



LUND UNIVERSITY

School of Economics and Management

Department of Business Administration  
FEKN90, Business Administration  
*Examensarbete på Civilekonomprogrammet*  
Spring 2014

# Decision Making in a Sustainable City

## *A Case Study of Chicago*

### **Authors**

Katarina Werder  
910911

Klaudia Wojtkowiak  
910611

### **Supervisor**

Thomas Kalling

# ABSTRACT

---

A growing world population and rapid urbanization have resulted in larger cities and greater acknowledgement of the importance of sustainability, hence, sustainable cities have started to emerge. In order to cope with all factors affecting sustainability, better mechanisms for decision making in those cities are requested. The purpose of this report is to increase the understanding and fill the gaps in literature by identifying what factors affect the decision making processes in sustainability initiatives at municipal level in sustainable cities. The method used is divided into two parts. First, a theoretical answer was given to the purpose by separately studying theories of sustainability and decision making which resulted in a theoretical framework. Second, through the empirical findings retrieved from semi-structured interviews with individuals in Chicago, where the combination of factors of work with sustainability and decision making in the municipality were investigated, a developed framework was constructed to give a final answer to the report's purpose. A qualitative approach with a combination of inductive and deductive reasoning was, therefore, used. The developed framework consists of six dimensions where the two separate areas of sustainability and decision making are merged together into factors affecting decision making in sustainability initiatives. Understanding these dimensions will aid the decision maker at municipal level to pursue the sustainability initiatives. The dimensions of the developed framework are; *Centralized/Decentralized*, *Holistic/Atomistic*, *Short-Term/Long-Term*, *Inside/Outside*, *Visible/Invisible* and *Information/Intuition*.

**Key words:** decision making, limited rationality, public management, sustainability, sustainable urban development

# **ACKNOWLEDGEMENTS**

---

We would like to express our thanks to everyone who made this research possible. Especially to the individuals in Chicago who took time to participate in the interviews providing insightful input to the result of the research.

We would also like to thank our supervisor Thomas Kalling for great commitment providing valuable assistance and helpful guiding throughout the process of writing this report.

May 16 2014  
Lund, Sweden

Katarina Werder

Klaudia Wojtkowiak

# TABLE OF CONTENT

---

## 1 INTRODUCTION

<b>1.1 Background</b> .....	<b>1</b>
1.1.1 Urbanization .....	1
1.1.2 Causes to Urbanization .....	1
1.1.3 Our Ecological Footprint.....	2
1.1.4 Sustainable Development.....	2
1.1.5 Sustainable Cities .....	3
<b>1.2 Problematizing</b> .....	<b>4</b>
1.2.1 Empirical Problem.....	4
1.2.2 Theoretical Problem .....	5
1.2.3 Purpose.....	6
<b>1.3 Delimitations</b> .....	<b>6</b>
<b>1.4 Sustainable Societies Research Program</b> .....	<b>7</b>
<b>1.5 Disposition</b> .....	<b>7</b>

## 2 THEORY

<b>2.1 Sustainability</b> .....	<b>8</b>
2.1.1 Sustainability today .....	8
2.1.2 The Triple Bottom Line.....	9
2.1.2.1 Measuring the Triple Bottom Line .....	9
2.1.2.2 Problems with the Triple Bottom Line .....	10
<b>2.2 The Concept of a City</b> .....	<b>12</b>
2.2.1 Sustainable Urban Development.....	12
2.2.2 Benefits of a City.....	14
2.2.3 Disadvantages of a City.....	14
2.2.4 A framework for a Sustainable City.....	14
2.2.5 Components of Sustainable City Initiatives .....	16
<b>2.3 Public Management</b> .....	<b>17</b>
2.3.1 The Role of the Municipality .....	17
2.3.2 The Municipality and Sustainable Development .....	18
2.3.3 Management Factors in a Sustainable City .....	19
2.3.4 Management Barriers in a Sustainable City .....	20
<b>2.4 Theories of Decision Making</b> .....	<b>21</b>
2.4.1 Decision Making as a Process .....	21
2.4.2 Decision Making Theories .....	23
2.4.2.1 Rational Decision Making .....	23
2.4.2.2 Decision Making with Limited Rationality .....	23
2.4.2.3 Coping Mechanisms for Limited Rationality .....	24
2.4.2.4 The Garbage Can Model.....	25
2.4.3 Institutional theory .....	26
<b>2.5 Theoretical Framework</b> .....	<b>28</b>
2.5.1 Explanation of the Theoretical Framework.....	28

2.5.2 Summary of the Theoretical Framework .....	30
2.5.2.1 Factors Affecting Work with Sustainability .....	30
2.5.2.2 Factors Affecting Decision Making .....	31
2.5.3 Contribution of the Theoretical Framework.....	32
<b>3 METHOD</b>	
<b>3.1 Research approach.....</b>	<b>33</b>
<b>3.2 Research design.....</b>	<b>33</b>
<b>3.3 Case Study .....</b>	<b>34</b>
3.3.1 The Nature of a Case Study.....	34
3.3.2 Case Selection .....	35
3.3.3 Selection of Interviewees .....	35
<b>3.4 Methods for Collecting Data .....</b>	<b>36</b>
3.4.1 Primary Data .....	36
3.4.1.1 Trip to Chicago.....	36
3.4.1.2 Qualitative Interviews.....	36
3.4.1.3 Interview Procedure.....	37
3.4.3 Secondary Data .....	38
<b>3.5 Method for Empirical Data Presentation .....</b>	<b>38</b>
<b>3.6 Method for Analysis and Discussion of the Empirical Data .....</b>	<b>38</b>
<b>3.6 Reliability and Validity .....</b>	<b>39</b>
<b>4 EMPIRICAL FINDINGS</b>	
<b>4.1 Chicago.....</b>	<b>41</b>
<b>4.2 Factors affecting work with sustainability .....</b>	<b>42</b>
4.2.1 Understanding of Sustainability .....	42
4.2.2 Sustainable Society Governance: the Role of the Municipality.....	43
4.2.3 Collaboration.....	44
4.2.4 Financial Factors .....	46
4.2.5 Innovation and Technology.....	46
4.2.6 Branding.....	47
4.2.7 Dimensions of TBL.....	49
4.2.8 Changing Demographics.....	50
<b>4.3 Factors Affecting Sustainability Decision Making.....</b>	<b>51</b>
4.3.1 The Decision Making Process.....	51
4.3.2 Sustainability Project versus a “Regular” Project .....	52
4.3.3 Short-Term versus Long-Term Objectives .....	53
4.3.4 Information.....	55
4.3.5 History, Political and Legal Environment.....	56
<b>4.3 Summary of Empirical Findings .....</b>	<b>57</b>
<b>5 ANALYSIS AND DISCUSSION</b>	
<b>5.1 Factors Affecting Decision Making in Sustainability Initiatives .....</b>	<b>59</b>
5.1.1 Decision Making Process in Sustainability Projects .....	59
5.1.2 The Importance of the Mayor in Sustainability Projects.....	61
5.1.3 The Understanding of Sustainability in Sustainability Projects.....	62

5.1.4 The Understanding of the Triple Bottom Line in Sustainability Projects ..... 64

5.1.5 Benchmarking in Sustainability Projects ..... 65

5.1.6 Visibility in Sustainability Projects..... 66

5.1.7 Short-Term Thinking in Sustainability Projects..... 67

5.1.8 Information in Sustainability Projects..... 68

5.1.9 Collaboration in Sustainability Projects..... 69

5.1.10 Technology and Innovation in Sustainability Projects..... 70

5.1.11 Changing Demographics in Sustainability Projects ..... 70

**5.2 Other Factors not Affecting Decision Making in Sustainability Initiatives ..... 71**

    5.2.1 Changing Climate..... 71

**5.3 Developed Framework..... 71**

    5.3.1 Summary of Dimensions in Developed Framework ..... 72

**6 CONCLUSION**

**6.1 Result in Relation to Purpose..... 75**

**6.2 Validity and Limitations of the Result ..... 75**

**6.3 Further Research ..... 76**

**APPENDIX 1: Presentation of Interview Objects.....95**

**APPENDIX 2: Interview Guide Chicago.....90**

# 1 INTRODUCTION

---

*In this chapter, the following sections will introduce how factors of changing demographics and activities on different levels globally have caused the need for sustainable city development. The empirical and theoretical problem, followed by the purpose of the report, overview of the Sustainable Society research program and delimitations, will also be presented. Last, an outline of the disposition of the report will be found.*

## 1.1 Background

### 1.1.1 Urbanization

Today, the world is experiencing the biggest growth ever seen in human history of urbanization (World Bank, 2013). The term refers to the change in demographics of people moving from rural areas to urban areas, e.g. to cities or towns. Already in 2010, more than 50% of the world's population lived in cities and according to forecasts, this percentage will continue to increase to approximately 60% and 70% as of 2030 and 2050 respectively (GHO, 2014). According to the United Nations (2012), today's total population will increase with 2.3 billion people to reach the level of 9.3 billion in 2050 (United Nations, 2011). Within the same time frame, it is predicted that the population of the world's urban areas will increase with 2.6 billion people (United Nations, 2012). This implies that cities will attract the entire future population growth, while also absorbing parts of the existing rural population. Hence, the number of people living in rural areas will diminish despite the overall population growth.

Also, although cities with less than half a million inhabitants have been most common so far, by 2030, almost 50% of all urban citizens are likely to live in cities with over one million inhabitants and there will be a growing number of so called megacities around the world, i.e. cities with more than 10 million inhabitants (United Nations, 2012).

### 1.1.2 Causes to Urbanization

There are many reasons to why people choose to leave rural areas in exchange for a life in a city. The most important motives originate from the fact that the city constellation can offer advantageous solutions over rural areas with regard to problems of both social and environmental character (UNFPA, 2007). These include the benefits of scale and closeness to one another, both regarding individuals and institutions. First, cities facilitate the possibility to find a suitable employment generating a secured income. Second, a healthy city governance can provide tools for education and medical care. Third, social mobilization is simplified. Fourth, a concentrated urban life puts less direct pressure on the environment and enables biodiversity in the non-urban regions (UNFPA, 2007). However, a city may also have some negative outcomes,

such as becoming centers of waste generation, sources of social inequalities and consuming high levels of energy (Marceau, 2008).

### **1.1.3 Our Ecological Footprint**

Wackernagel and Rees (1996) and the Global Footprint Network (GFN) (GFN, 2013b), have come up with methods for evaluating the level of sustainable living on the planet by comparing the capacity of the natural environment with the level of how fast these resources are being consumed. For every country, a study has been made where domestic production, e.g. the output from farming, forestry and fisheries, is measured. Thereafter, imports are added and exports are subtracted, hence, resulting in a net consumption of that country. This number is then used to calculate how much of the planet's surface area is needed to support that country. This is called the "ecological footprint" of that country and can be put in relation to the country's surface area. Different countries have different capacities and productivity in their respective ecosystems, which is reflected in their result of the ecological footprint (GFN, 2013a). Adding all countries together, the global ecological footprint of today is 1.5, indicating that it takes 1.5 years for the planet to reproduce what is consumed in 1 year (GFN, 2013c). Put in a different light: 1.5 planets are needed to support today's lifestyle and forecasts predict that 3 planets will be needed to handle the consumption rate of year 2050.

Many countries around the world have a larger ecological footprint than the planet can support and this is a central threat to sustainable development (Haughton, 1999). Desai (2010) describe how the challenge is to reduce the consumption of natural resources until we all reach a level of 1, or preferably less, as the ecological footprint. One way to start is to look at how our lifestyles affect the ecological footprint and how these can be used in order to build sustainable communities. Different areas need to be addressed, such as energy, transportation, housing and waste. However, not pollution nor water resources are taken into consideration in the ecological footprint and have to be considered separately (Desai, 2010).

Also, different institutions in society have to recognize the limits of the planet. These limits have to become the focal point of decision making and human creativity in order to find new ways for society to live within the capacity of the planet (Wackernagel & Rees, 1996). For example, both infrastructure and technology investments are needed in order to find the right solutions, often supported by a public demand and interest in sustainability (GFN, 2013c). Sustainability requires a decrease in consumption of essential and non-renewable natural resources, while at the same time trying to find ways to close the poverty gap (Porritt, 2007).

### **1.1.4 Sustainable Development**

The rapid change in demographics inevitably puts a new type of pressure on how to support and provide decent living conditions for all the world's inhabitants (Desai, 2010). In the 1980's there



was a fragmented debate on how to combine the two dispersed areas of human development and economic profitability on one hand, with the concern of how to sustain and conserve the natural biodiversity and resources, on the other hand (Desai, 2010). Nonetheless, it was agreed upon that a theoretical reconciliation on the aspect had to be found. The outcome of this was two main definitions of sustainability. One is defined in the Brundtland Report, also known as Our Common Future, which contains one of the most commonly used and cited definitions of sustainable development:

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (United Nations, 1987, p.43).

This report laid path for The United Nations’ Earth Summit in 1992 which issued a report called Agenda 21 in which stated that parties at local, national and global levels should work together and commit to reach common agreements about biodiversity and climate change, with the aim of creating a sustainable century (Desai, 2010; United Nations, 1992).

The second definition used to define sustainable development takes a more process oriented view. It has its base in the fact that certain activities in private, public and non-governmental organizational sectors are related to each other (Desai, 2010). Three pillars of sustainability were identified and characterized as economic, social and environmental (Elkington, 1997; Desai, 2010; Kajikawa, 2008). They inspired the development of the triple bottom line (TBL) and they were also a starting point for corporate social responsibility (CSR) (Desai, 2010).

Common for all descriptions of sustainable development in a society is that collaboration among actors such as government, businesses and NGOs (Non-Governmental Organizations) is required (United Nations, 2010).

### **1.1.5 Sustainable Cities**

In accordance with the growing interest and consent of the importance of sustainable development, Alusi, Eccles, Edmondson and Zuzul (2011) explain how governments and companies in different countries have started acknowledging and exploring a new type of city that will be able to handle all factors required to house and take care of the growing number of citizens, while at the same time placing much emphasis on sustainable development. These cities can be referred to in terms of “eco cities” or “sustainable cities” (Alusi et al., 2011). “Smart cities”, is another term used to characterize a city with the aim of sustainable development, however, focus is mainly put on how information and communication technology is used to achieve the sustainability goals (Caragliu, del Bo & Nijkamp, 2011) as well as advocating innovation and coordination (Herschel, 2013). As found by Joss (2010), it is very difficult to define exactly what a sustainable city is, or is not, with regard to how diverse and dispersed the

current work with sustainable societies around the world actually is. In lack of a generally agreed upon definition of a sustainable society, the one proposed by the Ecocity World Summit in 2008, although somewhat loosely defined, serves the purpose of this report well:

“An ecocity is an ecologically healthy city. Into the deep future, the cities in which we live must enable people to thrive in harmony with nature and achieve sustainable development. People oriented, ecocity development requires the comprehensive understanding of complex interactions between environmental, economic, political and socio-cultural factors based on ecological principles. Cities, towns and villages should be designed to enhance the health and quality of life of their inhabitants and maintain the ecosystems on which they depend.

Ecocity development integrates vision, citizen initiative, public administration, ecologically efficient industry, people's needs and aspirations, harmonious culture, and landscapes where nature, agriculture and the built environment are functionally integrated in a healthy way.”

Similar sources can be consulted for additional definitions, but they all share the same common denominators of having both social and environmental components included, while also stressing the importance of urban factors, such as city planning and its management (Alusi et al., 2011).

## **1.2 Problematizing**

As described in previous sections, the new era of increasing urbanization puts cities face to face with new types of challenges. The hunger to harness the opportunities of economic growth is placed in relation to the urge of reducing poverty and not compromising the prospects of the environment or living conditions of future generations. This places much responsibility on the local governance to handle and take care of these factors in order to create a sustainable city that lives up to the criteria of, for example, the triple bottom line. In doing so, governance needs to have good insight in what needs to be done and how to get there.

### **1.2.1 Empirical Problem**

Considering the challenges and changes of limited resources in the global world, studying the development of sustainable cities is today highly relevant. Urbanization and the relating complications of city planning and management give rise to impediments that have not been encountered in the same way ever before. Today's consumption has a large impact on everyone on the planet, in particular on the people who live concentrated in urban areas. Cities, therefore, have an important task of providing economic, social and environmental security to all of their inhabitants. This could also entail that cities are today competing with each other in an increasing manner based on their sustainability efforts (Pierre, 2011).

In this report, a study of factors affecting decision making in sustainability initiatives in sustainable cities will be conducted. Focus will be put on a city in the USA that has as its main goal to become the greenest and most sustainable city in the country, namely; Chicago, IL, and it has already come a long way of accomplishing this goal (City of Chicago, 2014b; Mother Nature Network, 2014). The USA has one of the highest ecological footprints in the world (Desai, 2010; Wackernagel & Rees, 1996) and it, therefore, becomes very interesting to study what efforts are being made, how the processes of evaluating alternatives are carried out and what factors affect the decision making processes in order to reach sustainability.

Decisions made in a city affect a variety of stakeholders (Boyle, Head, Hood, Lawton, Lowe, O'Connor, Peet, Schreier & Vanegas, 2013). These can include the city inhabitants, businesses, financial institutions, foreign trading partners and the environment (Freeman, 1984). “[M]ost of the decisions that shape our existence tend to be made at the local level” (Pierre, 2011, p.1) and it is, therefore, important to distinguish the processes of how decision making and how factors of sustainability are taken into consideration with regard to who will be affected, both positively and negatively, by them. It is stated that it is not merely a city per se that can have negative impacts, it is rather a matter of how its design and usage of resources are handled (Haughton & Hunter, 1994).

### **1.2.2 Theoretical Problem**

Although there has been conducted much research about sustainable development, there is not much research done concerning how to actually practice the sustainable development, nor is it sufficiently understood (Boyle et al., 2013). Also, much of the research has only focused on sustainable development in general, not within the area of sustainable cities (e.g. Lee, Phaal & Lee, 2013). Therefore, the area of sustainable cities, requires more research (Alusi et al., 2011; Haughton & Hunter, 1994).

Harrison (1996) describes how new ways of making strategic decisions need to be found as external and other factors around society change. He also explains how this will affect the strategic positioning of an organization and how managers' decision processes will be carried out. It is reasonable to draw the conclusion that the activities undertaken in a regular organization and the activities undergone in a city in order to make it function properly are similar. For example, they have managing authorities, are dependent on economic and natural resources and have to satisfy the need of their customers or inhabitants. Even so, there is not much research done analyzing how municipalities work with their processes of decision making concerning sustainability issues (e.g. Alusi et al., 2010; Joss, 2010, 2011a), despite their evident role as coordinator and authority to act upon sustainability matters. More in-depth empirical studies are also needed on urban governance since governance is played out differently in different national contexts (Pierre, 2011; Joss, 2011b). New insights about the global world, as well as about the local surroundings, clearly affect how decision making should be carried out in order to be

effective. It may force decision makers to reconsider their initial or comfortable way of dealing with concerns within their area of expertise. Therefore, gaining knowledge about how to adapt to changes may be of interest to these decision makers.

Moreover, previous research does not put much emphasis on identifying decision processes in decisions relating to sustainable development in cities. Theories of decision making have mainly concerned the attainment of economic objectives of companies (e.g. Bower & Gilbert, 2007; Ghemawat, 2010; Kahneman, Lovallo & Sibony, 2011), although theories concerning how to achieve CSR are gaining attention in today's literature (e.g. Carroll, 1999; Henriques & Richardson, 2004; Lindgreen & Swaen, 2010; Porter & Kramer, 2006). Still, however, theories that combine thoughts on decision making and the importance of making decisions that enhance the quality of life originating from sustainability matters have not been sufficiently covered in previous research. It is evident that decision making relating to many factors of sustainability is difficult to pursue in the most effective way. This might be because of financial constraints on the city level, dependency on the state or institutions not having a tradition of collaborative decision making (Pierre, 2011). Further on, the meaning and role of both cities and sustainability changes over time and across space, hence, this also constitute abiding challenges with sustainability decision making.

In the light of these arguments and in light of the lack of adequate literature about factors affecting decision making in sustainability initiatives, the purpose of this report is set.

### **1.2.3 Purpose**

The purpose of this report is to increase the understanding and fill the gaps in the literature by identifying what factors affect the decision making processes in sustainability initiatives at municipal level, in so called sustainable cities.

## **1.3 Delimitations**

First, the empirical research in this research is based on investigating only one sustainable city, namely Chicago, USA. This might not give a complete and adequate picture in order to make generalized conclusions of our findings that are applicable to other cities around the world. Second, it was decided to conduct a limited number of interviews with regard to theoretical saturation in the data findings. Third, the objective of this report is to explain, on a general level, how decision processes are carried out and what factors have impact on them, hence, no in-depth descriptions of such activities will be put forward or explained in greater detail than is necessary for achieving the purpose of this report. Fourth, the report is limited to only studying decision processes associated with sustainability. Last, this study was conducted within a limited time frame and the empirical data was collected at one certain point in time, hence, not taking into consideration the possible evolvement of decision making in sustainability initiatives over time.

## **1.4 Sustainable Societies Research Program**

This report was written as part of a research project at the Institute of Economic Research at Lund University School of Economics and Management called Sustainable Society (SuS). The aim of the project is to increase understanding of how sustainable societies are constructed and create value for its stakeholders. The development of such a society includes challenges related to technology, transportation and energy. The belief is that the sustainable development in cities impacts on a variety of areas, such as on policy making, efforts of collaboration and corporate strategies. In order to achieve sustainability, SuS acknowledges the importance of creating value for the society through processes and interactions of policy makers, businesses and consumers.

## **1.5 Disposition**

This report is divided into six chapters. The introduction will give an overall view to the studied area and explain why the matter is relevant to study. The empirical and theoretical problem will be argued for. These will be concretized in a purpose and research questions. The chapter finishes with delimitations and disposition. The second chapter is the theory. In this chapter, a more detailed exposition of the area of sustainability and decision making will be put forward as theories and previous research and literature will be presented. The factors of this chapter will be summarized in a theoretical framework. The method is the third chapter. The method explains the chosen case study and case selection as well as how the research will be conducted in terms of methods for collecting, presenting and analyzing the empirical findings. In the fourth chapter, the empirical findings will be presented. The fifth chapter is an analysis and discussion of how the empirical findings can be linked with the theoretical framework and how it can be developed based on the empirical findings. A new developed framework will conclude the chapter. Lastly, the conclusion will be presented in the sixth chapter in order to give an informed answer to the purpose. Recommendations for further research will also be given.

## 2 THEORY

---

*This chapter will begin with an explanation of sustainable development and the concept of a city which further is deepened into sustainable urban development. After this, the concept of public management will be addressed. Last, theories of decision making will be presented. The chapter will be concluded with a theoretical framework where factors of sustainability and decision making are presented in order to understand their connectivity. Due to the lack of literature combining these two theories, they first had to be presented separately.*

### 2.1 Sustainability

*In order to better understand sustainable urban development, the concept of sustainability will be presented in this section.*

#### 2.1.1 Sustainability today

A decade into the 21st century, the sustainability definition from the Brundtland Report and the definition of the Three pillars of sustainability are still the two most commonly used definitions for sustainability (Desai, 2010). The first is considered more of a philosophical trait and is a good start worthy some aspiration, however, it does not necessarily provide much help regarding decision making on a daily basis (Desai, 2010). The other definition, hereafter referred to as the “triple bottom line” (TBL), has grown to become a framework for sustainable development and for how it can be measured (Slaper & Hall, 2011). The concept of TBL was established in the book “Cannibals with forks: The triple bottom line of 21<sup>st</sup> century business” written by John Elkington (1997) in which he demonstrates how companies should embrace all factors of the TBL in order to expand and enhance life expectancy, both for the organization itself and also for everyone else on the planet. In order to become sustainable, an organization should, therefore, not only have goals linked with economic prosperity, but also goals to find social equity and environmental protection. Elkington (1997) also discusses how organizations can use TBL as a part of their planning process.

According to Slaper and Hall (2011), TBL is fundamentally a concept that is applied to companies, but that it can also be applicable in a larger setting, i.e. in whole societies in order to increase quality of life of its inhabitants, both locally and in a wider prospect. This is one reason to why also non-profit organizations and governments have adopted the concept of TBL. The three “bottom lines” consist of being economic, socially and environmentally sustainable. The dimensions of the TBL have also been referred to as the Three Ps; profit, people and planet (Slaper & Hall, 2011). The goal is to find a balance between the dimensions of the TBL and, thereby, resolve possible conflicts between them (Giddings, Hopwood & O’Brien, 2002).

### **2.1.2 The Triple Bottom Line**

The first part of the TBL is the *economic* dimension (profit). According to Brown, Dillard and Marshall (2006) it constitutes of creating economic value, i.e. the profit. Seen from a perspective of sustainability, the profit is what is created on each and every area where the organization is active. Hence, an economic bottom line within the TBL is different from the more traditional sense of economic profit, since it does not solely look at the interests of the organization (Brown et al., 2006). Sustainable development includes improvements in both qualitative as well as quantitative factors (Roseland, 2012). The economic dimension is also related to the elimination of the negative effects of increased economic growth and production, such as income inequalities in the city (Crane & Matten, 2010).

The second part of the TBL is the *social* dimension (people). It is characterized as creating a sustainable society in which the human needs are satisfied and the human rights are complied with (Brown et al., 2006). The organization is required to run its activities in a fair way, contributing to new possibilities for the country and society in which it operates (Brown et al., 2006). Social integration and communitarian logic are important, as well as the social relationships in society and characteristics of human populations (Brown et al., 2006).

The third part of the TBL is the *environmental* dimension (planet). The main attribute of this dimension is to conduct sustainable work with focus on the environment and natural surroundings, thereby, reducing how activities negatively affect the environment and, consequently, also affect the public health (Brown et al., 2006). By reducing consumption of energy and natural resources, working to contradict noxious pollution and minimizing waste, an organization can contribute to this dimension of the TBL (Brown et al., 2006). Furthermore, by investigating how the whole life cycle of an activity affects the environment, it is possible to find ways to improvements and effectiveness (Brown et al., 2006). Willard (2002) emphasizes how the organization also should request and ensure that other actors within the organization's network, such as suppliers and partners, are working to adopt more environmentally sensitive approaches.

