Sustainability Governance Initiatives in Universities as a Tool for Sustainability

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Abstract: Sustainability governance in universities must be enhanced with strategic guidelines for universities striving for sustainability. Universities play a crucial role in sustainable development through their operations, research and education. Therefore, they have to become leaders of change in sustainability through their continuous learning and improvement. Although the existing literature suggests actions and tools for universities, most of them are too university specific or lack whole systems perspective. This thesis examines how sustainability governance in universities can be enhanced to make universities effective in addressing sustainability challenge. For this, the Conceptual Framework for Sustainable Universities has been developed. The Framework includes 11 themes with strategic guidelines suggesting aspirations as stepping stones for achievement of the vision of success of the sustainable university. This Framework can be applied to identify and bridge the gaps in sustainability governance in universities making their contribution to sustainable development considerable.

Keywords: Sustainability governance in university, strategic planning for sustainability, sustainable campus, strategic sustainable development.
Statement of Contribution

“If you want to go fast, go alone. If you want to go far, go together.’

African Proverb

Every member of our team has contributed equally to the research and in a very dedicated way. All of us participated in all phases of the research design, carrying out methods, finding resources, writing and editing of the thesis. However, several times throughout the process the initiative was taken by somebody of us.

For example, Begüm was responsible for literature review, research and excellent writing, providing bright ideas and establishing networks with sustainability practitioners. She was great in structuring and formulating information, while making a logical flow of the text.

Hadeel worked on IT and art side of our thesis, investing all her knowledge and experience in the field of Higher Education in framing our Conceptual Framework for Sustainable Universities. She ensured that all pictures, graphs, tables and figures are represented in the thesis and all big statements are backed up with references.

Anzhelika was creating the agenda for our meetings, formulating tasks, giving reasoning for each of those, and making sure we are on track in following our timeline. She put her great project management skills in group work and made sure that tasks were completed efficiently and in time, while working on them herself as well.

All team members were supportive to each other and extremely understanding throughout the process of group work.

Anzhelika Amlaeva

Begüm Feyzioğlu

Hadel Mohammed Iskander ElKambergy

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- Lina Häckner from KTH Royal Institute of Technology; Sweden
- Clare Walker from University of Melbourne; Australia
- Alexandra Crisan from University of Groningen; the Netherlands
- Wendy Wei from the American University in Cairo; Egypt

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Anzhelika Amlaeva, Begüm Feyzioğlu and Hadel Mohammed Iskander ElKambergy

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Executive Summary

1. Introduction

The Industrial Revolution increased technological advancements, but also significantly worsened anthropogenic impact on environment. Although several developments were recorded, human society has also kept facing serious social problems on an ongoing basis. These ecological and social trends and the rates at which they are occurring has created a sustainability challenge.

Education raises students’ awareness on sustainability and equips them with necessary skills to tackle the challenges of the 21st century. Within this endeavor, education institutions and within them - universities - are recognized as leverage points for sustainable development.

Apart from education, universities are engaged in research. Through conducting research on sustainability related topics, universities may find new ways to tackle the ‘wicked’ problems that create the global sustainability challenge. Moreover, universities are automobile-intensive and waste-intensive organizations with a high level consumption. Therefore, they need to apply sustainability to their operations.

As the decline of the Earth’s systems is in escalation, there is an increasing pressure on universities to undertake the role of leaders in sustainability. Thus, in account of all mentioned above patterns and role of universities in sustainable development, universities have a significant responsibility to develop a sustainability governance framework.

‘Sustainability governance’ is administrative and policy related procedures in an institution which affect decision making processes related to sustainability. In universities sustainability governance is connected to: education, operations, research and community outreach.

The approximate number of higher education institutions is 17,000 in 183 countries. If all universities in the global arena embedded sustainability as a core value in their governance, this would be a significant step for society in its transition towards sustainability.

Strategic Planning for Sustainable Development

The Five Level Framework for Planning in Complex Systems (5LF) is a conceptual framework used for analysis, decision making and planning. The 5LF divides the planning into five levels: Systems, Success, Strategy, Actions and Tools. The Framework for Strategic Sustainable Development (FSSD) integrates sustainable development elements into these five levels. The FSSD is a strategic tool for organizations to minimize their negative impacts on ecological and social systems while finding new business opportunities.
Aspects of the FSSD can be combined with strategic guidelines for universities’ sustainability governance. This would have the potential to serve as a high leverage governance tool for universities to embed a Strategic Sustainable Development (SSD) approach into their organizational decision making. Unlike university specific actions and tools, it is hoped that such strategic guidelines can be flexible and applicable in different universities from different regions of the world.

Research question and aim

“How can sustainability governance in universities be enhanced to make universities effective in addressing sustainability challenges?”

The research aims to develop a framework for universities to enhance their sustainability governance. The researchers intend to analyze the current state of sustainability governance in universities to understand how it can be made more effective in addressing the sustainability challenges of our time.

2. Methodology

The study had an overall qualitative design and used a combination of a literature review, document content analysis, survey, and semi-structured interviews. The research design was carried out across these three phases of research, exploring sustainability governance in universities: (1) Crafting the Initial Conceptual Framework for Sustainable Universities (by using the 5LF as a mental model); (2) Analyzing the current reality of sustainability governance in universities; (3) Developing the Conceptual Framework for Sustainable Universities.

3. Results and Discussion

Phase 1: Crafting the Initial Conceptual Framework for Sustainable Universities

The initial Conceptual Framework for Sustainable Universities consisted of eleven themes: Strategic planning; Education for sustainability; Research, Student and alumni engagement; Social practices; Environmental practices; Outreach and networks; Visibility; Financial management; Organizational self-assessment; and Celebration of success.

The Framework included several FSSD concepts. Some are: definition of sustainability based on 8 Sustainability Principles; steps of ABCD procedure.

