable buildings because they don't get investment for them. Lorenz and Lützkendorf (2008) have expanded this concept and explored possibilities to turn the circle of blame into virtuous loops of feedback and adaptation (Fig.2). A better understanding of the positive aspects of sustainable buildings, such as higher property

values, lower risk of obsolescence and lower running costs could provide positive feedback among stakeholders and thus create a dynamic and positive process favoring sustainable buildings. Some of this understanding is beginning to develop in the building industry but it is still far removed from this ideal scenario of a self-enforcing and continuously improving system. Nonetheless it is worth to identify what the understanding is among relevant stakeholders for sustainability and CR and assess if this could be integrated into a strategy improving the business case of a RE development project.

3 Important Drivers of Corporate Responsibility in the Building Industry

Besides the general arguments for and against responsible business practices there are important drivers in the building industry that have the potential to motivate real estate developers to engage in CR. These drivers, which will be outlined in this chapter, can be grouped in four categories:

- Norms and standards: Building responsibly and sustainably because it is a legal obligation or has become an industry standard.
- Demand: Owners and end users have certain CR requirements that extend to the spaces they occupy and thus demand certain responsible and sustainable qualities.
- Investment: Investors want to invest in sustainable buildings and the state is offering subsidies to help meet its sustainability targets.
- Efficiency: Achieving more with less can make sense environmentally and economically.

3.1 European and National Norms and Standards

The public discussion about environmental and social subjects is gaining increasing momentum in Europe and especially in Switzerland. This is substantiated by tighter energy performance standards being introduced by the EU on a European level and there are some Swiss initiatives that set even more ambitious goals. In addition the private sector is becoming alive to the fact that it needs to participate in the process of influencing the sustainability agendas (refer to 3.1.3). The following segments look at the most important norms, standards and initiatives that will have a significant impact on the issues regarding CR in the building industry.

3.1.1 Energy Performance Standards

In 2010 the EU issued the 2010/31/EU directive on the energy performance of buildings (EPBD), which requires member states to introduce, implement and conduct minimum quality control requirements in relation to various aspects of the energy performance of buildings.[2] With few exceptions, an energy certificate must be drawn up for all buildings. The certificate must show an indicator of overall energy performance at the primary energy level. The EPBD requires the highest possible energy efficiency and share of renewable energy. The member states are expected to determine the minimum requirements by means of a specific framework method to calculate the overall energy efficiency of buildings (a method similar to SIA 380/1), and also to consider the economic and cost-optimal level of provisions in this process.

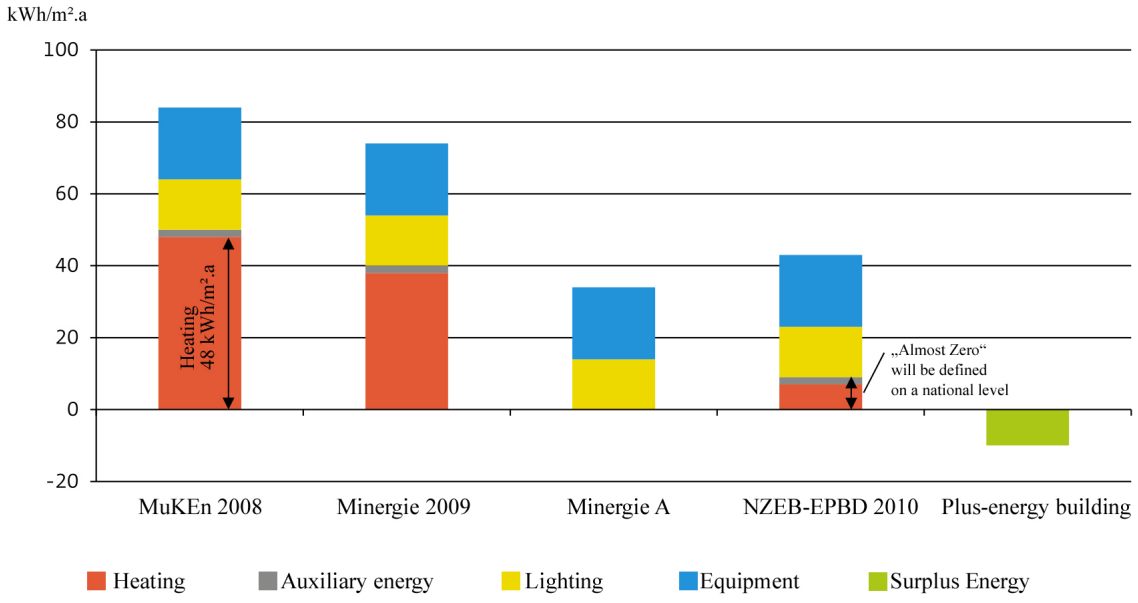

Figure 3: Weighted energy performance standards (EnDK Final Report, 2013)

Although the minimum requirements will likely differ from state to state within the EU depending on regional climates and building traditions, the aim of the EPBD is that all new buildings achieve a total energy consumption in the region of zero for heating, cooling, hot water and permanent lighting by 31st December 2020; in this context reference is made to the Nearly Zero Energy Building[3] (NZEB).

[2] EnDK (Konferenz Kantonaler Energiedirektoren): Final Report, 18.01.2013
[3] This is an approximate translation oft the German word „Niedrigstenergiegebäude“

In Switzerland the Model Energy Regulations of the Cantons[4] (MuKEn) adopted in 2008 have already incorporated many of the provisions contained in the EPBD. For example the MuKEn 2008 also contain provisions for an energy certificate, the Cantonal Energy Certificate for Buildings[5] (GEAK), but unlike the European certificate it is not compulsory. Also the weighted energy performance standards need to be revised if the requirements of the EPBD are to be met by 2020 (Fig.3).

Although Switzerland as a non-EU country is under no obligation to follow EU-directives the EPBD will be implemented nonetheless. The Conference of the Energy Directors of the Cantons (EnDK) published a paper in 2011 titled "Energy Policy of the EnDK – Benchmarks and Plan of Action", stating that the MuKEn should be revised as soon as possible in order to be brought in line with the EPBD. From 2020 onwards, new buildings must be nearly zero energy buildings and efforts must be made to upgrade the energy status of the existing building stock. Although the specifics of how to reach the energy reductions are yet to be defined and implemented in the Swiss building standards and norms there are some indications in a report issued by the EnDK in 2013:

- The Cantonal Energy Certificate for Buildings (GEAK) could become obligatory.
- The requirement for renewable energy could be based on the total energy requirement of the building (presently 20% of the energy needed for heating and hot water only must be provided by renewable energy).
- Requirements for individual systems (heating, cooling, ventilation, insulation, etc.) could be replaced by a total energy requirement for the building.
- The energy efficient operation and monitoring of buildings could become more of a focus.

The label Minergie-A represents the first practical definition of NZEB in Switzerland and it might at least in part serve as an indicator of the practical implications for building design. Green labels have so far mostly been a voluntary measure but the obligatory building standards will soon exceed some of those requirements. It is not to be expected that the building industry will come up with simple solutions to meet those requirements and it will also take some time for architects, consultants and other building professionals to adapt to the new circumstances. Developers are advised to

[4] Mustervorschriften der Kantone im Energiebereich
[5] Gebäudeenergieausweis der Kantone

make themselves familiar with the upcoming changes and identify the risks and opportunities to their operations. Possible risks are that the design and planning process will become more involved and more costly and that it will become harder to stand out with a green label, as eco-efficiency becomes the norm. On the other hand early adopters of sustainable development practices will have further advantages over their competition in terms of time to market and quality, not only in the prime office segment where green labels have already become the norm but also in wider segments of the office space market.

3.1.2 SIA 2040 and the 2000-Watt-Society

The concept of the 2000-Watt-Society has been initially developed as part of a research program at the ETH-Zurich[6]. Its aim is to reduce the annual consumption of primary energy per person in Switzerland from currently 6'300 Watt to 2'000 Watt, which is the current average consumption per person globally. Two thirds of the 2'000 Watt primary energy should come from renewable sources. The SIA has issued a consultative document (SIA 2040 – Efficiency Path Energy) in 2011 which forms the basis for reaching the first milestone in 2050, when the consumption of primary energy per person should be 3'500 Watt, with the final goal to be reached by 2150. It sets standards for the energy efficiency of buildings, embodied energy of building materials and the energy consumption of mobility. The concept has been criticized for focusing too much on energy consumption and neglecting the more important issue of emissions. The contention was that the 2'000 Watt goal alone was not leading to the best solutions, for example it was encouraging highly insulated facades which not always make sense, especially in office buildings where cooling can be a more important issue than heat loss. Following this discussion the goal of 2'000 Watt has been complemented by the emissions goal of 1.0t of CO_2 per person. In 2008 the citizens of Zurich voted in favor of incorporating the goals of the 2000-Watt-Society in municipal law by a large margin (76.4%[7]). This demonstrates that there is a public consensus regarding environmental sustainability and also social justice, which is also a major focal point of the 2'000-Watt-Society. The idea is that the developed societies should not consume more than the average of the global population with the aim to achieve equal living standards for all people on this planet and also for future generations. This is in accordance with the

[6] www.novatlantis.ch
[7] www.stadt-zuerich.ch/2000watt

sustainability principles of the Swiss Federal Office for Spatial Development and its Three Dimensions Model (refer to 2.2). Since the political process and public opinion are very much in favor of setting ambitious sustainability goals and taking concrete steps to achieve these, businesses have to decide how they can best react. There are examples of businesses implementing goals, which are being discussed in the public and political arena, one is the Swiss pharmaceutical company Novartis that has decided to incorporate the goals of the 2'000-Watt-Society in the development of the Novartis-Campus in Basel[8]. This initiative is part of a partnership with the city of Basel, which involves property sales and swaps, the relocation of a former harbor and the allocation of land for public functions. The city of Basel is promoting actively the goals of the 2'000-Watt-Society and other Swiss cities and communities are doing so as well. The Novartis example shows that there could be potential for private businesses that want to realize real estate developments to gain advantages in dealing with local authorities, if they can demonstrate that they share the sustainability goals that have been set on a political level.

3.1.3 SIA 112/1 and the Sustainability Guide by IPB and KBOB

The Swiss associations of private and public property owners and investors, IPB (Interessengemeinschaft privater professioneller Bauherren[9]) and KBOB (Koordinationskonferenz der Bau- und Liegenschaftsorgane der öffentlichen Bauherren[10]), have jointly produced a publication entitled "Sustainable Real Estate Management – A Guide for Action" (IPB/KBOB, 2010). It contains practical advice on how to define sustainability goals for properties (Fig.6) based on the Swiss norm for sustainable construction SIA 112/1[11], which has been first introduced in 2004 and is an addendum to the Swiss plan of works SIA 112. It is aligned with the Swiss federal sustainability strategy and incorporates the three dimensions society, economy and environment.

Sustainable RE management is broadly defined as an optimizing process aiming at future-proofing the properties ensuring their continuing competitiveness in the real estate market while also taking wider considerations for society and the environment

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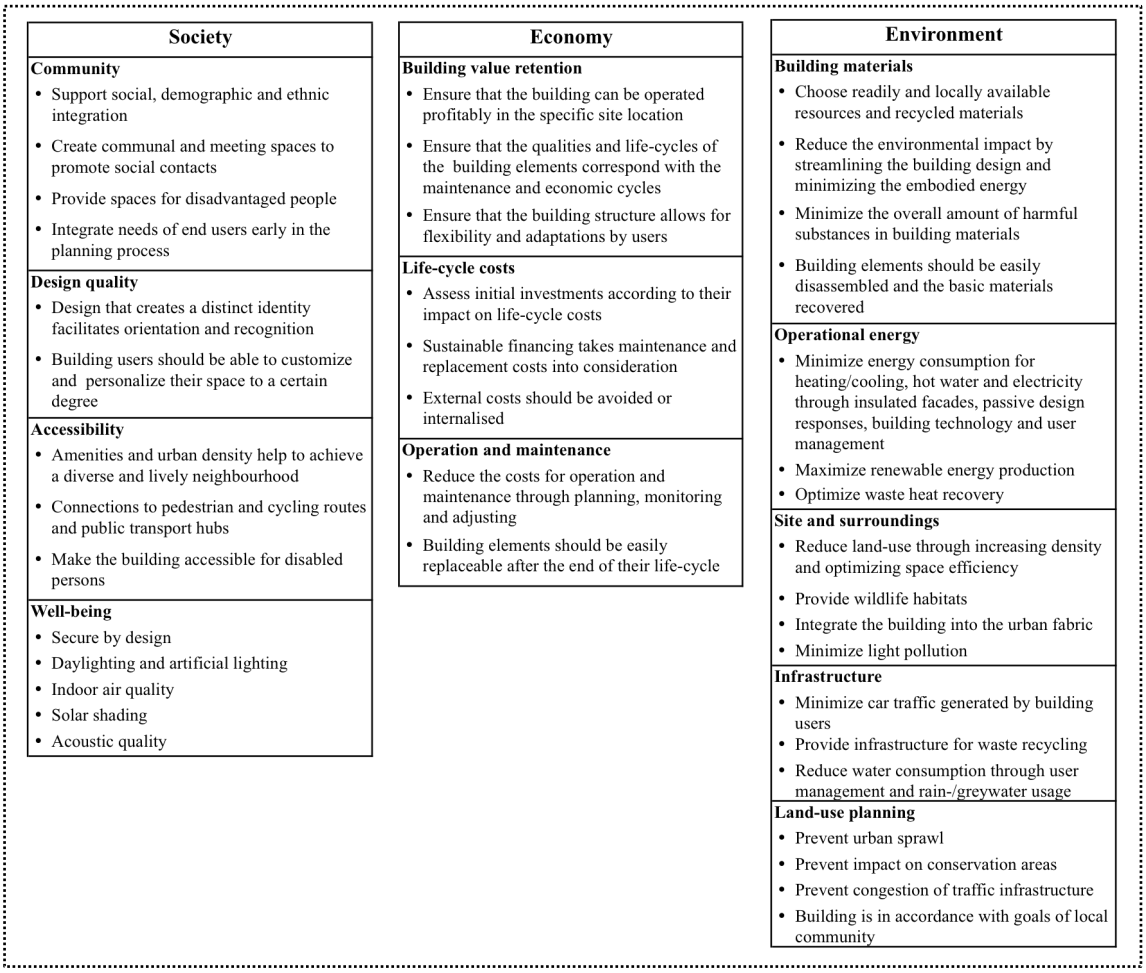
[8] In addition to this Novartis states that it wants to reduce its global CO_2 emissions to 5% below the level of 1990 (www.novartis.ch/de/about-novartis/campus/sustainability.shtml)
[9] Association of private professional property owners and investors
[10] Swiss federal association of public property owners and investors
[11] Empfehlung SIA 112/1 (2004): Nachhaltiges Bauen - Hochbau

into account. This document is an attempt to translate the more or less unspecific sustainability criteria into concrete measures that can be applied to a building project. These measures can still be interpreted very differently and they need to be carefully examined regarding their relevance to the project and what they would actually mean in the context of this specific building project.



Society

Community
- Support social, demographic and ethnic integration
- Create communal and meeting spaces to promote social contacts
- Provide spaces for disadvantaged people
- Integrate needs of end users early in the planning process

Design quality
- Design that creates a distinct identity facilitates orientation and recognition
- Building users should be able to customize and personalize their space to a certain degree

Accessibility
- Amenities and urban density help to achieve a diverse and lively neighbourhood
- Connections to pedestrian and cycling routes and public transport hubs
- Make the building accessible for disabled persons

Well-being
- Secure by design
- Daylighting and artificial lighting
- Indoor air quality
- Solar shading
- Acoustic quality

Economy

Building value retention
- Ensure that the building can be operated profitably in the specific site location
- Ensure that the qualities and life-cycles of the building elements correspond with the maintenance and economic cycles
- Ensure that the building structure allows for flexibility and adaptations by users

Life-cycle costs
- Assess initial investments according to their impact on life-cycle costs
- Sustainable financing takes maintenance and replacement costs into consideration
- External costs should be avoided or internalised

Operation and maintenance
- Reduce the costs for operation and maintenance through planning, monitoring and adjusting
- Building elements should be easily replaceable after the end of their life-cycle

Environment

Building materials
- Choose readily and locally available resources and recycled materials
- Reduce the environmental impact by streamlining the building design and minimizing the embodied energy
- Minimize the overall amount of harmful substances in building materials
- Building elements should be easily disassembled and the basic materials recovered

Operational energy
- Minimize energy consumption for heating/cooling, hot water and electricity through insulated facades, passive design responses, building technology and user management
- Maximize renewable energy production
- Optimize waste heat recovery

Site and surroundings
- Reduce land-use through increasing density and optimizing space efficiency
- Provide wildlife habitats
- Integrate the building into the urban fabric
- Minimize light pollution

Infrastructure
- Minimize car traffic generated by building users
- Provide infrastructure for waste recycling
- Reduce water consumption through user management and rain-/greywater usage

Land-use planning
- Prevent urban sprawl
- Prevent impact on conservation areas
- Prevent congestion of traffic infrastructure
- Building is in accordance with goals of local community

Figure 4: Overview of sustainability goals recommended by IPB and KBOB for sustainable properties based on SIA 112/1

It is pointed out by IPB and KBOB that these recommendations only form a basis for the real estate manager to develop a sustainability strategy taking into account the specifics of the property, the portfolio, the stakeholders involved and the real estate market. SIA 112/1 can be used to incorporate the sustainability goals into a contractual agreement with the design team or individual design team members. Although this is a very good framework for a real estate developer it should only be seen as exactly that: a

framework that requires still a lot of decisions and detailed considerations to arrive at a sustainability strategy that can be implemented into the development process.