#### **2.1.2.1 Measuring the Triple Bottom Line**

Slaper and Hall (2011) describe how there is no common way of measuring the results of actions taken to accomplish the dimensions of the TBL. Economic profits can be measured in financial terms, but when it comes to measuring social and environmental effects, it becomes more challenging. The authors state that some argue for the benefits of monetizing all three dimensions, but there are also many who object to putting a financial value on factors such as wetlands or endangered species. This is often argued for on philosophical grounds (Slaper & Hall, 2011). Others question the methods for setting the right price on those factors. When it comes to the social dimension, diversity of gender, national heritage and religious affiliation etc.

is often included in the discussion but it may not even be clear what the most desired social constellation would look like (Brown et al., 2006).

A way to overcome the problems of calculating and measuring the TBL could, according to Slaper and Hall (2011), be to construct an index. This would allow for comparison between societies and initiated sustainability projects. However, a problem with this is that there needs to be an universally accepted accounting method and it is not yet clear how the index components and sub-components within each dimension would be weighed against the others. Another solution would be to let each sustainability measure stand alone, but the wide range of metrics might lead users of the TBL to exhaustion. Despite the challenges with measuring the TBL, this can also be seen as its strength. The wide range of possible methods of measurements allows the user, such as a society government, to adapt the TBL framework in accordance with their specific prerequisites. Varieties of measurements have been used by organizations and can be altered depending of the characteristics of the activity's setting (Slaper & Hall, 2011). Some examples of measurements frequently used are presented in table 1 below.

Profit	People	Planet
<ul style="list-style-type: none"> <li>• Personal income</li> <li>• Job growth</li> <li>• Employment distribution by sector</li> <li>• Percentage of firms in each sector</li> <li>• Revenue by sector contributing to gross state product</li> </ul>	<ul style="list-style-type: none"> <li>• Median household income</li> <li>• Unemployment rate</li> <li>• Female labor force participation rate</li> <li>• Violent crimes per capita</li> <li>• Health-adjusted life expectancy</li> </ul>	<ul style="list-style-type: none"> <li>• Electricity consumption</li> <li>• Concentration of nitrogen oxides</li> <li>• Solid waste management</li> <li>• Selected priority pollutants</li> <li>• Change in land use and land cover</li> </ul>

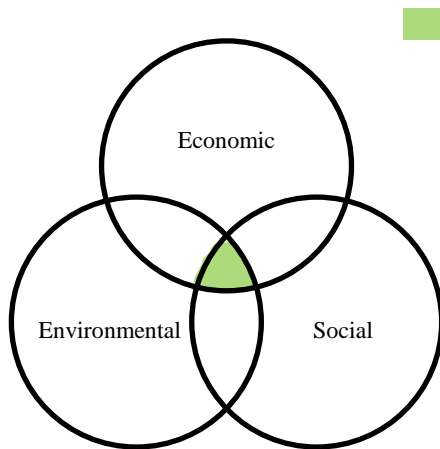
**Table 1: Traditional Sustainability Measures (Slaper & Hall, 2011, p. 5)**

### 2.1.2.2 Problems with the Triple Bottom Line

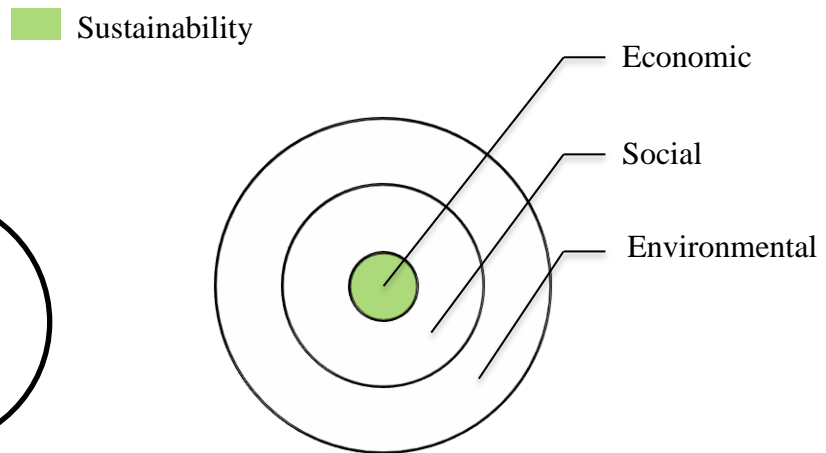
Even though the principle and dimensions of TBL may seem quite pragmatic, there are some complications with the framework. The problem of measurement is the main problem, and has been discussed in the previous sections. Stakeholders of various kinds are also increasingly calling for more insightful information related to the social and environmental dimensions of sustainability (Brown et al., 2006). Further on, although the three dimensions of TBL are interrelated and, therefore, must be considered together and in relation to one another, the TBL is unfortunately too often interpreted as a trade-off between social, economic and environmental factors (Desai, 2010). Activities are truly sustainable if they place in the intersection of the economic, social and environmental dimension (see Figure 1). Other activities lie outside this



subset and are often characterized as having either only economic or social benefits. In light of this problem, attempts have been made to create a model where the environmental dimension of TBL is non-negotiable (see Figure 2). Here, commerce cannot exist outside society, and society cannot exist outside the environment, the result being a “nested” arrangement (Desai, 2010).



**Figure 1: Sustainability Seen as a Trade-Off (Desai, 2010, p.13)**



**Figure 2: Sustainability Seen as a “Nested” Organization (Desai, 2010, p.13)**

Meehan and Bryde (2011) further discuss other encountered problems with TBL. Work with TBL sometimes requires complicated decision making practices and may call for high levels of change in organizational processes. Activities that involve a variety of parties, such as when trying to achieve a sustainable society where many stakeholders are affected, further emphasize its implications. This can result in dragged out decision processes and inertia within the organization, despite the willingness to change (Meehan & Bryde, 2011).

According to Brown et al. (2006), the “fashion” of sustainability makes external stakeholders put pressure on the organization, sometimes causing organizations to use the TBL to legitimize its actions without actually conducting those activities required to characterize it as sustainability work. TBL reporting becomes a technique to handle the press. The lack of universal standards for measuring further makes it possible for the organization to choose the methods they see fit (Brown et al., 2006). Hence, a genuine interest from the organization, with regard to sustainable development, should be required to create value, not just as an attempt to avoid criticism.

## 2.2 The Concept of a City

*This section will explain the concept of a city. The concept will be put in relation to sustainable urban development and what constitutes factors of a sustainable city.*

There is no absolute definition of the term “city” as it varies between different circumstances, both locally and nationally (Haughton & Hunter, 1994). A city could be called civilization, however, it also constitutes an economic, social and political creature (Pierre, 2011). It is necessary to achieve sustainable development on a local level in society, i.e. in a city, in order to also manage the environment on the global level (Redclift, 1996). This can be done through decentralized and inclusive decision making capacity of resources and development to local administrations (United Nations, 2013). Much can be facilitated through international agreements and regulations, as well as a coordinated international response to the initiatives, but many main efforts still have to be articulated and executed locally and it, therefore, becomes important to fully understand cities as they become dominant in the global society (United Nations, 2013). It is much due to the increasing economic role of cities that has made it more involved in the global world (Haughton & Hunter, 1994). If unable to understand, recognize and govern the links between cities and the local and global environment, the feasibility of cities in the long term will be undermined and have major consequences for humanity, which mostly already live in urban areas (Puppim de Oliviera, Doll, Balaban, Jiang, Dreyfus, Suwa, Moreno-Peñaranda & Dirgahayani, 2013).

### 2.2.1 Sustainable Urban Development

A city is often described as a constantly changing concept and should, therefore, be considered an ongoing process that continuously contributes to sustainability on local, regional and global level (Haughton & Hunter, 1994). It is important that the development of a sustainable city is looked upon “in its bioregional context, and to bring about fundamental changes in the ways in which people trait nature, and treat each other” (Haughton & Hunter, 1994, p.24). The method of converting areas into urban city areas can be classified in one of three categories; greenfield (e.g. van Dijk, Muñoz-Gielen & Groetelaers, 2007), brownfield (e.g. Alker, Joy, Roberts & Smith, 2000; Eckerd & Keeler, 2012) and retrofit (e.g. Eames, Dixon, May & Hunt 2013).

First, greenfield is defined by van Dijk et al. (2007) as “cities expanding by converting land use at the fringes from rural to urban” (p.279). The challenge is the process of going from the initial non-urban situation to the final stage of residential neighborhoods (van Dijk et al., 2007). Second, Alker et al. (2000) define brownfield as “any land or premises which has previously been used or developed and is not currently fully in use, although it may be partially occupied or utilized. It may also be vacant, derelict or contaminated. Therefore, a brownfield site is not available for immediate use without intervention.” (p.64). The transformation of brownfield areas is considered the most complex urban issue due to the challenge of redeveloping the area without disturbing the integrity of the city nor creating so-called “satellite settlements”, this

while being impacted by a context of both socio-economic and socio-political factors (Peric & Maruna, 2012). Last, retrofit is described by Eames et al. (2013) as how different sectors of a city “re-engineer systemically their built environment and urban infrastructure” (p.505).

Joss (2011b) has studied trends and patterns across sustainable city initiatives and distinguished factors of key characteristics in the implementation of a sustainable city as well as what factors drive and condition the innovation in such areas. First, the phase of the sustainable development was evaluated and characterized according to three factors; stage of pilot or planning, under construction and implemented. According to Joss (2011b), the study indicated a rapid development in sustainable city initiatives since the 1950s. It was also found that much work took place as retrofitting projects or through expansion of already existing cities. Further on, Joss (2011b) explains six types of factors that can drive the phenomenon of sustainable development:

- *Environmental challenges.* The development of a sustainable city needs to respond to expected and anticipated challenges of the environment through design and innovation in the city infrastructure and processes taking the local characteristics into consideration.
- *Socio-economic pressures.* The rapid urbanization puts pressure on expanding existing cities and building new ones. Further on, it also relates to redeveloping business to become more knowledge-based, innovative and use green technology.
- *Business development.* The two above-mentioned challenges open up for opportunities relating to technological innovation (e.g. green technology) and business development. Partnerships between private and public actors also become more common.
- *Cultural branding.* Reaching for sustainability can become an opportunity of branding a city towards other cities and actors and, thus, a way of signifying innovation and competitiveness. The sustainable initiatives can further be marketed through education and cultural activities, such as museums and demonstration sites.
- *Political leadership.* The way of translating a vision of a sustainable city into a tangible plan and carry out its implementation requires political coordination and leadership, and its form depends on the governance system. For example, sustainable development can be a “signature project” of a Mayor, initiated by an elected council or regional government, include influences from the public or simply a project decided upon by national governments.
- *International co-operation.* Through cooperation with other countries knowledge can be exchanged and businesses can be developed as a joint effort.

Overall, the methods a city use for creating a sustainable environment depend on that city or country’s specific response to policy priorities in decision making and resources (United Nations, 2013). The debate on sustainable development implies huge political challenges, not least because of the fact that the very configuration of political systems has previously in many cases allowed for undesirable impacts on the environment due to firm focus on economic development; the connection of economic development and environmental change needs to be

completely recognized (Haughton & Hunter, 1994). Further on, it is important to understand the connection between the economic and social relationship which in some cases may have caused the city to become “unsustainable” in the first place (Haughton & Hunter, 1994).

### **2.2.2 Benefits of a City**

Many socio-economic benefits can be provided by a city (United Nations, 2013). By creating a location with high concentration of people, resources and investments, cities can increase the possibility of providing economic development and social interaction. Cities can also lower the unit cost and, thereby, more efficiently provide public services such as water and sanitation, electricity, health care, education, emergency services and public recreation areas (Polèse, 2009). Cities also constitute an important cultural environment, accumulated by history and various human made artifacts, such as buildings and infrastructure (Haughton & Hunter, 1994). Moreover, cities constitute centers for knowledge and innovation, both of technological and institutional kinds, to achieve a better governance within and beyond the city (Puppim de Oliveira et al., 2013). In some manners, the urban design of the city can contribute to a better environment as travels within a city become less energy consuming because they are shorter and can be substituted by walking or bicycling, in comparison to travels in suburban areas or smaller cities where long drives to the city center pollutes the inner urban atmosphere and contributes to low house values close to the main roads and decay in buildings (Haughton & Hunter, 1994). A city as a whole can be seen as an asset (Haughton & Hunter, 1994). It is, therefore, important to have an insight and acknowledge the wide network of components that constitute a city in order to understand its common character and meet its needs.

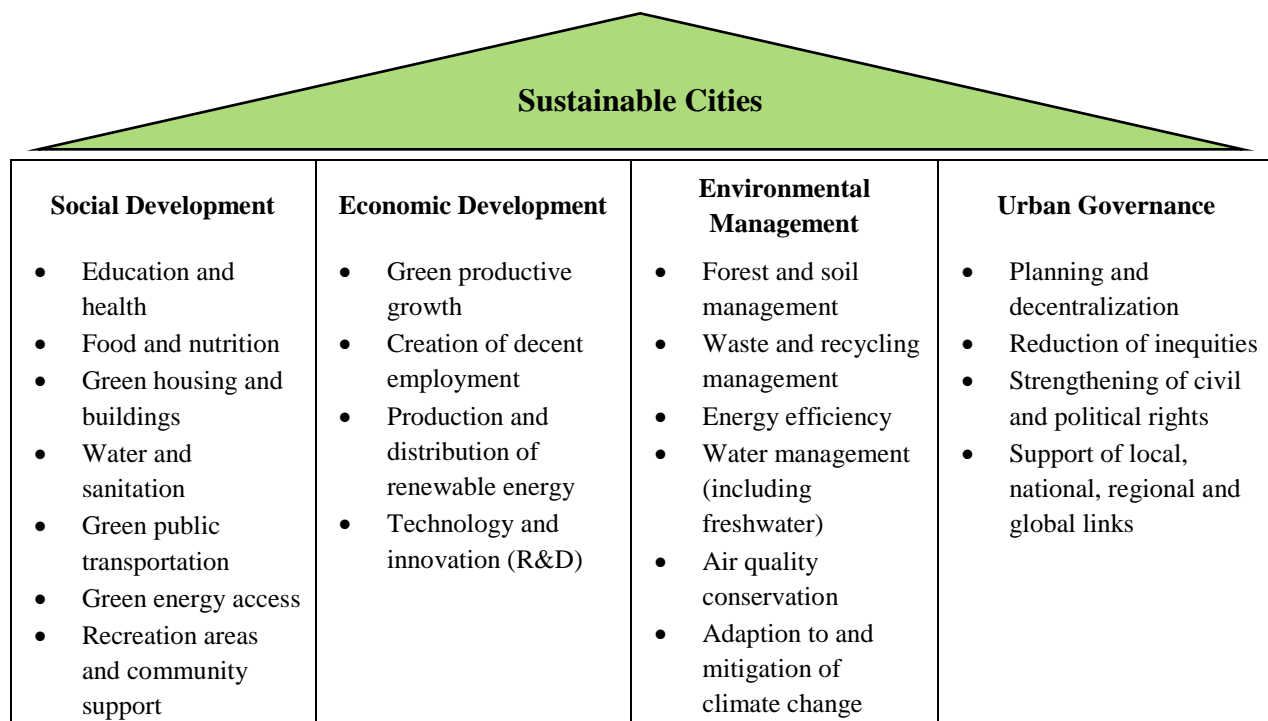
### **2.2.3 Disadvantages of a City**

On the other hand, cities have also been experiencing environmental problems. Examples of these problems are water and noise pollution, poor sanitation, poor housing and of course overcrowding (Haughton & Hunter, 1994). This makes the city more dependent on external ecosystems for survival since the internal capacity to produce food and energy is reduced, e.g. due to reduction of agricultural land (Haughton & Hunter, 1994). It is the government’s responsibility to ensure that the above-mentioned benefits of the city are realized and the problems are reduced, hence, a well-functioning city government with strong decision making policies is required to adopt the sustainable framework that encourages the healthy growth of a city, taken its ecological limits into consideration (United Nations, 2013).

### **2.2.4 A framework for a Sustainable City**

As described in previous sections, a uniform definition of a city, including a uniform definition of a sustainable city, has not yet been agreed upon. The reason for this is likely to be the diversity of urban realities around the world (Joss, 2010; United Nations, 2013). It has been suggested that the construction of a “green city” is equal to building a sustainable city (Beatly,

ed., 2012). This can be seen as a good starting point for sustainable development, but nonetheless it is important for parties to understand a city's sustainability as a broader concept which integrates several factors; social development, economic development and environmental management. These have to be looked upon in relation to the urban governance, i.e. the decisions of management and investments taken by the municipal authorities in coordination with national institutions and authorities (United Nations, 2013). Hence, all dimensions of the TBL as well as a well-functioning governing body are needed to reach sustainability within a city, and the inability to address all of these issues will prevent the accomplishment of sustainable development (UN-HABITAT, 2002a). In the context of this, a sustainable city can be regarded as entailing the integration of four pillars; social development, economic development, environmental management and urban governance (United Nations, 2013). Figure 3 presents how the four pillars encompass a balance for accomplishing urban sustainability.



**Figure 3: Pillars for Achieving Sustainability of Cities (United Nations, 2013, p.62)**

Suzuki, Dastur, Moffatt, Yabuki and Maruyama (2010) have together with the World Bank also developed an analytical and operational framework for how to create a sustainable city and city development based on four key principles. These principles have been developed in cohesion with the challenges often encountered, on one hand, and with certain best practices found for sustainable city development, on the other hand. They are all characterized as critical to the realization of a successful sustainable development, applicable in other similar initiatives and

generally not highlighted or given much consideration in these projects. The four principles are the following:

- *Principle 1: A city based approach.* This principle puts the local government in charge of leading the process of sustainable city development when taking both local ecology and city specific factors into consideration.
- *Principle 2: An expanded platform for collaborative design and decision making.* The aim of this principle is to coordinate and align actions of different parties and stakeholders in order to achieve a sustained synergy.
- *Principle 3: A one system approach.* In this principle, the city is regarded as a complete system, and in doing so, exploiting all prospects of integration.
- *Principle 4: An investment framework that values sustainability and resiliency.* This principle takes different types of analyses into account, such as life cycle analysis, the value of different types of capital assets and how to regulate risk assessments in decision making.

All principles in the framework are interconnected and they support each other in different ways. Also, all four principles are needed in order to gain full insight about and attainment of the sustainable development. Each principle consists of a number of elements and steps that have to be undertaken in order to reach the sustainability goal of the specific city or society (Suzuki et al., 2010).

### **2.2.5 Components of Sustainable City Initiatives**

According to the United Nations (2013) there are both challenges and possibilities when building a sustainable city. The city authorities need to ensure the necessary resources for investments in quality of life in the city for the residents, e.g. clean water, good housing conditions and investing in renewable energy sources. Therefore, good decision making policies need to be in place. By making this an integrated opportunity for investment within the four pillars, sustainability can be achieved. Inevitably, there will be trade-offs between investments that yield benefits in the short term or the long term, such as infrastructure for development or environmental protection. Investments in infrastructure and capacity development need to be put in relation to investments of urban resilience. In order to reach the best solutions, stakeholder collaboration is similarly important; governments working closely to the private sector and NGOs, and the private sector and NGOs developing processes for working with the government, are needed in order to ensure that they jointly reach city solutions that are both functional and economical (United Nations, 2013).

Suzuki et al. (2010) further explains the phenomena of when cities aim to become more integrated and reach a long-term approach, they often encounter numerous challenges. Except for the primary challenge of an increasing population, there are also other factors that need to be

considered. First, there can be challenges set by a number of practical approaches; technical, financial and administrative challenges are examples of this. Second, from the city management's point of view, there are the persisting problems and challenges, such as, institutional barriers, lacking frameworks for decision making and stakeholders' disaggregated responsibilities and incentives focusing on short-termism. Third, there are political challenges relating to the economy and diverse agendas. Fourth, lock-in relations in networks can hamper effectiveness. Fifth, deficient information, poor communication and reluctance to collaborations also constitute challenges for incentives to develop a sustainable society. Although these factors may seem overwhelming to take on at the same time, as well as being more or less present in different cities, they imply that a systematic and strategic approach to creating a sustainable society is needed (Suzuki et al., 2010).

## **2.3 Public Management**

*Public management relates to how city governance is carried out. The role of the municipality in sustainable city initiatives, as well as factors affecting it, will be presented in this section.*

### **2.3.1 The Role of the Municipality**

According to Rydin (2010), a municipality is a territorial sector with certain commitments of administrative, social, legal and political character. The power and role of the municipality may differ among cities due to national regulations. The local government focuses its political issues on the municipal area and is often used as a synonym to the municipality (Rydin, 2010). Usually, four principles are commonly put forward in order to assess governance: effectiveness and efficiency, equity, participation, and transparency and accountability (UN-HABITAT, 2002b). It, therefore, becomes a challenge to establish a type of governance scheme in which all of the local's interests and voices are expressed, represented and taken into consideration (Puppim de Oliveira et al., 2013). Puppim de Oliveira et al. (2013) describe how the municipality has a major role in moving urban areas towards a green economy and sustainable development. Generally, the municipality holds important power in terms of legal competency and resources, particularly in sectors such as urban planning, transportation, waste and water management, buildings and the general welfare of the citizens. The municipality has jurisdiction to act in many essential questions which often include areas in which the national government are not involved. An effective governance structure allows for all of the factors described above to be carried out in a well-suited manner, but should also be flexible enough to allow for new interests and solutions to surface as well as to adapt to shifting political situations (Puppim de Oliveira et al., 2013). Further on, policy instruments are needed in order to create good governance and decision making processes that functions accordingly. Haughton and Hunter (1994) identify six of them as legislative, technological, economic, planning, local enablement, and education and information. Joss (2011a) emphasizes how innovation in governance is a defining feature of the

development of a sustainable city. Further on, the type of innovation in the city governance also relates to how urban sustainability is fashioned (Joss, 2011a).

Pierre (2011) argues that urban politics, or government, are gradually shifting towards urban governance. The main difference between governance and government is that the former looks at the interplay between society and state and have a focus on that collective projects can be achieved through joint mobilization of both public and private resources. Politically, this implies that the public sector does not need to deliver all public services itself, but through coordinated service production with other institutional levels, private actors and NGOs: “Academically, governance initially redirects attention from institutions to processes and from the exercise of political and legal authority to public entrepreneurship and private-public partnership.” (Pierre, 2011, p.5). Further on, governance should be defined as a process in which both public and private resources are coordinated in order to reach collective interests. In this sense, government can play different roles in governance, e.g. ranging from key coordinator to merely stakeholder in a joint project, however, both types of institutions are critical in order to structure the local political dialogue (Pierre, 2011). According to Smedby (2013), who also underlines this political shift away from hierarchal government and formal structures, the shift has increased the scope of sustainability since challenges of both local and global nature are taken into consideration.

### **2.3.2 The Municipality and Sustainable Development**

In order to reach the strived-for level of sustainability, the municipality needs to interact with other key economic, political and social stakeholders. Examples of these can be administrations on either regional or national level and includes international agencies and investors, private companies and businesses, NGOs and citizens (Bulkeley & Betsill, 2005; Corfee-Morlot, Kamal-Chaoui, Donovan, Cochran, Robert, & Teasdale, 2009) Through planning and actions across sectors, local authorities in partnership with these other actors can cooperatively develop policies with the aim of creating cities that can provide access to jobs, housing and different urban services (Puppim de Oliveira et al., 2013). Furthermore it is important to develop partnerships with other sectors and respect that sets of rules and policies in one area may be limited in others if other sectors’ policies are ignored or in cases of insufficient cooperation (Osmont, Godblum, Langumier, LeBris, De Miras & Musil, 2008). Also, the local actors might be limited in their legal power and may need support from other levels of governance (Puppim de Oliveira et al., 2013). Further on, research by Kruger and Bernick (2010) suggest that constraints on less politically costly tools for funding local initiatives make cities turn to cooperate with other local partners since the relative merits of cooperation increase in these situations, even though it might not be seen as ideal under other circumstances.

Inevitably, it becomes a challenge to work with this multi-level type of governance, especially in cases when both new and old challenges need to be tackled simultaneously, e.g. air pollution and climate change (Puppim de Oliveira et al., 2013). In order to reach the goals of sustainability, the



decision making process is key and the levels of actors in the process and coordination of actions are critical in order to make good decisions and implement the policies (Bulkeley & Betsill, 2005).

Last, the governing body of a city must always manage the impacts they have on areas outside the city boundary since the impacts of their activities may go far beyond the urban area or administrative boundary of the authority in charge (Puppim de Oliveira et al., 2013). This could for example be the case regarding air and water pollution (Haughton & Hunter, 1994).

### 2.3.3 Management Factors in a Sustainable City

According to Haughton and Hunter (1994) it is very important to take advantage of all information available when working with sustainability. Further on, an encountered problem is not a reason for rejecting it. Instead, taking the opportunity to learn from experiences in other city-contexts or countries and seek to improve those projects is encouraged. This is done through creative working by those responsible for policy regimes and administration and have similar objectives for change. The authors emphasize that regional planning needs visionaries who can create new town ideas for sustainable cities and that the leaders should embrace all types of internal variations within a city “rather than suppress them in the name of some grand masterplan for the cities” (p.121). Ideas from different sources can be a great contribution to the joint goal of sustainability (Haughton & Hunter, 1994). Further on, the authors discuss a few guiding principles that are needed in the management:

- *Subsidiarity*. This principle advocates the decentralization of power and responsibility to the lowest feasible appropriate level.
- *Flexibility in formulating and implementing*. Rather than using a fixed method derived from a philosophical principle or approach, it is advised to turn to a ‘portfolio’ of various instruments when responding to interacting and dynamic problems.
- *Long-term management*. The concept of sustainable urban development has to come from short-term development derived from, and consistent with, the long-term sustainability objectives.
- *Improved coordination across policies*. This principle emphasizes the need for good governmental coordination and communication through bringing local activities and government departments closer together.
- *Need for better availability and understanding of information*. This principle stresses the importance of city stakeholders being informed of consequences of development proposals as well as making it easier for decision makers to get access to relevant information.

Also, Aho’s (2013) research has similar conclusions to the one of Haughton and Hunter and emphasizes that the empowerment of professionals to act according to the long-term goals and

give incentives to provide long-term service levels and performance is important. Giving adequate short-term returns in order to finance the other two objectives is also stressed. Further on, strategies of sustainable community development should favor bottom-up approaches (Roseland, 2012) and involve in local projects in smaller scales in order to reach economic, social and environmental sustainability (Brohman, 1996).

### 2.3.4 Management Barriers in a Sustainable City

Kennedy (1992) points out that barriers to management and operations aiming to create sustainability can occur due to; general lack of political will or awareness of the circumstances, insufficient legislative frameworks, inexistence of an institutional base, insufficient external participation in decision making, manpower lacking sufficient skills, and lack of environmental data and financial resources.