Phase 2: Analyzing the current reality of sustainability governance in universities

The sustainability practitioners who answered the survey and were interviewed are from Australia, Egypt, Sweden, the Netherlands and Turkey.
Some of the results from survey, interviews and official documents are as follows:

- It is common in sample universities to name a department operating in the field of environmental sustainability as ‘Sustainability Office’. However, sustainability offices are not the only departments dealing with sustainability practices.
- Social sustainability practices are mostly outside of the scope of sustainability offices. Human resources, education and health departments embrace the majority of these areas: continuous learning, freedom of expression, health and safety, transparency and inclusiveness, accessibility of education.
- Sample universities address several environmental challenges related to transportation, construction, consumption of energy and water, generation and management of waste, biodiversity management. Universities prioritize projects which have current importance.
- The data collected on ‘definition of sustainability’ is contradictory. A few sustainability practitioners could not define sustainability as there is lack of a shared mental model of sustainability across university staff. The results suggest that the definition of sustainability that a university uses is vague and lack whole system perspective. Hence, several sustainability areas are left uncovered in university operations, education, and research.
- Action prioritization process for sustainability projects and activities lacks strategic approach. Therefore, sustainability practitioners act spontaneously while trying to adapt to the current situation and predict trends.
- All sample universities encourage students and faculty members to pursue research about sustainability, provide funding and research facilities. Students are involved in sustainability related events and projects. However, involving faculty members in sustainability related activities is challenging as they are busy with research. Faculty members have a potentially significant role since they guide students in their learning.
- Sample universities are members of national, regional and international networks related to sustainability. Sample universities use these networks to share best practices and build new collaborations with other organizations.
- Although various channels of communication are used by sample universities to announce sustainability related activities and projects, they still have a problem of communicating and reaching students. The results suggest that effective usage of social media is needed.
- All sample universities have financial departments. The data collection did not cover much information about the assessment of university supply chain in terms of impacts on environment and society before establishing contracts with them. However, some sustainability practitioners ensured that the practice of assessing suppliers takes place. It is important to collaborate with sustainable suppliers as it encourages transition of society towards sustainability.
- The majority of the universities experience financial challenges. Universities often find it challenging to promote sustainability on campus as it may bring extra costs for universities. The priority goes to other matters of the university that senior management should pay attention to. Therefore, senior management of universities need to be persuaded into the ‘business case benefits’ of sustainability.
- All sample universities use reports and surveys as tools to measure their progress in sustainability work. The only recommendation that the researchers would give
is to ensure that these tools cover not only one sphere of operations, but rather suggests which areas of sustainability work need more improvement.

Phase 3: Developing the Conceptual Framework for Sustainable Universities

The Conceptual Framework for Sustainable Universities may serve as a road map for universities that aim to establish or improve their sustainability governance. The Framework suggests strategic guidelines and “aspirations” for universities to guide them in their transition to the “sustainable university”. The researchers anticipate that the Conceptual Framework for Sustainable Universities will draw the attention of university sustainability practitioners to the blind spots in their sustainability governance that they may identify after reading guidelines.

4. Conclusion

To answer the research, question a set of strategic guidelines and aspirations called The Conceptual Framework for Sustainable Universities was prepared. Throughout the phases of research, several weaknesses and challenges were identified in sample universities’ sustainability governance. The Framework addresses these weaknesses and challenges and is designed to provide a strategic approach for universities’ sustainability governance. It integrates several FSSD concepts in its body and makes a contribution to Strategic Sustainable Development (SSD).
Glossary

**ABCD-Procedure:** A four step strategic planning process used by organizations and communities to select step-wise actions toward sustainability utilizing a backcasting approach. It includes the following steps: A) Systems awareness and creating a shared vision of success based on the organization’s vision and the four sustainability principles. B) Assessing the organization’s current reality. C) Brainstorming compelling measures to move from the current reality towards the shared vision. D) Prioritizing measures based on strategic planning prioritization principles.

**Backcasting:** A strategic approach that involves first envisioning a desired future, then looking back from that future to the current reality to consider how to strategically move from the current position to the desired future position.

**Biosphere:** The region of the Earth’s system inhabited by living organisms, spanning from the Earth’s crust to the upper atmosphere.

**Complex system:** A system that consists of a relatively large number of parts that interact in complex ways to produce behavior that is sometimes counterintuitive and unpredictable. Types of complex systems: Chaotic systems, Complex adaptive systems, and Nonlinear systems.

**Education for Sustainable Development:** Education for Sustainable Development means including key sustainable development issues into teaching and learning; for example, climate change, disaster risk reduction, biodiversity, poverty reduction, and sustainable consumption. It also requires participatory teaching and learning methods that motivate and empower learners to change their behavior and take action for sustainable development. Education for Sustainable Development consequently promotes competencies like critical thinking, imagining future scenarios and making decisions in a collaborative way.

**Five-level framework:** A structuring and inter-relational model distinguishing and clarifying the inter-relationships between phenomena of fundamentally different character.

**Framework for Strategic Sustainable Development (FSSD):** A framework for planning in complex systems that aids societal transformation towards a sustainable mode of operation.

**Funnel metaphor:** A metaphor which indicates that the current trends of the system are impossible to be continued in the long term without avoiding potential catastrophic systems failure both within society and the biosphere at large.

**Leverage points:** Places within a complex system where an initially small shift can create significant change. In other words, they are the efficient places to intervene in a system.
Mental model: An explanation of someone's thought process about how something works in the real world.

Mindmap: a trademark for a type of diagram (simple plan) with lines and circles for organizing information so that it is easier to use or remember.

Shared vision: What you and the other members want to create or accomplish as part of the organization.

Strategic Sustainable Development Framework (SSD): Based on Framework for Strategic Planning. Designed to help bring clarity, rigor, and insight to planning and decision making to achieve a sustainable society in the biosphere. Grounded by a ‘backcasting from sustainability principles’ approach, whereby a vision of a sustainable future is set as the reference point for developing strategic actions.

Society: The global social system and the physical infrastructure that humans have created, in part to meet individual and collective needs.

Strategy: Logical and generic guidelines to inform the process and implementation of a plan.

Strategic goals: Clear, measurable, and attainable objectives that serve as stepping stones along an organization’s path towards achieving its overall vision.

Strategic plan: The specific actions that an organization chooses to move towards sustainability fit with the strategic guidelines and methods introduced in the FSSD’s Strategic Level.

Sustainability: A state in which the socio-ecological system is not systematically undermined by societal processes. The eight basic sustainability principles must be met in order to have a sustainable society.

Sustainability challenge: The challenge faced by society as a result of systematically increasing unsustainable practices within the biosphere.