3.2 Demand by Owners and End Users

CR is gaining increasing momentum across the business community and this has effects on the demand side of the office space market. The decision of businesses what kind of office spaces to rent or buy is increasingly influenced by aspects of CR. This claim is substantiated in the following ways, which will be outlined in detail in the subsequent sections:

- Surveys: The results of the Corporate Real Estate and Sustainability Surveys (CRESS)[12] show that sustainability has become an important factor when businesses decide on renting or buying office space and that they are willing to pay a premium for such sustainable aspects.
- Building certification: Building certificates such as Minergie, DGNB, LEED and BREEAM have become the norm in some office space markets. Many larger and international firms require such a certificate when renting or buying office space.
- Workplace Management: Businesses develop new concepts to improve employee welfare and productivity and are turning their attention to the qualities of the office space itself.

3.2.1 Corporate Real Estate and Sustainability Survey

The CRESS 2011/2012 shows that there is an increasing demand for sustainable office space in Switzerland. When deciding to purchase or lease a property sustainability was the third most important criterion only surpassed by layout/flexibility and price. Since layout/flexibility and provision for public transport could also be defined as sustainable criteria, then sustainability-related categories would make up three of the top four property criteria (Fig.5).

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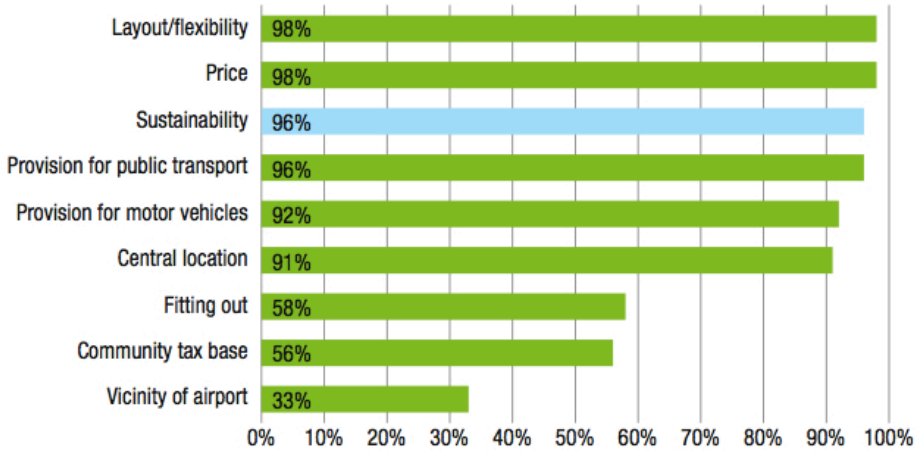
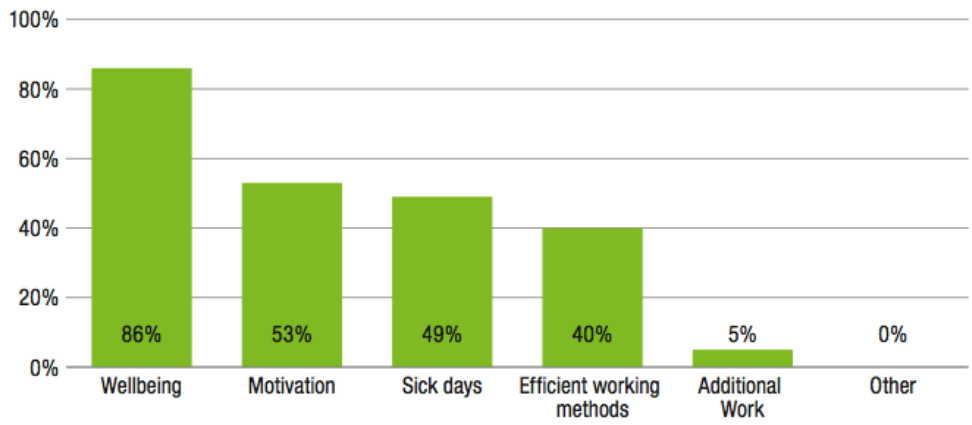
[12] The CRESS is a joint project of CBRE (CB Richard Ellis Switzerland) and CCRS (Center for Corporate Responsibility and Sustainability at the University of Zürich). The 2011/2012 survey covers 10% of all companies in Switzerland with more than 250 employees and 1% of all companies with fewer than 250 employees. In 2011, 207 businesses took part in the survey. Together, they cover some 25 km^2 of commercial surface area. On this basis a statistical projection was made of the total surface area of commercial properties in Switzerland. The result is a surface area of just under 240 km^2. This is the third survey of this kind, before the 2011/2012 survey there have been surveys in 2009 and 2010. Based on this combined information it is possible to observe trends and make predictions for future developments.



Question: "If you had to decide today whether to purchase or lease a property, what would be the relative importance of the following property criteria?" (Number of companies in %)

Figure 5: Importance of certain property criteria (CRESS 2011/2012)

59% of the companies surveyed responded that the supply of sustainable business properties was insufficient and 76% found that it was difficult to find suitable offers when looking for sustainable commercial properties. 65% of companies were willing to pay a price premium when purchasing a property and 38% were willing to pay a price premium when renting a property. This reflects the long-term benefits of sustainable buildings, which bear more significance when purchasing a property than when renting. Although the willingness to pay a price premium when renting stayed more or less stable since 2009 the overall willingness to pay for sustainability increased from 41% in 2009 to 51% in 2011. The companies were on average willing to pay a 7% premium for sustainable commercial properties, while the larger companies with more than 250 employees were willing to pay 7.4% more and smaller companies 6.4% more. 43% of companies stated that sustainable office space was having a positive effect on employee performance with 37% stating "don't know" and just 20% stating "no"; whereby the likelihood to ascribe positive effects to sustainable office space was higher among companies that already paid a premium for such spaces. When asked which criteria are determining the increase in employee productivity, 86% of the companies stated that it was the general wellbeing of the employees (Fig.6).



Question: "To what do you ascribe increased employee productivity in sustainable office premises?" (Number of companies in %)

Figure 6: Increased employee productivity (CRESS 2011/2012)

This result indicates that the propensity to pay a price premium cannot only be ascribed to lower running costs of the building but also to a higher productivity of the employees and suggests that the design of sustainable buildings has a direct positive effect on the value chain of the company that inhabits the building. This suggests that there is an opportunity for developers who understand the specific needs of the user and responds accordingly in the building design and marketing to offer added value to prospective tenants and buyers.

The results of the CRESS 2011/2012 are broadly in line with findings of an empirical study regarding Energy Star and LEED certified office properties in US cities. The study found that the effective rent for certified properties was 6% higher and the selling price up to 16% higher than those of non-certified buildings (Eichholtz et al., 2009).

3.2.2 Building Certification Systems

Some proponents of CR have criticized rating systems because these could be counterproductive, rather adding to the confusion what sustainability is and offering the opportunity to green-wash existing practices (Porter and Kramer, 2006). Although some of this criticisms can also be directed at building certification systems, also referred to as labels, it must be pointed out that they have played an important role in establishing sustainable building practices in the industry. The most important certification system in Switzerland "Minergie-ECO" has helped to turn the Swiss building industry into one of the most sustainable ones worldwide, with 25% of all new buildings in Switzerland

having been certified in 2013.[13] While the number of certified buildings, as a share of the total building stock, is still very small labels have become very relevant in the commercial real estate sector; especially for buildings in central locations and those that seek to attract international investors and tenants they have become the norm. Sometimes even the certification with two or more different systems, one national and one international, is seen to be desirable or necessary[14]. Labels are mainly successful because they offer clients a convenient solution to communicating sustainability goals for their buildings to the design team and market the building to prospective investors and end users. The somewhat intangible meaning of sustainability is translated into a well-defined label and allows all people involved to assess the sustainability credentials of the building. This transparency and marketing tool has helped to bridge the gap to the financial markets and institutional investors and is a crucial element in the "virtuous loop" (Fig.2). Also labels have had a pull effect on innovation in the development of new building products as there is an increased demand for sustainable products, for example insulation with a low embodied energy or finishes with a low content of volatile organic compounds (VOC).

3.2.2.1 Overview Labels

The most relevant labels for the Swiss commercial real estate market today are Minergie-ECO, BREEAM, LEED and DGNB (Fig.7). Although Minergie–ECO is the market leader in Switzerland, BREEAM and LEED are well-recognized labels internationally and are gaining track in the Swiss commercial real estate market. The German label DGNB has been adapted by the Swiss Sustainable Building Council (SGNI) to reflect the requirements of the Swiss building sector. Presently there are seven commercial real estate projects in Switzerland with a DGNB pre-certification[15]. A further label that has gained some traction in the Swiss real estate market since its

[13] Minergie Annual Report 2013

[14] The Prime Tower in Zurich, the tallest office building in Switzerland completed in 2011, is carrying the labels LEED Gold (US), Minergie (CH) and Greenproperty (a label developed by Swiss bank Credit Suisse)

[15] WankdorfCity, Majova and twist again in Bern, Torfeld Süd in Aarau, Europaalle Baufeld B,F,H in Zürich, First Ditrict Two in Opfikon, all rated „Gold" (www.dgnb-system.de)

introduction in 2009 is the greenproperty-Label[16]. It has been developed by Swiss bank Credit Suisse and there were some 40 buildings projected to be certified in 2012[17].

	1. Generation			2. Generation
	BREEAM	**LEED**	**Minergie ECO**	**DGNB**
Certification system	Building Research Establishment Environmental Assessment Method	Leadership in Energy and Environmental Design	MINERGIE-ECO	Deutsches Gütesiegel Nachhaltiges Bauen
Organisation	BRE (Building Research Establishment, UK)	USGBC (US Green Building Council)	Verein Minergie (CH)	Deutsche Gesellschaft für nachhaltiges Bauen (D)
Introduction	1990	1998	1998	2007
Certifications / Registrations	ca.200'000/ ca.1'000'000	ca.25'000/ ca.100'000	Minergie: 22'867 / 10'679 Minergie-ECO: 525 / 544	306/ 262 (7 in CH)
Assessment categories (weighting)	1. Health and well-being (15%) 2. Management (12%) 3. Transport (8%) 4. Water (6%) 5. Energy (19%) 6. Pollution (10%) 7. Waste (7.5%) 8. Land use & Ecology (10%) 9. Materials (12.5%) + Innovation (+10%)	1. Sustainable Sites (10%) 2. Water Efficiency (10%) 3. Energy & Atmosphere (35%) 4. Materials & Resources (14%) 5. Indoor Env. Quality (15%) + Innovation in Design (+6%) + Regional Priority (+4%)	Minergie: 1. Well-being 2. Energy Efficiency Minergie-ECO: 1. Health 2. Building Ecology	1. Ecological Quality (22.5%) 2. Economical Quality (22.5%) 3. Socio-cultural and Functional Quality (22.5) 4. Technical Quality (22.5%) 5. Process Quality (10%) + Site Quality (separate certificate)
No. of criteria	61 (+ 10)	54 (+ 10)	86	43 (+ 6)
Rating levels	Pass (≥30%) Good (≥45%) Very Good (≥55%) Excellent (≥70%) Outstanding (≥85%)	Certified (≥40%) Silver (≥50%) Gold (≥60%) Platinum (≥80%)	Minergie (low energy) Minergie-P (min. energy) Minergie-A (plus energy) Minergie-ECO Minergie-P-ECO Minergie-A-ECO	Bronze (≥50%) Silber (≥65%) Gold (≥80%)

Figure 7: Overview of selected certification systems

Generally the labels can be classified as 1.Generation (BREEAM, LEED, Minergie-ECO) focusing mainly on energy-efficiency and ecology, and 2.Generation (DGNB) including evenly weighted categories across all three aspects of sustainability (ecological, economical and socio-cultural/functional quality) and giving more weight to process quality. The certification systems use very different rating levels, with the lowest level usually meeting the national sustainable building standards. As those standards are being revised the requirements for the rating will also go up, but it is also

[16] The greenproperty-Label is based on SIA 112/1 and is including aspects of Minergie-ECO. It includes five categories: Use, Infrastructure, Energy, Materials and Life-cycle.
[17] Greenproperty, Image brochure, Asset Management Credit Suisse, 2014

important to identify which national building standards are used when dealing with international labels as this might contort the comparison of buildings with different ratings in different markets. There are efforts to establish international (ISO[18]), European (CEN) and national (NNBCH[19] in Switzerland, DIN in Germany) norms for building certifications and the newest label DGNB has already included some of these efforts into its structure. The differences between the certification systems today are still considerable and a comparison between them is extremely difficult. This will slowly improve, as national labels incorporate elements of the international ISO-standards when being revised. It will probably not be possible to replace the numerous current labels with a comprehensive and transparent international certification system because these labels are too well established in the market already and because there will still be a necessity to adapt certification systems to local norms and climates.

3.2.2.2 Costs and Benefits

The costs of certification are made up of fixed costs for registration and certification fees and variable costs for consultants' fees and production costs associated with achieving the certification. BREEAM and DGNB require that licensed experts who have had special training conduct the certification, Minergie and LEED don't have such a requirement although it is advisable to have specialized consultants in the design team. The production costs are difficult to quantify, a number of studies in the US suggest that there is a premium of 2% for certified buildings (Kats 2003, Morrison Hershfield 2005, Berry 2007), although a more recent study comparing construction costs for LEED certified buildings with non-certified buildings found that there is no cost premium (Mapp et al. 2011). It is certainly important to clarify early in the design stage which labels and what rating level must be achieved, as it will add more to the design and construction costs the later in the building process changes need to be made in order to comply with the certification. The different labels require a very different set of calculations and building certificates, which in turn will require design decisions

[18] The working committee „ISO/TC59/SC17: Sustainability in building construction" is developing norms on an international level, „CEN/TC 350: Sustainability of construction works" is incorporating these norms into a European standard which again is incorporated into national standards.

[19] The Swiss Network for Sustainable Construction (NNBCH) wants to foster sustainability in the Swiss building sector. The aim is to develop a comprehensive "Swiss Standard for Sustainable Construction" (SNBCH), which is based on the established instruments and labels (Minergie, DGNB/SGNI, SIA 112/1, Sustainable Building Management Guidelines IPB/KBOB, sméo, etc.) and taking into consideration the international context (LEED, BREEAM, etc.)

further down the line (Fig.8). The establishment of labels in the building industry has contributed to foster expert knowledge among consultants and engineers and has driven down costs for sustainable building technology and products, which has helped to bring down design and construction costs.