Also Doppelt (2003) points out the importance of good information, leadership, power distribution and resource alignment as critical factors for achieving sustainability in an organization. The author exemplifies ‘seven sustainability blunders’ that may arise if these are not handled in a good manner through proper management:

- *Patriarchal thinking that leads to a false sense of security.* If only vertical lines of authority are used through a patriarchal approach to governance, there will be a sense of false security in the belief that the government is an ultimate expert who holds all information. Hence, this model for information, decision making, resource and power distribution will undermine people’s personal responsibility and accountability. The model, therefore, risks blocking the inflow of information from different levels of the organization needed to signal trouble ahead.
- *‘Siloed’ approach to environmental and socio-economic issues.* Sometimes, an organization is considered to consist of separate parts or departments that can be managed separately and independently. In reality, however, it is extremely difficult for a single unit to fully understand the processes of the whole system and can, therefore, not find solutions to those system wide problems. For example, the work to achieve organization-wide sustainability is unwise to delegate to one unit only, instead it should be included in all units of the organization.
- *No clear vision of sustainability.* There has to be clearly defined principles of how to act and mechanisms for decision making in order to move towards the targeted vision.
- *Confusion over cause and effect.* A problem can never be properly solved if there is no proper understanding of what has caused the problem. Generating appropriate data is, therefore, fundamental. Otherwise, the organization risks getting stuck with merely treating the symptoms of the problem.
- *Lack of information.* A transformation of an organization or initiating a new project is not possible if the employees or partners are unwilling to participate in the effort. A proper

understanding of the need, purpose, strategies and expected outcomes are needed to reduce the level of resistance.

- *Insufficient mechanisms for learning.* Ultimately, people learn by doing. However, if not properly motivated, rewarded or given opportunities to test new ideas, people will not be encouraged in their personal thinking and learning will be stagnated.
- *Failure to institutionalize sustainability.* Getting stuck in old habits of reasoning and decision making will overwhelm efforts of looking for better alternatives. The ultimate success of any sustainability effort is, therefore, when the sustainability thinking is incorporated in the day-to-day business and business culture.

## 2.4 Theories of Decision Making

*This section will cover some of the theories regarding decision making relevant to the purpose of this report. First, a description of a decision process will be presented followed by rational decision making and decision making with limited rationality. In relation to decision making with limited rationality different coping mechanisms of decision making will be discussed. Furthermore, a realistic model of decision making called the “Garbage Can Model” will be presented. Finally, the concept of institutional isomorphism will be elaborated.*

Ofstad (1961) defines a decision as: “to make a decision means to make a judgment regarding what one ought to do in a certain situation after having deliberated on some alternative course of action” (p.5). Furthermore, decision making can be divided into two main categories; normative theories of decision making and descriptive theories of decision making. Normative decision making concerns theories of how individuals and organizations should make rational decisions, whereas descriptive decision making concerns theories of how people actually make decisions (Nationalencyklopedin, 2014).

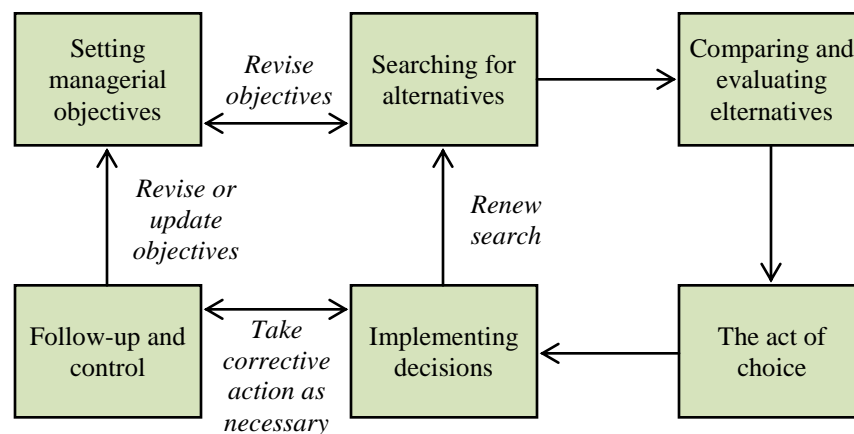
Bakka, Fivelsdal and Lindkvist (2006), emphasize that in order to be able to study decision processes within organizations, two key conditions have to be fulfilled. The first condition entails that unbiased alternatives for different decisions within the organization have to be present. The second condition entails that the decision makers themselves have to be able to choose between different alternatives of action that may not be affected by internal or external factors. In other words, freedom of action has to be present (Bakka et al., 2006).

### 2.4.1 Decision Making as a Process

According to Bakka et al. (2006) the word “process” relates to a constant movement or change. The authors further discuss how processes in organizations are tied to different activities within and outside the organization. This is often forgotten when specific routines and standards are being developed. Organizations are in constant change and movement and many parts of organizations cannot be described on a routine basis. Most processes within an organization

cannot be strictly separated either; they overlap each other. A decision process in particular, cannot be considered without taking other processes, such as the communication process, into consideration. This entails that the meaning of a decision process becomes very complex and broad. Moreover, many decision processes are closely linked to the structure of the organization and will, thereby, reflect the power structure within it. Thus, the decision processes will become a mean to describe fundamental features of the organization (Bakka et al., 2006).

According to Harrison (1996), the different parts of a decision making process are : setting managerial objectives, searching for alternatives, comparing and evaluating alternatives, the act of choice, implementing the decision and finally, follow-up and control (see Figure 4). All these parts are interrelated which creates synergies and makes the decision process dynamic, entailing that all parts create more value as part of the process than on their own. This kind of process, where the different components create synergies together, is, hence, more likely to achieve the objective set at the beginning of the process (Harrison, 1996).



**Figure 4: The Managerial Decision Making Process (Harrison, 1996, p.48)**

After a decision has been made, the organization will receive feedback from the outer environment, which will help it to assess whether the decision was successful with regard to the objective set by the organization or whether corrective action has to be considered. Thus, the information flow between the organization and the outer environment becomes very important in a decision making processes; it helps the organization gather information regarding different alternatives, but it also helps when assessing the outcomes of the decisions already made. Harrison (1996) states that an analysis of the strategic gap, i.e. the comparison of a present strategic positioning on the market with the preferred strategic positioning, has to be made in order to understand how the outer environment will affect the process of strategic decision making. It is the constant flow of new information that makes this process dynamic (Harrison, 1996).

## 2.4.2 Decision Making Theories

### 2.4.2.1 Rational Decision Making

Decision making, where the action of making a decision is explained as a rational choice, is the most common one. This is mainly because it is very useful and intelligible. “Rational” is often understood as the decision being “successful” or “intelligent”, however, March (1994) describes rationality as “a particular and very familiar class of procedures for making choices” (p.2). Furthermore, a rational procedure seeks a logic of consequence that is based on expectations of the outcome from the decisions made today and different alternatives are assessed by the expectations a decision maker has about their outcomes. Thus, the decision process is not only consequential but also preference-based (March, 1994). However, every individual has a different set of alternatives, expectations and preferences, which makes this theory implausible when studying actual decision making made by individuals and organizations. Nonetheless, this theory is the basis for studying human behavior (March, 1994).

### 2.4.2.2 Decision Making with Limited Rationality

March (1994) also discusses decision making with the assumption that rationality is limited. In the real world, decision makers do not know all possible alternatives available and all the possible consequences of these alternatives. Also, they do not have clear preferences and the different alternatives are usually considered successively and not concurrently. The decision maker is, thus, incapable of focusing on all different alternatives at once and usually chooses those alternatives where the consequences are known; therefore, it becomes a question of availability of information. Instead of examining all alternatives and calculating expected values and risk, the decision maker, therefore, settles with an alternative that is “good enough” because of the incomplete information. March (1994) states that decision makers are “intendedly rational”, meaning that they intend to be rational, but they are limited by the fact that they do not have access to complete information and they are also limited by their cognitive abilities. Therefore, theories of limited rationality have become generally accepted and an integrated part of theories of decision making (March, 1994).

There are four limitations that decision makers with limited rationality face, those are: problems of attention, problems of memory, problems of comprehension and problems of communication. First, problems of attention make it difficult for decision makers to allocate their limited time and focus on all the alternatives and information received. Second, problems of memory regard the fact that decision makers and organizations are incapable of storing large amounts of information and retrieving this information correctly. Many organizations do not have good systems to share knowledge and information. Third, problems of comprehension concern decision makers’ incapability of organizing all the information they are presented with, forming conclusions about it and seeing different patterns. Finally, problems of communication concern organizations’ difficulty to share information, mainly due to the division of labor, which does not facilitate an

easy way to distribute knowledge. Since every individual has a different set of framework and preferences, it makes it even harder to share information within organizations. Decision makers have to work with these limitations in order to be able to make rational choices. The process they develop in order to handle them is the foundation of theories of limited rationality (March, 1994).

An interesting aspect to study regarding theories of decision making with limited rationality is the way decision makers cope with information constraints or redundancy. Since decision makers are presented with incomplete, or too much, information, they have to develop different strategies and processes to organize and analyze it. Psychology of human behavior becomes very important in these strategies. Decision makers tend to develop different stereotypes for and use these in order to cope with the information received. By using stereotypes they often overlook or even ignore important information that does not have the traits they have defined according to their stereotypes. Although decision makers are presented with new information every day, they seem to adhere to their previous memories and recollections of a similar situation because it reduces the effort disbursed in order to make a decision (March, 1994). Furthermore, Juliusson, Karlsson and Gärling (2005) discuss the fact that decision makers tend to be affected by past experiences, and escalation of commitment occurs when the decision makers lack information and a clear budget.

#### **2.4.2.3 Coping Mechanisms for Limited Rationality**

One coping mechanism decision makers develop is editing; it entails that decision makers edit a decision making process to make it simpler. Another one is decomposition, which means that decision makers decompose a decision into its constituent parts and deal with the small pieces instead of the entire decision at once. Nonetheless, the most common coping mechanisms are perhaps heuristics and framing. Heuristics means that the decision makers rely on rules of thumb when making a decision (Kahneman & Tversky, 1974; March, 1994). One example of when decision makers in organizations use heuristics, is when they use the payback rule in capital budgeting, a rule that disregards the time value of money, instead of using the criterion of Net Present Value. This is regarded by decision makers as more intuitive, since they do not need to take all the information they are presented with, for instance regarding cash flows, into consideration (Shefrin, 2007). Framing, on the other hand, refers to the fact that decision makers are susceptible and easily influenced by the setting in which the decision is framed. The decisions made by decision makers will be different depending on whether the decision is framed in a setting where the organization needs to maintain share value than in a setting where the organization needs to maintain market share. The decision makers are not necessarily conscious about the frames and they are inclined to persist over time. Many decision makers copy frames from other decision makers or organizations (March, 1994).

The concept of intuitive decision making was developed by Kahneman and Tversky (1974), which discusses how the decision makers are affected by heuristics and biases in their decision making and, thus, not using a structured way of reasoning or methodical calculation. The three heuristics which are identified affecting intuitive decision making are: availability, representativeness and anchoring and adjusting (Kahneman, Solvic & Tversky, 1982; Kahneman & Tversky, 1974). Availability concerns how people put more emphasis on information that is easily available and intuitive, instead of making proper research. Representativeness regards how people make judgments based on stereotypic thinking, and anchoring and adjustment discusses how people form an approximation which they later adjust to include new information, but tend to make insufficient adjustments leading to anchoring bias (Kahneman & Tversky, 1974; Shefrin, 2007).

#### 2.4.2.4 The Garbage Can Model

Uncertainty is a central concept when studying decision processes. An organization can largely develop different routines, but in many areas, uncertainty is prevailing and often no clear routines or decision processes can be developed (Bakka et al., 2006). The Garbage Can Model is a model developed by Cohen, March and Olsen (1997) that takes uncertainty and the complexity of decision processes into consideration. The decision process is seen as a complex process that can be divided into different sub-processes without any particular structure. The most important aspect of the garbage can model is that it allows for a lot of input in the decision making processes. There are no formal or informal structures and it shows how uncertainty can be created internally, but also how creativity can be stimulated (Bakka et al., 2006). According to Cohen et al. (1997), the decision process is seen as consisting of four separate flows or streams:

1. A stream of *choices*, meaning different situations where the organization is expected to make a decision.
2. A stream of *problems*, regards different issues that disrupt the decision making process and which can be internal or external.
3. A stream of *solutions* to the different problems.
4. A stream of *participants*, which regards the different participants in the decision making process. Everyone has different traits and knowledge, which is of importance for the decision making.

This model disregards the assumptions underlying rational decision making. The decision opportunities are seen as garbage cans, into which the participants place problems, energy and solutions. The garbage can model can, thus, be seen as containing everything regarding a decision, even solutions that are bad (Bakka et al., 2006). If all these streams are put together, without any specific structure or combination of streams, the decision process will be characterized by coincidences, or as March (1994) calls it: “temporal sorting”. Temporal sorting means that the different solutions to different issues will be related to each other because of their

temporal proximity. The content of the different streams in the garbage can model will, therefore, depend on how closely linked these are in time. A decision process requires different decision makers to give their attention and energy to make a decision. If there is a large claim on their attention when a decision has to be made, they will not be able to give that decision their full interest in that particular situation. Therefore, temporal sorting partially explains why some decisions are better than others (March, 1994).

Furthermore, Cohen et al. (1997) emphasize that the underlying assumption of the garbage can model is that organizations are organized anarchies. This entails that decision processes are characterized by three factors. The first one is unclear preferences, meaning that the preferences are developed in the process of decision making, rather than decision making being based on a set of preferences. Second, the technology is unclear, meaning that there is no clear decision process, the participants do not fully understand the processes themselves and learn by trial-and-error. Third, the participation is fluid, meaning that, as mentioned earlier, the decision makers cannot give their full attention to every decision and the decision makers change randomly (Cohen et al., 1997).

### **2.4.3 Institutional theory**

An institution within organizational theory can be seen as a model for collective action. The opposite of an institution is a habit; a habit is often very individual and local, whereas an institution is collective and long lasting (Czarniawska, 1997). DiMaggio and Powell (1983) also describe the new type of institutional theory as “institutional isomorphism”, meaning that organizations within a field become progressively more similar to each other and, thereby, rejecting the idea of a rational decision making. Scott (2001) tries to capture the concept of what contemporary institutions are by identifying five common factors:

- Institutions are social structures that are highly durable.
- Institutions contain normative and regulative elements that are linked to certain actions and resources that make the social life more stable and meaningful.
- Institutions are spread through different kinds of carriers, for example: customs, artifacts, relational systems and symbolic systems.
- Institutions can work both as world systems or local interpersonal interactions.
- Institutions, although instilling stability, are under change that is both incremental and sporadic.

This means that norms, rules and cultural beliefs are fundamental aspects of institutions, and they are conserved and adapted by human behavior. Institutions can empower behavior and different actions, but at the same time they tend to restrict behavior by defining different legal, moral and cultural limits that specify what is lawful and unlawful (Scott, 2001). Moreover, Scott (2001) identifies three pillars that institutions consist of: the regulative pillar, the normative pillar and



the cultural-cognitive pillar (see table 2). The regulative pillar concerns the regulatory aspect of institutions; there are rule-setting (e.g. national laws), monitoring and sanctioning actions. The second, normative, pillar relates to the social aspect of human behavior, including social norms and values. The third, cultural-cognitive, pillar regards the shared ideas of individuals that create the social reality and the structure through which meaning is made. Further, Scott (2001) discusses how organizations need more than resources and technical information; they also have to be socially accepted and have credibility, i.e. legitimacy. Each pillar contributes to that.

	Pillar		
	Regulative	Normative	Cultural-Cognitive
Basis of compliance	Expedience	Social obligation	Taken-for-grantedness Shared understanding
Basis of order	Regulative rules	Binding expectations	Constitutive schema
Mechanisms	Coercive	Normative	Mimetic
Logic	Instrumentality	Appropriateness	Orthodoxy
Indicators	Rules Laws Sanctions	Certification Accreditation	Common beliefs Shared logics of action
Basis of legitimacy	Legally sanctioned	Morally governed	Comprehensible Recognizable Culturally supported

**Table 2: Three Pillars of Institutions (Scott, 2001, p.52)**

Meyer and Rowan (1977) give an example of what institutional theory entails concerning the environment, which they define as a “myth” that becomes a part of the organization’s formal structure: “As the issues of safety and environmental pollution arise, and as relevant professions and programs become institutionalized in laws, union ideologies, and public opinion, organizations incorporate these programs and professions.” (pp.344-345). By institutionalizing these new ideas, the organization will gain legitimacy, stability and resources (Meyer & Rowan, 1977). Moreover, Czarniawska and Joerges (1996) identified that many organizations implement the same institutions at the same time, and developed the idea that some institutions are trends. Organizations, thus, implement different institutions because they are fashionable and popular. They first begin as small ideas that gain a lot of recognition and eventually become global

institutions. Organizations subsequently implement these and translate them according to their local setting (Czarniawska & Jeorges, 1996).

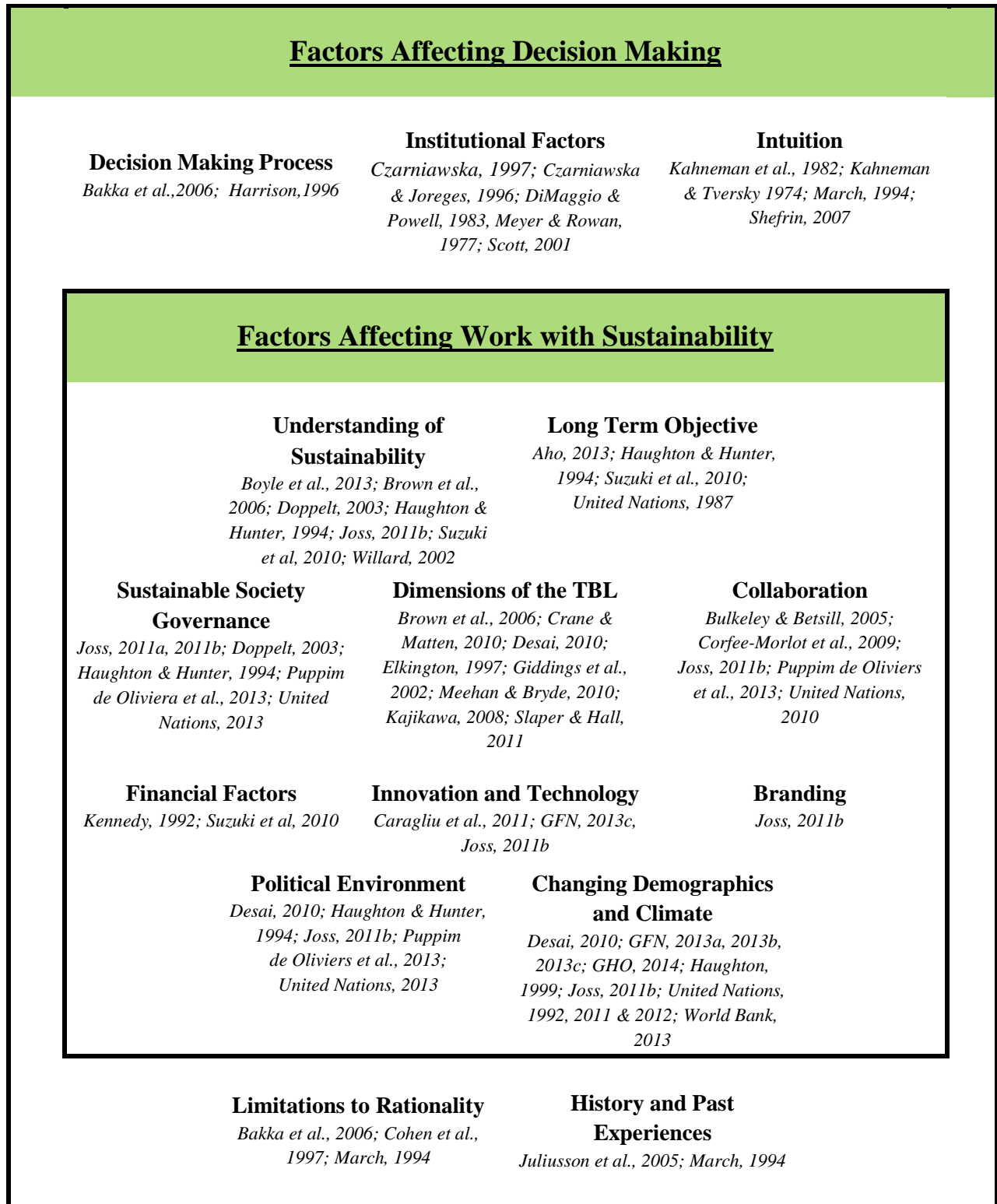
## **2.5 Theoretical Framework**

*A theoretical framework has been constructed based on the theories and previous research presented in the earlier sections. The theoretical framework will be presented in this section and gives a theoretical answer to the purpose of this report.*

### **2.5.1 Explanation of the Theoretical Framework**

Based on the theoretical findings in previous literature and theory, factors affecting work with sustainability were identified. These are mainly derived from areas of sustainability as such. However, political governance and characteristics of urban development were also found to constitute foundations from where relevant sustainability factors could originate. The identified factors that affect the work with sustainability are presented in the inner square of the theoretical framework. Furthermore, factors affecting the process of decision making were also identified in previous literature and theory. These factors are presented in the outer square of the theoretical framework.

The order or placement of the presented factors within each square in the theoretical framework does not constitute any form of ranking or grouping. The sole difference is that the inner square presents factors affecting work with sustainability and the outer square presents factors affecting decision making. The relative placement of the two squares indicates how the factors of the inner square are affected by the factors in the outer square. Only the most prominent and relevant factors identified in previous literature and theory constitute the theoretical framework. The potential overlapping of some factors was taken into consideration, but was regarded as a strategic choice in order to avoid the exclusion of important information. Each factor's relevance is summarized in the section following the theoretical framework. The theoretical framework is presented in Figure 5 below.



**Figure 5: Theoretical Framework of Factors Affecting Work with Sustainability and Decision Making**

## 2.5.2 Summary of the Theoretical Framework

### 2.5.2.1 Factors Affecting Work with Sustainability

#### *Understanding Sustainability*

Only through a proper understanding of the factors of sustainability and the visions of sustainable development, it can be achieved. Inability to understand causes and effect, insufficient methods to reach the objectives and uneducated or unmotivated people will result in its failure. Information is further needed in order to measure and evaluate projects. Without information, the concept of sustainability cannot be educated to others. Understanding sustainability is furthermore related to how actors may feel pressure from external parties to become sustainable and pressure to live up to others' expectations. This can be a factor of why cities initiate projects of sustainability. Further, pressure relating to changing demographics and climate can also affect the city's reasoning concerning sustainability projects.

#### *Long-Term Objective*

Sustainability is constantly affected by changes in the internal and external environment. In order to achieve a sustainability that can benefit the whole world's population there needs to be a constant thinking about the future and how not to impede the quality of life of future generations through actions of today.

#### *Sustainable City Governance*

Well-functioning city governance must be in place in order to reach sustainability of that city and its form depends on the governance system. The sustainable city governance develops a plan of sustainability and implements the necessary actions to follow that plan. The sustainable city governance is also in charge of political coordination and leadership. Innovation in sustainable city governance is further emphasized.

#### *Dimensions of the Triple Bottom Line*

The TBL (triple bottom line) consists of three dimensions of sustainability; economic, social and environmental. They are interrelated and need to take each other into consideration when pursuing sustainability projects. One of the difficulties with the concept of TBL is how to measure and compare the different dimensions with each other.

#### *Collaboration*

In order to achieve sustainable city development it is suggested that the government or municipality cannot do everything by itself. By collaborating and partnering with parties such as businesses, NGOs and citizens, knowledge, experience and resources can be used together and, thereby, facilitate the accomplishment of sustainability.

### *Financial Factors*

Financial constraints can constitute impediments to sustainable city development. Decision makers, therefore, need to have good understanding, information and power to allocate the financial resources to where they are most needed.

### *Innovation and Technology*

Investments in technology are needed in order to find the right solutions to problems of how to reach sustainability. Technology can help accelerate the sustainability process in many different areas.

### *Branding*

Through sustainability projects, a city can brand itself towards other cities and parties. This can be a way of communicating innovation and competitiveness.

### *Political Environment*

How sustainability projects are initiated or cities governed depend on the political environment. Some rules and legislations concerning sustainability issues, such as air pollution or human health, are set by national or global levels of politics and need to be taken into consideration when initiating projects of sustainability.

### *Changing Demographics and Climate*

Urbanization and changing climate affect how cities look like and how they can and should initiate projects in order to best react to these changes.

## **2.5.2.2 Factors Affecting Decision Making**

### *Decision Making Process*

In order to make a decision, a decision maker needs to follow a certain process or steps. This process contains many aspects that have to be taken into consideration and all steps are supposed to create synergies.

### *Institutional Factors*

Organizations try to become more like each other through the concept of “institutional isomorphism”, thereby, rejecting the idea of a rational decision maker. This can be seen from the decision making perspective, but also from a sustainability perspective where different organizations implement the same institutions at the same time, i.e. trends, because they are fashionable and will, thus, gain the organization legitimacy.

### *Intuition*

Intuitive decision making concerns how the decision makers are affected by heuristics and biases in their decision making. This means that they do not use a structured way of reasoning or methodical calculation when making a decision and, thus, rely on their personal intuition.

### *Limitations to Rationality*

Limitations to rationality considers the fact that decision makers do not know all possible alternatives and the outcomes of these. They are exposed to problems of attention, memory, comprehension and communication because they do not have access to full information. Decision makers will develop different coping mechanisms to handle these problems. This will, thus, lead to suboptimal decisions.

### *History and Past Experiences*

Decision makers can be affected by history and their past experiences in their decision making.

## **2.5.3 Contribution of the Theoretical Framework**

The theoretical framework suggests a theoretical answer to the purpose of this report; to increase the understanding and fill the gaps in the literature by identifying what factors affect the decision making processes in sustainability initiatives at municipal level, in so called sustainable cities.

By taking the relevant factors into account, decision makers and practitioners in sustainable city initiatives will gain knowledge of how their decision making can affect and be affected by different issues and how this awareness can help them improve the impact of their decision making.

## 3 METHOD

---

*This chapter will begin with presenting the research approach and design of the study. Next, the selection of the case and interviewees will be described. Subsequently, the methods for collecting data and the methods for presenting and analyzing empirical data will be outlined. The chapter will end with a reliability and validity discussion.*

### 3.1 Research approach

The purpose of this report is to increase the understanding and fill the gaps in the literature by identifying what factors affect the decision making processes in sustainability initiatives at municipal level, in so called sustainable cities.