Sustainability governance: An administrative and policy related procedures in an institution which affect actions and decision making related to sustainability.

Sustainability principles (SPs): The eight basic principles for a sustainable society in the biosphere, underpinned by scientific laws and knowledge. The eight Sustainability Principles are:

In a sustainable society, nature is not subject to systematically increasing...

1. ...concentrations of substances extracted from the Earth’s crust;
2. ...concentrations of substances produced by society;
3. ...degradation by physical means;

and, in a sustainable society, people are not subject to systematic barriers to...
4. ...integrity;
5. ...influence;
6. ...competence;
7. ...impartiality;
8. ...meaning.

**Sustainable development (SD):** The strategic mission to eliminate society’s unsustainable, systemic errors and create a sustainable society, thereby stabilizing the resources available to support civilization.

**Sustainable University:** The sustainable university is one that through it is guiding ethos, outlook and aspirations, governance, research, curriculum, community links, campus management, monitoring and modus operandi seeks explicitly to explore, develop, contribute to, embody and manifest - critically and reflexively - the kinds of values, concepts and ideas, challenges and approaches that are emerging from the growing global sustainability discourse.

**Systematically increasing:** The term systematically in the first three SP’s refers to an increasing deviation from the “natural” (pre-industrial) state of the socio-ecological system due to society’s actions.

**Systems thinking:** An understanding of a system by examining the linkages and interactions between the components that comprise the entirety of that defined system.

**Unsustainable practices:** All practices that are not in alignment with the sustainability definition of the SP’s.
List of Abbreviations

CFO: Chief Financial Officer

CO2: Carbon dioxide

FSSD: Framework for Strategic Sustainable Development

GRI: Global Reporting Initiative

HE: Higher Education

ISCN: The International Sustainable Campus Network

ISCN-GULF: The International Sustainable Campus Network - Global University Leaders Forum

ISO: International Organization for Standardization

IUCN: International Union for Conservation of Nature

SSD: Strategic Sustainable Development

UNESCO: The United Nations Educational, Scientific and Cultural Organization

UNEP: The United Nations Environment Programme

WWF: World Wide Fund for Nature

5LF: The Five Level Framework for Planning in Complex Systems
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1 Introduction

“Just as the Iron Age didn’t end because we ran out of iron, the Industrial Age isn’t ending because of the decline in opportunities for further industrial expansion. It is ending because individuals, companies, and governments are coming to the realization that its side effects are unsustainable and alternatives are possible. Indeed, creating these alternatives is already shaping the most important innovation opportunities in the world.”

(Senge, Smith, and Kruschwitz 2008)

1.1 Sustainability Challenge

The Industrial Revolution led to both a significant global growth in population size and an increase in technological advancements (Hatch et al. 2002). On the one hand, this growth has resulted in many positive outcomes such as eradication of smallpox, the global increase in life expectancy and spread of technology which has made people’s lives more comfortable (Robèrt et al. 2015). On the other hand, it increased anthropogenic impact on the environment which has led to the degradation of the biosphere (Pegov 2007). Overall biodiversity has been in a sharp decline which has resulted in serious consequences for the resilience of the ecosystem functions that support human activities (Living Planet Report 2014, Chapin III et al. 2000, Oliver et al. 2015a, Oliver et al. 2015b).

In parallel to the continuous depletion of the environment, human society has also faced serious social problems on an ongoing basis (Rockström et al. 2009, Missimer 2015). The 2015-2016 Report of the Amnesty International documented social problems from 160 countries and territories during the year 2015. Although several developments were acknowledged, war; terror; poverty; ill-treatment in public institutions; discrimination in many kinds: gender inequality, religious and ethnic intolerance; and violation of freedoms of expression, association and assembly constituted the main content of the report (Amnesty International 2016).

The above mentioned ecological and social trends and the rates at which they are occurring create a significant sustainability challenge both for humanity and for other life on the planet. One way to represent the overall patterns this sustainability challenge presents is through the use of a ‘funnel metaphor’ (Figure 1.1). In the funnel metaphor, the walls of the funnel represent the carrying capacity of planet Earth. As time goes by, the human population and demand for natural resources increase. At the same time, natural resources in the biosphere decline because they are consumed by the society at such a rate that is impossible to be regenerated by Earth’s natural systems.

Environmental, social and economic pressures on society increase drastically. Using the funnel metaphor these systematic patterns can be represented by the walls of the funnel narrowing over time. As the space with the funnel for society to move shrinks, hitting the walls of the funnel and the resulting collapse of the Earth's carrying capacity becomes increasingly probable (Broman and Robèrt 2015). The urgent need to make a systemic change makes ‘sustainability’ and ‘sustainable development’ important terms to discuss.
1.2 Defining Sustainability

Sustain /ˈsteɪn/
1. Strengthen or support physically or mentally
   1.1. Bear (the weight of an object) without breaking

(Oxford 2016)

The concept of sustainable development was proposed by the United Nations World Commission on Environment and Development (World Commission on Environment and Development 1987) and articulated as “[...] development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (World Commission on Environment and Development 1987) The Commission defined sustainability as “[...] giving priority to the satisfaction of human needs, in particular of the global poor, while respecting environmental limits.” (World Commission on Environment and Development 1987)

The Strategy for Sustainable Living published in partnership by the International Union for Conservation of Nature, United Nations Environment Programme and World Wide Fund for Nature offered a similar definition of sustainability. According to the Strategy, sustainability was "[...] improving the quality of human life while living within the carrying capacity of supporting eco-systems” and depended on "[...] accepting a duty to seek harmony with other people and with nature.” (IUCN, UNEP, and WWF 1991)

Now sustainability and sustainable development are acknowledged as key issues society faces in the twenty-first century (Komiyama and Takeuchi 2006) and seen as a “new view of the world.” (Eckersley 2006) The European Commission integrated sustainability and sustainable growth as guiding policy paradigms in its growth strategy for 2020 (European Commission 2010a, Spangenberg 2011). Similarly, in 2015 the United Nations announced 17 ‘Sustainable Development Goals’ to be reached by 2030 as the guiding direction for the global community of nations. All these developments clearly demonstrate the positioning Sustainable Development at the heart of global political discourse.
In spite of their widespread usage, defining the terms ‘sustainability’ and ‘sustainable development’ has been a tedious endeavor. Most definitions appear to be general enough to be easily accepted by governments or businesses, but are vague, lack substantive meaning, and can be used to mask practices that are indeed unsustainable (Carvalho 2001, Missimer 2013). Moreover, they abstain from suggesting any actions and guidelines (Hedenus et al. 2016). Using unclear and philosophical (Robèrt et al. 2002) definitions may lead to a volume of ideas, methods and concepts (Missimer 2015). Nevertheless, the complexity, urgency and seriousness of the above explained challenge necessitates having a clear definition of sustainability and using a strategic approach (Max-Neef 2005).