	BREEAM	LEED	Minergie ECO	DGNB
Global warming potential GWP				
Ozone depletion potential ODP				
Ozone production potential				
Acidification potential				
Eutrophication potential				
Non renewable primary energy demand				
Total primary energy demand				
Freshwater demand				
Land use				
Lifecycle costs				
Acoustic costs				
Visual comfort				
Space efficiency				
Noise protection				

Figure 8: Calculations needed for certification based on SIA 112/1(Intep, 2011)

The benefits of building certification are a reduction of running costs, an increased value of the property and higher rents (refer to 3.2). The marketability of the label is an additional benefit and facilitates to realize the before mentioned aspects. However studies suggest that the benefits of labels can't necessarily be generalized but must be assessed on an individual basis. The argument for lower running costs is put into perspective by a study from 2009 comparing the energy consumption of 100 LEED-certified commercial and institutional buildings and the general US commercial building stock. It showed that the LEED-certified buildings used on average 18-39% less energy per floor area, however 28-35% used more energy than their conventional counterparts. Further, the measured energy performance of LEED buildings had little correlation with the certification level of the building, or the number of energy credits achieved by the building at design time (Newsham et al., 2009). The argument that certified buildings present an added value to the user due to increased productivity of its employees and therefore is likely to command higher rental rates is challenged by a study from 2013 comparing the occupant satisfaction with indoor environmental quality of 144 buildings (65 LEED-certified). The study showed that there is not a significant

influence of LEED certification on occupant satisfaction with indoor environmental quality, although the analysis of mean votes of satisfaction reveals that occupants of LEED buildings tend to be slightly more satisfied with air quality, and slightly more dissatisfied with amount of light (Altomonte and Shiavon, 2013).

The developer has to be aware that a label and rating level alone will not guarantee a sustainable building with the desired qualities that add true value to the project. If the qualities and sustainability goals are not further specified by the developer the consultants will most probably opt for conventional solutions that they are familiar with and that will fulfill the required certification but will not necessarily meet the expectations and needs of the occupants and the long-term goals of the investors. Labels only present a framework, which allows for a large variety of solutions, some credits could for example either be achieved employing high-tech solutions or passive design responses. Labels also don't guarantee the implementation of certified aspects, because controls by the assessor rely in large parts on information supplied by the design team and contractors. It is therefore advisable to have contractually binding agreements with designers and contractors and to control the delivery process to make sure that all sustainability targets are implemented on site. The convenience that labels offer is deceptive; labels are neither a design guide nor an implementation tool but rather an additional affirmation of the sustainability of a building and a powerful marketing tool.

3.2.3 Workplace Management

Many companies have become alert to the fact that workplace management and employee welfare are important factors in attracting the best talents, retaining talents and increasing productivity[20]. New technologies, changing demographics, a shift towards highly qualified and creative processes (Florida, 2002), an increasing focus on knowledge transfer and interactions between employees and shifting attitudes towards issues regarding work-life balance have fostered this trend. The German Fraunhofer Institute (IAO) gives the following recommendations for the design of workplaces, which they refer to as knowledge spaces (Rieck, 2012):

[20] A study by Jörg Kelter of Fraunhofer IAO (2007) found that the office design has the potential to improve the office performance by up to 36%.

- Facilitate creativity
    - Provide informal meeting points to encourage interactions that foster new ideas.
    - Making best use of lighting, acoustics and sound to create an inspiring ambiance.
    - Offer sports activities and healthy food in the workplace.
- Facilitate cooperation and communication
    - Cross-linked circulation spaces encourage informal communication.
    - Offer informal meeting points such as coffee shops to create communication hot spots.
    - Offer decentralized meeting, seminar and project rooms to encourage formalized team- and project-work.
    - Offer high-tech meeting rooms that make best use of modern communication technology.
- Facilitate knowledge transfer
    - Large floor plates allow the interconnected arrangement of the different functions of the value creation chain.
    - Transparent room dividers allow the integration of other functions such as laboratories into the workspace.
    - Communication zones and retreats such as think tanks allow the employees to choose between stimulation and concentration and enhance productivity and well-being.
- Facilitate dynamic working processes
    - Large column grids and floor to ceiling heights allow the space to be adapted to changing user requirements
    - Flexible configuration of work stations
    - Flexible use of work stations, like desk-sharing

Especially larger companies have included employee welfare in their CR policies and have developed workplace concepts that include many of the points mentioned above. An example in Switzerland is the “Smart Working” concept by Credit Suisse, which includes desk-sharing and working zones (home-/quiet-/communication-/garden-/reading-/lounge-zone) and informal meeting zones such as an espresso bar. The

growing segment of tech-companies implement concepts that go even further and challenge the conventional perception of what an office building has to provide. The corporate headquarters of Google probably do not provide a blueprint for all future office buildings but they do prove that the office building typology office is becoming more complex and exciting. This rapid change in the field of workplace management makes it even more important for the developer to identify the needs of the targeted end users and decide whether additional investments, for example increased floor to ceiling heights or floor plate depth, are necessary to attract the desired end users and thus provide a sufficient long-term return. If companies focus increasingly on the qualities of the buildings they inhabit and see those as an integral part of their value creation process and also as a way to represent their company values to internal and external stakeholders it is likely that developers have to become more involved and give more direction in a field that has thus far been the domain of the architect – building design.

3.3 Investment Incentives for Corporate Responsibility

There is both an increasing demand for responsible investments and governments making those investments more viable by incentives and subsidies. The former is demonstrated by the booming market of green bonds, instruments that tie the proceeds of a bond issue to environmentally friendly investments, the latter by the Swiss Federation and Cantons having increased the funds allocated to a sustainable building program by 50%. In addition the property valuation benchmarks are beginning to incorporate sustainable building aspects, as demonstrated by the launch of the Eco-Portfolio Analysis Service (EcoPAS) in 2012 in the UK. Sustainability and responsible investment are becoming a more integral part of the property investment process. In the following sections the aspects of responsible investment, building valuation and risk assessment, and incentives and subsidies will be outlined in detail.

3.3.1 Responsible and Sustainable Property Investment

In the first six months of 2014 green bonds raised about $20 billion, nearly twice as much as in 2013 as a whole. The cumulative value of all green bonds is estimated to be $50 billion by the end of 2014, which is still a small figure compared with the total size of the bond market, which is worth $80 trillion (The Economist, 2014). The reasons for investing in this small but growing segment are the efforts by large long term investors like pension funds to reduce their exposure to risks such as climate change and heavier

regulation. According to the RICS publication “Sustainable Property Investment & Management” (RICS, 2008) sustainable property investment (SPI) means investing into only such property investment products, that are committed to at least one or more of the following four main strategies:

- Purchase and/or disposal of property assets that meet/don’t meet predefined environmental and social performance requirements;
- Investments into new building projects that are designed, constructed and subsequently managed according to the requirements of sustainable buildings;
- Investments into the existing building stock in order to systematically improve sustainability performance; and,
- Investments into community projects such as affordable housing and urban revitalization in order to foster a more sustainable society.

Emitter	Fund	Strategy	Sustainability Criteria	Volume (million)
Credit Suisse	CS Real Estate Fund Green Property	Investments in high quality new built commercial properties located in strong economic regions in Switzerland.	Properties must fulfill the criteria of the greenproperty sustainability certificate. It rates buildings according to economic, ecological and social criteria.	641 (CHF)
Bank Sarasin	Sarasin Anlagestiftung (SAST) - "Nachhaltig Immobilien Schweiz"	Investments in sustainable residential and commercial properties in Switzerland.	Properties are evaluated according to ecological and social criteria.	298 (CHF)
IVG	Premium Green	Investments in commercial project developments in central locations with good public transport links in German cities.	Properties must achieve a minimum certification of LEED Silver.	300 (€)
iii Investments	Green Building Fonds	Investments in certified commercial properties in western Europe.	Properties must achieve a sustainable building certification.	400 (€)

Figure 9: Overview sustainable real estate funds

The RICS publication predicts that unsustainable property investment and management practices will lead to losses with regard to financial performance and asset value. What exactly defines SPI is not standardized; every sustainable real estate fund has its own criteria (Fig.9). Most commonly the buildings must achieve a building certification with a minimum rating level, some investors have developed their own assessment tools, for example the greenproperty-Label of Credit Suisse. This is an indication that there is a drive to make sustainable investment strategies more transparent and sophisticated. This presents an opportunity for developers who can demonstrate that they not only achieve building certifications, which are becoming more and more the norm, but demonstrate

that they implement best practice in sustainable building design, production and management. Becoming best in class and the sustainability leader will attract more and better investors.

3.3.2 Building Valuation and Risk Assessment

The Stern Report (2006) urged industry experts and policy makers to improve the economics of sustainability. The business case for sustainable property investment is still hampered by the ineffectiveness to propagate its benefits over its costs. Investments in sustainable buildings are only rational if such investments reduce exposure to the risk of falling occupier demand and compromised investment returns. To make this decision requires a means of quantifying that assessment in terms of property worth; only if this is possible can the investor understand the financial implications of taking action and the risk attached to taking no or inappropriate action (Sayce et al., 2004). There is beginning to emerge defensible and robust evidence that rental differentiation is observable for sustainable buildings in US cities[21] but there is not sufficient evidence that this is also true for the Swiss and European property markets (Sayce et al., 2010). Although the CRESS 2011/2012 shows that businesses were increasingly willing to pay for sustainable buildings it is unclear if they put their intentions into practice. There is not enough transactional evidence yet how and if characteristics of sustainable buildings are reflected in actual market values. The understandings among the valuation profession how to quantify these characteristics is still in its infancy but there are efforts to bridge the gap. The Investment Property Databank (IPD) has launched the Eco-Portfolio Analysis Service (EcoPAS) in 2012 in the UK. It is a benchmarking service for property portfolios focusing on environmental variables and assessing the associated risk and performance. RICS recommends that EcoPAS be used in standard valuation practice; it is limited to the UK so far but will expand to France in 2014 with further expansions planned. The hope is that with an increasing database robust conclusions about sustainability and performance may be possible. EcoPAS is based on the Sustainable Property Appraisal Tool that has been developed by Ellison, Sayce and Smith (2007). This tool uses physical characteristics of buildings to assess their sustainability performance linking it to an appraisal of worth via the standard variables of depreciation, cash flow and rental growth. By defining and assessing sustainability

[21] For example Miller et al. (2008), Eichholtz et al. (2009) – results based on office buildings in US cities with LEED or Energy Star taken as surrogates for sustainable buildings

performance via physical characteristics there is no need for complex calculations, based on data that is difficult to obtain and verify. The characteristics have been selected according to their relevance to investment decisions and their impact on investment worth and are divided into seven categories: Operational energy efficiency, climate control, waste management, water management, pollution, physical adaptability of the space and accessibility (Fig.10).

Sustainability criteria	Property investment variables
Operational energy efficiency	Energy costs (per sqm and as % of rent) and potential price increases affect rental growth.
Climate control	Poor systems create a need to upgrade or install new systems affecting depreciation.
Waste management	If the property does not have adequate and accessible waste management facilities and access to a recycling service this may need to be provided for the property to attract tenants, potentially affecting depreciation.
Water management	If the property has no water management features these may need fitting for the property to attract tenants affecting depreciation.
Pollution	If a property has an occupier with a higher than average potential to pollute the land, atmosphere or local water course the risk of an environmental incident and associated clean up costs increase, which may affect cash flow.
Adaptability	The ability to reconfigure space easily can increase useable space, potentially reducing space costs and therefore ultimately affecting rental growth. The adaptability to other uses can reduce obsolence. Relevant parameters are: floor to ceiling height, floor plate depth, columns grid, regularity of footprint, floor load.
Accessibility	If an office has poor accessibility (poor links to public transport making it susceptible to rising fuel prices and legislation discouraging car use) staff turnover is likely to be higher and therefore recruitment costs higher and business costs higher, ultimately potentially tenant demand and therefore rental growth.

Figure 10: Linking sustainability criteria to property investment variables (Ellison et al., 2007)

The links between sustainability and property worth have still to be properly understood and they also depend on relative importance, occupier responses, regulations and macroeconomic factors. The methodology described above is a first starting point to develop tools that can be linked to a standard investment appraisal process. But it is becoming clear that the risks related to sustainability criteria are becoming increasingly relevant in the property investment and occupier markets.

3.3.3 Incentives and Subsidies

In 2010 the Swiss Federation and Cantons initiated a building program[22] that subsidizes energetic improvements of existing buildings (Part A) and investments in renewable energy generation, waste heat recovery and optimized building technology (Part B). The allocation of subsidies has been increased in 2013 from 200m CHF to 300m CHF, with a maximum of one third allocated to Part B. In 2013 131m CHF have been paid out for measures under Part A, with the majority of funds paying for roof-insulation (57m CHF), exterior wall insulation (49m CHF) and window replacements (18m CHF). During the same time 80m CHF have been paid out for measures under Part B, with the majority of funds paying for solar-thermal panels (15.5m CHF), heat pumps (11.6m CHF), large woodchip burners (9.5m CHF) and Minergie-P certification (9.2m CHF). The subsidies are mainly aimed at private house owners with an emphasis on upgrading the existing building stock. The financial relevance for commercial real estate projects needs to be assessed on an individual basis but they are most likely to be relevant when redeveloping an existing property and deciding whether to renovate or demolish and build new. The same is true when looking at construction loans. Although there are building loans with preferential conditions for sustainable commercial real estate developments on the market offered by cantonal banks[23], most commercial banks offer preferential mortgages for sustainable buildings only to private homeowners. For the development of commercial real estate projects it might be possible to negotiate preferential conditions with the commercial bank, based on a more favorable valuation of the property taking in account the worth and risks associated with sustainable characteristics as outlined in the previous section.

3.4 Building and Construction Efficiency

The building industry is facing numerous obstacles in improving the current levels of building and construction efficiency. The main obstacles are the fragmented development and delivery processes and the underdeveloped production methods. While cars are produced in bespoke factories under optimal conditions with a high degree of automatization the standard construction project is far removed from such high standards; and while in the car industry the product development and delivery

[22] www.dasgebäudeprogramm.ch
[23] www.zkb.ch/de/un/fk/finanzierungen-immobilien/immofinanzierung/umweltdarlehen.htm

processes are fully integrated, in the construction industry the processes are disconnected: a planning team is designing the building, producing tender documents and only after that the construction company is joining the project team taking the drawn concept to completion. It is at this junction that many problems regarding building and construction efficiency arise. How can a construction company deliver buildings efficiently if they have almost no input at the development stage when important decisions regarding the construction process are made? And how can a planning team develop efficient buildings if they don't have the in depth delivery expertise that the construction company has? Although construction companies tend to be involved earlier, especially with larger projects, participating in the detail design development, but this hasn't spurned a major break through in construction efficiency. The increasing standards regarding sustainability are adding to the complexity and inefficiency of these processes, making it even more difficult to achieving these standards. But still there are ways to improve the building and construction efficiency, some of which will be outlined in the following sections:

- Strategic Concept Design: How could aspects of building operation and construction be incorporated at an early stage to improve building and construction efficiency?
- Building Information Modeling: How could an integrated planning tool help to bridge the gap between development and delivery stages and improve building and construction efficiency?
- Construction Management and Efficiency: What strategies exist in the construction industry to improve efficiency?

3.4.1 Strategic Concept Design

Strategic concept design means that the main parameters influencing the building and construction efficiency of a project are set early on with the help of consultants who have suitable expertise to ensure that the aspects of construction and operation are incorporated at the start of the design development process. The strategic Facility Management (FM) has been gaining traction in the industry lately. The operational phase and consequently FM are crucial to the long-term commercial success of a development project. Depending on the calculation method the operational costs of a commercial property surpass the total construction costs within 10-15 years of operation. In addition inefficiencies or even malfunctions in the operational systems can

cause dissatisfaction of end users and can incur financial damage due to increased management costs and reduced rental income. To achieve the best results in the operational phase of a building there are two factors that should be observed:

1. The operational concept should be developed in parallel with the building concept and design.
2. The transition from building completion to operation needs to be managed carefully to achieve a fully functioning building from the start of operation.