In order to achieve the purpose, the following research approach in two steps was used:

1. In order to give a theoretical answer to the purpose, existing literature and theories were consulted. A theoretical framework was developed based on the findings.
2. In order to develop the theoretical framework, empirical data was collected and matched with the theoretical framework. Hence, a developed framework was produced to give a better informed answer to the purpose and to develop existing theories.

### 3.2 Research design

Two research methods are often mentioned in the literature; qualitative and quantitative methods (e.g. Backman, 2008; Bryman & Bell, 2011). To meet the purpose of this report, the choice was made to do a qualitative research. In general, this method is characterized as emphasizing words, rather than numbers, when collecting and analyzing the desired data. A broad differentiation between quantitative and qualitative research design is that the quantitative design aims to test a given theory or hypothesis, whilst the qualitative design aims to generate a new type of theory. The qualitative research method also acknowledges a social reality that is constantly shifting as an emergent property being the creation of individuals. Therefore, focus is put on how individuals interpret their social surroundings, hence, rejecting norms and practices of the natural scientific model (Bryman & Bell, 2011). The difficulty and impracticality of constructing clear-cut hypotheses given the purpose of this report further advocated a qualitative approach (Backman, 2008).

Since the purpose of this report was to understand and find certain factors in decision processes regarding sustainability initiatives, the purpose had an explanatory nature. To find answers to these questions, semi-structured interviews (Bryman & Bell, 2011) were conducted in order to get a deeper understanding of how the respondents perceived the areas of sustainability and decision making. Other types of research methods, such as quantitative self-completion

questionnaires or structured interviews were not considered to give the searched-for depth in the answers and do not favor the possibility of posing follow-up questions needed in order to understand and contribute to the research field (Bryman & Bell, 2011). Therefore, in order to apply the theoretical framework to the empirical study, a case study approach was chosen.

The chosen approach of collecting the empirical data for the study was mainly inductive, but there are, in addition, some deductive influences present. An inductive approach consists of collecting empirical data and, thereby, generating a contribution to or evolvement of existing theory (Bryman & Bell, 2011; Alvesson & Sköldbberg, 2008). A deductive approach, on the other hand, consists of theory generating certain expectations about the reality. These expectations are investigated through an empirical research and thereafter compared and evaluated according to the extent to which they conform to reality (Bryman & Bell, 2011). In this report, the research had an inductive focus, since certain imprecise factors were searched for in the empirical study with the aim of supplementing existing theory. However, the examination of whether theoretical expectations corresponded to reality also implies deductive reasoning. The joint application of both an inductive and deductive approach, therefore, indicates that an abductive study was conducted (Alvesson & Sköldbberg, 2008).

### **3.3 Case Study**

#### **3.3.1 The Nature of a Case Study**

Qualitative research methods are often associated with case studies. A case study aims to describe the complex nature of a particular case. A case is normally linked to a geographical place; hence, it can be a study of an entire organization or even a nation. However, what differentiates a case study from other forms of research methods is that it focuses on thoroughly scrutinizing an entire system and clarifying its unique characteristics. It is also beneficial to use case studies due to the fact that several qualitative research methods can be combined together. One critique against case studies in general is that using case studies makes it difficult to generalize the findings. (Bryman & Bell, 2011)

Yin (2009) also suggests that if the research requires that different patterns and interrelations have to be studied, instead of studying quantitative data to understand a specific phenomenon, it is appropriate to use a case study method. Studying the respondents in their natural environment further contributes to the complexity and multiplicity of the study (Yin, 2011). Furthermore, Yin (2009) suggests that pattern matching should be used in order to find and compare patterns between the empirical findings of the study and the proposed pattern found in the theoretical framework.



### **3.3.2 Case Selection**

The purpose of this report is to increase the understanding and fill the gaps in the literature by identifying what factors affect the decision making processes in sustainability initiatives at municipal level, in so called sustainable cities. This question is very complex and needs an in-depth analysis in order to be answered. To find a case for this study, different cities around the world that work with sustainability on a large scale were considered. Finally, one was deemed to be of most interest; Chicago. Chicago has implemented large scale projects with ambitious goals about making the city sustainable from the perspective of the triple bottom line; to make the city sustainable from an ecological, social, and financial perspective (City of Chicago, 2014c).

Chicago has implemented large projects to make the city sustainable. Current projects are Sustainable Chicago 2015 and the Chicago Climate Action Plan. Sustainable Chicago 2015 sets 24 sustainable goals that the city is aiming to reach by the year 2015. The objectives concern reducing energy use, creating jobs, improving the infrastructure and allowing Chicagoans to have a healthy and active lifestyle (City of Chicago, 2014c). It will entail that all the different departments in the city will have to collaborate in order to achieve these goals. Similarly, the Chicago Climate Action Plan aims to make the city more sustainable, but focuses more on the ecological aspect of sustainability by trying to build energy efficient buildings, improve transportation, reduce waste etc. (Chicago Climate Action Plan, 2014). Moreover, the City of Chicago is renowned for their green roofs program, and it has currently more square feet of green roofs than any other city in the USA (Pilloton, 2006). The City of Chicago, i.e. the municipality, implements many of the sustainability projects initiated in the city, and it is thus interesting to investigate the decision making processes within different departments in the city.

### **3.3.3 Selection of Interviewees**

Based on the quite complex research area of this report, a lower number of respondents is validated and a number of 20 interviewees is, therefore, assumed to be satisfactory. Yin (2009) states that it is not a large number of interviewees that makes a study credible or good, instead, it is the composition and qualities of the interviewees that should be considered. Hence, it is important to include interviewees who are knowledgeable and can provide information to the research that is divergent and complementary to each other. In accordance with the purpose of this report aiming at understanding decision making processes at municipal level, and with the multiple decision making areas of a municipality in mind, many different decision makers were reached out to in order to gain as much insight as possible on the matter. People with decision making authority in different departments, as well as levels in the organizational hierarchy, contributed to a good mixture of interview objects to make the research more insightful and multifaceted. In addition, some non-profit organizations were further reached out to due to their closeness in collaboration and similar objectives to the municipality. This was believed to include extra understanding and perspectives to how the work of decision making is carried out in Chicago.

The sampling of interviewees was conducted through the method of convenience sampling (Bryman & Bell, 2011). Among all individuals that were reached out to, the resulting 20 interviewees represented the ones who were available to participate in the research. Despite some inevitable limitations with this sampling method, e.g. the level of incompleteness (Yin, 2011) or difficulty of generalize the findings (Bryman & Bell, 2011), the method was still considered satisfactory due to the fact that a deep study generally does not require a sample that is representative of the larger population (Bryman & Bell, 2011). Further on, difficulties of limited resources and accessibility of interview objects arising due to the geographical distance between Lund and Chicago argued for the use of convenience sampling. In addition, some degree of snowball sampling was also used. This is explained by Bryman and Bell (2011) as a method of recruiting new interview objects through the recommendation of existing interviewees. The snowball sampling can be argued for when the recommendation of an individual possesses valuable knowledge that could contribute to the study (Yin, 2011). This method resulted in a further six participants to the final sample of this research. A short presentation of all interviewees can be found in Appendix 1.

## **3.4 Methods for Collecting Data**

### **3.4.1 Primary Data**

In this research, primary data was collected through personal experience of Chicago and through the conducting of personal interviews with 20 interviewees in Chicago.

#### **3.4.1.1 Trip to Chicago**

In order to get a deeper understanding of the case selection, a visit to Chicago was carried out to see how well the secondary data and theories corresponded to reality. During the stay in Chicago, all interviews were conducted. This enabled meeting with the interviewees in person as well as allowing the meeting to take place in the interviewees' natural setting.

#### **3.4.1.2 Qualitative Interviews**

The choice was made to conduct semi-structured interviews, taking its characteristics as not having to strictly follow a schedule or guide into consideration (Bryman & Bell, 2011). The order of the posed questions could also be adjusted and rephrased if necessary (Bryman & Bell, 2011). It was also possible to formulate questions that were open but still provided direction to the conversation (Alvesson & Sandberg, 2013). In the qualitative interviewing, there is much emphasis on the interviewees' point of view, which in many cases need to allow for follow-up questions about things said by the interviewee (Bryman & Bell, 2011). The flexibility of semi-

structured interviews also made it possible to assign more or less focus on a certain question considering the interviewees position or insight within a certain area.

Twelve interviews were conducted, and 20 people were interviewed in total. Some of the interviews were single interviews and some were group interviews with two to three people from the same department. In one case, the interviewees came from different departments but still worked in close relation to each other. The group interviews were suggested by the interviewees and allowed for a joint collaboration to come up with the most correct answers to the research questions.

One of the problems when collecting data is knowing when to stop collecting it. This point in time is described by Glaser (1978) as the point of *theoretical saturation* and describes the situation of when the theoretical gaps can be filled with the already obtained data and no additional data is found in the marginal interview. In this report, the amount of twelve interviews conducted with the participation of 20 interviewees was considered the saturation point.

There were two interviewers present during all semi-structured interviews. Although, generally, the presence of a second interviewer is not considered to create any added value to the context (Bryman & Bell, 2011), this was chosen in order to jointly increase the capacity to take complementary notes and pose relevant follow-up questions.

### **3.4.1.3 Interview Procedure**

All twelve interviews with the 20 interviewees were conducted in Chicago at a place decided by the interviewees in order to be of convenience to them. Eleven interviews were conducted at the interviewees' office or conference room and one interview was conducted in a restaurant of a Chicagoan business club. Most interviews lasted approximately 60 minutes except for two interviews that lasted approximately 35 minutes due to time constraints of the interviewees.

All interview questions were influenced by the theoretical framework in order to confirm the theories' reliability and with the objective to develop the theoretical framework with related issues derived from the interviewees' answers. It was of importance to formulate questions which were open-ended and allowed for the interviewees to answer with his or her own words and in a direction he or she found most suitable. This type of questions also allowed the interviewers to pose follow-up questions to some answers or if new interesting topics were discovered, hence, enabling discussions on certain matters. An interview guide (Appendix 2) with all of the interview questions was constructed covering broad as well as narrower subjects. The questions did not need to follow a strict order as long as all questions were asked and followed the same type of phrasing in all interviews. The aim was not to be limited by the format of the interview guide, but rather to be used as a way of recollection of the topics. Flexibility when conducting the interview was important (Bryman & Bell, 2011).

### **3.4.3 Secondary Data**

Secondary data was consulted in the form of the City of Chicago's official web page ([www.cityofchicago.org](http://www.cityofchicago.org)) and various brochures and documents distributed by the interviewees during the interviews. In cases of secondary data it is important to objectively assess the document's level of authenticity, credibility and representativeness (Bryman & Bell, 2011). This was, therefore, accounted for.

## **3.5 Method for Empirical Data Presentation**

The empirical data collected is presented according to factors affecting work with sustainability and, thereafter, factors affecting sustainability decision making. These factors are derived both from the interview questions, that to some extent already merge the two theories, and the theoretical framework. The interviewees' reasoning was emphasized in an objective way and different quotations were included in order to highlight their standpoints. This method was deemed to be the most appropriate for this case study and its purpose, since it enables the researchers to compare the different findings in a more structured and comprehensive way. Presenting all of the interviews separately without stressing the important factors would make it very strenuous for the reader, thus, different similarities or dissimilarities would be disregarded. Moreover, by allowing for comparison, it is more straightforward to see whether the empirical findings are aligned with the theoretical framework and conclusions can be drawn.

The interview questions regarded the different factors compiled in the theoretical framework; however, there is a chance that the results might have been affected by the theoretical expectations to a small extent. Not all of the data collected was included in the presentation due to the fact that the interviewees might have discussed certain areas irrelevant to the study and would, therefore, not add any more depth and made the comparison difficult.

## **3.6 Method for Analysis and Discussion of the Empirical Data**

The method for the analysis and discussion is straightforward and involves the matching of patterns between the empirical data collected and the factors compiled in the theoretical framework. It is considered the most suitable approach, since the purpose of this research is to fill the gaps in current sustainability decision making literature. This is motivated by Yin (2009), who proposes that pattern matching is the appropriate method to find and compare patterns between the empirical findings of the study and the proposed pattern found in the theoretical framework. If any similarities or dissimilarities were found, they were emphasized in order to contribute to the current research. Both aspects are equally important to take into consideration; dissimilarities between the theoretical framework and the empirical findings can imply that the theory is obsolete and in need of an update.

The method of sensitizing concepts was further applied when classifying the empirical findings (Alvesson & Sköldbberg, 2008). This method lacks detailed specification of how an object is most often classified. Instead, it allows the user to get a more general sense of reference and guidance when approaching the empirical findings and is, thereby, stimulated to perceive new relations and perspectives (Alvesson & Sköldbberg, 2008). Hence, the formulation of the definitive concepts is made after the data has been analyzed and it is, therefore, possible to uncover data that might otherwise have been overlooked (Glaser, 1978).

### **3.6 Reliability and Validity**

Bryman and Bell (2011) describe how the factors reliability and validity are important in order to enhance the quality of a scientific study. Also Glaser (1978) discusses factors of validity.

Reliability concerns whether the results of the research are possible to find in a repeated study at another time (Bryman & Bell, 2011). When constructing the structure of the interview questions, reliability was accounted for in order to be able to draw conclusions from the findings. To ensure reliable data from the interviews, the sample of chosen respondents only consisted of individuals with knowledgeable insight in the matter. The nature of a semi-structured interview also increased the reliability as follow-up questions were possible to pose in cases of shortage in understanding.

Validity concerns the conclusions drawn from the research findings and how its integrity can be kept intact (Bryman & Bell, 2011). The method of triangulation, the use of both primary and secondary data, was used to increase the validity of the study. Ecological validity implies whether the research captured the daily life conditions, i.e. that the results are not solely applicable in a specific technical setting constructed by a scientist. The interviews in this report were set in the respondents' natural environment without any alterations made by the interviewers. The conference room or office setting was perceived as a relaxing and familiar environment by the respondents, although participating in an interview may be quite uncommon and can, therefore, mean that the findings have somewhat limited ecological validity.

Glaser (1978) further explains that there are mainly three aspects of validity. The first one regards the integration of the final framework and the theory used. The theoretical framework has taken factors affecting work with sustainability and factors affecting decision making into consideration. The final framework has been derived from the theoretical framework and also takes empirical findings into account, thus, validity of it is increased. The second aspect regards whether the final framework has the ability to explain the purpose of the report, relative to other similar frameworks. The lack of existing theory and frameworks already combining the two areas of work with sustainability and decision making makes the final framework of this report more valid to give an answer to the purpose, relative to other frameworks. The third aspect involves the final framework's relevance. The use of the final framework is limited to decision

making in sustainability initiatives but may still be useful in attempts of constructing similar frameworks. The final framework is derived from empirical findings from one case only, thus, contextual factors may be present and, therefore, making the final framework less applicable as a tool to use concerning decision making in sustainability initiatives in other cities. However, generalization of the final framework is still somewhat emphasized through the use of a broad sample of respondents from different departments in the case study.

## 4 EMPIRICAL FINDINGS

---

*In this chapter, the empirical findings of this report will be presented. The empirical data was derived from interviews with individuals from the municipality and non-profit organizations in Chicago. Detailed information about the respondents can be reviewed in Appendix 1. The chapter will begin with a short presentation the City of Chicago. Subsequently, findings concerning factors affecting work with sustainability, and factors affecting decision making in sustainability projects, will be presented. Categories have been compiled according to the empirical findings; hence, a level of analysis has also been carried out.*

### 4.1 Chicago

*In order to get a somewhat deeper understanding of the characteristics of the case study, Chicago, some facts about the city and sustainability initiatives are presented below.*

Chicago is located by Lake Michigan in Northwestern Illinois in the area of Cook County. It has a population of 2.9 million and is the third biggest city in the USA. Including the metropolitan area, the city has a population of 9.6 million and is home to many businesses and major financial centers (Siemens AG, 2011). Established in the early 19<sup>th</sup> century, alongside being subject to a windy and temperature shifting climate, the city is struggling with aging infrastructure and constraints of land use (Siemens AG, 2011). This constitutes considerable challenges for work with the environment. Nonetheless, the city leadership and citizens have demonstrated a commitment to long-term improvements consistent with sustainable development (Siemens AG, 2011). The last couple of years, Chicago has prioritized environmental issues, backed up by strong public support. Especially work in areas of green transport, energy and buildings have been particularly successful (Siemens AG, 2011).

The city government of Chicago is divided into two parts; the city Mayor is chief executive and the City Council is the legislative body (City of Chicago, 2014a). The Mayor is elected for a four year term with no time limits. The 50 City Council members are elected from the 50 wards or districts of the city, to serve a four year term, and are titled Aldermen (City of Chicago, 2014d). The Aldermen are authorized to exercise any power and perform any function pertaining to its government and affairs. This includes factors such as regulating public safety, city welfare and taxes (City of Chicago, 2014d).

## 4.2 Factors affecting work with sustainability

*The following subheadings are derived from the interview questions as well as the theoretical framework and depict the sustainability approach of the interviewees in general. All of the factors affecting work with sustainability compiled in the theoretical framework are, however, not discussed in this section, because they were answered by the interviewees in relation to decision making, thus, discussed in the next section. The factors that are treated in the next section instead, regard the long-term objective and the political environment.*

### 4.2.1 Understanding of Sustainability

Some of the respondents characterized sustainability according to the general definitions of the TBL and by not impairing the quality of life of future generations. According to Karen Weigert, Chief Sustainability Officer of Chicago, sustainability is *“thinking about the opportunities of today and tomorrow, and creating a great quality of life without impacting the quality of life of future generations”*. Rosemarie Andolino, Commissioner of the Department of Aviation, mentioned the Three Ps of sustainability and explained how Chicago as a whole has been a sustainability leader within the people and planet dimension, but not quite in the profit dimension. Despite this, Rosemarie Andolino emphasized the importance of realizing that the best choice may not always be the most economic one, but that investments in the other two areas can still help bringing down future costs overall, thereby, still achieving economic sustainability. Janet Attarian, Complete Streets Director at the Department of Transportation, stressed that sustainability takes a broad view and that sustainability concerns the environment, the economic aspect, livability of the city and having a good infrastructure. Furthermore, Melody Geraci, Deputy Director of Programs at the non-profit organization Active Transportation Alliance, believed that the TBL constitutes a good general point of view, but that there also needs to be a sustainability definition set from the individual organization or department’s point of view in order to make it possible to work with it practically. The various departments and organizations interviewed had department specific sustainability goals and definitions; creating a vibrant neighborhood, encourage less driving, connecting city centers and suburbs (the Metropolitan Planning Council), reducing carbon emissions (Department of Transportation), finding ways of conserving and use water more efficiently (Department of Water Management), allowing for public access to reliable information and empirical data (Department of Information and Technology) and the use of green fuels, hybrids and electric vehicles (Department of Fleet and Facility Management).

Interestingly, some of the respondents did not favor the term “sustainability” due to the worn out expression and the term being too complex and still not fully understood. *“We don’t agonize a whole lot over the definition”* stated Deborah Stone, Chief Sustainability Officer of Cook County, and explained how it instead entails working more efficiently by looking at what goals are already in place and trying to achieve them in a resourceful way. Other respondents considered words like being “healthy” and “resilient” more preferable. Ed Miller, Environment



Program Director at the charitable foundation the Joyce Foundation, approached his sustainability work with a targeted fashion depending on the project. However, he believed that sustainability implies thinking in longer terms than regulatory mechanisms.

Rosemarie Andolino further stressed the importance of embedding sustainability into every operation and activity, but, unfortunately, that is not the case at the moment. Chicago has pieces that are sustainable, but these are not fully integrated. Therefore, sustainability always has to be reinforced in the projects in order to become a key part of the operations, while focus can still be put on the core business. According to Suzanne Malec-McKenna, former Commissioner of the Department of Environment, the city needs to build awareness and understanding in order to make people aware of their role and what they can contribute with to create sustainability: *“Proportional effort, for proportional impact”* are guiding words that she stressed. Educating people about sustainability, therefore, becomes highly important. The respondents at the Department of Fleet and Facility Management further stated how external forces and stakeholders pressuring the department to become more sustainable can become a future challenge if the lack of understanding or practical difficulties with working with sustainability is not taken care of. Janet Attarian stressed the importance of having a holistic approach to sustainability in order to fully achieve it.

Also, Kathleen Dickhut, Deputy Commissioner of the Department of Planning and Development, emphasized incorporating sustainability into all aspects of what you do, but that it is not possible to try to do everything. Instead, you should focus on what you do best with the resources and opportunities you have. Collaboration and bringing experience and knowledge to a team in order to make the team work better, trusting each other and not having a big ego, were also put forward as important aspects when working with the understanding of sustainability.

In conclusion, the respondents had quite different views on what constitutes sustainability in general and what needs to be done in order to reach a sustainable Chicago. Many of the opinions were derived from, and solely focused on, the work of the individual department. Hence, far from everyone had a holistic approach to sustainability.

#### **4.2.2 Sustainable Society Governance: the Role of the Municipality**

All respondents had a unanimous view of the municipality's role concerning governance and decision making in Chicago relating to sustainable development; the municipality's role is important on many levels.

The process of moving toward sustainability can be facilitated if the municipality is involved, since they are very powerful and can contribute to implementing certain projects faster. Otherwise, the perception was that every project needs to start with building a power base with different people; a process that can be both costly and time consuming. Further on, Deborah

Stone, Chief Sustainability Officer of Cook County, emphasized the municipality's ability of impacting change through sharing of best practices and impacting regulations. Similarly, Janet Attarian, Complete Streets Director at the Department of Transportation, said that the municipality has to play an active role of making sure that codes are not preventing people from doing the things they want to do; they have to function as a catalyst. Many other respondents stressed the municipality's role as the initiator of projects, being the leader and leading by example. For example, Rosemarie Andolino, Commissioner of the Department of Aviation, explained that the *"government provides the necessary kind of beacon; providing direction, initiating projects and having a solid ground for innovation."*

At the Department of Fleet and Facility Management, the respondents had a corresponding view on the matter and shared the firm standpoint of the municipality having a major role in creating sustainability in Chicago: *"Without governmental involvement, sustainable efforts would lack the momentum needed to keep them moving forward"* (Walter West). It was further stressed that the reason for this derived from the fact that some projects are too big for profit driven businesses to take on by themselves and that businesses sometimes lack the capability to fast adapt to changes, such as changed rulings. Furthermore, the municipality is there for the long term, whilst businesses might have a limited life cycle.

Besides the evident factors of needing municipal involvement, Suzanne Malec-McKenna, former Commissioner of the Department of Environment, indicates that the municipality also has a greater likelihood of wanting to initiate projects that will give them publicity and visibility. The reason for this is to help them raise external awareness of the project. Generally, if it looks good for the Mayor, the municipality will participate since public acknowledgement of the leader is important.

### **4.2.3 Collaboration**

All respondents emphasized the fact that it is impossible to achieve a sustainable Chicago without the involvement of the government, however, it is also impossible to achieve it only through governmental involvement. The reason for this was found in factors of the municipality not having enough staff and capacity nor sufficient information and knowledge to do everything by themselves. They can only do a limited amount of work and are incapable of driving all projects. Instead, collaborations with other parties are necessary, in which the municipality should function as a catalyst. According to Deborah Stone, Chief Sustainability Officer of Cook County: *"Nobody expects the municipality to achieve sustainability by themselves."* Kathleen Dickhut, Deputy Commissioner of the Department of Planning and Development, stated: *"Anything social has to be collaborative, I don't know any other way you could do it"* and highlights how mere governmental involvement does not suffice in order to reach sustainability in Chicago. Irene Schild Caminer, Director of Legal Services at the Department of Water Management, believed that the *"government cannot be the hammer, you cannot legislate and*

*force people to do it*”, indicating that the whole community and its choices play an important role in achieving sustainability. Additionally, she stated that the work needs to be collaborative; including different departments of the municipality, customers, businesses and NGOs. For example, Karen Weigert, Chief Sustainability Officer of Chicago, exemplified how out of all buildings that produce emissions in Chicago, the city only owns 1%. Therefore, different sectors have to make a joint effort in order to reduce the overall emissions. This implies that social norming is very important in order to influence change; *“if the populist is not brought into what the government is doing, it can fail and it can be reserved”* said Melody Geraci, Deputy Director of Programs at the Active Transportation Alliance. Hence, bigger partnerships outside the government are needed in order to see through the entire city or country.

Kara Riggio at the Metropolitan Planning Council said: *“it is all about the stakeholders”* and how they as a non-profit organization have an important role of bringing relevant people together, such as different community groups, businesses, NGOs, students and school officials in order to gather as many voices and opinions as possible before making a decision. By pursuing pilot projects, test programs and do exhaustive research that can be looked upon as testing grounds, they can support the municipality in their decision making processes by sharing the results of these projects. In that sense, they want to look at themselves as being *“two steps ahead of the government”* (Kara Riggio). Collaboration is further a method of finding new solutions to a problem and a way of sharing best practices. Ed Miller, Environment Program Director at the Joyce Foundation, believed that it is essential for the municipality to have partners, especially with non-profit organizations, since these are better at innovation and usually have more knowledge. For example, businesses do not have an economic incentive to decrease energy use if electricity is cheap, but non-profit organizations are good at making compelling propositions to make businesses change their energy use thanks to innovative ideas.

Even though some collaboration may be challenging due to multifaceted opinions and objectives, many respondents emphasized the notion of educating partners about sustainability and its shared value for society. Along with proper education as well as providing opportunities to learn, comes the ability to trust and support others. According to Rosemarie Andolino, Commissioner of the Department of Aviation, raising awareness among contractors and partners is key. You have to *“tell the story”* in order to make all partners fully understand all aspects of sustainability. Rosemarie Andolino further described a method of motivating contractors to become more sustainable in their work. The department issued certificates to their contractors with a grading of *“green airplanes”* symbolizing the level of sustainability achievement in the contractor’s work. The contractor could thereafter use this prestigious document as an asset when bidding on new jobs and make them look like sustainability leaders within their area. Giving recognition and reinforcement to what leaders, decision makers and external partners do is highly important.

Finally, the extent to which parties recognize the importance of and willingness to engage in collaborations, as well as the active role a party takes in the collaboration relative to the other

parties, will conclude the collaboration's effectiveness and contribution to achieving the goal of sustainability. The municipality is incapable of doing everything themselves; therefore, collaboration is important.