The Framework for Strategic Sustainable Development (FSSD) uses a definition of sustainability which is based on 8 Sustainability Principles set as boundary conditions (Broman and Robèrt 2015). These principles are formulated as follows (Robèrt et al. 2002):

“In a sustainable society...

Nature is not subject to systematically increasing...

1. ...concentrations of substances extracted from the Earth’s crust;
2. ...concentrations of substances produced by society;
3. ...degradation by physical means;

... and people are not subject to structural obstacles to...

4. ...health.
5. ...influence.
6. ...competence.
7. ...impartiality.
8. ...meaning-making.”

By setting non-overlapping boundaries which are concrete enough to guide, but at the same time general enough to be applicable to various areas, the Sustainability Principles of the FSSD offer a clear definition and a common language for sustainability (Robèrt et al. 2002). By using these Sustainability Principles the FSSD, which will be introduced in the following pages in detail, guides a variety of different types of organizations to stay within the system boundaries by integrating sustainability in their strategic planning. The FSSD and the 8 Sustainability Principles are significant contributions to sustainability literature because organizations as suppliers, employers, lobbyists and trendsetters are important leverage points to move societies towards sustainability (Senge et al. 2008, Craig, Macura, and Pucci 2012).

In search for leverage point to move towards sustainability

“Education is the most powerful weapon you can use to change the world”
(Mandela 1993)
Sustainability has a complex, multidimensional and dynamic nature (Nguyen and Bosch 2012). Therefore, avoiding reductionism and adopting a systems thinking approach is important while identifying leverage points to address sustainability challenges (Nguyen and Bosch 2012). Leverage points are places within a complex system where an initially small shift can create significant change. In other words, they are the efficient places to intervene in a system (Pearce, Meadows, and Randers 1992).

Institutions’ role as leverage points. Today the network of businesses, governmental and non-governmental institutions determine the overall trends of production and consumption in society (Senge et al. 2008). This places institutions in the centre of society’s economic structure and makes them efficient points to intervene in a system to address sustainability challenges (Senge et al. 2008).

Educational institutions’ role as leverage points for transition towards sustainability. Another leverage point, according to Meadows (1999), is the mindset or paradigm out of which the system with its goals, rules and structure is emerging. In order to change the patterns and systems of behavior within society that fuel the sustainability challenge, the paradigm of belief underpinning those behaviors must first change. On account of that, appropriate education and public awareness are to be considered as one of the tools for sustainability (UNESCO 1997).

Education plays a key role in shaping students’ mindset, framing their thinking and decision making as it raises their awareness about sustainability, influences their behaviour and equips them with necessary skills which are needed to tackle the challenges of the 21st century (Sharp 2002). Therefore, in this research educational institutions are recognized as leverage points for sustainable development.

Role of education in creating change agents for sustainable development. To achieve the paradigm shift, one of the most efficient ways of intervening in the system is working with ‘change agents’ to shift the beliefs in society of “the vast middle ground of people who are open minded” (Wright and Meadows 2009).

1.3 Universities’ role in sustainable development

Universities as incubators of organizational leadership. Educating future generations on sustainable development is particularly critical considering universities’ role in raising tomorrow’s change agents. According to Orr (1991), the reason for the current unsustainable state of the world is not the uneducated people, but rather the people with university degrees as in the future they tend to hold the decision making positions in organizations, businesses and government which drive the economy and shape politics. Therefore, it is essential for education to instill right values in students’ thinking to make a significant impact on moving society towards sustainability.

Universities as centers of academic research and development. Another major activity in a university is research. Research is the process of enquiry aiming to generate knowledge and critically answer fundamental questions and real-world issues (White 2013). The role of research on sustainability related subjects may be defined as: “[...] enhancing
knowledge generation, mobilization and implementation for a more equitable, healthier and happier society and understanding and developing environmental integrity” (White 2013). Through engaging in research on sustainability related topics, universities may find new ways to tackle the ‘wicked’ problems that create the global sustainability challenge (Rittel and Webber 1973, White 2013). Therefore, research on sustainability plays a significant role in contributing to sustainable development by directly engaging universities in offering new ways to make society and environment flourish (White 2013).

Universities as organizations. As any other organization, universities impact the environment through their activities and operations (Alshuwaikhat and Abubakar 2008). In fact, universities’ negative impact on the environment can be compared to hospitals or mega-hotels (Alshuwaikhat and Abubakar 2008). They are automobile-intensive and waste-intensive organizations with a high level of water, energy and material consumption (Bernheim 2003). Moreover, they have a rapid population growth which causes an expansion in campus areas and increases degradation of natural systems (Alshuwaikhat and Abubakar 2008). Therefore, it is essential for universities to apply sustainability to their operations and undertake initiatives to address areas where their physical operations contribute to the sustainability challenge (Alshuwaikhat and Abubakar 2008).

Universities as role models for communities. As universities are microcosms of their larger communities, by becoming more responsible they can have a positive impact on other organizations and individuals. Hence, universities may become role models for their communities and reinforce environmentally friendly and socially responsible values and behaviors (Cortese 2003).

Universities as sustainability leaders. As the decline of the Earth’s systems are in escalation, there is an increasing pressure on universities to respond to these current challenges and undertake the role of leaders in sustainability (Sharp 2002). Thus, in account of all mentioned above patterns and role of universities in the context of sustainable development, universities have a responsibility to use a framework for their sustainability governance.