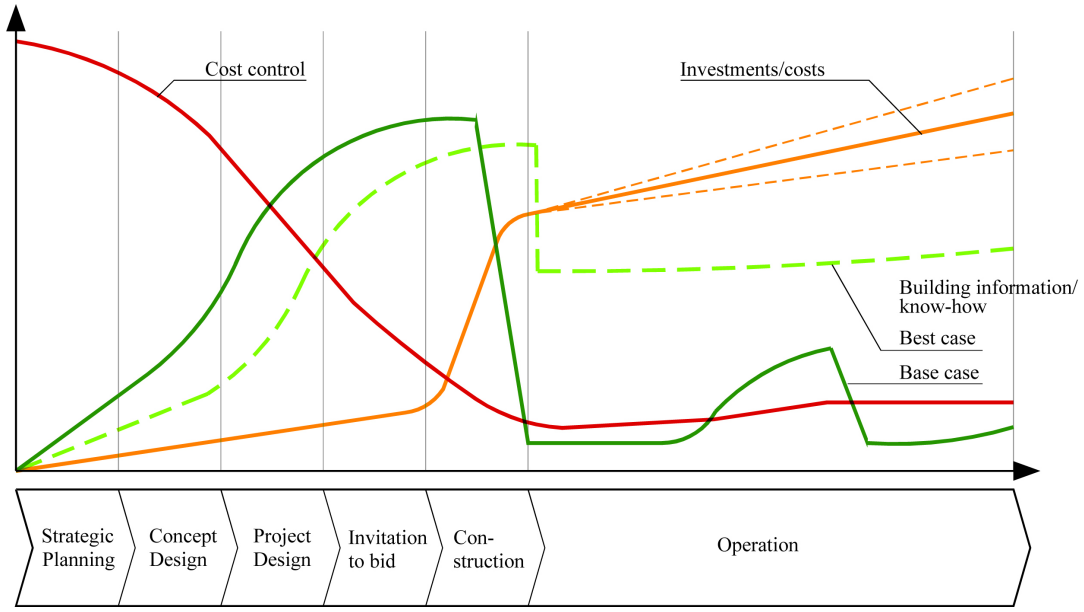


Figure 11: Life-cycle and building information management based on SIA 113

The Swiss norm SIA 113 (Fig.11) is a guideline for integrating FM-aspects in the design and construction phases. Although there are clear benefits to strategic FM, which have been confirmed in the expert interviews, some drawbacks have been mentioned as well. The main problem seems to be that this is still a relatively new concept and that there is a lack of expertise on the part of FM consultants for the entire multi-disciplinary development and delivery process. This problem could be overcome by consulting a specialist who has expertise in all aspects of building services and physics. This could be a senior building physicist or building system engineer with long term experience in the construction and operation of buildings, who has either FM expertise himself or could refer to a FM consultant. On the basis of the strategic concept design performance specifications and room data sheets could be developed and form a basis for the architectural design and give exact instructions to the individual consultants for their

detailed design. This could ensure coordinated and structured end results and could allow the consultants to employ their limited resources to best effect.

3.4.2 Building Information Modeling

There is no doubt that Computer Aided Design (CAD) has greatly improved productivity in the building industry. The drawing production process is much less labor intensive than it used to be before CAD became an industry standard in the early 1990's. Also the CAD-files can be exchanged between project team members quickly and almost without cost. But the CAD-files are still mostly two-dimensional and although files are exchanged there tends to be no shared and complete building model that all project team members can access and work on at any time. Proponents of Building Information Modeling (BIM) claim that it could spurn a comparable improvement in productivity in the industry as CAD did, if it became as widely used and adopted in the industry. BIM provides the capability for all stakeholders in a building project (developer/project manager, architect, consultants, engineers, contractors, suppliers, operator, end user) to work on a single shared three-dimensional model of the building incorporating all relevant information, including performance, function, behavior, costs and maintenance cycles of building elements. The result is a complete, coordinated and shared digital representation of the building, eliminating the risk of miscommunication and lost information between project stages and different stakeholders. The model can be passed on from design team to delivery team and operator/end user and used at each stage to optimize building efficiency. Some argue that to achieve a truly integrated development and delivery process and improve building and construction efficiency the use of BIM is essential and that its benefits outweigh its costs. Also BIM enables the building industry to do what the car industry has long been able to do: to simulate the project (i.e. virtual prototyping) and allow the optimization of the building in terms of construction efficiency and long-term operation before it gets built. Research exploring the benefits of using BIM in a project based on the results from 35 international case studies shows that there have been significant improvements in terms of cost reduction, cost control through the life cycle and time savings (Bryde, Broquetas, Volm, 2012). Those benefits were achieved not only in large projects but also across different project sizes and building types, the two projects reporting the highest number of benefits being a 350'000m^2 office tower and a 5'200m^2 court building. The negative effect of the use of BIM is the high dependency on the

functionality of the software and the skills of the users within the project team. BIM can only be successfully used if all stakeholders in a project use it, but this is still the exception in the Swiss building industry. Firms have to invest in acquiring the software license and training its staff and they will only do so if they see any significant benefit or requirement to do so. The research mentioned above shows that the projects are mainly located in North America, the UK and Asia where firms in the building sector tend to be larger and BIM is more widely used. In Switzerland the possibility to use BIM must be assessed for each project and is only likely to be viable if project team members and a construction partner can be found that have the required expertise.

3.4.3 Construction Management and Efficiency

The construction process is the crucial moment in the real estate development project when "financial capital becomes fixed as physical capital" (Geltner et al., 2006, p. 758). This transition process is important in shaping the outcome of the project. The development project can be as good as it can be, the project is likely to fail if it can't be delivered in the required timeframe, to the agreed price and in the specified quality. The developer can mitigate those risks by employing a general contractor that contractually guarantees to meeting certain goals and compensating the developer if these aren't met. But strategic partnerships between developers and contractors could offer opportunities that go beyond risk mitigation. If a developer has set certain goals as part of a CR strategy it might be advantageous to have a construction company on board that shares some of these goals and is able to deliver them; and a construction company that is able to work efficiently is more likely to deliver a good quality product in a set timeframe. Many problems regarding quality and time occur when a construction company is trying to save costs by reducing quality in order to achieve a profit or minimize losses. Even though the construction industry has a reputation of being relatively conservative and reluctant to innovate it has come a long way to improve efficiencies in their operations. As part of their sustainability report[24] the Swiss construction company Implenia lists the following goals it wants to implement: managing energy and resources carefully, avoiding waste, recycling building materials and minimizing CO_2 emissions in all areas of operation. It claims to having introduced a measuring system for its energy and resource flows encompassing the company, its suppliers and subcontractors. The aim is

[24] Sustainability Report 2011, Implenia

to optimize the efficiency of its operations, focusing on the indicators that can be influenced by the company. This is a more pragmatic approach than more elaborate concepts such as life-cycle assessment (LCA) and cradle-to-cradle[25], but might be more effective and economic in practice. Despite these efforts a major obstacle to construction efficiency remains: the on-site production process. The on-site management of material flows, production sequences and quality control is very difficult and the margin of error is significant even in optimal circumstances, with trained personnel and dedicated site managers. The obvious solution here is off-site prefabrication, building parts can be produced in bespoke production halls under optimal conditions and delivered on site just in time, reducing time on site, improving quality and potentially reducing cost. While prefabrication has some significant market share in the residential and health-care markets in North America and the UK it hasn't gained much traction yet in the Swiss construction industry, especially not in the office market. Here prefabrication tends to be limited to temporary solutions and niche projects.

4 Opportunities and Challenges of CR in the Real Estate Development Process

The most obvious opportunity for real estate developers to engage in CR is that such activities can benefit their business. As shown in the previous chapter there are important drivers that underline the business case for CR activities in real estate development: Fulfilling the requirements of the law and industry standards allows developers to operate in real estate markets and fosters credibility and trust among stakeholders; understanding the CR requirements on the demand side helps to integrate such requirements into the project and improve marketability and create added value for the end user; understanding the CR requirements on the investors' side helps to integrate such requirements into the project and gain access to additional sources of financing; and making a project more efficient reduces costs, increases revenue and by conserving resources protects the environment.

[25] LCA is a concept that measures all of a product's environmental impacts from the sourcing of raw materials, to manufacturing, distribution, use, maintenance and disposal (cradle-to-grave). The concept of cradle-to-cradle stipulates that in order to preserve resources raw materials must be fully recyclable after the products life-cycle (as opposed to downcycling, meaning materials can only be converted to materials of lesser quality) and used as resources with no materials going to landfill.

The main challenge of engaging in CR is that such activities require additional resources (the developer needs to invest more time and effort into the project), that the real estate development process is becoming more complex raising the risk of things going wrong and again requiring additional resources (the project team needs to invest more time and effort into the project), and lastly raising planning and building costs and thus requiring additional investment. Although developers are likely to invest the necessary resources to meet legal requirements, other opportunities might seem less desirable from an economic point of view when weighted against the challenges and the likely costs and risks they might inflict. But every challenge could potentially also represent an opportunity:

	Challenges	**Opportunities**
Legal obligation and norms	The legal obligation to deliver energy efficient buildings increases (i.e. new buildings must be NZEB from 2020 onwards). Sustainability is becoming a more integrated part of industry standards (i.e. SIA norms and guidelines by KBOB and IPB). This requires additional resources and costs, increasing the risk.	All developers must follow the increasing legal obligations. Those who have become good at delivering energy efficient buildings would have a competitive advantage. The norms and guidelines provide tools for the developer and the project team in the delivery process.
Demand	The CR requirements of end users mean that office spaces and buildings need to fulfill additional needs to what has in the past been regarded as office standards. This requires additional resources and increases the project costs meaning that revenue decreases or that the building can only be marketed to a smaller range of end users. While the demand for aspects of CR increase the marketability of standard office space is becoming more difficult.	Developers with the ability to detect new market demands and the ability to respond to new demands will have a competitive advantage. Developers who are able to develop projects that fulfill new demands efficiently will be able to market the building to a wider range of end users and potentially allow them to increase revenue.
Investors	The CR requirements of investors mean that office spaces and buildings need to fulfill additional needs to what has in the past been regarded as office standards. This requires additional resources and increases the project costs meaning that revenue decreases or that the building can only be marketed to a smaller range of end users.	Developers who are able to develop projects that fulfill new demands by investors efficiently will have access to additional sources of financing, possibly to better conditions increasing revenue.

	Challenges	**Opportunities**
Efficiency	In order to realize efficiencies the developer needs to commit more resources especially in early project phases when the risk of failure is highest. Realizing efficiencies in later project phases might add costs and reduce revenues. Technologies that are required (i.e. BIM, pre-fabrication) haven't yet been sufficiently established in the industry (i.e. their employment adds risks and costs).	The additional investment in early project stages is relatively low compared to the potential return. Investment in new technologies will give a competitive advantage when such technologies become more established.

A possible way to overcome the challenges and take advantage of the opportunities could be an integration of CR in the real estate development process. The further CR could be integrated into the process the more synergies could be created and thus costs and risks could be reduced while the return could be increased (Fig. 12).

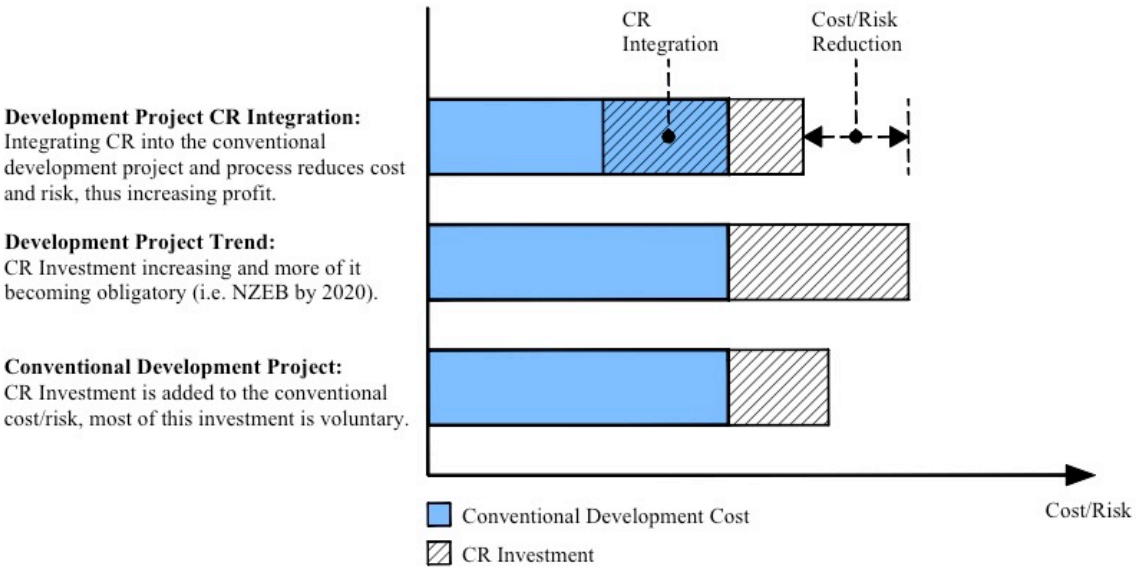


Figure 12: Cost/risk reduction through CR integration

The resources assigned to achieving CR objectives must be managed carefully and applied in a very targeted manner. This chapter looks more closely at the opportunities and challenges of CR in real estate development and analyses these according to their strategic significance. This analysis is partly based on the results of expert interviews, which were conducted with three representatives of Swiss real estate developers. They have been selected to represent a broad range of perspectives across the wide spectrum of real estate developers; the interview partners hold senior positions, one in a privately

held company acting as trader developer, a second in a large public company acting as developer and construction company, and the third in the development department of the fund management of a major Swiss bank. The analysis is also based on the results of the theoretical research presented in the previous chapters. The examination of opportunities and challenges is structured as follows:

- Organizational Level: The real estate development company should have appropriate internal structures incorporating CR as part of the business strategy.
- Building Design Level: The development project will have physical features that are the result of CR goals.
- Building Design and Process Level: The delivery process includes numerous stakeholders and actions that need to be taken by the real estate developer.

4.1 Organizational Level

In order to successfully integrate CR in the real estate development project the development company should have appropriate internal organizational structures and business strategies in place. Porter and Kramer (2006) point out that the current approaches to CR are usually too fragmented and not sufficiently aligned with the core business strategy to be effective and efficient. While the aspects of structure and strategy need to be addressed on an organizational level the aspect of culture is equally important. The organization's culture is a set of values that the company stands for and that all employees on all levels of the hierarchy should be able to identify with to a certain degree. Poorvu (1999) states that developers need to define what their own set of values is and base their projects decisions on these values. Ideally the three aspects of structure, strategy and culture are fully aligned and CR becomes an integrated part of all of them. In the following the various aspects of organizational structure, strategy and culture are examined according to their challenges and opportunities.

	Challenges	**Opportunities**
Setting the organization's CR objectives	While the CR objectives are defined on a strategic level they must be achievable on an operational level. The CR objectives should be specific enough so that achievable goals can be defined for each project. But the CR objectives must also be flexible enough to be applicable to a variety of projects and circumstances.	CR objectives should be set by the organization's management to define general goals on a long term basis (i.e. reduce CO_2 emissions of buildings of x%), the specific goals for each project can then be defined by the project development managers according to the individual circumstances and needs of the project.

	Challenges	**Opportunities**
Incorporating the CR objectives into the overall business strategy	While the CR objectives should be aligned with the core business strategy they should be achievable with the resources (personnel, infrastructure, expertise) of the organization.	A detailed analysis and understanding of the organization's strengths and resources can help to identify opportunities how CR objectives can be integrated into the core business strategy. The aim should be to employ the existing resources, infrastructure and expertise with a maximum effect. Additional value is created if the product can be improved by adding CR objectives with the existing resources.
Person in the organization responsible for incorporating the CR objectives	While the senior management must support and usually initiates CR objectives these need to be incorporated on all levels of the organization. This is a managerial challenge and difficult to achieve if the support for such objective is lacking within the organization.	The opportunity here lies in the organization's culture and structure. The CR objectives should be aligned with these values so that employees identify with objectives and are motivated to incorporate them in their operations. Accordingly the organization's structure should be devised in such a way that encourages initiatives and innovation in accordance with the CR objectives on all levels of the hierarchy by supporting and incentivizing such behavior. The operational responsibility for incorporating CR objectives
Monitoring the implementation of CR objectives	The CR objectives must be defined for each project to such a level of detail that the implementation and success can be monitored. Adequate tools and resources for monitoring need to be provided.	Monitoring tools (post occupancy evaluations, building performance assessments, project reviews) not only help to identify the successful implementation of CR goals but also scope for adjustments. This way building performance can be improved and lessons learned for future projects.

The incorporation of CR in the business strategy, structure and culture calls for specific actions on the different levels of the organization (Fig.13). The management of the organization defines the core business strategy and culture, expressing a long-term vision and objectives for the business. The management should take into consideration the specific strengths and weaknesses of the business, its relative market position and likely future developments. From all the possible CR objectives that are available for consideration the management should select those objectives that make best use of the organization's strengths and provide most opportunities of value creation for the business. Instead of employing additional resources to perform additional tasks the strategic aim should be to employ existing resources to perform tasks that they are good at and that can also be applied to achieving a CR objective.