#### **4.2.4 Financial Factors**

Many respondents mentioned how financial resources are a constant obstacle in order to pursue the desired projects. Prioritizing projects according to financial criteria is, thus, needed, even concerning objectives that may seem similarly essential to contribute to a sustainable Chicago. Financing costly projects becomes a risk if there is not sufficient information or data to measure the successfulness of a project, and it is, therefore, not possible to take on too financially uncertain projects. A common factor for sustainability projects in order to pursue them, is that you have to prove that the unit cost is lower than the unit cost for a "regular" project. Others said they used the payback rule for prioritizing what projects will be pursued. The latter was, for example, the case at the Department of Fleet and Facility Management, where all projects were based on cost analyses and being cost effective. Former Commissioner of the Department of Environment, Suzanne Malec-McKenna, stated that sustainability projects generally are regarded as more expensive than regular projects, but in reality they are not. This might be due to the belief that "new is scary", and you do not want to risk spending money on projects with unfamiliar outcomes.

The Chicago departments most often receive their funding from the government. Sometimes non-profit and philanthropic organizations, foundations or private funding can also help to finance certain sustainability projects. The non-profit organizations get their funding from different grants, partnerships or public events.

The financial factors were, therefore, found to be a great impediment to implementing sustainability projects. This could possibly have an impact on the quality of the implemented projects and how effective they will actually be taking the sustainability objective into account.

#### **4.2.5 Innovation and Technology**

Most respondents agreed on the importance of taking advantage of advances in technology. According to Suzanne Malec-McKenna, former Commissioner of the Department of Environment, the use of complex and intense technology is a distinguishing factor that differentiates sustainability projects from "regular" projects. She further emphasizes how it is vital to be able to change the way people have worked before and embrace new environmentally friendly technologies. Tim Grzesiakowski, Project Manager at the Metropolitan Planning Council, exemplifies how technology can be used to reduce gas emissions from transportation, and the respondents at the Department of Fleet and Facility Management, also described how technology is important in energy efficiency projects.

Tom Schenk and Sean Thornton at the Department of Innovation and Technology truly emphasized the importance of how to use innovation and technology in order to advance other sustainability work's causes. By creating an Open Data portal, large amounts of data and information are shared with the users, and citizens can explore the data in order to get the information they need. Working with platforms like this also creates possibilities of collaboration, partnership and sharing of knowledge in new and effective ways. Tom Schenk, Chief Data Officer and Director of Analytics, further explained how the dynamics of technology and innovation can fast make projects obsolete. Having close relations with developers and building modular types of technology to enable easy changing of the parts will help you "*never working yourself into a corner*" (Tom Schenk). Small projects should be used as "hooks" that can be reincorporated in new upcoming projects.

Deputy Commissioner of the Department of Planning and Development, Kathleen Dickhut, stated that they are always on the lookout for new types of useful technology and have focus on continuously training the personnel on how to use it properly in order to achieve the goals more efficiently. Alongside with access to good data and information, technology is a critical factor that is used to back up the objectives of decisions, as explained by the respondents at the Department of Water Management.

Rosemarie Andolino, Commissioner of the Department of Aviation, said: "*Efficiency can have a sustainable component to it too*" and that they are always looking for new types of technology that can add value to the processes. For example, a new technology for processing people faster at the airport saved time for the passengers (social dimension), gave more capacity to receive more people (economic dimension), and the amount of paper documents was reduced thanks to the use of computers (environment dimension). Hence one type of technology can contribute to all three dimensions of the TBL.

#### **4.2.6 Branding**

Marketing of projects can, in some aspects, be important in order to leverage new investments and get the needed funding. The respondents stated that if the municipality can prove an initiative out and communicate it, citizens and partners will become more aware of it and, hopefully, bring the project more economic effectiveness. However, many respondents emphasized the financial constraint at the departments, hence, lacking resources to do the necessary or desired marketing and branding in order to compete with other parties. Instead, having partners outside the government is essential.

Generally, all respondents explained how they are constantly on the lookout for new projects and technologies to use as inspiration. Looking for best and worst practices in other cities in different sectors, both nationally and internationally, can, therefore, be a good method of gaining

knowledge and inspiration, since all cities have their strengths and weaknesses. Meeting with other people and organizations in other cities to share knowledge, e.g. by going to conferences, was much appreciated by the respondents and useful. The interviewees at the Department of Innovation and Technology mentioned the importance of looking for best practices relating to innovation and technology due to the dynamics of the areas where changes and development can happen very fast, and you do not want to risk being left behind in development. Further, by realizing the different characteristics of cities, e.g. climate, the projects may require modification in order to get adapted to the setting. Naturally, limitations also have to be drawn of what kinds of projects can be copied.

Kathleen Dickhut, Deputy Commissioner of the Department of Planning and Development, emphasized how it is still very important to focus on existing know-how and what facilities, infrastructure and resources are accessible and make the best of it. Retrofitting the city to mimic best practices from other cities, adapted to the Chicago setting, can in many cases be very successful instead of implementing a whole new and costly project. Further on, Janet Attarian, Complete Streets Director at the Department of Transportation, mentioned that many of the projects she had initiated made Chicago a role model for other cities. The reason for the success of those projects was due to the fact that many projects started out as pilots, which in turn convinced people that they worked and they became institutionalized.

Some of the respondents mentioned how they sometimes were affected by certain sustainability trends and how there might be a desire to imitate those, or even create their own, due to the attention attained from them. By using these institutionalized ideas, the projects and departments will gain legitimacy. For example, Chicago is renowned for their green roofs, consisting of planting plants and grass on the city buildings' roof tops to regulate the buildings' temperature, collect storm water and add greenery to the city skyline. However, these roof tops do not have a significant positive impact on the environment, and it is possible to draw the conclusion that the green roofs are mostly a visual effect in order to gain visibility in media. Furthermore, the respondents at the Department of Water Management talked about recent trends in storm water treatment and infrastructure. It can sometimes become a catch-up game of who can build the fastest and best solutions. However, they also emphasized how there needs to be a holistic approach in what projects will be pursued in order to make the solutions fit the existing systems and benefit future generations. Rosemarie Andolino, Commissioner of the Department of Aviation, mentioned a trend of incorporating landscaping and a more natural environment at the airport to make it more beautiful and appealing to the travelers and employees. Also, they utilize a special type of grass that does not grow too fast. This limits the need for mowing and watering which makes it both innovative and climate smart. Different grazing animals are used to keep the grass and plants maintained and are often seen on the cover of the department's brochures for marketing.

Conclusively, the respondents clearly emphasized the importance of their sustainability projects being recognized by external parties. This implies that they are concerned with how other parties perceive their projects in order to highlight the competitiveness of the city, and how they can serve as a role model for other cities. The comparison with other cities is further a mean of enhancing the identity and visibility of the city and a mean to get inspiration for new sustainability projects.

#### **4.2.7 Dimensions of TBL**

All respondents were familiar with the three dimensions of the TBL; the economic, social and environmental dimension and recognized that these are all part of achieving a sustainable development in Chicago. Despite this belief and attempt to take all dimensions into consideration, it was found that the dimensions were actually assigned unequal importance in practice, and the economic objective was considered the most important. What dimension received the most focus depended on the characteristics of the individual projects. Generally, larger and long-term projects tended to incorporate more dimensions of the TBL than smaller projects did.

In line with character of his work, Tim Grzesiakowski, Project Manager at the Metropolitan Planning Council, ranked the three dimensions of the TBL as the economic dimension being the most important, the environmental dimension in the middle and the social dimension being least important. Also, the respondents at the Department of Water Management emphasized the economic dimension as the most important and that it was accounted for in relation to the value the project provides to the citizens. *“If you pursue a project that doesn’t make economic sense, you’re not likely to meet your objective”* stated Ed Miller, Environment Program Director at the Joyce Foundation. Ed Miller explains that cost effectiveness and community support are measures that always have to be taken into consideration, apart from the environmental objective that generally is the objective at the Joyce Foundation. Deborah Stone, Chief Sustainability Officer of Cook County, also put most emphasis on the financial dimension due to the financial constraints of the County and the fact that economic impact is easier to work with and easier for others to understand. Subsequently, she explains, they search for whether there is a willingness to think about the environment. Hence, making economic sense was generally defined as the starting point before pursuing a project. This was further confirmed in statements related to how the payback rule was most often used as a measurement when prioritizing projects. Also, Rosemarie Andolino, Commissioner of the Department of Aviation, stated that as long as you are not confronted with delays or budget constraints, the greenest alternative should be chosen to work with in order to bring the most sustainable alternative to the market. Even so, also here, the economic dimension had priority.

However, Kathleen Dickhut, Deputy Commissioner of the Department of Planning and Development, had a slightly different opinion and said that the economic factor is not the

primary factor to consider as such, since the return of investments can come in many different forms; for example, in the form of increased property values instead of direct financial payback. Kathleen Dickhut further explained that: *“The economic impact is more on a broad level, not on an individual entity”*. However, the general findings from the empirics conclude that the interrelation of the TBL dimensions was not fully understood nor practiced in reality.

#### **4.2.8 Changing Demographics**

Factors of the external environment always need to be taken into consideration. Kathleen Dickhut, Deputy Commissioner of the Department of Planning and Development, certainly believes that changing demographics will have an impact on the department’s decision making, but is not quite sure in what way. Many respondents stated that Chicago is not experiencing an increase in population; rather they experience a population decline. Janet Attarian, Complete Streets Director at the Department of Transportation, said that the population decline makes it difficult to know what the next step will be, and it becomes difficult to compete with other cities in the USA. However, she and some other respondents mentioned that the demographic structure is changing, for example, more Latin Americans are moving into Chicago.

Changing norms also come as a consequence of changing demographics. For example, Melody Geraci at the Active Transportation Alliance discussed how demographic trends affect their work. For example, today, the environmental aspect is the motive for bicycling; previously, they worked with making bicycling an accepted part of the Chicago culture. Further, many young people are forecasted to move to the city center. If they do not own cars, decisions have to be made about how to develop public transportation.

Aaron Koch and Irene Schild Caminer at the Department of Water Management stressed the importance of a firm focus on future generations and to be prepared for an increased number of residents in Chicago. Large economic investments, such as building the Water Treatment Plant, therefore, need to have a holistic point of view and consider future changes. Hence, they have built-in additional capacity into the system in order to handle any increase in population. Making proper forecasts and gathering information about how the demographics are changing should, therefore, be an important aspect of work with sustainability, but was not found to have a large impact on sustainability decision making in Chicago.



### **4.3 Factors Affecting Sustainability Decision Making**

*The following subheadings are not aligned with those compiled in the theoretical framework since there is no integrated theory on sustainability decision making. Thus, the following sections combine aspects from both “factors affecting decision making” and “factors affecting work with sustainability” in order to depict how the interviewees work with sustainability decision making in Chicago. Almost all sections have subheadings that are completely new and derived from the empirical findings with regard to their perceived importance, but nonetheless, incorporate all theoretical factors.*

#### **4.3.1 The Decision Making Process**

The majority of the different respondents did not have a specified decision making process. It is often regarded as very time consuming and costly to categorically go through all the different steps of the process. The most important aspect was to be able to sell in the projects to the Aldermen and prove that the cost per unit is lower than other “regular” projects in order to receive funding. Often, the process of decision making could be shortened significantly by using personal intuition if there was a time constraint. Also, relying on personal intuition was easier if the leadership was supportive. Almost all interviewees said that there is room for personal intuition since it is often based on past experience, and those that could rely on their intuition the most were the individuals with the most authority.

Many of the respondents had, however, some sort of guidelines of how to make decisions. The Department of Planning and Development had guiding principles, the Active Transportation Alliance had a strategic plan that they had to follow, the Chief Sustainability Officer of Cook County had a baseline that was followed, the Department of Aviation had a Sustainable Airport Manual that functioned as a guideline and the Chief Sustainability Officer of Chicago used the Mayor’s sustainability goals as a road map. All of the interviewees said that prioritizing is of essence. This was even stated by those departments and organizations that did not specifically mention that they followed some specific plan or guidelines. Decision making is often about breaking down the significant decisions into tangible pieces, and the projects will be prioritized according to their financial goals or other constraints.

All projects have to be carefully evaluated and having access to information is extremely important in order to make a decision. This was found to be an issue at many of the departments. For example, when the Department of Innovation and Technology does not have access to complete data, they simply make decisions according to their financial constraint, since a decision still has to be made. The Chief Sustainability Officer of Cook County, Deborah Stone, said that “*it is still better to do something than to do absolutely nothing, it’s more sensible*” regarding the issue of lack of data. However, at the Department of Fleet and Facility Management, the decisions were almost always based on the payback period and prioritized thereafter. They also believed that it is better to implement the goal, rather than emphasizing

going through a detailed process. Additionally, the former Commissioner of the Department of Environment, Suzanne Malec-McKenna, said that the best decisions happen through people partnering, but that they sometimes have to exclude certain people due to the natural complexity of many wills.

The Department of Transportation was one of the departments that actually stood out and did in fact have a decision making process. They developed a notebook that was currently being implemented at the department in order to make people do the right thing. There were in total three documents that everyone had to follow, and they made up the common spine for the decision making process. It made the process more digestible, and it also explained all of the steps in order to implement a project and make a decision. It is a comprehensive document and helps everyone to understand what they have to do, and most importantly; it eliminates all unnecessary steps. The implementation of the process has been difficult, but some projects have led to institutional change. The most important steps of the process are: to evaluate the alternatives and consider alternatives that would usually not be relevant, the chain of custody and monitoring in order to get performance metrics. Furthermore, although not as systematic, the Department of Water Management also had an internal decision making process. In order to set the objectives, this department talked to the other departments in the city and took them and their needs into consideration and got information of how to implement certain projects.

Conclusively, the empirical findings show that most often decision makers do not have a specified decision making process and, thus, rely on their personal intuition to a great extent. Using their intuition was also motivated by the great lack of information and time. Furthermore, the legal environment was proven to have great impact on the projects initiated, since the approval of the Aldermen was needed.

#### **4.3.2 Sustainability Project versus a “Regular” Project**

Most interviewees believed that there is no difference between a sustainability project and a regular project, some even objected to the idea and said that there is no such thing as a sustainability project. Deborah Stone, Chief Sustainability Officer of Cook County, added that *“if sustainability is a project, you’ll never get to it”*, and if you treat it as a special project, it is going to be abandoned as soon as there is a budget cut. Janet Attarian, Complete Streets Director at the Department of Transportation, further explained that there are only sustainable projects and not sustainability projects: *“It’s a mindset. You shouldn’t label it. You simply do a project that is sustainable”*. The Chief Sustainability Officer of Chicago, Karen Weigert, had a similar point of view: *“it might be a different content area and different regulation, but it’s all for the benefit of the residents”*.

The interviewees’ belief that sustainability is not a separate project, but an integrated part of every project, does not seem to hold. Many interviewees still mentioned that sustainability

projects are regarded as more expensive, where you have to prove that the unit cost is lower than a regular project and that the technology is more complex and intense; therefore, education becomes an important aspect of sustainability projects. According to Janet Attarian, projects that are sustainable require justification; new projects are closely scrutinized by others, therefore, you have to take risks and initiate the projects in order to get the data needed to convince people. Kathleen Dickhut, Deputy Commissioner of the Department of Planning and Development, said that the decision making process will differ depending on whether the project is of “regular” or “sustainable” character. Kathleen Dickhut further stated that the regular project will solely look at one aspect, most commonly the financial one, whilst a sustainability project will focus on all components of the TBL and its impact on all levels. It, therefore, becomes more complex and the decision making process differs, since the amount of information, research and decisions increase. The respondents at the Department of Fleet and Facility Management also stated that they tend to have a less formalized implementation process regarding sustainability projects and that they might need more scrutiny, as do everything that involves new technology. Rosemarie Andolino, Commissioner of the Department of Aviation, corroborates this conclusion and stated that sustainability should be embedded everywhere, and the decision making should be the same regarding all projects, but this is not the case right now.

On the other hand, Melody Geraci, Deputy Director of Programs at the Active Transportation Alliance, and the respondents at the Department of Innovation and Technology, did actually immediately state that the decision process between a “regular project” and a “sustainability project” differs. Sustainability is regarded as a separate project, or an “add-on”, instead of being a part of ongoing operations and “*does not require that day-to-day cuddle.*” (Tom Schenk). This means that sustainability projects do not carry the same weight as regular projects.

In conclusion, although the interviewees seemed to object to the idea that sustainability is a project, the empirical findings show that it actually was a separate project. Sustainability projects were found to require more information in order to gain credibility and they were also more closely scrutinized than other projects. Moreover, the decision process was found to be more complex in sustainability projects. Thus, the integration of the sustainability projects into the entire system failed.

#### **4.3.3 Short-Term versus Long-Term Objectives**

The majority of the respondents did believe that there was a difference in decision making between short-term and long-term projects. The political aspect seemed to have a large impact on how the decisions were made; politicians do not always have time to work long term and look at the short-term aspect instead due to the fact that they are only elected for four years and want to see immediate impact of their work. Both Suzanne Malec-McKenna, former Commissioner of the Department of Environment, and Deborah Stone, Chief Sustainability Officer of Cook County, stated that what project will be pursued will depend on how much money the elected

officials are willing to spend on a project and how much risk they are willing to take. Usually, decisions are embedded in the long-term objective.

The respondents at the Metropolitan Planning Council stated that starting with very small projects as test objects for new types of projects is a safe way of seeing what might work on a bigger scale and does not have to be costly. This method facilitates fast seen results and makes it easier to convince investors. Long-term projects, on the other hand, are usually bigger and put more emphasis on finding the right funding. The common way of thinking is that most projects are for the long term, even the smaller ones. Respondents at the Department of Water Management, the Department of Innovation and Technology, the Department of Transportation, the Department of Aviation and the Joyce Foundation all believed that all small projects should be regarded as milestones in order to reach the long-term objective; “*it has to be a transition process*” (Janet Attarian, Complete Streets Director at the Department of Transportation).

Many interviewees mentioned that the difference in decision making between short-term and long-term projects is that short-term projects often mean small-scale projects, and long-term projects often mean large-scale projects. Melody Geraci, Program Director at the Active Transportation Alliance, also stated that short-term projects have to be smart, realistic, achievable and time-bound, whereas long-term projects are more aspirational. At the Department of Innovation and Technology, it is believed that long-term projects do not need daily attention and, hence, allow for other projects to be pursued in the meantime. The Department of Water Management are supplying water and, consequently, always need to be far ahead and have a long-term thinking and foresight about what will have to be done in the future. The Department of Innovation and Technology also stated that an important difference between short-term and long-term projects is that for long-term projects, the objective is often broader and the decision making processes becomes longer and it is for the future. However, in smaller projects, the decision making is more about reaching the objective fast and not look as much for other alternatives or put too much time on it.

Ed Miller, Environment Program Director at the Joyce Foundation, stated that when the decision regards a short-term project they look at the impact per dollar and the environmental objective becomes less important. Rosemarie Andolino, Commissioner at the Department of Aviation, also stated that short-term projects might not take sustainability into consideration, while long-term projects take the investment and sustainability into consideration. The respondents at the Department of Fleet and Facility Management further stated that everything they do is basically long term, however, they only look at the cost-effectiveness and payback period of a project, which does not seem to be in line with what should be taken into consideration in a long-term project, with regard to the other respondents perception on the matter.

Karen Weigert, Chief Sustainability Officer of Chicago, believed that the reasoning does not differ between short-term and long-term projects. It is the same kind of thinking: What are you

trying to do? How are you going to do it? Who do you need to engage? How do you make sure it works? How are you going to measure it? Also, some things naturally take longer than others, for example, installing a bus stop compared to changing the water mains.

Conclusively, it was found that there is a difference in reasoning between short-term and long-term projects; short-term projects are prevalent due to the political environment and also because they produce quick results. However, short-term projects did not seem to have sustainability as their top priority, but were often regarded as part of a long-term sustainability objective.

#### **4.3.4 Information**

Almost all respondents thought that gathering information in order to evaluate different alternatives when making decisions was incredibly important, and almost all of them identified lack of information as a problem, except for the respondents at the Department of Innovation and Technology. Many of the interviewees compared themselves to other cities in order to retrieve information, but the information from other cities had to be adapted to Chicago's setting. Suzanne Malec-McKenna, former Commissioner of the Department of Environment, said that doing research about what has been successful elsewhere reduces the risk and uncertainty, and they usually do not want to take risks, unless it is certain that the project will have a large impact. The respondents at the Metropolitan Planning Council and the Department of Transportation believed that by initiating small-scale projects and pilots, where there is lack of information, was a very good way of reducing uncertainty. Some also mentioned how collaboration and taking other departments into consideration was a good way of getting access to additional information.

Almost everyone gathered information themselves or hired consultants to do it for them. The interviewees at the Department of Planning and Development stressed the importance of having good information when making decisions, especially decisions regarding sustainability which require more information. Building their own databases and making them public was also considered a useful tool when making decisions. However, lack of information was a major problem at the Department of Transportation, the Department of Fleet and Facility Management, the Department of Water Management and especially for Deborah Stone, Chief Sustainability Officer of Cook County. Deborah Stone said that even if they would have access to a lot of data, there was still not enough time to analyze it all.

Many of the interviewees seemed to collect information in order to make decisions, but they were not good at monitoring their projects once implemented and measuring the results. At the Department of Transportation this seemed to be a significant issue, especially since sustainability projects are more difficult to measure, including finding the right parameters of measurement. For example, Kathleen Dickhut, Deputy Commissioner of the Department of Planning and Development and Deborah Stone, often did not even have access to the actual numbers. Deborah Stone said that they did not have a database where information could be easily retrieved and

analyzed; instead everything was kept in files and the utility bills were estimated because there were no meters for all individual buildings.

Unfortunately, many of the departments let other consultants monitor the projects once they were implemented in order to collect data. Although this might be very convenient, it makes it difficult to learn from experience and understand why things go wrong. Rosemarie Andolino, Commissioner of the Department of Aviation, stated that it is important to do research and employ people internally, it is a way of empowering the employees, and also “*through failure we will achieve success as long as we learn from our mistakes*”; which means that learning through trial and error is very important.

Finally, information deficiency was found to be a great problem, and benchmarking other cities was one way to decrease the lack of information. Sustainability projects were found to require more information, and learning from experience was not possible since measurement and collection of data regarding the implemented projects was not conducted. Even if there was enough information available, there were no appropriate tools to analyze it.

#### **4.3.5 History, Political and Legal Environment**

Suzanne Malec-McKenna, former Commissioner of the Department of Environment, said that decision making is affected by historical factors, especially the negatives of history and not the positives, and the Mayor and the Aldermen elected are of crucial importance regarding what projects are going to be initiated. Every interviewee mentioned the importance of the Mayor, since he is representing the residents that elected him; his goals are what ultimately will matter the most. Kathleen Dickhut, Deputy Commissioner of the Department of Planning and Development stressed that “*you cannot discount the politics*”. A strong, vocal and passionate Mayor will make things happen, and it is the department’s job to make the Mayor’s decisions into regulations, policies and projects.

There is legislation on a national, state and local level. Most of the respondents believed that national legislation is very weak; many regulations are passed but never actually enforced and, hence, ineffective. The USEPA (the United States Environmental Protection Agency), which monitors air quality and brownfield contamination, was mentioned by several of the interviewees. What rules and legislation that need to be complied with depends on the specific department. The Chief Sustainability Officer of Chicago, Karen Weigert, and the Chief Sustainability Officer of Cook County, Deborah Stone, said that most regulations concern air pollution, but there is not much concerning the use of building materials and energy. There are state laws, which tend to be more restrictive, but the state is not very active in monitoring what local governments should do. Elizabeth Scanlan, Director of Code Development at the Department of Buildings, stressed that an issue with current legislation is that some old codes are

in conflict with the new ones; this creates a lot of obstacles because codes are difficult to influence.

However, the departments and organizations interviewed do not sit around and do nothing; many of them try to influence current legislation if possible. Janet Attarian, Complete Streets Director at the Department of Transportation, has been very active in trying to affect legislation; for example, the USEPA has a ruling that you cannot have a water green infrastructure within 15 feet of a water bunk, but she did not understand why, so she talked to the USEPA, and they provided her with a written interpretation. Chicago is very aggressive in trying to change legislation. Additionally, the interviewees at the Department of Water Management stated that since water is about the local objectives and settings, it cannot be regulated on a national level, since Washington does not understand the local level and does not have the necessary data. However, both the Department of Water Management and the Department of Aviation said that the Mayor is closely connected to Washington; therefore, it becomes easier to express Chicago's concerns and ideas. The Joyce Foundation, the Metropolitan Planning Council and Active Transportation Alliance also try to support groups that try to influence guidelines and regulations because it will indirectly help them to increase investments if the regulation change benefits them and, hence, increase sustainability. Nevertheless, the regulators seem to be very passive and should be more involved in the implementation of projects and give advice to the municipality.

A historical factor that affects many of the departments' decisions is mainly the infrastructure already in place. The Department of Water Management's work revolves a lot around changing the current water mains. Preserving the lakefront is also a historical factor that is highly relevant for Chicago. Janet Attarian, also said that the decision making is affected by the city's motto "city in the green" in order to beautify the city and make public space more appealing. The changing weather and the city's old age also affect decision making.

In conclusion, the political environment was found to have great impact on what projects that were going to be initiated. Further on, the legal environment was not up to date, and old codes were in conflict with new codes, which could create obstacles for the decision makers. Some of the projects initiated were also affected by history and the current setting of Chicago.

### **4.3 Summary of Empirical Findings**

The empirical findings have first portrayed the interviewees' general perception of what sustainability is, and second, what factors affect their decision making process in sustainability projects. The most important aspects of the empirical findings, which will be further discussed in the analysis, will be those factors that stood out in the empirics as factors affecting decision making in sustainability projects, but were still aligned with, or opposite of, the theoretical framework.

The lack of understanding of sustainability and the TBL shows that a holistic approach was not undertaken and the interrelations of the dimensions of the TBL were not fully understood. The role of the municipality and branding shows that projects will be initiated in order for the city to gain visibility. Furthermore, it was found that the municipality could not achieve sustainability on their own and, hence, collaboration was essential. Technology was found to be a factor distinguishing sustainability projects from regular projects, and sometimes it was hindered by legislation. Financial factors were found to be a great impediment to the initiation of sustainability projects and, thus, affecting the quality of the project and how effectively the sustainability objective would be taken into consideration. The demographical change in Chicago was found to be non-existent and, thus, not affecting the decision making in sustainability projects.