Sustainability governance in universities. The term ‘sustainability governance’ can be defined as administrative and policy related procedures in an institution which affect actions and decision making related to sustainability; and “[…] requires effective administrative executive bodies, and enabling legal and regulatory frameworks” (Gitay et al. 2007). In universities sustainability governance is connected to four main fields: education, operations, research and community outreach (Vaughter et al. 2016). They may be integrated and combined with each other or they may be approached separately (Lidgren, Rodhe, and Huisingh 2006).

Universities may undertake a variety of initiatives as part of their sustainability governance. Faculty members, administration officers and students are considered as three main agents of these initiatives (Sharp 2002).

Through sustainability governance universities aim to transform into ‘sustainable universities’. When talking about the ‘sustainable university’ the researchers favor Sterling’s (2013) definition:
“The sustainable university is one that through it is guiding ethos, outlook and aspirations, governance, research, curriculum, community links, campus management, monitoring and modus operandi seeks explicitly to explore, develop, contribute to, embody and manifest - critically and reflexively - the kinds of values, concepts and ideas, challenges and approaches that are emerging from the growing global sustainability discourse.” (Sterling et al. 2013)

The approximate number of higher education institutions is about 17,000 in 183 countries (International Association of Universities 2004). However, there is no data available on the exact number of universities with sustainability governance. The authors argue that if all universities in the global arena embedded sustainability as a core value in their governance, this would be a significant step for society in its transition towards sustainability.

Sustainability governance in universities may be a complex issue (Sharp 2002). It is confusing, time consuming and difficult to implement as there is need for a facility to support change which deals with uncertainty and multiple stakeholders with their own priorities, threats, and opportunities, different subcultures, decision making practices and time constraints (Sharp 2002). It becomes obvious that sustainability governance in universities requires more than just knowledge of, or commitment to, the principles of sustainability (Tilbury 2011). Thus, a strategic approach for universities’ sustainability governance is needed.

1.4 Strategic Planning for Sustainable Development

“The problems that exist in the world today cannot be solved by the level of thinking that created them.”

Albert Einstein

The Five Level Framework for Planning in Complex Systems (5LF) is a mental model which allows its users to simplify a complex issue. It is a conceptual framework which is used for analysis, decision making, and planning in complex systems. The 5LF divides the planning into five levels (See Figure 1.2) (Broman and Robерт 2015).
The Framework for Strategic Sustainable Development (FSSD) uses 5LF model as a starting point and integrates sustainable development elements into its five levels (Robèrt 2000). The FSSD offers a strategic approach to help organizations understand the global sustainability challenge and move towards sustainability (Broman and Robèrt 2015). The Framework is a tool for organizations to minimize their negative impacts on ecological and social systems while finding new business opportunities, reducing the risks and costs (Broman and Robèrt 2015).

The following key concepts are embedded in the Framework:

- A funnel metaphor representing the sustainability challenge and interrelated opportunities.
- A five-level strategic planning framework.
- A definition of sustainability based on 8 sustainability principles serving as system boundaries.
- A concept of backcasting from the envisioned future.
- ABCD procedure to facilitate strategic transition towards sustainability (Holmberg and Robèrt 2000).
Over a 25-year long application process, many organizations have used the FSSD (Broman and Robèrt 2015, Missimer 2015). In addition, the research has shown that the FSSD is a useful tool for universities to structure transdisciplinary academic institution and research (Broman and Robèrt 2015). University of Western Ontario and Arizona State University are among higher education institutions which have applied the Framework and made progress in their sustainability governance (The Natural Step 2009a, The Natural Step 2009b).

Above mentioned aspects of the FSSD can be combined with strategic guidelines for universities’ sustainability governance. This would have the potential to serve as a high leverage governance tool for universities to embed a strategic sustainable development (SSD) approach into their organizational decision making. Also, it would enable universities to take more strategic actions to support their, and society’s, transition towards sustainability. Unlike university specific actions and tools, it is hoped that such strategic guidelines can be flexible and applicable in different universities from different regions of the world.

### 1.5 Research Aim

The main aim of the research is to develop a framework for universities to enhance their sustainability governance. The authors intend to analyze the current state of sustainability governance in universities to understand how it can be made more effective in addressing the sustainability challenges of our time.

### 1.6 Research Question

The research question that guides the research is as follows:

“How can sustainability governance in universities be enhanced to make universities effective in addressing sustainability challenges?”
2 Methodology

2.1 Research Design

This section includes the characteristics of the research and presents the research design in detail with Maxwell’s Conceptual Framework. The overall goal of the study was to craft a Conceptual Framework which would include strategic guidelines and aspirations for universities to move towards the ‘sustainable university’. The resulting research design used a combination of a literature review, document content analysis, surveys, and semi-structured interviews. In an attempt to answer the research question, the research design was carried out across three phases of research, exploring sustainability governance in universities.

2.2 Qualitative research methods and differing paradigms

Social research covers diverse disciplines and professional fields. Therefore, it is the social researchers’ challenge to select among many different approaches and research methods the ones that are most appropriate for answering their research question (Savin-Baden and Major 2012).

A ‘paradigm’ can be defined as “[...] a belief system or worldview that guides the researcher and the research process” (Crozier, Denzin, and Lincoln 1994). In the quest for objective reality, early scholars approached social research from positivist paradigms: based upon scientific methods and controlled experiments. Positivism requires no interaction between the researcher and the people who are being studied. This limits researchers’ influence on their study groups’ behaviour (Savin-Baden and Major 2012). However, acknowledging that today’s social problems do not have a single right solution, the majority of the contemporary qualitative researchers do not take a positivist quantitative stance by considering its constraints. Rittel and Webber (1973) define these complex social-environmental problems as ‘wicked problems’. The ‘wicked problems’, as opposed to ‘tame problems’, cannot be solved with the existing modes of inquiry and require new methods of research (Brown, Harris, and Russell 2010). Hence, late researchers acknowledge the value in conducting social research in new approaches and lean towards qualitative methods. This leads to a paradigm shift in social research (Savin-Baden and Major 2012, Kuhn 1962).