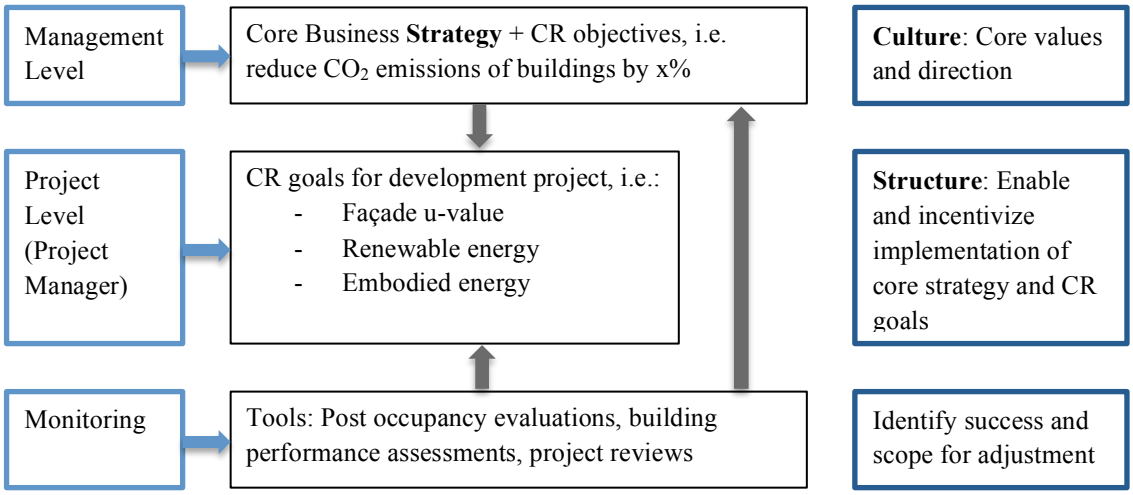


Figure 13: Incorporation of CR on the organizational level

Once the strategic CR objectives are defined, the project manager can then apply these on the project level to the specific development project. The general objectives are translated into specific CR goals for the project, taking into account the individual circumstances and needs of the project. The goals should be specific enough so that the success can be monitored, either in the form of post occupancy evaluation, a building performance assessment or project reviews. This way the result of the monitoring can be fed back into the organizational structure and if necessary adjustments can be made to improve future performance.

4.2 Building Design Level

The strategic CR objectives result in specific building features, for example the CR objective to reduce CO_2 emissions could result in the specification of a façade with a certain u-value, the provision of a certain amount of renewable energy, the reduction of embodied energy or a combination of several measures. The project manager should select the measures that are most economic and appropriate to the specific needs of the project, the site and the end user. The strategic aspects that could be important in shaping CR goals on a building design level are examined according to: Site, Demand, Operation, Economy and Community.

4.3 Process Level

In the expert interviews the complexity of the real estate development process has been identified as a challenge when incorporating CR objectives in a project. The main reason for this is the number of external consultants and resources that are required and that need to be managed by the real estate developer. When adding CR objectives to a project this requires usually additional consultants, which again increases the complexity of the process and the managerial efforts required. While the principal-agent problem is an issue in all businesses it is especially relevant in real estate development, not only because of the relative high number of external agents involved but also because of their heterogeneity. For example the objectives of architects are very different to the ones of mechanical engineers leading to very different conflicts of objectives with the developer. These different objectives need to be understood so that the developer can respond to them and hopefully solve them. A further challenge is the expertise that each team member brings to the project, which is not always the expertise that is needed to complete a task, especially when it requires innovation and new thinking, which is usually the case when faced with CR objectives. A possible strategy to overcome this challenge is to select the project team members according to their ability to achieving the CR objectives and manage them according to their strengths and weaknesses. In the following the individual team members of a typical project team are analyzed according to the challenges and opportunities they present:

	Challenges	**Opportunities**
Architect	**Conflict of objectives:** Focus is on design quality, not so much on sustainable objectives such as efficient use of resources and cost effectiveness. **Expertise:** Sustainability is not an integral or important part of the architectural education. It is becoming regarded as a new scope of architectural responsibilities, but the required expertise and true commitment is mostly still lacking.	Architects are generally willing to invest additional resources to achieve a good design solution. Guidance and specific requirements (such as performance specifications and room data sheets) from the project developer and the selection of the architect according to his expertise can help to achieve the best results in employing the architect's resources.
Consultants (Mechanical, Electrical)	**Conflict of objectives:** Focus is on time efficient fulfillment of the mandate. This leads to minimal resources being allocated, especially at the start of a project. Solutions are usually based on previous projects. **Expertise:** The proliferation of green labels has fostered sustainable expertise, but the focus is on achieving specific energy targets. For integrated design solutions the ability to think beyond the individual mandate is mostly lacking.	Developing a comprehensive technical building concept with a specialist consultant who has expertise in all aspects of building services and physics. On this basis performance specifications and room data sheets can be developed that give exact instructions to the consultants for the detailed design. This ensures a coordinated and structured end result and allows the consultants to employ their limited resources to best effect.
Strategic FM	**Conflict of objectives:** Focus is on technical aspects (operation, maintenance, durability, logistics) while other strategic aspects (marketability, workplace management, architectural quality) are usually not considered. **Expertise:** The proliferation of green labels has fostered sustainable expertise, but the focus is on achieving specific operational targets. For integrated design solutions the ability to think beyond the individual mandate is mostly lacking.	The strategic FM consultant should be involved in an early project stage to contribute to the comprehensive technical building concept (see above). This ensures that the aspects of building operation are incorporated early on without dominating the overall strategic concept of the project.
Contractor	**Conflict of objectives:** Focus is on maximizing the profit margin on a project by reducing costs and quality, as far as it is contractually permissible. **Expertise:** The proliferation of green labels has fostered sustainable expertise, but the focus is on achieving specific operational targets.	Contractors have begun to develop their own CR objectives and incorporating these into their business operations. Specific CR objectives relevant to construction could be incorporated into the tender documents and become part of the contractual agreement. Also contractors could be selected according to their expertise and the additional value that creates for the project.

An important factor is the timing, when to involve which project team members. While in early project stages the costs and time spent on developing a concept should be held to a minimum to reduce losses when the project fails, some support might be useful to create a comprehensive strategy before the full project team is employed, this support could be very targeted and thus costs kept to a minimum.

While strategic FM is becoming more popular and provides important inputs that can lead to meaningful cost savings in operational costs later on it does have some drawbacks. FM consultants are usually very focused on the technical aspects of building operation, maintenance, durability and logistics and are usually not considering other strategic aspects that can be relevant to a building concept. It can be more productive to employ a consultant who has expertise in a wider range of building aspects, such as building physics, technology and operation.

The developer together with the specialist consultant should be able to generate a comprehensive project strategy from this input incorporating also other aspects such as marketability, workplace management and architectural quality. The FM consultant should feed into this strategy but not be the sole contributor. The project strategy should be specific enough to produce performance specifications and room data sheets, which can form the basis for later project stages.

On the basis of the strategic concept the project team can be assembled; if the strategy is likely to require specific expertise this can be considered in the appointment of certain project team members. For example, if it has been identified at the concept stage that the employment of BIM by all team members will be necessary the appointment must mention this condition. If the strategic concept is likely to require the appointment not just of a certain firm but of a specific person in this firm this must be agreed contractually, as standard contracts usually allow the consultant to employ any individual within their firm or even sub-contractors.

Once the project team is assembled individual project team members can use the performance specifications and room data sheets as a basis to further develop their detailed designs. Usually the architect is tasked to coordinate the project design at this stage and very often he is lacking the expertise to perform this task. The complexity of building projects has increased in the past especially in the field of building technology. The architectural education has in most cases not kept up with this development and consequently architects are not always sufficiently equipped to cover all interfaces between the different consultants. A comprehensive strategic concept can help to

improve efficiency and coordination within the project team by providing clear guidelines.

5 Incorporating Corporate Responsibility in the Real Estate Development Process

The previous chapter has identified the challenges and opportunities of CR in RE development, this chapter explores strategies of integrating CR into the RE development process in order to overcome the challenges and make best use of the opportunities. While there have been suggestions in the previous chapters how CR could be integrated into the RE development project, the process integration requires the consideration of the factor time. If CR should be successfully integrated into the process it needs to be defined at what stages specific decisions regarding CR could and need to be made.

This chapter first presents an overview of the RE development process and shows how CR could become a part of this dynamic system. The following sections look more closely at the integration of CR on the management and project levels within the RE development process.

5.1 Corporate Responsibility in the Real Estate Development Process

In the previous chapter it has been argued that CR needs to be integrated within the development firm's organizational structure; that CR objectives should be integrated into the core business strategy (management level) and that specific CR goals should be integrated into the project strategy (project level). These could be described as internal processes, as the development firm conducts them as part of their business operations. But of course there are numerous external factors and stakeholders that need to be involved and considered in those internal processes. The specific real estate development project could be described as the combining element linking the external and internal processes together, because it is the project that requires the immediate engagement with stakeholders (planners, neighbors, land owners, etc.). Also the project process defines at what point in time certain decisions need to be made and goals regarding CR need to be defined. This is shown in this diagrammatic overview (Fig.14):

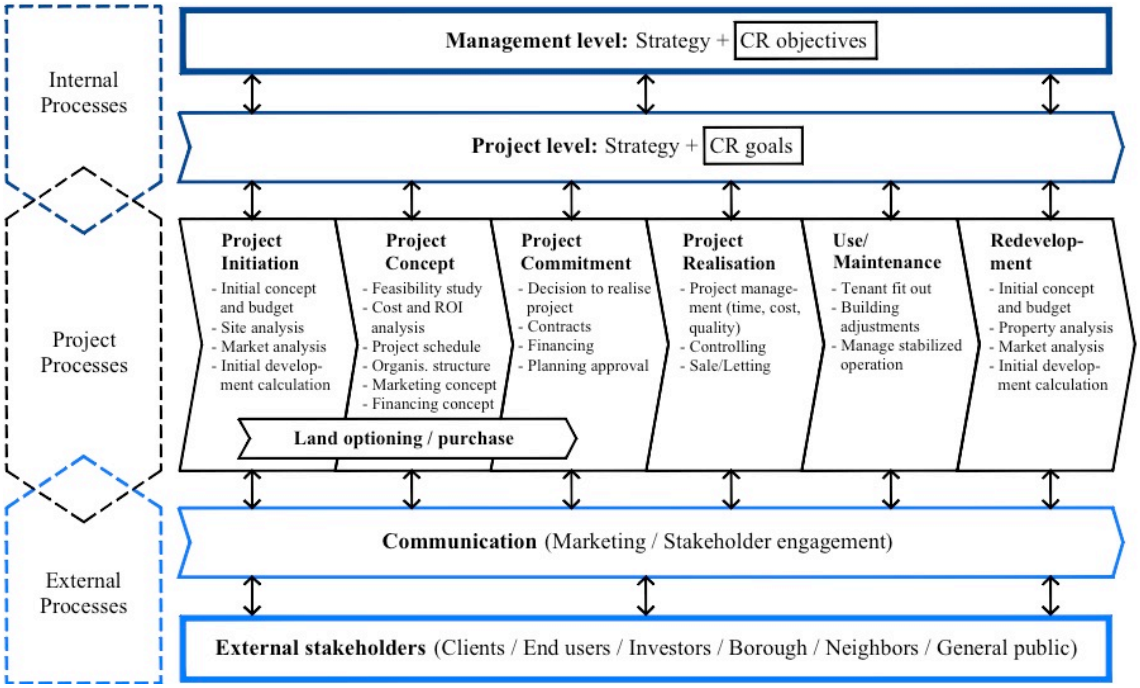


Figure 14: Corporate responsibility in the real estate development process

Although certain decisions need to be made and actions taken at certain points in time, it is also important that information is exchanged between the internal, external and project processes along the way. New circumstances that arise at some stage in the project need to feed back into the strategy and CR goals on the project level, taking into account the long-term objectives on the management level, and might require certain actions regarding communication and marketing. At the start of the RE development project many parameters might not yet be known or change over time, so it is important to be responsive and this is reflected in the diagram. The responsiveness also includes the CR objectives and goals, these must be assessed when new information arises and adapted if necessary. Although there should be a robust concept in place at the start of the project, this concept should allow for a certain degree of adaptability. The communication capabilities of the development firm provide a link to the external stakeholders and are important in achieving and implementing CR goals. Because building projects typically have significant impacts on the people and infrastructures in the surrounding area these impacts need to be managed carefully if they are likely to have detrimental effects on the project or if certain opportunities could be realized that could add value to the project.

5.2 Defining Strategic Corporate Responsibility Objectives and Goals

At this point it is worth summarizing the main strategic implications that CR can have for a business: CR can be a capability that leads to sustained competitive advantage (Hart, 1995), managers should conduct a cost/benefit analysis to determine the level of resources to devote to CR activities and attributes (McWilliams and Siegel, 2001), and CR could be integrated most effectively into a business strategy if the firm applied its resources, expertise, and management talent to CR objectives that it understands and in which it has a stake (Porter and Kramer, 2006). Based on these premises a strategy for defining CR objectives and goals could be developed (Fig.15).

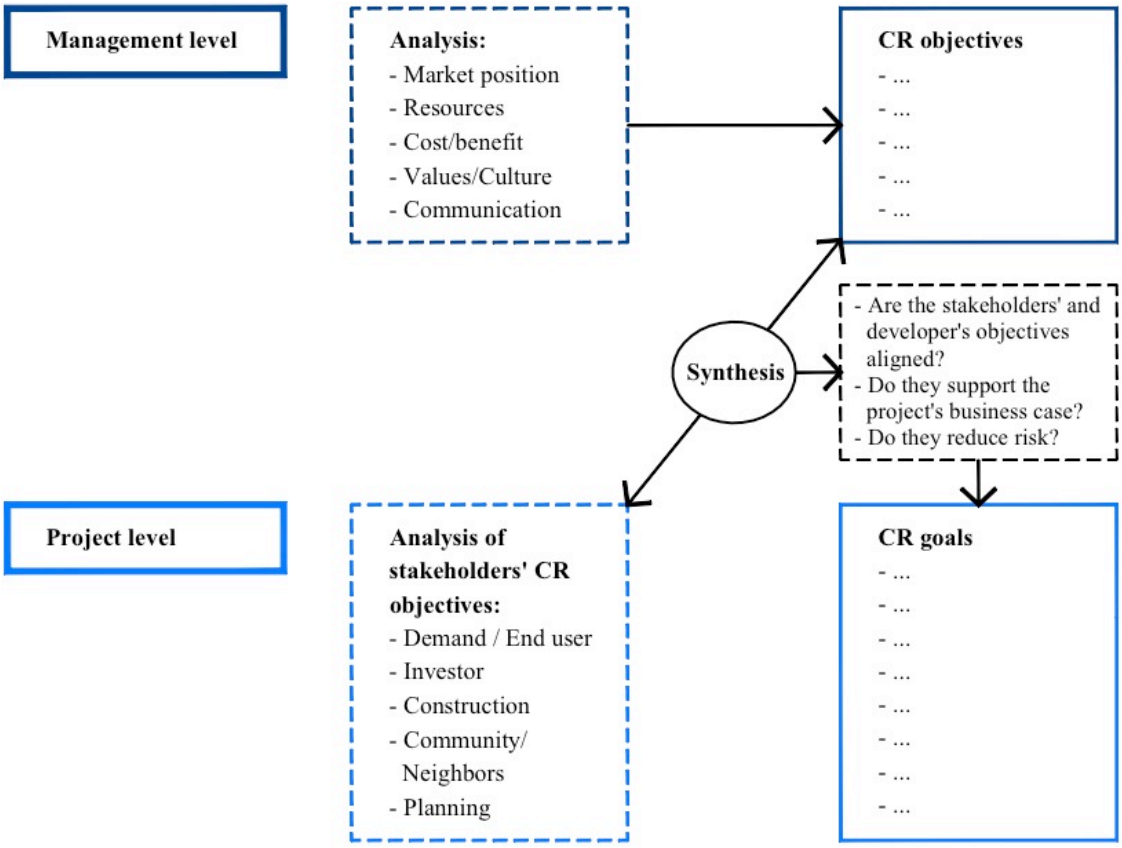


Figure 15: CR in the RE development process

Initially the RE development firm needs to define strategic long-term CR objectives on a management level. These objectives need to be based on an analysis of the firm's market position, its resources, a cost/benefit analysis, its values and culture, and its communication strategy. On the project level various stakeholders can have a significant influence on the project, consequently their CR objectives need to be analysed with regards to their impact on the project. In a synthesis process the

stakeholders' and the development firm's CR objectives need to be assessed regarding the following criteria: Are the stakeholders' and development firm's objectives aligned, do the objectives support the business case and/or do they reduce risk? The CR objectives that fulfil at least one of these criteria should be considered and included in the list of the project's CR goals.