The decision making process was not found to be as well defined as theory suggests; thus, the way the decision makers really cope with decisions was retrieved. The Mayor was found to have greater importance and influence in sustainability projects than anticipated and, therefore, restricting individual thinking at the departments. Short-term thinking was shown to be prevalent because of the political environment and beneficial short pilots; however, they were found to often be a part of a long-term goal. Information was found to be an essential aspect of decision making, often distinguishing a sustainability project from a regular project, since sustainability projects often use intense technology and, hence, require more information. Furthermore, collecting information and results once the project was implemented and successful, helped giving the sustainability project credibility and making it institutionalized. Additionally, there was great shortage of information, and one way to decrease the information deficiency was comparison to other cities, i.e. benchmarking. Another way to cope with information deficiency, and an integral part of the decision making process, was relying on personal intuition.



## 5 ANALYSIS AND DISCUSSION

---

*In this chapter, important factors found in the empirical findings will be discussed in a manner that integrates the theory of sustainability and the theory of decision making. This will be done by developing new headings. Subsequently, a factor that was not found to have an impact on sustainability decision making will also be mentioned. Finally, a new developed framework will be presented.*

### 5.1 Factors Affecting Decision Making in Sustainability Initiatives

*The following subheadings were developed from the empirical findings. These new headings and factors were constructed in order to develop a new framework that integrates sustainability and decision making theory into sustainability decision making, thus, moving from the division made in the presentation of the empirical findings where many of the sections contained overlapping factors. The new headings take the interrelation of both sustainability factors and decision making factors into account; hence, all information retrieved in the empirics is emphasized with regard to the discussed factors in the summary of the empirical findings and the integration of the two theories.*

#### 5.1.1 Decision Making Process in Sustainability Projects

Decision making theory has been highly researched and multifaceted models of how decisions are made have been developed. Harrison (1996) discusses how decisions should be regarded as processes consisting of certain parts, and not separate steps, which creates synergies. March (1994), who is one of the most prominent authors within the theory of decision making, further developed the concept of decision making with limited rationality, where the decision maker is exposed to certain limitations that prevent him from making optimal decisions. The empirical findings clearly reveal that it is a rarity for a department in the City of Chicago or non-profit organization to have a specified decision making process. The respondents could in retrospect say that certain actions had been undertaken in order to make a decision, but no one except for one respondent could actually explain the decision making process that they used. This entails that the theory behind decision making as a specified process is not aligned with the empirical findings. Many of the respondents used, however, some kind of guidelines, or a strategic plan, which worked as a road map to achieve the goals at the department or organization on a broad level. Furthermore, prioritizing between different decisions in order to achieve the strategic goal was found to be of great importance.

March (1994) discussed four limitations that decision makers face: problems of attention, problems of memory, problems of comprehension and problems of communication. The first limitation regards the fact that decision makers are exposed to a time constraint and cannot give

their full attention to every project that they do. The empirical findings show that most of the interviewees in the City of Chicago were under a time constraint; many even said that they take on too many projects than they could actually handle, which is in line with theory. The second limitation relates to the fact that decision makers and organizations are incapable of storing large amounts of information and retrieving this information correctly. Evidence for this limitation could also be found in the empirics; the Chief Sustainability Officer of Cook County particularly stated that there was no database and, thus, analyses could not be performed. The third problem concerns decision makers' incapability of organizing all the information they are presented with, forming conclusions about it and seeing different patterns. The empirical findings do not strongly corroborate this limitation, but some respondents stated that many projects had not been monitored once implemented; thus, the results of the decisions made could not be evaluated. Finally, the fourth limitation regards the organizations' difficulty to share information, mainly due to the division of labor, which does not facilitate an easy way to distribute knowledge. Some of the departments and organizations interviewed displayed that this limitation was not present. However, there are different levels of communication; the interviewees were very good at making their information available to the public on a broad level and sharing their institutionalized ideas with other cities, and it was not found to be a major issue on the organizational level either.

March (1994) further discusses different coping mechanisms that decision makers use in order to handle information constraints. Decision makers are believed to develop different strategies to organize and analyze incomplete information, these are: editing, decomposition, heuristics and framing. Editing could be found in the empirics; many of the respondents used, as earlier mentioned, some kind of strategic plan or guidelines to make decisions, which is clear evidence that they simplified the decision process. Decomposition, which means that the decision is broken down into small pieces, was also found in the empirics. The Metropolitan Planning Council specifically stated that large goals were broken down into tangible pieces in order to make decisions, and other respondents also stated that many long-term projects consisted of many short-term projects. Further on, heuristics which are particular rules of thumb were found to be used to a great extent in the empirics. Many of the interviewees stated that they used techniques like, for example, the payback rule which is not an appropriate evaluation method according to financial theory. Framing also had a great impact on the decisions in Chicago; many of the respondents chose to pursue certain projects because of the specific setting the decision was under; if the water mains in Chicago were not functioning well, the focus was to replace those and not on reducing water consumption. Further on, according to March (1994) and Juliusson et al. (2005) many decision makers develop stereotypes when making decisions, this entails that some information is ignored or overlooked if it does not have similar traits as their stereotypes. The decision makers seem, thus, to adhere to memories of similar situations and are influenced by past experience. The empirical findings are aligned with theory; some of the respondents clearly stated that they often made decisions in the same way as before because it had previously worked.

Conclusively, the empirical findings clearly show that there is no defined decision process, but that many of the respondents portrayed many of the characteristics of decision making with bounded rationality. This means that decision making actually looks more like the Garbage Can Model developed by Cohen, March and Olsen in 1997. There are streams of choices, problems, solutions and participants. These will be linked to each other through temporal sorting, meaning that different solutions to different issues will be related to each other because of their temporal proximity and the organization will be characterized as an organized anarchy. Many of the respondents stated that many of the projects that are initiated are those that solve current issues and are easily available, not considering the long-term aspect to a larger extent. The definition of organized anarchies states that the preferences are not clear, which is in line with the other empirical findings that there is no clear definition of sustainability. Second, the technology is unclear meaning that there is no defined decision process, and they learn by trial-and-error and past experience, which has already been concluded. Also, Commissioner Andolino specifically used those words to describe how they work. Finally, the process is fluid, meaning that the decision maker cannot give all decisions his full attention, which has also already been concluded. Therefore, the empirical findings seem to be aligned with the Garbage Can Model.

### **5.1.2 The Importance of the Mayor in Sustainability Projects**

One of the most significant findings in the empirics concerned the role of the Mayor in the City of Chicago. The current Mayor was spoken about in a positive manner by the interviewees, and almost everyone mentioned the Mayor's goals of achieving Sustainable Chicago 2015. Joss (2011b) describes six different factors that can drive sustainable development in a city. One of these discusses the political leadership and how the vision of a sustainable city is translated into a tangible plan and how the implementation requires political coordination and leadership. Joss (2011b) further discusses that sustainable development can constitute a signature project of a Mayor or simply be a project decided upon by a national government. The empirical findings are aligned with theory in this aspect; Chicago's former Mayor was very passionate about making Chicago the city with the most square feet of green roofs, which he succeeded in. It did not have a large positive environmental impact, and the resources could be spent more effectively, but it made Chicago, and the Mayor, visible and recognized. The current Mayor has also implemented a tangible plan of how to achieve a sustainable Chicago, which is also in line with theory. Many of the respondents agreed that the municipality should have the role of a catalyst.

The current Mayor thinks sustainability is important, but does perhaps not have it as his top priority. Nonetheless, many of the respondents often said that they initiated certain projects because the Mayor asked them to, or it was automatically retrieved from the Mayor's 24 sustainability goals and 100 actions. Doppelt (2003) discusses seven sustainability blunders that may cause ineffective work with sustainability if they are not handled correctly. One of these is patriarchal thinking that leads to a false sense of security. This blunder implies that a patriarchal approach to governance is used and gives the sense of the government being an ultimate expert

who holds all information. This will undermine people's personal responsibility and accountability. The empirical findings show evidence of this; many respondents did not seem to think independently and merely implemented what they were asked to do. The non-profit organizations were, however, more creative and independent from the Mayor and the municipality.

Haughton and Hunter (1994) discuss guiding principles that are needed in the governance of a sustainable city. One of these principles is the principle of subsidiarity; it advocates the decentralization of power and responsibility to the lowest feasible appropriate level. Haughton and Hunter (1994) further state that one must also embrace all types of internal variations within a city "rather than suppress them in the name of some grand masterplan for the cities" (p.121). Aho's (2013) research has similar conclusions to the one of Haughton and Hunter and emphasizes that the empowerment of professionals to act according to the long-term goals and give incentives to provide long-term service levels and performance is important. Moreover, Joss (2011a) emphasizes how innovation in governance is a defining feature of the development of a sustainable city. The empirical findings are not aligned with these aspects of theory. The Mayor has such an influential role in the city's projects and does not motivate the governmental employees on lower levels. Thus, it can be concluded that the city needs greater decentralization of power in order to achieve good decision making regarding sustainability projects. Innovation in governance is important, and the individual departments should be able to set their own goals and be able to pursue them. Subsequently, by individual thinking and having accountability, the departments will be able to have an holistic approach in order to achieve the bigger sustainability goals.

### **5.1.3 The Understanding of Sustainability in Sustainability Projects**

According to theory, there is still no unanimous definition of sustainability and sustainable development (Boyle et al., 2013). Many efforts have been made to come up with different definition suggestions and examples; however, resulting in a variety of different proposals put forward that touch on different areas of sustainability. Nonetheless, concepts such as the dimensions of the TBL and thinking of the living conditions of future generations are well-known, as discovered and showed in the empirical findings. In some cases, the findings revealed that the dimensions of achieving economic, social and environmental sustainability were recognized and taken into consideration when attempting to create a general understanding of sustainability. Likewise, the implication of future generations' living conditions was also considered. This was mostly understood and emphasized by respondents already having a great insight about sustainability and capacity to influence others, e.g. the Chief Sustainability Officer of Chicago and Commissioners of the Chicago departments.

Theory also stresses the importance of having a clear understanding, vision and principle of how to act in order to reach sustainability (Doppelt, 2003). This must pervade all individuals and

levels of the organization. Doppelt (2003) further elaborates on how the availability of good information and understanding of the cause and effect related to a problem is essential. In relation to this, the empirical findings revealed that the descriptions of the TBL, how to account for future generations etc. in many cases were considered too loose, wide and complex to work with on a practical level. Therefore, some of the separate departments and organizations had developed definitions and objectives themselves in cohesion with the function of the department or organization. They, therefore, focused on different definitions and objectives of sustainability respectively. The joint achievement of city sustainability through separately focused department definitions and objectives could, thereby, be a factor needed in order to fully achieve the sustainable development at city level. Solely having very general and unspecified visions set by city visionaries is not enough if there is no clear cut definition and approach of how to get there. This implies that the blunder of patriarchal thinking, described by Doppelt (2003), has been, yet again, recognized.

Further on, in cohesion with theory, the empirical findings declared how having a holistic approach to sustainability (Suzuki et al., 2010) and to the concept of a city (Haughton & Hunter, 1994), is a key factor in order to achieve sustainable development. Everyone involved needs to be fully aware of their impact on sustainability, and sustainability should be embedded in all types of activities, hence, not be seen as something external and additional to the everyday activities. Proper and continuous education of the internal personnel was, therefore, stressed in the empirical findings, as was sharing of knowledge and experiences in order to contribute to the understanding of sustainability. This was, therefore, in cohesion with the research by Doppelt (2003), as well as Haughton and Hunter (1994), who emphasized the importance of learning and providing means of education. In addition, the holistic approach of theory implies taking the whole society into account including both central parts of the city and the suburban areas (Desai, 2010). They all constitute factors of the local environment, hence, all affecting how the sustainable development is carried out. This notion was also derived from the empirical findings. For example, if bus rapid transit is initiated in the city center, but does not reach suburban areas, the suburban residents will still use their cars to drive to the city center, continuously polluting the city air, despite the efforts to reduce it. There has to be an understanding of that sustainable development must include all parties and activities that do, or could, affect it.

Hence, theory and the empirical findings were consistent in principle, but not fully in practice. The respondents said there needed to be a full understanding of sustainability and stressed the importance of having a holistic approach, but there was none, due to the too general definitions of it. However, through efforts of breaking down visions into tangible pieces, making them easier to understand and developing roadmaps with clearer steps to follow, understanding of the concept of sustainability increased in the different departments and organizations. Continuously educating and providing possibilities to learn is further put forward as methods to put momentum to the process of understanding. Balancing the understanding of the holistic approach of

sustainability, while still keeping focus on the day-to-day business, is, therefore, stressed as an extremely central aspect when making decision in sustainable development initiatives.

#### **5.1.4 The Understanding of the Triple Bottom Line in Sustainability Projects**

The theories of TBL emphasize how there are three dimensions of how sustainable development can be achieved, namely through work with economic, social and environmental sustainability (e.g. Brown et al., 2006; Elkington, 1997). The dimensions are further interrelated and need to take each other into account in order to balance them and solve possible conflicts between them (e.g. Giddings et al., 2002). The empirical findings confirmed the similar state of mind among the respondents and many of them emphasized how all three dimensions were equally important and were always thought of in all projects. However, it was further found that, in many cases, it was impossible to give all dimensions of the TBL equal importance and work with all of them in every project. This was mostly due to budget and time constraints depending on the character of each project. This is recognized in theory by Kennedy (1992) and Suzuki et al. (2010) who point out how limited financial resources constitute an impediment to sustainable development, hence, to the achievement of the TBL. Nonetheless, the respondents' perception of the concept of the TBL, which was in accordance with theory, was not in accordance with how it was actually carried out in practice.

The empirical findings show that even projects that had objectives relating to all dimensions of the TBL, were not likely to be pursued if there was not a sufficient financial gain to be found. This implies that the financial dimension of the TBL is considered to be the most important dimension. Despite the acknowledgement of that projects naturally have different sizes and objectives and, therefore, sometimes cannot take all dimensions of the TBL into account, the empirical findings clearly show that no matter if the central goal is, for example, in line with the environmental dimension, it will never gain credibility or support if it is not possible to show that it makes financial sense to the investors. This was, therefore, not in cohesion with the research by Brown et al. (2006) who concluded that the economic dimension of the TBL is different from the traditional sense of economic profit, since the economic dimension of the TBL does not solely look at the economic objectives of the individual entity. According to the empirics, the payback rule was the most often used and accepted method for prioritizing and ranking the projects.

The reason for the deeply rooted financial focus might be found in the difficulties of measuring the dimensions of the TBL, an obstacle described by Slaper and Hall (2011). Computing impacts or results relating to the social and environmental dimensions is hard, even though many different and isolated methods do exist. However, these complications do not apply to the financial dimension where economic measurements, calculations and ratios can easily be found, used and compared. This further makes it easier to communicate, and make understandable, to other parties.

Another reason for having a firm focus on the financial aspect is the need to economize on the individual department's funding. This focus becomes the factor for prioritizing what projects to pursue. It is further possible to assume that the cheapest alternative was often chosen in order to reach the objective, even if all dimensions of the TBL were not achieved in the most proper way. Hence, the main objective was not the critical factor in deciding what project to implement. Further on, the financial constraints within the departments might cause competition between them regarding who should get the most funding for their sustainability projects.

Albeit the financial dimension of the TBL was actually in focus in practice, the worrying aspect is the unconscious misbelief that all projects still consider all three dimensions of the TBL. Practitioners and decision makers need to face the fact that all dimensions are not in reality taken into consideration if all projects are always prioritized according to the payback rule. This, therefore, confirms the research by Desai (2010) who stated that the dimensions of the TBL are unfortunately too often interpreted as a trade-off between the different dimensions. New means of measurement, the acceptance of a long-term perspective as well as other types of paybacks need to be embedded in the reasoning. Some respondents mentioned payback in terms of reduced future costs for the investors, something that might also be an attractive financial aspect to consider. Even though financial sustainability can easily be achieved, the social and environmental sustainability can never be reached if they are not given the same level of emphasis. Also, as stated by theory, as long as all three dimensions of the TBL are not equally taken into consideration, proper sustainable city development can never be achieved.

### **5.1.5 Benchmarking in Sustainability Projects**

Theory suggests increasing understanding of sustainability through learning from experiences in other cities and seeking to develop them even further in order to increase their usability (Haughton & Hunter, 1994). This was completely in line with the empirical findings as many respondents emphasized the importance and usefulness of looking for best practices in other cities. Furthermore, the empirical findings also indicated how sharing of knowledge about sustainability projects with outer parties was also essential when looking at past experiences.

According to Czarniawska and Joerges (1996), organizations may institutionalize certain trends due to their popular and fashionable appearance in order to give recognition to the organization. This was also confirmed in the empirical findings. By looking for best and worst practices it was possible to identify certain projects that were considered trendy and, therefore, important to pursue in order to "be up to date" with the sustainable development. Some respondents described it as a competition to always try to be at the forefront and come up with faster and better ideas than the other cities could.

Benchmarking in this manner puts momentum to the process of project implementation since decision makers are always on the lookout for new projects to initiate. No city should want to be

perceived as stagnated in sustainable development, especially since sustainability is a quite recent concept with many unexplored areas that are often recognized and discussed in media. Comparing initiatives additionally eliminates the need to “reinvent the wheel” for every new project since knowledge and experience can be shared. Also, innovators can find inspiration in already implemented projects, either to develop them or come up with completely new projects.

### **5.1.6 Visibility in Sustainability Projects**

According to theory, some sustainable development initiatives are only carried out with regard to the gained attention from them (Joss, 2011b). Distinctive projects, that are out of the ordinary, naturally become more interesting to external parties. Hence, focusing on a certain type of projects to make them a characteristic of the city can facilitate the branding of the city as well as making it more competitive towards other cities that do not have, or practice differently, these projects. Further, Brown et al. (2006) emphasized how some sustainability projects may only be carried out as an answer to external stakeholder pressure.

The empirical findings revealed that there were, indeed, sustainability projects embraced and pursued much due to the public acknowledgement of them, hence, maybe not because of their significant sustainable outcomes. The character and size of these projects were likely to depend on the incentive of political and financial powers. Examples of these initiatives are the green roof tops and the use of llamas to graze on the airport lawns where regular mowing equipment cannot reach. The empirical findings further revealed that general marketing and spreading the word about the sustainability initiatives were important in order to attract financiers, as well as new residents and businesses to Chicago. This aspect is, therefore, also in line with theory. In addition, there was external pressure on making the departments more sustainable and, thereby, creating a challenge to work with sustainability issues so as not to be surpassed by other cities in their level of sustainability. This had to be done in order to continuously remain competitive as a city.

The interesting aspect of this is, therefore, to understand the underlying ideas behind the initiatives undertaken in order to get media attention and recognition. Is it worth spending large money on projects that frankly do not do that much of a difference for the city’s sustainable development? Are some projects undertaken just to ease the pressure from external stakeholders and, thereby, gaining time to pursue other projects? Why does the city not solely focus on projects that are known to have a big impact on the sustainable development of the city? The answers to these questions are not obvious and may be affected by many different factors. On one hand, taking into account the growing consumer interest in sustainability issues, a project can be perceived as negative if the marketer does not live up to the level of sustainability that is promised in the marketing, e.g. if a small insignificant project is described as having a great impact on city sustainability. This is a method often referred to as green washing. One, therefore, needs to be careful in how the marketing is labeled so as not to cause confusion. However, on the



other hand, it is reasonable to believe that with regard to the vague perception and understanding of sustainability, all projects that to some extent contribute to sustainable development are good projects. Spreading the word about projects can further help other cities to imitate the projects and maybe develop them to further increase their positive impact on large scale sustainability. Of course, cities are in competition with each other trying to attract residents and businesses. As long as the motive is to add to the local economy and quality of life for the residents, the branding of the city through non-significant sustainability projects could be motivated. Last, decision makers of the city need to carefully consider whether a sustainability project is initiated only due to the practical outcomes of gained external attention, or if it actually makes a difference with regard to sustainable city development. The optimum should lie in the possibility to combine these two objectives.

### **5.1.7 Short-Term Thinking in Sustainability Projects**

Haughton and Hunter (1994) discuss different guiding principles that are needed in the governance of sustainable cities, and one of these is long-term management; the concept of sustainable urban development has to be consistent with the long-term sustainability objectives. Aho (2013) has a similar conclusion and thinks that the empowerment of professionals to act according to the long-term goals and give incentives to provide long-term service levels. Suzuki et al. (2010) also discuss that cities try to have a long-term approach. The empirical findings show evidence of a long-term approach to some extent. Many of the interviewees had a long-term aspirational goal, but the problem is that they were considered too far into the future and most likely not fully attainable. Instead, it was found that the departments in Chicago most often had a short-term focus. This was due to the fact that all projects that were initiated had to be accepted by the Aldermen, who are elected for four years at a time. This means that they want to see immediate impact of the projects initiated because they will not be around for the long term. Most often the short-term projects were found to somehow be embedded in the long-term objective.

A short-term focus was not found to be negative. Many of the respondents said that they dealt with small projects that were milestones in order to achieve the long-term goal. Both the respondents at the Department of Transportation and the Metropolitan Planning Council stated that initiating pilots was an inexpensive way of testing new ideas, and if the pilots were successful, they would gain credibility and funding, thus, becoming “real projects” that were going to be institutionalized. Some of the projects they had initiated had been adapted in other cities. This is also in line with institutional theory that concerns different ideas being institutionalized and becoming trends (Czarniawska & Jeorges, 1996). Doppelt (2003) also discusses that failure to institutionalize sustainability will lead to old habits of reasoning and decision making not being broken.

Short-term thinking can also be connected to decision making with limited rationality and different coping mechanisms of handling information (March, 1994). One coping mechanism is decomposition, which means that the decision is broken down into smaller pieces, instead of handling the entire decision at once. Using short-term projects as a mean to achieve the long-term goal can be seen as a coping mechanism to handle the very broad and big goal. However, the long-term goal cannot be forgotten and a holistic approach should be taken, thus, a balance between short-term and long-term thinking should be found.

### **5.1.8 Information in Sustainability Projects**

The theory regarding rational decision making assumes that every decision maker has access to all information in order to make a decision (March, 1994). However, this theory is implausible and March (1994) further discusses how decision makers are exposed to certain limitations and, thus, cannot make optimal decisions. These limitations have already been mentioned in one of the sections above, but what they all ultimately relate to is information. Decision making theory usually discusses that decision makers are overwhelmed by all information they are presented with and, thus, use different mechanisms to cope with it. March (1994) discusses some of these, and they are linked to intuitive decision making. Intuitive decision making concerns how the decision makers are affected by heuristics and biases in their decision making. This means that they do not use a structured way of reasoning or methodical calculations when making a decision and, thus, rely on their personal intuition (Kahneman & Tversky, 1974). All of the respondents confirmed that they used personal intuition in order to make decisions, which is proof of that all decisions made are not optimal, because there are certain limitations that prevent them from making optimal decisions. Often personal intuition comes from past experience because decision makers create stereotypes in order to make decisions (Juliussen et al., 2005; March, 1994). This was certainly confirmed in the empirical findings. Some respondents specifically stated that in order to shorten the decision making process, intuition was used. However, the empirical findings also show that those who used intuition to a large extent were those who had a lot of authority and support; this is quite instinctive because a decision maker with a lot of authority is most likely to have a lot of experience. However, this also shows that decentralization is needed in order to make simple, day-to-day decisions more efficient. Moreover, many interviewees stated that they used the payback rule when making decisions, which is an intuitive decision rule for capital budgeting, but not the optimal way of making a decision regarding capital budgeting. According to the empirical findings, the use of intuition is, therefore, positively correlated to time constraint.

The excessive amount of information that the decision makers are supposed to be overwhelmed with, according to theory, is not supported by the empirical findings. Most respondents expressed that there is a shortage of information. This was found to be due to the fact that projects and different actions are not measured once implemented. Especially the Chief Sustainability Officer of Cook County expressed that there was no database where information was stored and, for

example, buildings owned by the county did not have individual utility bills. This concern was also shared by other departments in the City of Chicago, especially the Department of Water Management that was currently installing water meters in people's homes in order to see how much water was used and to reduce water consumption. However, the empirics further show that even if there was enough data available, there was not enough time to analyze it all and make it useful.

There are, consequently, a lot of risks and uncertainty related to the decisions made by the interviewees. This is a significant problem since the empirical findings also show that decisions regarding sustainability projects require more detailed information. The interviewees at the Department of Transportation said that sustainability projects differ from regular projects by the fact that they will be more scrutinized; therefore, they need more information to give them credibility. It is, thus, not good to outsource the monitoring of projects and the measurement of results to consultants. It can be concluded that the interviewees in Chicago are exposed to great information constraint, which is not completely in line of what theory discusses.

However, all of the respondents did somehow compare themselves to other cities in order to reduce the information gap and learn more about the projects they were going to implement in the city. They advocated looking for best practices, since it is less costly to be inspired by others and see what works in other areas, than taking the risk of implementing something new themselves. This is also in line with institutional theory which discusses how organizations, in this case cities, try to become more like each other and, thus, rejects the idea of the rational decision maker (DiMaggio & Powell, 1983). By using institutionalized ideas, the city will also gain legitimacy.

### **5.1.9 Collaboration in Sustainability Projects**

Many aspects of theory emphasize how collaboration and partnerships in sustainability projects are important in order to achieve sustainable city development (e.g. Puppim de Oliveira et al., 2013; United Nations, 2010 & 2013). The collaboration should include actors such as municipal departments, businesses, NGOs, customers and residents. Further, Suzuki et al. (2010) stress how reluctance to collaborations can constitute an obstacle to the achievement of sustainable city development. All these statements were found to be recognized in the empirical findings. All respondents believed that the municipality was incapable of achieving sustainable city development by itself. This was mostly due to the municipality's lack of capacity to single-handedly influence all affected sectors and parties.

Further, theory states how co-operation across city and international borders can be a motive for sustainability initiatives (Joss, 2011b). According to the empirical findings, this particular reason was not found to be given much emphasis in practice. The achievement of sustainable

development was always the objective, never the collaboration as such. Instead, collaboration was only a mean to reach the goal of sustainability more effectively.

Despite complications when partnering with others, such as multifaceted objectives and communication difficulties, collaborations should be seen as an asset. The sharing of knowledge, experience and resources can help faster accomplish the goal.