As opposed to quantitative researchers, qualitative researchers believe that there is room for differing perceptions and interpretations of reality. Qualitative research is ‘value bound’ which means that the researchers’ motivations while doing the research is an essential part of the study. According to Savin-Baden and Major, it is important that researchers understand themselves and their stances since these will affect the way the research is designed (See Validity for further elaborations) (Savin-Baden and Major 2012).
Overarching approaches and related research methodologies

The researchers of this study aimed to find how sustainability governance in universities could be enhanced to make them more effective in addressing sustainability challenges. Therefore, the researchers classified their work as sustainability research and carried it out with the intention of contributing to sustainable development, rather than simply understanding the problems making the current system unsustainable.

The research approaches which could be applicable to address the research question were: transdisciplinary research approach; participatory research approach; social change approach; methodology for problem solving in organizations; future oriented approach; and traditional evaluation approach. After considering the value of each of these approaches, the researchers concluded that a transdisciplinary research approach would guide the research (Further information on these relevant approaches can be found in Appendix A).

Maxwell’s Conceptual Framework

Conceptual frameworks are tools for researchers to guide them through their studies (Savin-Baden and Major 2012). Throughout their work, the researchers used Maxwell’s Conceptual Framework as a ‘mindmap’ to guide their research design and process. The following diagram shows the iterative process between research goals, research questions, methods, validity and the overall conceptual framework (See Figure 2.1).
Research Design for Sustainability Governance Initiatives in Universities as a Tool for Sustainability

**Research Goals**
- Understand the current reality of the sustainability governance in universities and how it can be enhanced.
- Create The Conceptual Framework with guidelines and aspirations to help universities to move towards "Sustainable University"

**Methods**
- Surveys
- Semi-structured interview
- Literature review and Document content analysis

**Research Question**
How can sustainability governance in universities be enhanced to make universities effective in addressing sustainability challenges?

**The Conceptual Framework for Sustainable Universities**
The Conceptual Framework for Sustainable Universities which incorporates the FSSD concepts

**Validity**
Triangulation process: Data collected from surveys, semi-structured interviews and official documents of the sample university are coded in a matrix and categorized according to the eleven themes of the Initial Conceptual Framework for Sustainable Universities.

*Figure 2.1 Research Design Map (Maxwell 2012)*
2.2.1 Research phases

Although the actual research process was iterative and nonlinear, (See Figure 2.2) below shows the basic linear progression across the three phases of this research:

![Diagram of research phases]

Figure 2.2 The three Phases of the research for research design

Phase 1: Crafting the Initial Conceptual Framework for Sustainable Universities

Phase 1 of the research aimed to determine the main areas or themes that were crucial for sustainability governance at universities and to create an Initial Conceptual Framework for Sustainable Universities. The Five Level Framework for Planning in Complex Systems (5LF) was used as a mental model to structure the Initial Conceptual Framework for Sustainable Universities. The research method in this phase was a literature review.
Literature review

A literature review of scientific articles, guidelines, toolkits for universities’ sustainability governance and legal documents was conducted to craft an Initial Conceptual Framework for Sustainable Universities. The Framework was used as a blueprint to design the survey and interview questions.

The outcome of this phase was:

- A set of strategic guidelines and aspirations for universities to develop effective sustainability governance. The strategic guidelines and aspirations were classified according to several themes. The themes, strategic guidelines and aspirations were altogether referred to as the Initial Conceptual Framework for Sustainable Universities.

Phase 2: Analyzing the current reality of sustainability governance in universities

Phase 2 of the research aimed to grasp how sample universities were internally organized to govern for sustainability in campus. Strengths, weaknesses and challenges of these universities’ sustainability governance were identified. These results were used in Phase 3 to enrich the Framework. The methods in this phase included survey, semi-structured interviews conducted with the sample universities and document content analysis of their sustainability governance documents.

Survey

A survey is a method of collecting data in a consistent or systematic way. Surveys usually consist of a set of questions which are asked through questionnaires (Metwally 2012).

In this research sustainability practitioners from the sample universities were asked to answer a survey before being interviewed. The survey questions, which were based on the Initial Conceptual Framework for Sustainable Universities, helped the researchers get the first picture of the current reality of sustainability governance in sample universities.

Semi-structured interviews

In semi-structured interviews, there is a predetermined set of questions along with additional room for participants’ comments and reactions. The questions tend to be open ended so that interviewees are given a possibility to reflect their perspectives on the particular topic or issue (Savin-Baden and Major 2012).

The researchers conducted semi-structured interviews with sustainability practitioners working at the sustainability offices of universities. This was done in order to understand their current reality in terms of sustainability governance.
Document content analysis

Documents are records of things that may be in written, photographic, electronic or other forms. They provide information or convey a message to the audience. Documents can be useful in attaining a systems perspective about the research context (Savin-Baden and Major 2012).

By looking at universities’ sustainability governance reports, websites and other types of written documents, the researchers understood the current reality of the sample universities’ sustainability governance. Through this method of data collection, the researchers aimed to find the following from the universities: their strategic goals; statistics; information about their previous, ongoing and future projects; and their collaborations with other organizations and communities. These documents were also used to validate the findings from the interviews and surveys (See Validity for more details).

The outcomes of this phase were:

- A coding matrix which showed how each sample university performed in terms of the themes of the Initial Conceptual Framework for Sustainable Universities determined in Phase 1 of the study (See Appendix C for coding matrix);
- Characteristics of sample universities’ sustainability governance.

Phase 3: Developing the Conceptual Framework for Sustainable Universities

Phase 3 aimed to amend the Initial Conceptual Framework for Sustainable Universities to craft a more comprehensive one that could be then tested in the field by universities aspiring and working to become sustainable institutions.

During this phase, the results of the surveys, interviews, and document content analysis were compared to the strategic guidelines and aspirations of the Initial Framework (Phase 1) to make iterations if necessary. Concurrently, the researchers aimed to use the 3-nested dependencies model (Willard 2016) as a tool to understand how the themes of the Conceptual Framework for Sustainable Universities correlate and affect the society and environment. The 3-nested dependencies model was aimed to help the researchers identify missing themes which were relevant for this research. Later, the strategic guidelines and aspirations of the Framework were reviewed to ensure that all themes were reflected there.

The outcome of this phase was:

- The Conceptual Framework for Sustainable Universities ready to be tested in the field.
2.2.2 Limitations of the Research

The limitations of the research were time, number of sample universities and number of sustainability practitioners interviewed from each sample university.