5.3 Corporate Responsibility Integration on Management Level

The RE development firm's long-term CR objectives should ultimately benefit the business. Consequently the firm should follow the same procedure it uses to define its core business strategy when it wants to define its CR objectives (Fig.16).

	Now	In 5 / 10 / 20 years
RE Market	- What is our market position in relation to our competition? - What are our unique selling proposition, strengths and weaknesses?	**CR objectives should:** - Improve/defend our market position (what is the competition doing?). - Reduce risk of known/likely changes in norms, standards and regulation.
Resources	- What are our resources and expertise? - What are we especially good/bad at?	**CR objectives should:** - Help us to develop our resources and expertise. - Be achievable with the resources that will be available.
Cost/benefit	- How can we make best use of our resources and expertise? - How can we reduce costs/increase benefits?	**CR objectives should:** - Make best use of our resources and expertise. - Use synergies to reduce costs/increase benefits
Values/Culture	- What are our personal/company's values? - What do we stand for? What do our employees stand for and support?	**CR objectives should:** - Be aligned with the company's values. - Be supported by the employees.
Communication	- How do we want to be seen by others? - How can we present ourselves/our projects to best support the business?	**CR objectives should:** - Be aligned with the company's communication strategy.

Figure 16: Defining CR objectives on a management level

Focusing on the objectives that the firm understands most, has the most stakes in, has the adequate expertise and resources to achieve and that are most aligned with the core business strategy will offer the most economic results and deliver the biggest amount of benefits to the business and society at the lowest cost.

Most certainly the analysis would also show that the firm is lacking certain resources or expertise to reach CR objectives that would be desirable, either because they offer a

business opportunity or because they reduce/mitigate risks of developments in the RE market and regulation. This can help the firm to plan ahead and initiate changes within the organization, acquire new resources and expertise that will help the firm to achieve those CR objectives in the future. If this happens in line with the long-term core business strategy it will help the business stay competitive and profitable.

5.4 Corporate Responsibility Integration on Project Level

On the project level the definition of CR goals is complex, because in addition to the firm's own business interests the specific conditions of the site and the objectives of the involved external stakeholders need to be considered. The need to incorporate the objectives of external stakeholders could for example arise because of the following reasons:

- Improved marketability: The end user demands certain qualities.
- Improved financing: The investor offers better conditions if the investment risk is reduced.
- Community relations: The project profits from goodwill in the community.
- Planning: Planning approval can be conditional on providing certain benefits to the community or meet certain requirements.

	Stakeholders' CR objectives, for example:	**Firm's CR objectives, for example:**	**Project level CR goals, for example:**
Demand / End user	- Building certification - Amenities for employees - Cycle storage and showers	- Achieve building certification or comparable standards - Reduce CO2 emissions by x% in our operations and through building optimization - Achieve x% of renewable energy production on site - Add value to the communities we operate in	- Building certification - CO2 reduction (building performance and construction) - Renewable energy generation on site - Construction time reduction through the use of prefabricated elements - Public amenities for the use of end users and neighbors - Reduce car traffic by agreeing a cycle to work scheme with the end user
Investor	- Building certification		
Construction	- Waste management - CO2 reduction - Use of sustainable materials - Prefabrication		
Community / Neighbors	- Amenities for neighbors - Reduce construction time - Reduce additional traffic		
Public authorities	- CO2 reduction - Renewable energy		

Figure 17: Defining CR goals on a project level

The objectives of relevant stakeholders should be assessed and categorized according to the criteria above (Fig.17). If these are deemed to be required or advantageous for the success of the project they should be considered more closely. To minimize additional building cost the stakeholders' objectives could be assessed further according to the following criteria:

- Cost/benefit: Which objectives add most value to the scheme at the lowest cost?
- Resources: Which objectives can be achieved most efficiently with the available resources?
- Strategic alignment: Which objectives are most aligned with the firm's CR objectives?
- Win-win: Which interventions could fulfill objectives of multiple stakeholders?

At the end of this process the project manager should be able to draw up a list of project specific CR goals that add value to the project at the lowest cost that make best use of all available resources and expertise and fulfill the objectives of most stakeholders.

5.5 Corporate Responsibility Integration on Process Level

It is very unlikely that at the start of a RE development project all necessary information is available and all relevant stakeholders are involved. Therefore the incorporation of CR objectives and goals in the RE development process needs to allow for a certain degree of flexibility and responsiveness. This might be achieved by developing tools, which could be based on the processes outlined in the previous sections of this chapter, to attain a sufficient degree of efficiency to make this internal process worthwhile. When such tools are in place certain milestones in the RE development process could be defined at which point in time the CR goals are verified and adjusted according to the new information that has arisen in the meantime (Fig.18).

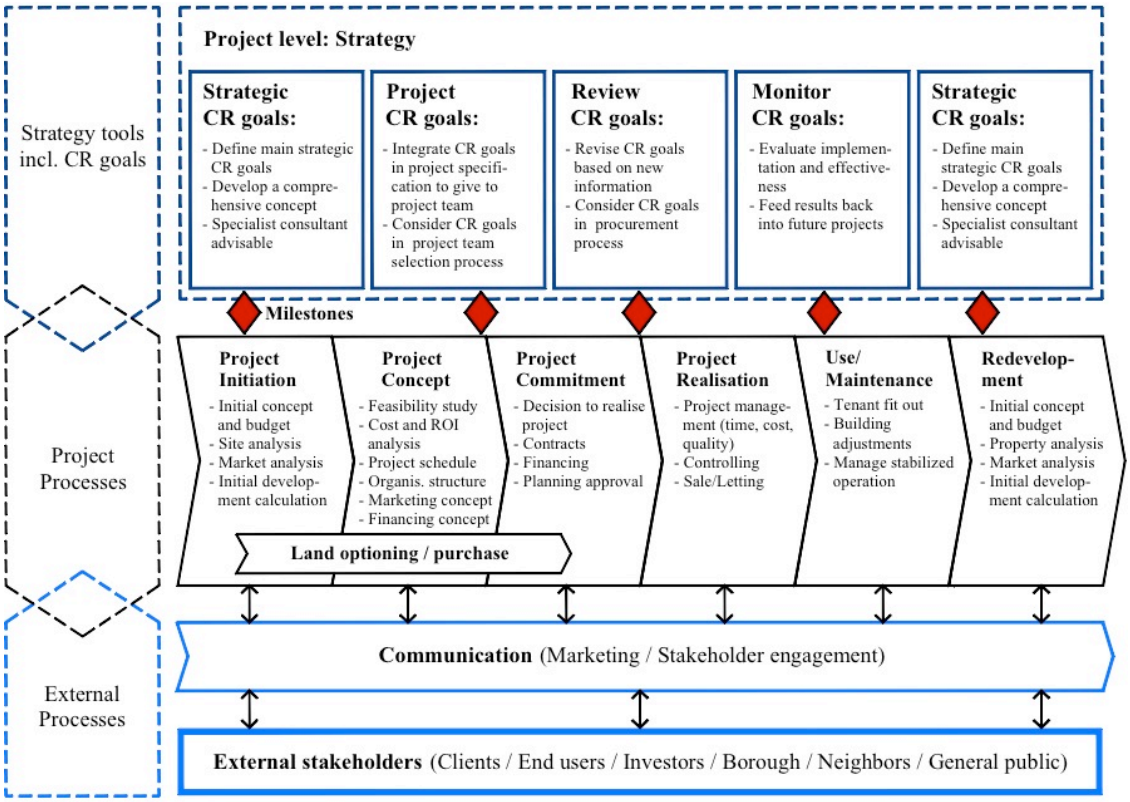


Figure 18: Strategy tools in the RE development process

It is essential that the CR goals are integrated into the overall strategy of the project and that consequently the tools to define and adjust them are integrated into the standard project processes. It has been pointed out in previous sections that CR goals should reinforce the business case of the project and thus become inseparable from the project strategy and its economic success. Consequently it should be avoided to create standalone CR tools; rather CR goals and the processes to define and adjust them should be fully integrated into comprehensive project strategy tools and processes.

6 Concluding remarks

6.1 Conclusion

Corporate Responsibility (CR) in the context of real estate (RE) development is best understood if it is viewed from a business perspective. This point of view allows focusing on the aspects of CR that are most relevant to RE development and its business case, rather than employing scarce resources to applying generic and prescribed concepts of responsible and sustainable practices that currently exist in the building industry and that might not be as effective. There are concrete drivers that support the

business case for implementing aspects of CR in RE development. The most relevant drivers are legal obligation (norms and standards mandate increasing levels of eco-efficient buildings) and demand (owners and end users increasingly require responsible and sustainable building qualities), because these cannot be ignored by RE developers if they want to stay profitable and competitive in the future. The other two drivers are investment (investors increasingly seek sustainable and responsible RE investments) and efficiency (increasing complexity of building process necessitates measures to improving construction efficiency). These drivers present different sets of opportunities and challenges: The opportunities are that fulfilling the requirements of the law and industry standards allows developers to operate in RE markets and fosters credibility and trust among stakeholders; understanding the CR requirements on the demand side helps to integrate such requirements into the project and improve marketability and create added value for the end user; understanding the CR requirements on the investors' side helps to integrate such requirements into the project and gain access to additional sources of financing; and making a project more efficient reduces costs, increases revenue and by conserving resources protects the environment. The main challenges are that CR requires additional resources (the developer needs to invest more time and effort into the project), that the RE development process is becoming more complex raising the risk of things going wrong and again requiring additional resources (the project team needs to invest more time and effort into the project), and lastly raising planning and building costs and thus requiring additional investment and increasing the financial risk.

It has been shown in the research and through expert interviews that the drivers are likely to become more important in the future and that RE developers need to increase their efforts to respond to the growing challenges and opportunities they present to their business. Therefore the question is not whether RE developers need to engage in CR, but rather how they should best engage with CR. The answer seems to be that CR needs to be incorporated into the core business strategy of the CR development firm. If responsible and sustainable building practices can be incorporated into the structures and processes of the firm these could be implemented more efficiently, because the firm would employ its resources to its best capabilities and business interests. In a first step the RE development firm needs to define long-term CR objectives that are aligned with and integrated into the core business strategy. Secondly it needs to make sure that the organizational structures are in place or will be developed to meet the CR objectives in

the future. Thirdly on a project level specific CR goals need to be defined that could be incorporated into the project design and that are aligned with the business strategy.

6.2 Discussion

The expert interviews have provided the most valuable source of information for this thesis. They have shown that CR has a significant relevance in the RE development process, but they have also shown that there are differences in the understanding of CR, depending on personal convictions and the type of RE development firm. It has become clear that further interviews are required to ascertain in how far CR is based on personal convictions of the individual manager and how much is based on company values and strategy. Also further interviews are required to identify the distinct relevance of CR for the different types of RE development firms, i.e. service-developers, trader-developers and investor-developers.

The expert interviews were conducted in such a way, that a certain structure was provided (refer to Appendix 1) but they also allowed for an equal degree of open conversation. The structured approach has shown to be more effective, because the results proved to be more relevant to the research. Also the structured questions provided answers that could more clearly assigned to personal convictions or company policy. Consequently the structured approach should be followed more consistently in future interviews. Based on the results of this thesis, additional interviews could explore more directly the specific business strategies of the individual RE development firms. The analysis of actual RE development projects could provide helpful insights into the practical application of CR.

The strategies presented here show how CR could be incorporated in the RE development process. The scope of this thesis required that the RE development process had to be simplified so that tangible results could be achieved. The strategies need to be studied in more detail, verifying their validity in the different project stages. The incorporation of CR in the RE development process requires the developer to take specific measures and actions and these need to be researched in more detail.

6.3 Outlook

The drivers of CR in the building industry and their development over time need to be monitored. For example the energy performance standards MuKEn will be brought in line with the EPBD and the specific requirements are yet to be published. Depending on

the outcome they could have significantly different impacts on RE development projects. Also the demand for sustainable building qualities by owners and end users is growing but it needs to be assessed whether this will development will accelerate further and how the specific building requirements on the demand side change over time.

The strategic models that have been developed in this thesis should be refined and expanded. The different variables in the RE development process need to be examined in more detail and integrated into the model. The research has shown that stakeholders play an important role in integrating CR in the RE development process. It needs to be further assessed how they could be managed more effectively in order to achieve CR integration. Especially the roles of the project team members and how these need to change needs to be evaluated. It has been identified in the expert interviews that the educational system hasn't sufficiently reacted to the changes that have taken place in the building industry over the past decade. It should be examined how the curriculum could be adapted to reflect new the new tasks that architects, consultants and engineers are facing because of new technologies, new processes and changes in building typologies; and whether the current job description should be revised.

The complexity of the RE development process offers many opportunities for further detailed studies. These could include the examination of the correlations between CR relevance and building type, site location and project size. The strategic tools should be verified against different sets of variables. It needs to be ascertained if the model can represent a variety of different variables or if different variations of the model need be developed.

The role of communication and marketing could play an important role in the context of CR and should be assessed further. At the moment communication is very much focused on publishing reports and product brochures that demonstrate the sustainability credentials of the RE developer. But communication could become a more integral part of business strategy and CR. It could be used in a more proactive way, for example when engaging with stakeholders.

References

Altomonte, Sergio; Schiavon, Stefano (2013): Occupant satisfaction in LEED and non-LEED certified buildings; Building and Environment 68(2013)6, pp. 66-76

Bryde, David; Broquetas, Marti; Volm, Jürgen Marc (2012): The project benefits of Building Information Modelling (BIM); International Journal of Project Management 31(2013), pp. 971-980

Cajias, Marcelo; Fuerst, Franz; McAllister, Patrick; Nanda, Anupam (2011): Do Responsible Real Estate Companies Outperform Their Peers?; Working Paper, University of Reading, pp. 31

Ebert, Thilo; Eßig, Natalie; Hauser, Gerd (2010): Zertifizierungssysteme für Gebäude, München 2010

Eichholtz, Piet; Kok, Nils; Quigley, John M. (2009): Doing Well By Doing Good? Green Office Buildings; The American Economic Review 100(2009)5, pp. 2492-2509

Eichholtz, Piet; Kok, Nils; Quigley, John M. (2011): Who Rents Green? Ecological Responsiveness and Corporate Real Estate; Working paper, University of California, Berkeley: Institute of Business and Economic Research, July 2011

Elkington, John (2004): Enter the Triple Bottom Line, London 2004

Feige, Annika; Wallbaum, Holger; Krank, Sabrina (2011): Harnessing stakeholder motivation: towards a Swiss sustainable building sector; Building Research & Information 39(2011)5, pp. 504-517

Florida R. (2002): The Rise of the Creative Class. And How It‘s Transforming Work, Leisure Community and Everyday Life, New York 2002

Freeman, R.E. (1984): Strategic Management. A Stakeholder Approach, Pitman, Boston, MA 1984

Fuerst, Franz; McAllister, Patrick (2011): Green Noise or Green Value? Measuring the Effects of Environmental Certification on Office Values; Real Estate Economics 39(2011)1, pp. 45-69

Geltner, David M.; Miller, Norman G.; Clayton, Jim; Eichholtz, Piet (2006): Commercial Real Estate Analysis & Investment, Second Edition, Mason 2006

Hart, Oliver (1995): Corporate Governance: Some Theory and Implication; The Economic Journal 105(1995)430, pp. 678-689

Hootman, Tom (2013): Net Zero Energy Design, Hoboken N.J. 2013

IPB/KBOB (2010): Nachhaltiges Immobilienmanagement – Eine Anleitung zum Handeln, 1.Ausgabe, Bern 2010

Jones, Peter; Comfort, Daphne; Hillier, David (1998): Corporate social responsibility and the UK construction industry; Journal of Corporate Real Estate 8(1998)3, pp. 134-150

Lorenz, David; Lützkendorf, Thomas (2008): Next generation decision support instruments for the property industry – understanding the financial implications of sustainable building; Conference paper, World SB08 Melbourne: World Sustainable Building Conference, 21-25 September 2008

Lützkendorf, Thomas; Lorenz, David (2005): Nachhaltigkeitsorientierte Investments im Immobilienbereich – Trend, Theorie und Typologie; Proceedings of the 10th Symposium on Finance, Banking, and Insurance, Universität Karlsruhe, 14-8211; 16 December 2005.