### **5.1.10 Technology and Innovation in Sustainability Projects**

The Global Footprint Network (GFN) (2013c) discusses the importance of infrastructure and technology investments in order to find the right solutions to achieve sustainability. Joss (2011b) also mentions business development as one of the six factors needed in order to drive sustainable development. Business development concerns the technological innovation (e.g. green technology) and business development, often including partnerships between private and public actors. “Smart cities” is also a concept mentioned by Caragliu et al. (2011); it is used to characterize a city with the aim of sustainable development where the focus is put on how information and communication technology is used to achieve sustainability goals. The empirical findings show that technology and innovation might be an important aspect, and the factor that differentiates a sustainability project from a regular project. The Metropolitan Planning Council and the Department of Fleet and Facility Management stated that technology is very important; particularly in energy efficiency projects. The Department of Innovation and Technology also emphasized the importance of communicating technology and making it available to everybody, but that the most important aspect was to make technology modular, so different parts could be changed as soon as new technology was developed. Thus, support for theory was found in the empirics, and technology was considered an important factor distinguishing sustainability projects.

However, the empirical findings show that the legal environment can function as an impediment to new types of technology. The respondent at the Department of Buildings specifically said that some old codes are in conflict with new codes. The respondents at the Department of Transportation also explained how legislation hindered them from initiating an innovative project that was sustainable. It can, thus, be concluded that although innovation and technology might be a vital aspect of sustainability decision making, the legal environment and legislation has to be able to follow the fast advance in technology, otherwise it will be pointless. However, Chicago is very good at trying to influence guidelines and legislation.

### **5.1.11 Changing Demographics in Sustainability Projects**

The Global Health Observatory (GHO) (2014) discusses how the demographics are changing and how people move from rural areas to urban areas. GHO has forecasted that by 2030, 70% the world’s population will live in cities. The United Nations (2011) are also forecasting that the

world's total population will increase by a couple of billion by 2050. The World Bank (2013) also states that the world is experiencing the biggest growth ever seen in human history of urbanization. Although this holds true and affects many cities around the world, all of the respondents that were asked about the changing demographics of Chicago said that it is not an issue, since Chicago is experiencing a decline in population, rather than an increase. However, the demographic structure is changing, and more Latin Americans are moving to Chicago which might have an impact on what projects are going to be initiated. The respondents at the Department of Water Management also stated that they have built in additional capacity in their water system that can handle an increase in population. However, changing demographics do not seem to be a big issue in Chicago, or an important aspect to be taken into consideration when making decisions regarding sustainability projects.

## **5.2 Other Factors not Affecting Decision Making in Sustainability Initiatives**

*The following factor was found to be of relevance in sustainability decision making according to theory, but evidence of it was not found in the empirics.*

### **5.2.1 Changing Climate**

Desai (2010) and the United Nations (1992) discuss Agenda 21, in which it is stated that parties at local, national and global levels should work together and commit to reach common agreements about biodiversity and climate change, with the aim of creating a sustainable century. Further on, Joss (2011b) discusses different factors that can drive sustainable development. One of these factors is “environmental challenges” which regards that the development of a sustainable city needs to respond to expected and anticipated challenges of the environment through design and innovation in the city infrastructure and processes taking the local characteristics into consideration (Joss, 2011b). The respondents did not talk about climate change and the importance of it, or how the climate change specifically affected the City of Chicago. Thus, support for the theory was not found in the empirics. However, it could be discerned that different projects were implemented according to the local climate and framing. The difference in climate between different cities in the USA was emphasized by the interviewees. Green roofs, for example, were motivated by the fact that they would capture stormwater and the Department of Transportation also developed different initiatives that would capture stormwater. Large amounts of stormwater is a climate specific factor for Chicago and the handling of it an important aspect of decision making.

## **5.3 Developed Framework**

*Derived from the sections above, a developed framework was constructed. The developed framework consists of six dimensions that both take factors of sustainability and decision making*

*into account and it describes to what extent the factors affect the decision making process in sustainability initiatives.*

The empirical findings did not show evidence of a specified decision making process regarding sustainability initiatives. However, several general factors were identified in the empirical findings that affected decision making regarding these kinds of projects. These factors were found to be used by decision makers to a different degree; thus, six dimensions were developed incorporating these factors as pairs of two opposite extremes. Subsequently, decision makers have to find the optimal combination of these diametrical factors in their sustainability projects. For example, short-term thinking was identified as an important factor affecting decision making in sustainability projects; decision makers were using short-term pilots in their projects, but these had to be part of a long-term objective, thus, the decision makers had to find a balance between these two extremes. Consequently, the general factors were translated into the six dimensions that constitute the report's final framework and, thus, provide the answer to the purpose of this report. The dimensions portray the interrelation and the connectivity between the factors and are presented in figure 6 below:

Centralized	↔	Decentralized
Holistic	↔	Atomistic
Short-Term	↔	Long-Term
Inside	↔	Outside
Visible	↔	Invisible
Information	↔	Intuition

**Figure 6: Developed Framework: The Six Dimensions of Decision Making in Sustainability Initiatives**

### 5.3.1 Summary of Dimensions in Developed Framework

#### *Centralized/Decentralized*

The Mayor was found to have great influence, and his visions led to centralized goals that were followed by all employees in the city. Although sustainability can be achieved through a Mayor's signature project, it can create a false sense of security and undermines people's personal responsibility and accountability. Therefore, a city needs greater decentralization of

power and governance in order to achieve good decision making regarding sustainability projects. The governmental employees have to be empowered to make decisions, and the individual departments must be allowed to set their own goals and be able to choose their own projects; in that way, decentralization can further contribute to spending limited funds more wisely. However, the Mayor should still hold a symbolic centralized position since it will give the city more legitimacy and visibility. Moreover, it was also found that intuition was used as a way to cope with information constraint in decision making, but only by decision makers with a lot of authority. It further shows that there has to be a degree of decentralization on different levels in order to make day-to-day decisions more efficient and save time.

#### *Holistic/Atomistic*

One of the most prominent aspects of sustainability is to have a holistic point of view. This facilitates understanding of what sustainability is, hence, how to achieve it. On one hand, the holistic view sets the broad vision and is easy to communicate to all stakeholders involved. On the other hand, the vision may seem too abstract and unclear to be used as a practical tool in the day-to-day activities. Therefore, it is further essential that the broad goal is understood as, and divided into, smaller sub-goals that jointly contribute to the main objective of sustainable development. This implies having an atomistic approach to the area of sustainability. This dimension is further connected with factors of understanding the TBL and take all parts of the city into account in order to make everyone part of the sustainable development. The ability to balance the holistic and atomistic point of view within this variety of factors is, therefore, an important aspect of decision making.

#### *Short-Term/Long-Term*

The empirical findings show that a short-term focus in sustainability projects can be very beneficial for decision makers and a way of coping with limited rationality. Short-term pilots have been proven to be very efficient in convincing investors in order to quickly receive funding and credibility and later on becoming institutionalized trends. Short-term thinking can also be connected to decision making with limited rationality and considered a coping mechanism of information constraint. It is difficult to make realistic forecasts long into the future, thus, it is easier to focus on the short term. Short-term thinking has also been found to be greatly affected by the political environment because the approval of the Aldermen, which are elected for only a short period of time, is needed. Nonetheless, decision makers cannot forget the long-term sustainability goal of their work and have to make sure that every short-term project that is initiated has to be regarded as a milestone on the way to achieve the long-term goal.

#### *Inside/Outside*

No party holds all information. However, taking advantage of all internal resources and know-how within an organization is the starting point; hence, it is important to recognize ideas and support individual thinking. In order to take advantage of advancements, e.g. relating to technology and knowledge from other areas outside the organization, decision makers also need

to look outside the internal boundaries to achieve sustainability. Collaborating with external parties and benchmarking other cities are methods of finding valuable information, inspiration and partners. Furthermore, providing tools to educate all parties in the network can further benefit them all. Finding the appropriate level of insight originating from inside and outside the organization is important in order to support sustainability decision making.

#### *Visible/Invisible*

The opportunity of branding a city due to its sustainability commitments was found to be an important factor of pursuing a sustainability project. Depending on the outreach and need of publicity, different projects can be prioritized accordingly. It is important to acknowledge the city's need to be "visible" versus "invisible". The former indicates pursuing sustainability projects simply due to its perceived attention, not having its impact on sustainability as the main objective. However, it may open up for other future opportunities, such as more funding. Different levels of green washing, benchmarking, the use of new technology and the importance of incorporating trends and becoming a role model are, thus, advocated to consider in the decision making process. Hence, this dimension relates to how to respond to external stakeholder pressure. Conversely, being "invisible" does not take external recognition into account; projects are purely initiated due to its relative impact on the city's sustainable development. It is up to the decision maker to acknowledge the attention a project will get, i.e. how visible it will be, and balance it with the need to be so. Hence, there is a trade-off on spending money on projects that will gain recognition and projects significantly benefiting sustainability.

#### *Information/Intuition*

Information has been proven to be an essential asset in decision making. On one hand, great shortage of it causes difficulties for decision makers to make optimal decisions in order to reach sustainability. On the other hand, having information in redundancy can also be an issue, since too much information can be suboptimal and make the information difficult to analyze. Decisions regarding sustainability have been found to require more detailed information than other projects, due to the fact that advanced technology is frequently used in those kinds of projects. One way to diminish the lack of information and uncertainty is to look for best practices and what has been done elsewhere, i.e benchmarking other cities. However, another way to cope with information deficiency is for decision makers to use personal intuition and past experience in their decision making process. It has been shown to be very effective when there has been a time constraint and difficulties of making forecasts and measuring results. Conclusively, decision makers have to find an optimal mixture of using information and intuition; sustainability projects need a lot of information, but day-to-day decisions regarding these kinds of projects might be made by using intuition.



## 6 CONCLUSION

---

*This chapter will begin with briefly presenting the results of this research and how they can be related to the report's purpose. Thereafter, the validity and limitations of the result will be put forward. Last, suggestions of future research will be discussed.*

### 6.1 Result in Relation to Purpose

The purpose of this report is to increase the understanding and fill the gaps in literature by identifying what factors affect the decision making processes in sustainability initiatives at municipal level, in so called sustainable cities.

In order to give a theoretical answer to the purpose, the research began by separately identifying factors affecting work with sustainability, as well as identifying factors affecting decision making. This separation had to be made due to the lack of theory or previous research simultaneously taking both of these areas into account. Thereafter, empirical insight was gained through personal interviews with individuals working at the municipality or non-profit organizations in the City of Chicago. All interviewees had positions relating to work with sustainability in Chicago. The interviews revolved both around factors of sustainability and decision making. The findings from the empirical research were later analyzed and discussed. Subsequently, the two separate areas of theory were merged together in order to identify factors affecting decision making in sustainability initiatives. These factors were further translated into six dimensions that constitute the report's final framework and answer to the purpose. Understanding these dimensions will aid the decision maker at municipal level to pursue the sustainability initiatives. The dimensions of the developed framework are: Centralized/Decentralized, Holistic/Atomistic, Short-Term/Long-Term, Inside/Outside, Visible/Invisible and Information/Intuition.

### 6.2 Validity and Limitations of the Result

The developed framework takes into account the interconnectivity of factors both affecting work with sustainability and factors affecting decision making. This has not been encountered in the same manner in previous literature before; hence, the developed framework stands out and gives an answer to the report's purpose in a distinct fashion. Furthermore, the design of the developed framework is very general and easy to grasp. The relevance of the developed framework is stressed through the effectiveness of the different dimensions that take all relevant factors affecting decision making in sustainability initiatives into account. Further, it is applicable in a range of settings due to the possibility of putting different levels of emphasis on the different dimensions of the framework. The same framework is, therefore, possible to be used as a tool for decision makers in a variety of cities having different prerequisites and objectives.

It is possible to argue that some of the dimensions in the developed framework are somewhat similar and overlap to some extent. This could for example be argued in the cases of the Holistic/Atomistic and Short-Term/Long-Term dimensions. Having an atomistic point of view could imply pursuing several small pilots with short time frames objectives. However, the choice to construct six separate dimensions takes into account their relative differences. For example, Holistic/Atomistic concerns the level of focus or understanding, whilst Short-Term/Long-Term only takes the aspect of time into consideration. Nonetheless, the dimensions are interrelated to a broad extent.

Limitations of the developed framework can be drawn taking the process of its construction into account. It is based on empirical findings derived from 20 interviewees in Chicago; hence, despite the adaptability of the framework, it is suggested to be most applicable in Chicago. Cities around the world with very different characteristics may find the need to exchange some of the dimensions or change the amount of dimensions in order to take all local aspects into account. In addition, the developed framework was constructed in a certain period in time; thereby, making it difficult to forecast its applicability in the future due to the changing external environment. Furthermore, the developed framework is suggested to facilitate decision making in sustainability projects; therefore, the framework might not be as relevant in projects having other objectives. Also, the developed framework is mostly derived from factors perceived to be of importance for decision makers working within the municipality. Therefore, it is possible that businesses or NGOs may not find the developed framework as useful to the same extent, due to these parties' somewhat different embodiments and operational conditions.

### **6.3 Further Research**

Although the framework developed is general for its settings, further research could be done within the area of sustainability decision making. Since only one case was studied in this report, one interesting aspect to be explored within this field is the comparison of the different dimensions in the developed framework between cities around the world with varying political environments. Hence, more empirical material is requested. This could bring more depth to the developed framework and enhance it in order to make it even more generalizable since the impact of the politics and the Mayor was found to be of great importance in the City of Chicago. Another aspect that could be explored are factors specifically affecting decision making in NGOs working with sustainability projects in the City of Chicago and, thus, adding new theory. In that way, it could be investigated whether there is a difference in factors affecting sustainability decision making between NGOs and the municipality. It was found that the non-profit organizations interviewed had better knowledge of new technology and this constituted an important factor in their decision making. This could be further elaborated through future research. A third aspect could entail investigating what combinations of the diametrical factors in the dimensions are the most optimal for certain city settings using a statistical method.

## REFERENCES

---

- Aho, I. (2013). Value-Added Business Models: Linking Professionalism and Delivery of Sustainability, *Building Research & Information*, vol. 41, no. 1, pp.110-114
- Alker, S., Joy, V., Roberts, P. & Smith, N. (2000). The Definition of Brownfield, *Journal of Environmental Planning & Management*, vol. 43, no. 1, pp.49-69.
- Alusi, A., Eccles, R., Edmondsson, A. & Zuzul, T. (2011). Sustainable Cities: Oxymoron or the Shape of the Future? Working Paper, no. 11-062, Harvard Business School
- Alvesson, M. & Sköldbberg, K. (2008). *Tolkning och Reflektion: Vetenskapsfilosofi och Kvalitativ Metod*, Lund: Studentlitteratur
- Alvesson, M. & Sandberg, J. (2013). *Constructing Research Questions: Doing Interesting Research*, London: SAGE Publications Ltd
- Bakka, J., Fivelsdal, E., & Lindkvist, L. (2006). *Organisationsteori*, Malmö: Liber.
- Backman, J. (2008). *Rapporter och Uppsatser*, Lund: Studentlitteratur
- Beatley, T, ed. (2012). *Green Cities of Europe: Global Lessons on Green Urbanism*. Washington, D.C.: Island Press.
- Boyle, C., Head, P., Hood, D., Lawton, M., Lowe, I., O'Connor, M., Peet, J., Schreier, H. & Vanegas, J. (2013) Transitioning to Sustainability: Pathways, Directions and Opportunities, *International Journal of Sustainable Development*, vol. 16, no. 3/4, pp.166-189
- Bower, J. & Gilbert, C. (2007). How Managers' Everyday Decisions Create or Destroy Your Company's Strategy, *Harvard Business Review*, vol. 85, no. 2, pp.72-79
- Brohman, J. (1996). *Popular Development: Rethinking the Theory and Practice of Development*, Oxford: Blackwell Publishers
- Brown, D., Dillard, J. & Marshall, R. (2006). *Triple Bottom Line: A Business Metaphor for a Social Construct*, Barcelona: Universitat Autònoma de Barcelona
- Bryman, A. & Bell, E. (2011). *Business Research Methods*, Oxford University Press: Third Edition.
- Bulkeley, H. & Betsill, M. (2005). Rethinking Sustainable Cities: Multilevel Governance and the 'Urban' Politics of Climate Change, *Environmental Politics*, vol.14, no. 1, pp.42-63
- Caragliu, A., Del Bo, C. & Nijkamp, P. (2011). Smart Cities in Europe, *Journal of Urban technology*, vol. 18, no. 2, pp.65-82
- Carroll, A. (1999). Corporate Social Responsibility. The Evolution of a Definitional Construct, *Business and Society*, vol. 38, no. 3, pp.268-295

- Chicago Climate Action Plan (2014). What is the Chicago Climate Action Plan?, Available Online: <http://www.chocagoclimateaction.org/> [Accessed 4 March 2014]
- City of Chicago (2014a). Chicago Government, Available Online: <http://www.cityofchicago.org/city/en/chicagogovt.html> [Accessed 14 April 2014]
- City of Chicago (2014b). Environment and Sustainability, Available Online: <http://www.cityofchicago.org/city/en/progs/env.html> [Accessed 4 March 2014]
- City of Chicago (2014c). Sustainable Chicago 2015, Available Online: [http://www.cityofchicago.org/city/en/progs/env/sustainable\\_chicago2015.html](http://www.cityofchicago.org/city/en/progs/env/sustainable_chicago2015.html) [Accessed 4 March 2014]
- City of Chicago (2014d). What We Do: Your Ward and Alderman, Available Online: [http://www.cityofchicago.org/city/en/depts/mayor/provdrs/your\\_ward\\_and\\_alderman.html](http://www.cityofchicago.org/city/en/depts/mayor/provdrs/your_ward_and_alderman.html) [Accessed 14 April 2014]
- Cohen, M., March, J., Olsen, J. (1997). A Garbage Can Model of Organizational Choice, *Administrative Science Quarterly*, vol. 17, no. 1, pp.1-25.
- Corfee-Morlot, J., Kamal-Chaoui, L., Donovan, M., Cochran, I., Robert, A. & Teasdale, J. (2009). Cities, Climate Change and Multilevel Governance, *OECD Environmental Papers*, no.14
- Crane, A. & Matten, D. (2010). *Business Ethics: Managing Corporate Citizenship and Sustainability in the Age of Globalization*, 3rd Edition, Oxford: University Press
- Czarniawska, B. (1997). *Narrating the Organization*, Chicago: The University of Chicago Press
- Czarniawska, B. & Joerges, B. (1996). *Travels of Ideas. From Czarniawska, B. och Sevón, G. Translating Organizational Change*, Berlin: Walter de Gruyter
- Desai, P. (2010). *One Planet Communities: A Real-Life Guide to Sustainable Living*, United Kingdom: John Wiley & Sons
- DiMaggio, P. & Powell, W. (1983). The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields, *American Sociological Review*, vol. 48, no. 2, pp.147-160
- Doppelt, B. (2003). *Leading Change Toward Sustainability: A Change-Management Guide for Business, Government and Civil Society*, Sheffield: Greenleaf Publishing Ltd
- Eames, M., Dixon, T., May, T. & Hunt, M. (2013). City Futures: Exploring Urban Retrofit and Sustainable Transitions. *Building Research & Information*, vol. 41, no. 5, pp.504-516.
- Eckerd, A. & Keeler, A. (2012). Going Green Together? Brownfield Remediation and Environmental Justice, *Policy Sciences*, vol. 45, no. 4, pp.293-314
- Ecocity World Summit (2008). Ecocity World Summit 2008, Available Online: <http://www.ecocityworldsummit.org/index2.htm> [Accessed 27 February 2014]

- Elkington, J. (1997). *Cannibals With Forks: the Triple Bottom Line of 21st Century Business*, Oxford: Capstone Publishing
- Freeman, E. (1984). *Strategic Management: A Stakeholder Approach*, (reprint 2010), New York: Cambridge University Press
- GFN [The Global Footprint Network] (2013a). Footprint for Nations, Available Online: [http://www.footprintnetwork.org/en/index.php/GFN/page/footprint\\_for\\_nations/](http://www.footprintnetwork.org/en/index.php/GFN/page/footprint_for_nations/) [Accessed 4 March 2014]
- GFN [The Global Footprint Network] (2013b). Methodology and Sources: Methodology Overview, Available Online: <http://www.footprintnetwork.org/en/index.php/GFN/page/methodology/> [Accessed 4 March 2014]
- GFN [The Global Footprint Network] (2013c). World Footprint: Do We Fit on the Planet?, Available Online: [http://www.footprintnetwork.org/en/index.php/GFN/page/world\\_footprint/](http://www.footprintnetwork.org/en/index.php/GFN/page/world_footprint/) [Accessed 4 March 2014]
- GHO [Global Health Observatory] (2014). Urban Population Growth, Available Online: [http://www.who.int/gho/urban\\_health/situation\\_trends/urban\\_population\\_growth\\_text/en/](http://www.who.int/gho/urban_health/situation_trends/urban_population_growth_text/en/) [Accessed 6 February 2014]
- Giddings, B., Hopwood, B. & O'Brien, G. (2002). Environment, Economy and Society: Fitting Them Together Into Sustainable Development, *Sustainable Development*, vol. 10, no.4, pp.187–196
- Glaser, B. (1978). *Theoretical Sensitivity: Advances in the Methodology of Grounded Theory*, Mill Valley CA: Sociology Press
- Ghemawat, P. (2010). Finding Your Strategy in the New Landscape, *Harvard Business Review*, vol. 88, no. 2, pp.54-60
- Harrison, E.F. (1996). A Process Perspective on Strategic Decision Making. *Management Decision*, vol. 34, no.1, pp.46-53
- Haughton, G. (1999). Environmental Justice and the Sustainable City, *Journal of Planning Education and Research*, [e-journal], vol.18, no. 3, Available through: EHL library website: <http://www.lusem.lu.se/library> [Accessed 12 April 2014]
- Haughton, G. & Hunter, C. (1994). *Sustainable Cities*, London: Jessica Kingsley Publishers Ltd
- Hendriques, A. & Richardson, J. (2004). *The Triple Bottom Line: Does It All Add Up?* London: Earthscan Publications
- Herrschel, T. (2013). Competitiveness AND Sustainability: Can 'Smart City Regionalism' Square the circle? *Urban Studies*, vol. 50, no. 11, pp.2332-2348
- Joss, S. (2010). Eco-Cities - A global Survey 2009, *WIT Transactions on Ecology and The Environment*, vol.129, pp.239-250
- Joss, S. (2011a). Eco-City Governance: A Case Study of Treasure Island and Sonoma Mountain Village, *Journal of Environmental Policy & Planning*, vol.13, no. 4, pp.331-348

- Joss, S. (2011b). Eco-Cities: the Mainstreaming of Urban Sustainability; Key Characteristics and Driving Factors, *International Journal of Sustainable Development and Planning*, vol. 6, no. 3. pp.268-285
- Juliusson, E., Karlsson, N. & Gärling, T. (2005). Weighing the Past and the Future in Decision Making, *European Journal of Cognitive Psychology*, vol. 17, no. 4, pp.561-575
- Kahneman, D., Lovallo, D. & Sibony, O. (2011). Before You Make That Big Decision, *Harvard Business Review*, vol. 89, no. 6, pp.50-60
- Kahneman, D., Slovic, P. & Tversky, A. (1982). Judgment under Uncertainty: Heuristics and Biases, Cambridge: Cambridge University Press
- Kahneman, D. & Tversky, A. (1974). Judgment under Uncertainty: Heuristics and Biases, *Science*, New Series, vol. 185, no. 4157, pp. 1124-1131
- Kajikawa, Y. (2008). Research Core and Framework of Sustainability Science, *Sustainability Science*, vol. 3, no. 2, pp.215–239
- Kennedy, W. (1992). Environmental Impact Assessment and Bilateral Development Aid: An Overview, In Wathern, P. (ed.), *Environmental Assessment: Theory and Practice*, London: Routledge
- Kruger, S. & Bernick, M. (2010). State Rules and Local Governance Choices, *Publius: the Journal of Federalism*, vol. 40, no. 4, pp.697-718
- Lee, J., Phaal, R. & Lee, S-H. (2013). An Integrated Service-Device-Technology Roadmap for Smart City Development, *Technological Forecasting and Social Change*, vol. 80, no. 2, pp.286–306
- Lindgreen, A. & Swaen, V. (2010). Corporate Social Responsibility, *International Journal of Management Reviews*, vol. 12, no. 1, pp.1–7
- Marceau, J. (2008). Introduction: Innovation in the City and Innovative Cities. *Innovation: Management, Policy & Practice*, vol. 10, no. 2/3, pp.136-145
- March, J. (1994). A Primer on Decision Making: How Decisions Happen, New York: Simon & Schuster Inc.
- Meehan, J. & Bryde, D. (2011). Sustainable Procurement Practice, Business Strategy and the Environment, vol. 20, no. 2, pp.94-106
- Meyer, J. & Rowan, B. (1977). Institutionalized Organizations: Formal Structure as Myth and Ceremony, *The American Journal of Sociology*, vol. 83, no. 2, pp.340-363
- Mother Nature Network (2014). Top 10 Green U.S. Cities: 9. Chicago, Ill, Available Online: <http://www.mnn.com/health/allergies/photos/top-10-green-us-cities/9-chicago-ill> [Accessed 4 March 2014]
- Nationalencyklopedin (2014). Beslutsteori, Available Online: <http://www.ne.se.ludwig.lub.lu.se/lang/beslutsteori> [Accessed 4 March 2014]
- Ofstad, H. (1961). An Inquiry Into the Freedom of Decision, Oslo: Norwegian Universities Press

- Osmont, A., Godblum, C., Langumier, J.-F., LeBris, E., De Miras C. & Musil, C. (2008). Urban Governance: Questioning a Multiform Paradigm. Analyses and Proposals of the Working Group on Urban Governance [pdf] Available at: [http://www.diplomatie.gouv.fr/en/IMG/pdf/HD\\_Gouvernance\\_Urbaine\\_GB.pdf](http://www.diplomatie.gouv.fr/en/IMG/pdf/HD_Gouvernance_Urbaine_GB.pdf)
- Peric, A. & Maruna, M. (2012). Brownfield Redevelopment Versus Greenfield Investment: Is Serbia On the Way To Integrated Land Management? *Journal of Urban Regeneration & Renewal*, vol. 6, no. 1, pp.79-90.
- Pierre, J. (2011). *The Politics of Urban Governance*, UK: Palgrave Mcmillan
- Pilloton, E. (2006). Inhabitat, August 1 2006. Chicago Green Roof Program: Blog. Available Online: <http://inhabitat.com/chicago-green-roof-program/> [Accessed May 1 2014]
- Polèse, M. (2009). *The Wealth and Poverty of Regions: Why Cities Matter*, Chicago, Illinois: University of Chicago Press.
- Porritt, J. (2007). *Capitalism: As If the World Matters*, UK: Cromwell Press
- Porter, M. & Kramer, M. (2006). Strategy and Society, *Harvard business Review*, vol. 23, no. 5, pp.78-92
- Puppim de Oliveira, J., Doll, C., Balaban, O., Jiang, P., Dreyfus, M., Suwa, A., Moreno-Peñaranda, R. & Dirgahayani, P. (2013). Green Economy and Governance in Cities: Assessing Good Governance in Key Urban Economic Processes, *Journal of Cleaner Production*, vol. 58, pp.138-152
- Redclift, M. (1996). *Wasted: Counting the Costs of Global Consumption*, London: Earthscan Publications Ltd
- Roseland, M. (2012). *Toward Sustainable Communities*, Canada: New Society Publishers
- Rydin, Y. (2010). *Governing for Sustainable Urban Development*, London: Earthscan
- Scott, W. (2001). *Institutions and Organizations*, Thousand Oaks: SAGE Publications Inc.
- Shefrin, H. (2007). *Behavioral Corporate Finance*, New York: McGraw-Hill/Irwin.
- Siemens AG (2011). US and Canada Green City Index: Assessing the Environmental Performance of 27 Major US and Canadian Cities [pdf] Available at: [http://www.siemens.com/entry/cc/features/greencityindex\\_international/all/en/pdf/report\\_northamerica\\_en.pdf](http://www.siemens.com/entry/cc/features/greencityindex_international/all/en/pdf/report_northamerica_en.pdf) [Accessed 14 April 2014]
- Slaper, T. & Hall, T. (2011). The Triple Bottom Line: What Is It and How Does It Work? *Indiana Business Review*, vol. 86, no. 1, pp.4-8
- Smedby, N. (2013). Experiences in Urban Governance for Sustainability: the Constructive Dialogue in Swedish Municipalities, *Journal of Cleaner Production*, vol. 50, pp.148-158
- Suzuki, H., Dastur, A., Moffatt, S., Yabuki, N. & Maruyama, H. (2010). *Eco<sup>2</sup> Cities: Ecological Cities as Economic Cities*, Washington: The World Bank
- UNFPA [the United Nations Population Fund] (2007). *Linking Population, Poverty and Development: Urbanization: A Majority in Cities*, Available Online: <https://www.unfpa.org/pds/urbanization.htm> [Accessed 6 February 2014]

UN-HABITAT [United Nations Human Settlements Programme] (2002a). Sustainable Urbanisation: Achieving Agenda 21, Nairobi: UN-Habitat Publisher; London: Department for International Development.