*Limited time.* The researchers had to complete their thesis within a short period of time which affected the depth of the research and limited the size of the data sample (Savin-Baden and Major 2012). Moreover, due to time limitations research design comprised of only 3 phases of crafting the Conceptual Framework for Sustainable Universities. The Framework could not be tested on sample universities and no data was acquired regarding its applicability in the field.

*Limited number of sustainability practitioners interviewed from each sample university.* The researchers only interviewed sustainability practitioners who work at the sustainability offices of the universities. However, some sustainability related areas such as energy consumption, procurement and construction were outside the responsibilities of these sustainability offices. Therefore, the questions related to these areas were sometimes left unanswered by the interviewees. This limited the data sample of the research (Savin-Baden and Major 2012).

2.2.3 Validity

Validity ensures that the research subject is accurately measured (Gilbert 2001). One of the methods to achieve validity in a scientific research is triangulation of research strategies (Gilbert 2001). Triangulation is embedded in Maxwell’s design and it facilitates validation of data through cross verification from two or more sources (Savin-Baden and Major 2012). In particular, it refers to the application and combination of several research methods in the study of the same phenomenon (Savin-Baden and Major 2012). In this scientific study, data from surveys, interviews and sample universities’ official documents, were used for triangulation (Further details regarding the strengths and weaknesses of these research methods are outlined in Appendix B).

*Survey.* In order to balance the weaknesses of these three research methods, and to ensure validity, the researchers used them in a strategic order (Gilbert 2001). First of all, surveys were sent to sustainability practitioners of sample universities. Since one of the weaknesses of surveys is low response rate, the survey included approximately 20 short answer or multiple choice questions. This allowed the researchers to have a high response rate, but several questions which were important for understanding the current reality of sustainability governance at universities had to be excluded.

*Semi-structured interviews.* Sustainability practitioners’ answers to the survey were validated and clarified during interviews.

*Document content analysis.* The last piece of triangulation was document content analysis done by collecting official documents from sample universities. To prevent biased selectivity of documents, the researchers did not only request these documents from the
interviewed practitioners, but also conducted their own research (Savin-Baden and Major 2012).

The researchers summarized their findings in a coding matrix once the following were attained and completed: the surveys, interviews and official documents from each university (See Appendix C). The data in this table was categorized according to the themes of the Conceptual Framework for Sustainable Universities.

As mentioned in the beginning of this section, the researchers’ motivations while conducting the qualitative research were an essential part of the study. Therefore, following an ethic of transparency towards their reader, the researchers would like to disclose their motivations for conducting this study:

- To make an impact on society by guiding universities in their transition to sustainability.
- To serve as a stepping stone for future researches in the field.

### 2.3 Research Methods

This section gives a more thorough explanation of how the researchers used different research methods to collect, handle and analyze data to craft a Conceptual Framework for Sustainable Universities. The Framework was developed by reviewing existing literature and merging FSSD concepts with the analysis of current sustainability governance practices of sample universities.

Research methods consisted of three phases which are elaborated in detail below:

**Phase 1:** Crafting the Initial Conceptual Framework for Sustainable Universities;  
**Phase 2:** Analyzing the current reality of sustainability governance in universities;  
**Phase 3:** Developing the Conceptual Framework for Sustainable Universities.

#### Phase 1: Crafting the Initial Conceptual Framework

In Phase 1 of the research, the researchers built an Initial Conceptual Framework for Sustainable Universities based on existing literature and enriched it with some concepts of the FSSD. 5LF was used as a tool to structure the Framework (See Table 3.2 in Discussion). Among the FSSD concepts which were integrated into the Framework were: the definition of sustainability which incorporates 8 Sustainability Principles, backcasting, ABCD-Procedures and systems thinking. The purpose of including FSSD concepts in the Framework was to strategically reduce universities’ negative impacts on environment and social systems (Broman and Robèrt 2015).

**Method: Literature review**

The purpose of the literature review was to craft an Initial Conceptual Framework for Sustainable Universities to be used as a blueprint for the survey and interview questions.
Sample criteria. The researchers selected guidelines, frameworks, toolkits, scientific articles and legal documents related to sustainability in general and sustainability governance in universities. No limit was set for the number of documents gathered. The crafting process was iterative since during the formation of the themes and strategic guidelines, several documents were added to the data sample to complement the Framework.

The sample criteria for selecting documents other than legal documents were as follows:

- The document contained one or more of the following keywords derived from the research question in its title or body: Sustainability, Universities, Governance;
- The document was written in the English language;
- The document was written within the last ten years;
- The document was from academic sources or recognized international organizations such as the United Nations.

The sample criteria for selecting legal documents were as follows:

- The document was available in the English language;
- The document was related to sustainability.

Data collection. To access relevant documents, the researchers used several research databases and search tools: Blekinge Institute of Technology Library database, Koç University Suna Kıraç Library database and Google Scholar search engine. Other than these tools, the researchers also consulted experts in the field and received documents from them via E-mail. A total of 14 documents were selected for analysis by using the sample criteria outlined above (Appendix D).

Data handling. All documents were stored digitally in a shared cloud drive to make them easily accessible to all researchers for analysis.

Data analysis. The Framework was created by the researchers through an iterative process of group analysis. The process went as follows:

A workshop of two sessions was organized by the research team. During the first session, the researchers collected information from academic papers and categorized it according to the themes related to sustainability governance in universities. As a result, the researchers identified 11 themes.

The purpose of the second session was to create one general strategic guideline for sustainability governance and several aspirations for each of the 11 themes. During the session, the researchers highlighted with colour the keywords in the text below each theme. This was to guide the process of formation of the guidelines. Later, several aspirations to clarify each strategic guideline were written.

The end result of the two sessions was as the researchers named it ‘The Initial Conceptual Framework for Sustainable Universities’, which included 11 themes with strategic guidelines and 36 aspirations.
Phase 2: Analyzing the current reality of sustainability governance in universities

Phase 2 of the research aimed to understand the current reality of the sustainability governance in sample universities.

Sample criteria for selecting Universities. Eligible universities must:

- Have an established sustainability office and have experience in sustainability governance.
- Be located in different regions of the planet to allow researchers a better understanding in how sustainability governance varies according to culture.