Martin, Roger L. (2002): The Virtue Matrix: Calculating the Return on Corporate Responsibility; Harvard Business Review 80(2002)3, pp. 68-75

McWilliams, Abagail; Siegel, Donald (2000): Corporate social responsibility and financial performance: correlation or misspecification? Strategic Management Journal 21(2000)5, pp. 603-609

McWilliams, Abagail; Siegel, Donald (2001): Corporate social responsibility: A theory of the firm perspective; Academy of Management Review 26(2001)1, pp. 117-127

McWilliams, Abagail; Siegel, Donald; Wright, Patrick M. (2006): Corporate Social Responsibility: Strategic Implications; Journal of Management Studies 43(2006)1

Newsham, Guy R.; Mancini, Sandra; Birt, Benjamin J. (2009): Do LEED-certified buildings safe energy? Yes, but…; Energy and Buildings 41(2009)3, pp. 897-905

Pivo, Gary; McNamara, Paul (2005): Responsible Property Investing; International Real Estate Review 8(2005)1, pp. 128-143

Porter, Michael E.; Kramer, Mark R. (2006): Strategy & Society: The Link between Competitive Advantage and Corporate Social Responsibility; Harvard Business Review, 84(2006)12, pp. 78-92

RICS (2008): Sustainable Property Investment & Management – Key Issues & Major Challenges, 2008

Rieck, Alexander (2012): Workplace Management; Lecture script, University of Zurich, 30.12.2012

SIA (2001): Ordnung SIA 112, Leistungsmodell, Schweizer Norm SN 508 112, Muttenz 2001

SIA (2004): Empfehlung SIA 112/1, Nachhaltiges Bauen – Hochbau, Ergänzungen zum Leistungsmodell SIA 112, Muttenz 2004

SIA (2010): Empfehlung SIA 113, FM-gerechte Bauplanung und Realisierung, Schweizer Norm SN 508 113, Zürich 2010

SIA (2011): SIA-Effizienzpfad Energie, Ergänzungen und Fallbeispiel zum Merkblatt SIA 2040, Zürich 2011

The Economist (2014): Green grow the markets, O; The Economist, 412(2014)8894, pp.65-66

Wallbaum, Holger; Meins, Erika (2009): Nicht-Nachhaltiges Planen, Bauen und Betreiben – Aus guten Gründen (noch) die Praxis in der Bauwirtschaft? Bauingenieur 84(2009)08, pp. 291–303

Wallbaum, H. (2011): Forschung und Praxis im nachhaltigen Bauen - Herausforderungen, Trends und Hindernisse; 1. Internationaler BBB-Kongress, September 2011, Dresden, pp. 219-230

Willard, Bob (2002): The Sustainability Advantage – Seven Business Case Benefits of a Triple Bottom Line, Gabriola Island B.C. 2002

Appendix

Appendix 1: Experteninterview Guideline
Appendix 2: Experteninterview 1
Appendix 3: Experteninterview 2
Appendix 4: Experteninterview 3

Ehrenwörtliche Erklärung

Ich versichere hiermit, dass ich die vorliegende Arbeit mit dem Thema „Corporate Responsibility – Opportunities and Challenges in the Real Estate Development Process“ selbstständig verfasst und keine anderen Hilfsmittel als die angegebenen benutzt habe.
Alle Stellen die wörtlich oder sinngemäss aus veröffentlichten oder nicht veröffentlichten Schriften entnommen sind, habe ich in jedem einzelnen Falle durch Angabe der Quelle (auch der verwendeten Sekundärliteratur) als Entlehnung kenntlich gemacht.

Die Arbeit hat in gleicher oder ähnlicher Form noch keiner anderen Prüfungsbehörde vorgelegen und wurde auch noch nicht veröffentlicht.

Basel, den 18.08.2014

_____

Leif Henning

Appendix 1

Experteninterview Guideline

Die Masterthesis geht der Frage nach, welche Chancen sich aus der Integration von Corporate Responsibility (CR)* in die Projektentwicklung ergeben und wie CR sinnvoll in einen umfassenden Projektentwicklungsprozess integriert werde kann. Ein wichtiger Bestandteil der Arbeit ist der Blick auf die Praxis der Projektentwicklung. Ich würde gerne im Rahmen eines Experteninterviews vier Themenbereiche mit Ihnen besprechen:

A. Corporate Responsibility - Allgemein

Wie definieren sie CR/Nachhaltigkeit in der Projektentwicklung? Wie relevant ist CR/Nachhaltigkeit in der Projektentwicklung? Was sind Gründe für und gegen CR/Nachhaltigkeit in der Projektentwicklung?

B. Corporate Responsibility auf der Unternehmensebene

Wie wird CR/Nachhaltigkeit in ihrem Unternehmen umgesetzt? Welche Strukturen/Verantwortlichkeiten existieren? Wie werden Ziele überprüft?

C. Corporate Responsibility auf der Objektplanungsebene

Wie setzen sie CR/Nachhaltigkeit in der Objektplanung um? Welche Maßnahmen werden getroffen? Wie werden Nachhaltigkeitsziele überprüft?

D. Corporate Responsibility auf der Prozessebene

Wie und wann werden Maßnahmen im Projektentwicklungsprozess getroffen?
Welcher Akteur im Projektentwicklungsteam übernimmt welche Aufgaben?
Welche Stakeholder sind noch wichtig und wie werden diese eingebunden?

E. Chancen und Herausforderungen - Ausblick

Was muss sich ändern, damit CR/Nachhaltigkeit besser in den Projektentwicklungsprozess integriert werden kann? Was sind in Zukunft die Chancen und Herausforderungen, die sich aus der Integration von Corporate Responsibility in den Projektentwicklungprozess ergeben werden?

* Corporate Responsibility (CR) lässt sich mit "unternehmerischer Gesellschaftsverantwortung" übersetzen. In Bezug auf Immobilienprojekte wird CR im Allgemeinen mit nachhaltiger Entwicklung gleich gesetzt. Nachhaltigkeit wird genauer definiert durch das Konzept der Triple Bottom Line (TBL), welches besagt, dass ein nachhaltiges Projekt einen insgesamt positiven Beitrag leisten muss in den Bereichen Wirtschaft, Gesellschaft und Umwelt, wobei die Gewichtung dieser Bereiche je nach Projekt unterschiedlich sein kann.

Appendix 2

Experteninterview 1

Ergebnisprotokoll Experteninterview

Gespräch mit dem Leiter Entwicklung und Mitglied der Geschäftsleitung eines Schweizer Projektentwicklers, 20.Juni 2014

A. Corporate Responsibility - Allgemein

1. Wie definieren Sie Corporate Responsibility/Nachhaltigkeit in der Projektentwicklung?
    a. Corporate Responsibility/Nachhaltigkeit bedeutet, dass das Unternehmen Verantwortung übernimmt, sowohl nach innen gerichtet (den eigenen Mitarbeitern gegenüber) als auch nach außen gerichtet (gegenüber der Gesellschaft).
    b. Eine nachhaltige Strategie muss langfristig ausgerichtet sein. Manche Investitionen werden sich erst langfristig auszahlen.
    c. Unser Unternehmen verfolgt eine langfristige Strategie, dadurch können auch langfristige Ziele auf der Objektebene durchgesetzt werden.
    d. Projekte müssen markt- und nachfrageorientiert sein. Ob ein Gebäude wirklich nachhaltig ist, lässt sich erst nach 10-15 Jahren beurteilen, nachdem es sich auf dem Markt bewährt hat.
    e. Die Unternehmensstruktur muss so beschaffen sein, dass jeder einzelne Mitarbeiter die Verantwortung des Unternehmens wahrnehmen kann, d.h. dass Anreizsysteme geschaffen werden, die nachhaltiges Handeln fördern und dass zusätzliche Risiken von der Geschäftsleitung mitgetragen werden.
    f. Unternehmerisches Handeln bedeutet, dass man Risiken übernimmt um langfristig Potentiale zu aktivieren.

2. Welches sind ihre Gründe für die Integration von Corporate Responsibility/Nachhaltigkeit in der Projektentwicklung?
    a. Nachfrage im Markt. Zielgruppen sind allerdings sehr heterogen und nicht bei allen ist die Zahlungsbereitschaft für Nachhaltigkeit gegeben.
    b. Bei Büronutzungen muss man einen klaren Zusatznutzen bieten, z.B. ein Minergie Label. Ansonsten stehen die Kriterien Fläche, Standort, Erreichbarkeit und Preis im Vordergrund.

   c. Die Zielgruppe muss genau analysiert werden und das Projekt dementsprechend ausgerichtet werden.

3. Welches sind die Herausforderungen bei der Integration von Corporate Responsibility/Nachhaltigkeit in der Projektentwicklung?
   a. Mangelnde Langzeiterfahrungen bei innovativen Lösungen erschwert die Überzeugungsarbeit.
   b. Unternehmer übernehmen nicht immer die Gewährleistung beim Einsatz neuer Produkte/Technologien.
   c. Zusätzliches unternehmerisches Risiko und Ressourceneinsatz.
   d. Partikularinteressen stehen der Umsetzung von Nachhaltigkeitszielen teilweise entgegen, z.B. die Installation von Sonnenkollektoren auf dem Dach kann durch Denkmalschutzauflagen verhindert werden.

B. Corporate Responsibility auf der Unternehmensebene

1. Hat ihr Unternehmen spezifische Nachhaltigkeitsziele?
   a. Das Unternehmen verfolgt Innovationen im Bauwesen, z.B. durch Beteiligungen an Produktentwicklungen und Forschungsprojekten. Dies ist eine langfristige und strategische Entscheidung wodurch zur Zeit Investitionskosten entstehen aber langfristig ein Mehrwert geschaffen wird.
   b. Ökologische Innovationen, z.B. im Bereich der Gebäudetechnik, werden zum Teil auch als Prototypen umgesetzt.

2. Integriert ihr Unternehmen die Nachhaltigkeitsziele in eine allgemeine Geschäftsstrategie?
   a. Ja, die Nachhaltigkeitsziele sind Teil der Unternehmensstrategie. Es gibt keine separate Nachhaltigkeitsstrategie.

3. Wer ist verantwortlich für die Implementierung der Nachhaltigkeitsziele?
   a. Die Verantwortung liegt beim Eigentümer und der Geschäftsleitung, da sie Teil der unternehmerischen Verantwortung ist.

   b. Nachhaltigkeit ist Teil der Unternehmensstrategie und –kultur und es wird darauf geachtet, dass diese auf allen Ebenen akzeptiert und umgesetzt werden.
   c. Die Eigentümer und die Geschäftsleitung gehen hierbei mit gutem Beispiel voran und schaffen die entsprechenden Rahmenbedingungen und Anreizsysteme.

4. Veröffentlicht ihr Unternehmen ihre Nachhaltigkeits-Performance?
   a. Da wir ein privates Unternehmen sind wird kein Geschäftsbericht oder eine Nachhaltigkeits-Performance veröffentlicht.
   b. In einer jährlich erscheinenden Unternehmens-Publikation werden ausgewählte Themen behandelt, darunter auch aus dem Bereich Nachhaltigkeit. Der Adressat sind Investoren, Planer und Behörden.

C. Corporate Responsibility auf der Objektplanungsebene

1. Hat ihr Unternehmen spezifische Nachhaltigkeitsziele für Entwicklungsprojekte?
   a. Der Projektleiter der Projektentwicklung erstellt ein objektspezifisches Pflichtenheft, darin werden die Zielsetzungen für jedes einzelne Gewerk vorgegeben.
   b. Das Objekt wird ausgehend vom Standort und der Nachfrage entwickelt.
   c. Im Pflichtenheft werden bereits früh im Projektprozess nachhaltige Aspekte festgelegt, z.B. ob eine Zertifizierung angestrebt wird und ob spezifische haustechnische Anlagen verwendet werden sollen.
   d. Es wird versucht die Effizienz des Gebäudes zu steigern unter Wahrung der gestalterischen Qualität, z.B. durch die Reduktion von Fenstertypen mittels BIM.

2. Wie werden diese Ziele erreicht?
   a. Der Projektleiter der Projektentwicklung leitet den Prozess. Das Planerteam umfasst nicht selten 30-40 Personen, daher sind Struktur und Konsequenz für eine effiziente und erfolgreiche Umsetzung sehr wichtig.

   b. Der Projektleiter muss eine Leitungs- und Kontrollfunktion übernehmen und die Schnittstellen abdecken, z.B. muss er sicherstellen, dass die Nachhaltigkeitsziele in die TU-Submission einfließen.
   c. Dem Projektleiter stehen intern Fachkompetenzen in den Bereichen Haustechnik/Nachhaltigkeit, Projektmanagement, Grundstück, Produkt, Fertigung, Kosten, Bewilligungen, Kommunikation, Ertrag und Kapital zur Verfügung.
   d. Das Pflichtenheft enthält für die Fachplaner genaue Angaben zur detaillierten Ausarbeitung der jeweiligen Spezialbereiche. Dies erleichtert ein effizientes Arbeiten im Projektteam.
   e. Der Projektleiter muss Zielkonflikte im Projektteam lösen, z.B. wenn Fachplaner oder Unternehmer bezüglich innovativer Lösungen Bedenken anmelden.
   f. Das Projektteam wird teilweise anhand spezifischer Eignung zusammengestellt bzw. es wird ein externer Fachplaner hinzugezogen, um eine zweite Meinung zu erhalten.
   g. Der interne FM-Berater gibt in einer frühen Projektphase Input (z.B. zu den Themen Funktionalität, interne Abläufe, Materialisierung). Investoren schätzen die transparente Betriebskostenprognose und die Möglichkeit der Optimierung.

3. Wann und wie werden die Nachhaltigkeitsziele überprüft?
   a. Gewisse Messungen werden bei der Inbetriebnahme durchgeführt, z.B. Luftmenge.
   b. Im Rahmen der Gewährleistungsfrist von zwei Jahren werden weitere Messungen gemacht und die Systeme bei Bedarf reguliert.

4. Verfolgt und implementiert ihr Unternehmen Innovationen im Baubereich?
   a. Ja (siehe B.1)
   b. Es wird versucht wo möglich BIM einzusetzen. Allerdings gibt es aktuell noch nicht viele Architekten, Fachplaner und Bauunternehmer, die BIM einsetzen können. Daher ist dies eher die Ausnahme.

   c. Vorfabrikation stellt noch die Ausnahme dar (z.B. bei spezialisierten Nischenanbietern wie Renggli Holzbau), da in der Schweiz die Vorteile (Bauzeit, Kosten, Qualität) noch nicht so gegeben sind.

5. Welche Rolle spielen Zertifizierungen?
   a. Minergie hat sich auf dem Markt etabliert und sorgt für Transparenz.
   b. Fachplaner sind auf Minergie getrimmt, dies erschwert die Umsetzung von innovativen Lösungen.
   c. Unser Unternehmen geht über die Zertifizierung hinaus und betrachtet den ganzen Energiehaushalt und die Energiebilanz eines Gebäudes.

6. Welche Rolle spielen Bewertungen?
   a. Bewerter sind teilweise bereit Benchmarks anzupassen, wenn nachgewiesen werden kann, dass das Gebäude optimiert wurde und die Betriebskosten niedriger sind.
   b. Es können Anreize für langfristige Investitionen entstehen, wenn dadurch ein höherer Marktwert erreicht werden kann.
   c. Vorrausetzung ist jedoch, dass dieser Mehrwert vom Markt nachgefragt und honoriert wird.

D. Corporate Responsibility auf der Prozessebene

1. Wie werden Nachhaltigkeitsziele im Projektentwicklungsprozess umgesetzt?
   a. Der Projektleiter der Projektentwicklung leitet den Prozess.
   b. Der Projektleiter erstellt den Businessplan und das Pflichtenheft in Abstimmung mit der Geschäftsleitung.
   c. Vor gewissen Meilensteinen im Projekt (z.B. TU-Submission) werden interne Reviews durchgeführt, zudem gibt es zu jedem Projekt eine Risk-Review.