UN-HABITAT [United Nations Human Settlements Programme] (2002b). The Global Campaign on Urban Governance, Nairobi: UN-Habitat Publisher

United Nations (1987). Our Common Future: Report of the World Commission on Environment and Development [pdf]. Available at:  
[http://conspect.nl/pdf/Our\\_Common\\_Future-Brundtland\\_Report\\_1987.pdf](http://conspect.nl/pdf/Our_Common_Future-Brundtland_Report_1987.pdf) [Accessed 6 February 2014]

United Nations (1992). Agenda 21 [pdf], Available at:  
<http://sustainabledevelopment.un.org/content/documents/Agenda21.pdf> [Accessed 6 February 2014]

United Nations (2010). Sustainable development, From Brundtland to Rio 2012 [pdf], Available at:  
[http://www.un.org/wcm/webdav/site/climatechange/shared/gsp/docs/GSP1-6\\_Background%20on%20Sustainable%20Devt.pdf](http://www.un.org/wcm/webdav/site/climatechange/shared/gsp/docs/GSP1-6_Background%20on%20Sustainable%20Devt.pdf) [Accessed 12 April 2014]

United Nations (2011). Department of Economic and Social Affairs, Population Division (2011): World Population Prospects: The 2010 Revision [pdf], Available at:  
[http://www.un.org/en/development/desa/population/publications/pdf/trends/WPP2010/WPP2010\\_Volume-I\\_Comprehensive-Tables.pdf](http://www.un.org/en/development/desa/population/publications/pdf/trends/WPP2010/WPP2010_Volume-I_Comprehensive-Tables.pdf) [Accessed 6 February 2014]

United Nations (2012). Department of Economic and Social Affairs, Population Division (2012): World Urbanization Prospects: The 2011 Revision [pdf] Available at:  
[http://esa.un.org/unup/pdf/WUP2011\\_Highlights.pdf](http://esa.un.org/unup/pdf/WUP2011_Highlights.pdf) [Accessed 6 February 2014]

United Nations (2013). World Economic and Social Survey 2013: Sustainable Development Challenges [pdf] Available Online: <http://sustainabledevelopment.un.org/content/documents/2843WESS2013.pdf> [Accessed 16 April 2014]

van Dijk, T., Muñoz-Gielen, D. & Groetelaers, D. (2007). Expanding cities: A Grounded Conceptual Model That Allows Comparing Systems of Greenfield Land Development, *TPR: Town Planning Review*, vol. 78, no. 3, pp.279-310

Wackernagel, M. & Rees, W. (1996). Our Ecological Footprint: Reducing Human Impact on the Earth, Gabriola Island, BC: New Society Publishers

Willard, B. (2002). The Sustainability Advantage: Seven Business Case Benefits of a Triple Bottom Line, Canada: New Society Publishers

World Bank (2013). Urban Development Overview, Available Online:  
<http://www.worldbank.org/en/topic/urbandevelopment/overview> [Accessed 6 February 2014]

Yin, R. (2009). Case Study Research Design and Methods, Thousand Oaks: SAGE Publications Inc.

Yin, R. (2011). Kvalitativ forskning från start till mål, Lund: Studentlitteratur



**APPENDIX 1: Presentation of Interview Objects**

<b>Date of Interview</b>	<b>Name</b>	<b>Title</b>
Monday March 24 <sup>th</sup> 2014	Suzanne Malec-McKenna	Former Commissioner of Department of Environment
Monday March 24 <sup>th</sup> 2014	Tim Grzesiakowski	Project Manager at the Metropolitan Planning Council
	Kara Riggio	Associate at the Metropolitan Planning Council
Tuesday March 25 <sup>th</sup> 2014	Kathleen Dickhut	Deputy Commissioner at the Department of Planning and Development
Tuesday March 25 <sup>th</sup> 2014	Luann Hamilton	Deputy Commissioner of the Department of Transportation
	Janet Attarian	Complete Streets Director at the Department of Transportation
Wednesday March 26 <sup>th</sup> 2014	Aaron Koch	Deputy Commissioner of Sustainability at the Department of Water Management
	Irene Schild Caminer	Director of Legal Services at the Department of Water Management
Thursday March 27 <sup>th</sup> 2014	Tom Schenk	Chief Data Officer and Director of Analytics at the Department of Innovation and Technology
	Sean Thornton	Chicago Research Fellow at Ash Institute for Democratic Governance and Innovation part of Harvard University
Thursday March 27 <sup>th</sup> 2014	Ed Miller	Environment Program Director at the Joyce Foundation
Friday March 28 <sup>th</sup> 2014	Derek Messier	Deputy Commissioner of Department of Fleet and Facility Management
	Kimberly Worthington	Deputy Commissioner of Department of Fleet and Facility Management
	Kevin Campbell	Manager of Fleet Services and Automotive Procurement at the Department of Fleet and Facility Management
	Walter West (Written answers)	Deputy Commissioner of the Bureau of Fleet Operations
Monday March 31 <sup>st</sup> 2014	Melody Geraci	Deputy Director of Programs at the Active Transportation Alliance
Tuesday April 1 <sup>st</sup> 2014	Deborah Stone	Chief Sustainability Officer of Cook County
Tuesday April 1 <sup>st</sup> 2014	Rosmarie Andolino	Commissioner of Department of Aviation
Wednesday April 2 <sup>nd</sup> 2014	Karen Weigert	Chief Sustainability Officer of Chicago
	Elizabeth Scanlan	Director of Code Development at the Department of Buildings

**Former Department of Environment: Commissioner Malec-McKenna**

Suzanne Malec-McKenna was the Commissioner of the former Department of Environment (DOE). DOE was eliminated by the new Mayor, Mayor Emanuel, and consolidated into all of the existing departments in Chicago. DOE looked at what laws to pass in order to protect the environment regarding strategies about green business, green offices, green technology, renewable energy and green jobs. A lot of Suzanne Malec-McKenna's work revolved around choosing what laws to pass, how to convince the Aldermen to approve them, but most importantly, how to enforce them. Suzanne Malec-McKenna is truly passionate about protecting the environment and is currently the executive director of Chicago Wilderness. Chicago Wilderness focuses on the Lake Michigan region by protecting the nature, building smart infrastructure, adapting the climate and getting the children outdoors around.

**The Metropolitan Planning Council: Tim Grzesiakowski and Kara Riggio**

The Metropolitan Planning Council (MPC) is a non-profit organization that engages in thorough research, advocacy and demonstration of projects to develop innovative and pragmatic solutions to the region's most vexing challenges. Tim Grzesiakowski works at MPC as Project Manager of the Commute Options pilot program. The projects accounted for the understanding of how employees of various local companies get to work and offer new incentives of how to commute in a better way, such as public transportation or carpooling. Another area is to recommend a joint website for all public transportation options in and around Chicago. Tim Grzesiakowski has more than two decades of experience in transporting issues. Kara Riggio works with Bus Rapid Transit to develop a new mode of transportation in Chicago and Place Making Programs where her work revolves around developing safe and welcoming public spaces. Kara Riggio has a background in teaching and has a Master's degree in Urban Planning and Policy.

**Department of Planning and Development: Kathleen Dickhut**

Kathleen Dickhut is the Deputy Commissioner at the Chicago Department of Planning and Development (DPD). DPD is the principal planning agency of the city and has the focus of promoting growth and increasing the well-being of the city and its neighborhoods. It has three bureaus; Housing, Economic Development and Zoning and land use. The bureaus of housing and economic development work with a variety of resources to maintain a stable housing standard and to encourage business and real estate development. The zoning and land use bureau focuses on planning for open spaces and acquisitions throughout the city as well as oversees policies for food and manufacturing. Kathleen Dickhut works at the zoning and land use division and has both a Master of Science and Architecture and a background in psychology and sociology.

**Department of Transportation: Janet Attarian and Luann Hamilton**

The Department of Transportation's (DOT) mission is to make the transportation networks safe for users, make them environmentally sustainable and always maintained. The vision is to guarantee that Chicago continues providing a high-quality network that is globally competitive. Janet Attarian is the Complete Streets Director, which means that she designs streets for all uses

and a full range of age groups. Streets represent one fourth of all land area, and the City of Chicago owns 70% of this area, which means that it is important to think about the ecological aspect of streets. Some of Janet Attarian's projects regard bikes, pedestrians and green allies and her job involves decision making and implementing change. Luann Hamilton is the Deputy Commissioner of the division for Project Development. She works with planning, programming and policy development of DOT.

**Department of Water Management: Aaron Koch and Irene Schild Caminer**

The Department of Water Management (DWM) is responsible for delivering fresh pure water to the residents of Chicago and 125 suburban communities every day. An interview was conducted with two employees at DWM. Aaron Koch is the Deputy Commissioner of Sustainability whose work entails making all processes and operations as sustainable as possible which includes reduce flooding risk, optimize the capacity of the systems, use less energy and work with governmental stakeholders. Irene Schild Caminer is the Director of Legal Services and is also involved with the Meter Save Program which installs free "water meters" in small residential homes to calculate how much energy is used. This indicator will increase awareness and encourage using less water and energy.

**Department of Innovation and Technology: Tom Schenk and Sean Thornton**

The Department of Innovation and Technology (DoIT) is the central information technology organization for Chicago and provides a number of technology and telecommunications services to departments, the Mayor, Aldermen, other city agencies, residents, businesses and tourists. Such services include providing tools to facilitate the work and processes of businesses and departments in the city. Tom Schenk is the Chief Data Officer and Director of Analytics at DoIT and oversees the strategic and daily implementation of data; from day-to-day management, such as data base management, to finding ways to use data in beneficial and strategic ways to improve the quality of life for citizens and businesses. The latter is accomplished through work within three different areas; Open Data, Business Intelligence and the Advanced Analytics Unit. Sean Thornton works for the Ash Institute for Democratic Governance and Innovation which is a part of Harvard University. Sean Thornton has worked with the city for a few years with numerous researches, reports, case studies and qualitative data on what the city is doing in order to come up with suggestions on how to improve the government's processes, e.g. through better communication.

**The Joyce Foundation: Ed Miller**

The Joyce Foundation (TJF) is a charitable foundation providing grants to organizations around the Great Lakes region. The foundation has six different programs, among them an environmental program that originally focused on national environmental policy. They invest in environmental projects that aim to protect the Great Lakes region regarding energy efficiency and climate issues. The Great Lakes program promotes green infrastructure for storm water management and the protection of the lake from invasive species. Ed Miller is responsible for the

environmental program which involves personally making recommendations to the board of what grants TJJ should make.

**Department of Fleet and Facility Management: Kevin Campbell, Kimberly Worthington, Derek Messier and Walter West**

The Department of Fleet and Facility Management (DFFM) supports the operations of other city departments, e.g. police, sanitation and aviation, by providing high-quality and cost-effective fleet and facility services such as different types of equipment and vehicles. The interviewees all work at the DFFM, but within different sectors. Kevin Campbell is the Manager of Fleet Services and Automotive Procurement, Kimberly Worthington is Deputy Commissioner of Environmental, Health and Safety Management, Derek Messier is Deputy Commissioner and Walter West is Deputy Commissioner of the Bureau of Fleet Operations. The interview was conducted with Kevin Campbell, Kimberly Worthington and Derek Messier. Walter West answered the interview questions in written.

**Active Transportation Alliance: Melody Geraci**

Active Transportation Alliance (ATA) was founded in 1985 and is a non-profit regional bicycle advocacy organization that tries to make bicycling a part of the city culture. In 2008 they broadened their organization to also include care for pedestrians and using other non-polluting forms of transportation. Their objective is to make transportation safe, easy and fun. ATA aims at changing things from the inside as well as from the outside; they're not an activist organization that tries to change the government from the outside. They collaborate with municipalities and the Department of Transportation. They frame their work in three basic tracks: Build a world class network of infrastructure in the city, Build popular movements and encourage a culture of security, safety, education and legislative work. Melody Geraci is the Deputy Director of Programs, which means that she handles educational work, special projects and is in charge of operations.

**Chief Sustainability Officer of Cook County: Deborah Stone**

Deborah Stone is the Director of the Cook County Department of Environmental Control (CCDEC), and she is also the Chief Sustainability Officer (CSO) of Cook County. The CCDEC's work revolves around the Cook County area, excluding the city of Chicago. The CCDEC provides permitting and inspection services, monitoring the regional air quality, conducting solid waste planning and implementing sustainable practices within the County. The County's four cornerstones are: Fiscal Responsibility, Transparency and Accountability, Innovative Leadership and Improved Services. They work with the demolition of buildings and their waste project that concerns removing asbestos and divert it from landfill has been very successful. Deborah Stone's work as the CSO of Cook County revolves around handling facilities management, which entails making the facilities of Cook County more sustainable.

**Department of Aviation: Commissioner Rosemarie Andolino**

Rosemarie Andolino is the Commissioner of the Chicago Department of Aviation (CDA). Rosemarie Andolino oversees Chicago's two main airports, O'Hare and Midway International, and the department has over 1500 employees. CDA promotes air travel and encourages people to come to Chicago by improving the efficiency and connectivity of the airports. Thereby, they aim to grow Chicago's competitiveness and become a leader in aviation and make Chicago as environmentally friendly as possible. The main goals are: sustainability, coordination and easy transit in all of their operations. In order to accomplish this, key words such as being safe, secure and having good infrastructure in place are necessary.

**CSO of Chicago and Department of Buildings: Karen Weigert and Elizabeth Scanlan**

Karen Weigert is the Chief Sustainability Officer (CSO) of Chicago and Elizabeth Scanlan works at the Department of Buildings (BoD). Karen Weigert works across policies, programs and infrastructure with multiple departments in Chicago. She works at the Mayor's office to reach the Mayor's goal of most sustainable Chicago in 2015; to make Chicago the most livable, the most competitive and the most sustainable city in the USA. Elizabeth Scanlan, on the other hand, works with code issues for constructions. She is specifically working on developing the energy conservation code and the enforcement of different codes. They both meet on a regular basis to discuss sustainability issues regarding buildings.

## **APPENDIX 2: Interview Guide Chicago**

### **General**

1. Please tell us very briefly about your role/work.
2. How would you define a sustainable Chicago?
3. How does your department contribute to a sustainable Chicago?
4. Do you believe that a sustainable society is possible to establish only through governmental involvement and/or initiatives?
5. Do you compare yourselves to other cities and their initiatives with sustainable development?
6. Please describe a project that you have been involved with that has been particularly successful. What made it successful?

### **Decision-processes**

7. Do you use a standardized model when making decisions?
  - a. How does the general decision process at your department look like?
  - b. What steps are included? Which one is/are most important?
8. Are there any historical factors in Chicago/your department that affect your decision making?
9. Is the reasoning different regarding short-term decisions, compared to long-term decisions? How does it differ?
10. Does the decision process in sustainability projects differ from “regular projects” with regard to the following factors:
  - a. The financing of the project?
  - b. The technology used in the sustainability project?
  - c. The marketing of the project?
11. What factors affect your decision-making? (Legislation, guidelines, organizational structure, organizational culture, sustainability etc)
12. What kind of information is needed before making a sustainability decision? How do you retrieve that information?
13. What key stakeholders are important to take into consideration when making decisions in sustainability projects?
14. Do you engage in any collaborative settlements with other parties?
15. Does personal intuition affect your decisions?
16. How much emphasis is put on environmental, social and economic objectives respectively? Which one is the most important at your department?
17. Do you believe decisions regarding sustainability differ from regular decisions regarding “normal projects”?

### **Problems and risks**

18. What is the most challenging aspect when making a sustainability decision?

(coordination, objectives, collaboration, information, financing, time constraint, political election, changing environment, complex/unknown outcome etc)

19. Do you believe some risks are so significant that they prevent you from making certain sustainability decisions?
20. What risks are you willing to take in order to reach sustainability?

### **Future**

21. Do you believe changing demographics of Chicago will affect the city's sustainable development?
22. What level of sustainable development do you believe Chicago will reach by 2025?  
(Compared to other cities?)

# Six Dimensions of Sustainability Decision Making

**There are factors affecting work with sustainability, and there are factors affecting decision making. Combining these two to create sustainable city development can be tricky, especially if your perception of sustainability does not conform to how you subconsciously practice it. The case of Chicago gives a six-dimensional answer to help you solve the puzzle.**

*by Katarina Werder and Klaudia Wojtkowiak*

**T**oday, the world is experiencing the biggest growth ever seen in human history of urbanization. By 2050, the total world population will increase with 2.3 billion people while urban areas will increase with 2.6 billion people. Hence, cities will attract the entire future population growth, while also absorbing parts of the existing rural population. New cities will arise and existing cities will grow bigger. Fast.

**The reasons to move** to cities are many; closeness of individuals and institutions, simplified social mobilization and opportunities of healthcare, education and work, are just a few. Urbanization can also contribute to economic growth and productivity of a city. While at the same time taking these benefits into account, the city constellation also constitutes a challenge. Problems of transportation, energy consumption, lack of housing, fresh water and sanitation are likely to arise as a result of the growing number of citizens. Social inequalities and negative impact on the environment can further constitute potential issues. Consuming resources faster than the planet can reproduce them becomes a great focus for city governments all over the world. In order to cope with those challenges, decision makers need to realize the need to move the city towards

sustainable development so that neither the needs today, nor of future generations, will be compromised.

**In response to** the growing interest and acknowledgement of the importance of sustainable development, governments and companies have started exploring a new type of city referred to as sustainable cities; these cities attempt to advance sustainable development. There is still no unanimous definition of what constitutes a sustainable city with regard to how diverse and dispersed the current work with sustainable societies around the world still is. This puts implications on how to actually work with it on the city level. Understanding sustainability and the changing environment, having a well-functioning governing body, collaborating with other parties, embracing innovation and technology - while being constrained by financial resources - are challenges ahead of the decision maker working at the municipality. Media attention puts pressure on decision makers to do "something", but without knowing the effects of decisions lacking the sufficient resources or even not fully understanding what in fact constitutes "sustainability", the decision maker stands



Idea in Brief	The Six Dimensions
<p><b>Increasing urbanization and changing factors in the external environment indicates the need for sustainable cities. In order to make them function correctly, proper methods of decision making need to be in place.</b></p>	<p>The variety of factors affecting the two dispersed areas of sustainability and regular decision making complicates the decision making process in sustainability initiatives. Categorizing the factors in six dimensions will help to navigate the factors affecting the decision making:</p> <ol style="list-style-type: none"> <li>1. Centralized/Decentralized</li> <li>2. Holistic/Atomistic</li> <li>3. Long-Term/Short-Term</li> <li>4. Inside/Outside</li> <li>5. Visible/Invisible</li> <li>6. Information/Intuition</li> </ol>

clueless and does not have a solid foundation to make the most insightful and successful decision.

**Through interviews with** individuals in the City of Chicago, a city seen on the forefront with regard to their sustainability initiatives, it was possible to understand and construct the proper tool for strategically evaluating factors affecting the decision making relating to sustainability initiatives. Translating factors of the two dispersed areas of sustainability and regular decision making into six dimensions, provides a guiding map for the decision maker. The rest of this article explains how to best navigate through the dimensions and how to balance their extremes, hence, how to make the optimal sustainability decision.

#### **Dimension 1: Centralized/Decentralized**

The Mayor was found to have great influence, and his visions led to centralized goals that were followed by all employees in the city. Although sustainability can be achieved through a Mayor's signature project, it can create a false sense of security and undermines people's personal responsibility and accountability. Therefore, a city needs greater decentralization of power and governance in order to achieve good decision making regarding sustainability projects. The governmental employees have to be empowered to make decisions, and the individual departments must be allowed to set their own goals and be able to choose their own projects; in that way, decentralization can further contribute

to spending limited funds more wisely. However, the Mayor should still hold a symbolic centralized position since it will give the city more legitimacy and visibility. Moreover, it was also found that intuition was used as a way to cope with information constraint in decision making, but only by decision makers with a lot of authority. It further shows that there has to be a degree of decentralization on different levels in order to make day-to-day decisions more efficient and save time.

#### **Dimension 2: Holistic/Atomistic**

One of the most prominent aspects of sustainability is to have a holistic point of view. This facilitates understanding of what sustainability is, hence, how to achieve it. On one hand, the holistic view sets the broad vision and is easy to communicate to all stakeholders involved. On the other hand, the vision may seem too abstract and unclear to be used as a practical tool in the day-to-day activities. Therefore, it is further essential that the broad goal is understood as, and divided into, smaller sub-goals that jointly contribute to the main objective of sustainable development. This implies having an atomistic approach to the area of sustainability. This dimension is further connected with factors of understanding the TBL and take all parts of the city into account in order to make everyone part of the sustainable development. The ability to balance the holistic and atomistic point of view within this variety of factors is, therefore, an important aspect of decision making.

**Dimension 3: Short-Term/Long-Term**

The empirical findings show that a short-term focus in sustainability projects can be very beneficial for decision makers and a way of coping with limited rationality. Short-term pilots have been proven to be very efficient in convincing investors in order to quickly receive funding and credibility and later on becoming institutionalized trends. Short-term thinking can also be connected to decision making with limited rationality and considered a coping mechanism of information constraint. It is difficult to make realistic forecasts long into the future, thus, it is easier to focus on the short term. Short-term thinking has also been found to be greatly affected by the political environment because the approval of the Aldermen, which are elected for only a short period of time, is needed. Nonetheless, decision makers cannot forget the long-term sustainability goal of their work and have to make sure that every short-term project that is initiated has to be regarded as a milestone on the way to achieve the long-term goal.

**Dimension 4: Inside/Outside**

No party holds all information. However, taking advantage of all internal resources and know-how within an organization is the starting point; hence, it is important to recognize ideas and support individual thinking. In order to take advantage of advancements, e.g. relating to technology and knowledge from other areas outside the organization, decision makers also need to look outside the internal boundaries to achieve sustainability. Collaborating with external parties and benchmarking other cities are methods of finding valuable information, inspiration and partners. Furthermore, providing tools to educate all parties in the network can further benefit them all. Finding the appropriate level of insight originating from inside and outside the organization is important in order to support sustainability decision making.

**Dimension 5: Visible/Invisible**

The opportunity of branding a city due to its sustainability commitments was found to be an important factor of pursuing a sustainability project. Depending on the outreach and need of publicity, different projects can be prioritized accordingly. It is important to acknowledge the city's need to be "visible" versus "invisible". The former indicates pursuing sustainability projects simply due to its perceived attention, not having its impact on sustainability as the main objective. However, it may open up for other future opportunities, such as more funding. Different levels of green washing, benchmarking, the use of new technology and the importance of incorporating trends and becoming a role model are, thus, advocated to consider in the decision making process. Hence, this dimension relates to how to respond to external stakeholder pressure. Conversely, being "invisible" does not take external recognition into account; projects are purely initiated due to its relative impact on the city's sustainable development. It is up to the decision maker to acknowledge the attention a project will get, i.e. how visible it will be, and balance it with the need to be so. Hence, there is a trade-off on spending money on projects that will gain recognition and projects significantly benefiting sustainability.

**Dimension 6: Information/Intuition**

Information has been proven to be an essential asset in decision making. On one hand, great shortage of it causes difficulties for decision makers to make optimal decisions in order to reach sustainability. On the other hand, having information in redundancy can also be an issue, since too much information can be suboptimal and make the information difficult to analyze. Decisions regarding sustainability have been found to require more detailed information than other projects, due to the fact that advanced technology is frequently used in those kinds of projects. One way to

diminish the lack of information and uncertainty is to look for best practices and what has been done elsewhere, i.e benchmarking other cities. However, another way to cope with information deficiency is for decision makers to use personal intuition and past experience in their decision making process. It has been shown to be very effective when there has been a time constraint and difficulties of making forecasts and measuring results. Conclusively, decision makers have to find an optimal mixture of using information and intuition; sustainability projects need a lot of information, but day-to-day decisions regarding these kinds of projects might be made by using intuition.

---

**Sustainable city development** is necessary in order to deal with challenges implicating the well-being of the world's entire population. In order to reach a sustainable future, we must start now. Being an essential part of city governance, decision making is proven to have a major impact on how and what sustainability projects gets pursued. By knowing how to best navigate through the process of decision making, sustainability can be achieved. Reaching sustainable development is recognized as the main goal, through effective decision making methods we can get there faster.