2. Wie werden externe Stakeholder in den Projektentwicklungsprozess eingebunden?
   a. Auf der Objektebene wird die Öffentlichkeit sehr gezielt involviert, z.B. durch Studienwettbewerbe oder Partizipationsverfahren.

b. Diese Verfahren sind zwar insgesamt erfolgreich (insbesondere bei Change Prozessen und großen Arealentwicklungen), sie können aber Einsprachen nicht verhindern und der Zeitpunkt der Kommunikation darf nicht zu früh gewählt werden (erst, wenn man etwas zu kommunizieren hat).
c. Wichtige externe Stakeholder sind Genehmigungsbehörden, Nachbarn, direkt Betroffene und Interessenverbände.
d. Auf der politischen Ebene ist es Aufgabe der Interessenverbände (SIA, VSGU) Einfluss zu nehmen.
e. Weitere Stakeholder werden mit der Unternehmens-Publikation angesprochen (siehe B.4.b).

E. Zukünftige Chancen und Herausforderungen

1. Wie wird sich Corporate Responsibility/Nachhaltigkeit zukünftig auf die Projektentwicklung auswirken?
    a. Das ökologische Bewusstsein wird noch mehr an Bedeutung gewinnen (CO_2-Neutralität, Energieeffizienz).
    b. Effizienz und Wirtschaftlichkeit stellen verstärkt einen Wettbewerbsvorteil dar (dies wäre sogar noch relevanter im Fall einer Immobilienkrise).
    c. Betriebskostengarantien könnten ein win-win darstellen für End-Nutzer (geringeres Risiko) und Projektentwickler (zusätzlicher Ertrag) und Umwelt (geringere Emissionen). Allerdings kann es hier an der Schnittstelle zum End-Nutzer Konflikte geben (Kontrolle/Kompetenz).

Appendix 3

Experteninterview 2

Ergebnisprotokoll Experteninterview

Gespräch mit dem Leiter Akquisition & Customer Solutions, Modernisation & Development eines Schweizer Projektentwicklers und Baukonzerns, 11.Juli 2014

A. Corporate Responsibility - Allgemein

1. Wie definieren Sie Corporate Responsibility/Nachhaltigkeit in der Projektentwicklung?
    a. Corporate Responsibility bedeutet, dass man Verantwortung übernimmt für die Zukunft, sowohl materiell als auch ideell.
    b. Es ist wichtig, dass diese Verantwortung von allen Mitarbeitern in der Firma mitgetragen wird und Teil der Unternehmenskultur ist.

2. Wie relevant ist Corporate Responsibility/Nachhaltigkeit in der Projektentwicklung?
    a. Corporate Responsibility/Nachhaltigkeit steht nicht im Zentrum der Projektentwicklung, sondern es geht um die Entwicklung von langfristigen Nutzungskonzepten.
    b. Es wird darauf geachtet, dass Aspekte der Corporate Responsibility/Nachhaltigkeit in diesen Entwicklungen integriert werden.

3. Welches sind ihre Gründe für die Integration von Corporate Responsibility/Nachhaltigkeit in der Projektentwicklung?
    a. Vorgabe der Unternehmensführung, Teil der Unternehmensstrategie.
    b. Nachfrage von Kunden nach Aspekten der Nachhaltigkeit (z.B. Zertifizierung, Entsorgungskonzept).
    c. Der technische Fortschritt ermöglicht eine weitgehende Optimierung der Gebäudeperformance. Daher wäre es unverantwortlich, diese Möglichkeiten nicht wahrzunehmen.
    d. In der Auseinandersetzung mit Gemeinden und Öffentlichkeit können Aspekte der Nachhaltigkeit unter Umständen zur Bedingung werden, insbesondere wenn diese einen Mehrwert für die Gemeinde und das Projekt darstellen.

4. Welches sind ihre Gründe gegen die Integration von Corporate Responsibility/Nachhaltigkeit in der Projektentwicklung?
    a. Nachhaltige Projekte sind zumeist teurer und daher nicht immer wirtschaftlich und umsetzbar. Allerdings stellen wir gerade ein Projekt nach den Vorgaben der 2‘000 Watt Gesellschaft fertig, wo sich die Wohneinheiten trotz höherer Preise gut verkaufen.
    b. In Zukunft ließen sich durch einen vermehrten Einsatz von nachhaltigen Bauweisen Synergien und Kosteneinsparungen erzielen.

B. Corporate Responsibility auf der Unternehmensebene

1. Hat ihr Unternehmen spezifische Nachhaltigkeitsziele?
    a. Ja, diese werden in einem jährlichen Nachhaltigkeitsbericht veröffentlicht.
    b. Es wird versucht Nachhaltigkeit möglichst in allen Bereichen des Unternehmens umzusetzen.
    c. Ungeachtet der Größe des Unternehmens wird darauf geachtet, dass die Kundenbeziehungen nachhaltig gefestigt werden. Hierbei hilft auch der Nachhaltigkeitsbericht als Kommunikationsmittel.

2. Wer ist verantwortlich für die Implementierung der Nachhaltigkeitsziele?
    a. Der Projektleiter ist dafür verantwortlich, dass die objektspezifischen Nachhaltigkeitsziele festgelegt und umgesetzt werden.
    b. Die Umsetzung der objektspezifischen Nachhaltigkeitsziele wird ebenfalls von spezialisierten Mitarbeiter im Unternehmen überprüft.

C. Corporate Responsibility auf der Objektplanungsebene

1. Wie werden Nachhaltigkeitsziele für Entwicklungsprojekte umgesetzt?
    a. Projekte werden mit Hilfe eines firmeneigenen Tools hinsichtlich nachhaltiger Kriterien bewertet und optimiert. Dabei werden die Bereiche Standort und Architektur, Gemeinschaft, Ressourcen, Boden, Kosten und Werterhalt betrachtet.
    b. Langfristige Kundenbeziehungen sind ein wichtiger Aspekt, da hierdurch oft auch die Nachfrage nach nachhaltigen Gebäuden entsteht.

c. Projekte im Bestand werden mittlerweile bevorzugt, zum einen kann dadurch der Umgang mit der grauen Energie thematisiert werden und zum anderen sind viele Infrastrukturen, wie ÖV Anbindungen bereits vorhanden. Projekte auf der grünen Wiese werden zunehmend abgelehnt.
d. Da das Unternehmen als Bauunternehmung die Entwicklungsprojekte auch selber umsetzt wird versucht in der Ausführung bzw. im Engineering Optimierungen und Aspekte der Nachhaltigkeit zu integrieren. Das firmeneigene Tool berücksichtigt daher auch die Aspekte der Umsetzung.

2. Wann und wie werden die Nachhaltigkeitsziele überprüft?
    a. Das firmeneigene Tool dient auch zur Überprüfung der Nachhaltigkeitsziele.
    b. Bevor ein Projekt ein Approval zur Weiterbearbeitung erhält, muss es die Aspekte der Nachhaltigkeit per Punktesystem erreichen.

3. Welche Rolle spielen Gebäude-Zertifizierungen?
    a. Die meisten Gebäude werden so umgesetzt, dass sie zertifiziert werden könnten, allerdings wird eine Zertifizierung nicht immer durchgeführt um unerwünschte Umsetzungsvorgaben zu vermeiden (z.B. kontrollierte Belüftung).
    b. Zertifizierungen werden vermehrt auch von Nutzern gefordert und entsprechend umgesetzt.

D. Corporate Responsibility auf der Prozessebene

1. Wie werden Nachhaltigkeitsziele im Projektentwicklungsprozess festgelegt?
    a. Das firmeneigene Tool dient zur frühzeitigen Entwicklung von Nachhaltigkeitszielen in der Projektentwicklung. Es umfasst alle Projektphasen bis zur Umsetzung und dient daher auch dazu, bereits frühzeitig Aspekte der Umsetzung zu berücksichtigen (z.B. Qualität des Baugrunds, Altlasten).
    b. Die Nachhaltigkeitsziele stehen nicht unbedingt bereits am Anfang des Projektes fest, insbesondere bei großen Projekten, sondern entstehen

teilweise erst in der Auseinandersetzung mit Genehmigungsbehörden/Gemeinden und Kunden/Nutzern.

2. Wie wird die lokale Nachbarschaft in den Projektentwicklungsprozess eingebunden?
    a. Bei großen Projekten gibt es teilweise Verfahren, um den Anliegen der lokalen Nachbarschaft zu begegnen. Die Themen Verkehr, Infrastruktur und öffentliche Räume sind meist am wichtigsten.
    b. Aufwertung/Schaffung öffentlicher Räume.

3. Welche Stakeholder sind besonders wichtig im Entwicklungsprozess?
    a. Neben den Stakeholdern Entwickler, Behörden, Öffentlichkeit, Unternehmen ist der Nutzer am wichtigsten.
    b. Es wird versucht verstärkt Projekte und Konzepte in nutzerfokussierten Bereichen zu entwickeln, damit die Nutzer möglichst früh in die Entwicklung einbezogen werden können.

E. Zukünftige Chancen und Herausforderungen

1. Was muss sich ändern, damit Corporate Responsibility/Nachhaltigkeit besser im Projektentwicklungsprozess umgesetzt werden kann?
    a. Bau- und Planungsprozesse sind sehr komplex geworden und binden sehr viele Ressourcen bzw. Zeit in der Entwicklung. Daher muss Nachhaltigkeit noch stärker in diese Prozesse integriert werden.
    b. Unser Unternehmen ist hier mit dem firmeneigenen Tool bereits recht gut aufgestellt.

Appendix 4

Experteninterview 3

Ergebnisprotokoll Experteninterview

Gespräch mit der Leiterin für Projektentwicklungen im Fund Management einer Schweizer Bank, 22.Juli 2014

A. Corporate Responsibility - Allgemein

1. Welches sind ihre Gründe für die Integration von Corporate Responsibility/Nachhaltigkeit in der Projektentwicklung?
    a. Nachfrage von Endnutzern, z.B. weil Firmen eigene Sustainability-Leitbilder haben und nur Gebäude anmieten dürfen, die spezifische Bedingungen erfüllen, z.B. Energieverbrauch, Innenraumklima.
    b. Erschließung internationaler Büromietermarkt (z.B. durch LEED-Zertifizierung)
    c. Unternehmenseigene Nachhaltigkeitsstrategie (siehe B.1)
    d. Eigene persönliche Überzeugung.
    e. Kantonale Vorgaben (z.B. strenge Energievorschriften in Genf)

B. Corporate Responsibility auf der Unternehmensebene

1. Hat ihr Unternehmen spezifische Nachhaltigkeitsziele?
    a. Ja, vor einem Jahr wurde die unternehmenseigene Nachhaltigkeitsstrategie verabschiedet.
    b. Die Nachhaltigkeitsstrategie bezieht sich auf SIA 113, den SIA Effizienzpfad Energie und die Energiestrategie „2050“ des Bundes.
    c. Der Fokus liegt hierbei auf der Reduktion des CO_2-Ausstosses.

2. Wie werden die Nachhaltigkeitsziele innerhalb der Geschäftsstrategie umgesetzt?
    a. Die Nachhaltigkeitsstrategie wird zur Zeit durch Umsetzungs- und Maßnahmenstrategien vertieft.

3. Wer ist verantwortlich für die Entwicklung und Implementierung der Nachhaltigkeitsziele?
    a. Es wird neu eine zentrale Stabstelle „Sustainability“ eingerichtet. Diese Person wird für die Umsetzung und Weiterentwicklung der

Nachhaltigkeitsziele im Geschäftsbereich des Fund Managements verantwortlich sein.

b. Für die Entwicklung der Nachhaltigkeitsziele werden auch externe Berater/Experten eingesetzt.

C. Corporate Responsibility auf der Objektplanungsebene

1. Hat ihr Unternehmen spezifische Nachhaltigkeitsziele für Entwicklungsprojekte?
    a. Der Energieverbrauch und der aufgerechnete CO_2-Ausstoss der Portfolios wurde aufgenommen. Ein mögliches Szenario wäre darauf basierend Reduktionsziele für die einzelnen Portfolios festzulegen und Maßnahmen hierzu zu definieren.
    b. Die ökonomische Dimension der Nachhaltigkeit steht ebenfalls im Fokus:
        i. Durch eine integrierte Planung können Mehrkosten beim Erreichen der Nachhaltigkeitsziele vermieden werden.
        ii. Mehrkosten werden durch einen höheren Ertrag gerechtfertigt (z.B. durch Effizienzsteigerungen, höherer Mietertrag).

2. Wie werden diese Ziele umgesetzt?
    a. Es wird früh eine Strategie mit spezifischen Nachhaltigkeitszielen für das einzelne Bauprojekt entwickelt. Dazu werden relevante Fachberater (Bauphysiker, Haustechnikplaner, Nachhaltigkeitsberater, objektspezifische Fachberater) zugezogen. Idealerweise haben die Fachberater ein breites Fachwissen und ein übergeordnetes Verständnis für alle Aspekte eines Bauprojekts.
    b. Basierend auf dieser Strategie wird der architektonische Entwurf begonnen (dies ist abhängig vom Projekt, teilweise ist der Architekt auch bereits zu Beginn des Projekts beteiligt).
    c. Mit dem projektbegleitendem Facility-Management wurde bisher noch keine Erfahrung gemacht.
    d. Auswahl der Personen im Projektteam anhand spezifischer Eignung und Qualifikationen.

e. Gute Zusammenarbeit zwischen den einzelnen Beteiligten im Projektteam.

3. Verfolgt und implementiert ihr Unternehmen Innovationen im Baubereich?
    a. Gemäß der Nachhaltigkeitsstrategie wird versucht, die Energie zur Gebäudeversorgung aus möglichst nachhaltigen Quellen zu beziehen. So wurde im Rahmen eines Forschungsprojekts der ETH-Zürich bei einem Objekt ein Prototyp eines Hybrid-Sonnenkollektors eingesetzt.

D. Corporate Responsibility auf der Prozessebene

1. Wie werden Nachhaltigkeitsziele im Projektentwicklungsprozess umgesetzt?
    a. Frühe Entwicklung eines Nachhaltigkeitskonzepts für das spezifische Objekt (siehe C.2)
    b. Umsetzung wird direkt durch den/die Projektleiter/-in (in der Projektentwicklung durch die Leiterin für Projektentwicklungen) geleitet oder an einen Generalplaner bzw. Bauherrenvertreter/Projektmanager delegiert.
    c. Die Strategie ist so spezifisch ausgearbeitet, dass die Fachplaner genaue Handlungsanweisungen haben für ihren Spezialbereich (z.B. mittels Raumdatenblättern bzw. Pflichtenheften).

2. Welche Rolle spielen Bauunternehmer bei der Umsetzung von Nachhaltigkeitszielen?
    a. Bauunternehmer und dem zu Folge auch Total-/Generalunternehmer haben schon früh begonnen eigene Nachhaltigkeitsziele zu verfolgen, meist auf Grund von öffentlichem Druck.
    b. In der Umsetzung gibt es teilweise Schwierigkeiten, wenn einzelne Personen (z.B. Bauleitung) nicht die notwendigen Erfahrungen haben oder andere Prioritäten setzen.

E. Zukünftige Chancen und Herausforderungen

1. Was muss sich ändern, damit Corporate Responsibility/Nachhaltigkeit besser im Projektentwicklungsprozess umgesetzt werden kann?

a. Leitbilder müssen auch gelebt werden, insbesondere die höheren Hierarchiestufen müssen als Vorbilder agieren. Letztendlich müssen aber Leitbilder auf allen Ebenen einer Unternehmensstruktur umgesetzt werden.
b. Es werden geeignete Instrumente benötigt, um die Umsetzung von Nachhaltigkeitsziele zu überprüfen, z.B. Energieverbrauch, CO_2-Ausstoss, Benchmarks basierend auf Minergie/SNBS (anm: Standard Nachhaltiges Bauen Schweiz /SIA).
c. Zur Zeit liegt der Fokus sehr stark auf den Problemen, die durch Corporate Responsibility/Nachhaltigkeit in der Projektentwicklung entstehen, was die Umsetzung sehr erschwert. Hier sollte der Fokus starker auf der Lösungsfindung liegen.
d. Ein möglicher Weg dahin könnte sein, dass Corporate Responsibility/Nachhaltigkeit in der Ausbildung von Baufachleuten stärker berücksichtigt und besser integriert wird.

2. Wie wird sich Corporate Responsibility/Nachhaltigkeit zukünftig auf die Projektentwicklung auswirken?
    a. Das Thema wird wichtiger werden, allerdings werden sich die Schwerpunkte ändern:
        i. Energieeffizienz wird durch Regulatorien verlangt und wird zum Standard werden.
        ii. Die Themen Gesundheit und Gesellschaft werden wichtiger werden.