Priority was given to universities which were members of international sustainability networks. In total, 20 universities’ sustainability offices were contacted via e-mail.

Sample summary. Among these 20 universities, 5 universities showed interest in participating in the study. These universities were: American University in Cairo, Egypt; Koç University, Turkey; KTH Royal Institute of Technology, Sweden; University of Groningen, Netherlands; and University of Melbourne, Australia.

Later, survey and semi-structured interviews were conducted with one representative of the sustainability office from each of the above mentioned sample universities.

Method 1: Survey

The purpose of the surveys was to have a glance at the current reality of sustainability governance in sample universities.

Data collection. The researchers’ aim was to create a survey which would not take more than 15 minutes to complete. The questions were formulated clearly and unambiguously to ensure the sustainability practitioners’ understanding (Gilbert 2001). The questions were based on the 11 themes of the Initial Conceptual Framework for Sustainable Universities (See Appendix E for a full copy of the survey).

Data handling. The data received from the surveys was saved in an online spreadsheet.

Data analysis. The answers given to the survey were coded upon the 11 themes of the Initial Conceptual Framework for Sustainable Universities. These answers were mainly used in preparation for the interviews. Hence, the researchers noted down the points which needed to be elaborated during interviews.
Method 2: Semi-structured interviews

The purpose of the interviews was to have an in-depth understanding of the current reality of sustainability governance in sample universities.

Data collection. The interviews were conducted within one month in the following order: University of Groningen, American University in Cairo, Koç University, University of Melbourne and KTH Royal Institute of Technology.

The interview with the sustainability practitioner from KTH Royal Institute of Technology took place at their university administration building in Stockholm. Being invited to the university’s offices provided the researchers an opportunity to observe sustainability governance in more detail (Savin-Baden and Major 2012). The interviews with other universities were conducted via Skype and took approximately one hour. All researchers participated in the interviews and all of them asked questions.

The researchers had a semi-structured interview process and asked open-ended questions, considering that they would not have another opportunity to interview the practitioners (Savin-Baden and Major 2012). The questions were based on the themes of the Initial Conceptual Framework for Sustainable Universities (See Appendix F for the questions asked during interviews).

Data handling. All interviews were digitally recorded by a voice recording application, Smart Voice Reader for smartphones. Data verbatim was transcribed by the researchers into digital text with the help of a transcription application called VLC media player. Transcriptions were reread and compared to the audio recordings by two researchers to make sure that they were transcribed correctly (Savin-Baden and Major 2012).

Data analysis. The transcriptions were coded upon the themes of the Initial Conceptual Framework for Sustainable Universities. The coding for each transcription was handled by one researcher and checked by another to prevent errors (Savin-Baden and Major 2012). The coded data was compared and contrasted to the Initial Conceptual Framework for Sustainable Universities in order to see if there was any need to add, amend or erase any strategic guideline or aspiration.
Method 3: Document content analysis

The purpose of the document content analysis was to have an in-depth understanding of the current reality of sustainability governance in sample universities through their official documents.

Data collection. From each sample university at least three official documents were gathered. Among those were the sustainability reports of the universities and policies related to ethical conduct, diversity management and environmental management, strategic planning reports, and activity reports. The main source used to access official documents was the official website of each sample university. Moreover, during the interviews sustainability practitioners were asked to share their universities’ sustainability related documents.

Data analysis. The official documents of the sample universities were coded upon the themes of the Initial Conceptual Framework for Sustainable Universities. The coding for each official document was handled by one researcher and checked by another to prevent errors (Savin-Baden and Major 2012).

The coded data was compared and contrasted to the Initial Conceptual Framework for Sustainable Universities in order to see if there was a need to add, amend or erase any strategic guideline or aspiration.

The final result of the data analysis was a coding matrix which included all sample universities’ positions in terms of each theme of the Initial Conceptual Framework of Sustainable Universities and their strengths, weaknesses and challenges in sustainability governance.

Phase 3: Developing the Conceptual Framework for Sustainable Universities

In order to develop a more comprehensive Framework, the coded data was compared and contrasted to the Initial Conceptual Framework for Sustainable Universities. Consequently, few gaps were identified in the Initial Conceptual Framework for Sustainable Universities (See Results and Discussion for further elaboration).

To make improvements in the Conceptual Framework for Sustainable Universities all missing parts of the Initial Framework had to be mapped in the 3-nested dependencies model to see their interconnectedness and potential impact on the universities, society and environment (See Figure 2.3).
Figure 2.3 The 3-nested dependencies model
3 Results and Discussion

This section objectively presents the key findings from the three phases of research under Results title and further elaborates on the implications of these findings under Discussion.

3.1 Phase 1: Crafting the Initial Conceptual Framework for Sustainable Universities

3.1.1 Results

The initial Conceptual Framework for Sustainable Universities consisted of eleven themes. These themes were Strategic planning; Education for sustainability; Research, Student and alumni engagement; Social practices; Environmental practices; Outreach and networks; Visibility; Financial management, Organizational self-assessment and Celebration of success.

The Initial Conceptual Framework for Sustainable Universities integrated several FSSD concepts in its strategic guidelines and aspirations. The table below shows which concepts were integrated under which themes:

<table>
<thead>
<tr>
<th>Theme 1: Strategic planning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategic guideline:</strong> In a sustainable university a unified definition of sustainability and shared vision shape university’s strategic planning which aims to create a ‘living laboratory’ to move society towards sustainability.</td>
</tr>
<tr>
<td><strong>Aspirations:</strong></td>
</tr>
<tr>
<td>1.1. University has a clear definition of sustainability which covers environmental, social and economic pillars.</td>
</tr>
<tr>
<td>1.2. University builds a shared vision in cooperation with all university units which aims to move society towards sustainability.</td>
</tr>
<tr>
<td>1.3. University makes a transition towards its vision by determining what the university needs to do today to reach the desired outcomes. University assesses its current reality in relation to the vision to support short-term and long-term strategic planning.</td>
</tr>
<tr>
<td>1.4. University supports and creates opportunities for collaboration between its departments to achieve the common goal of a sustainable university.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Theme 2: Education for sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategic guideline:</strong> In a sustainable university education and learning environment create necessary conditions to equip students, faculty members and staff with essential skills to contribute to sustainable transition.</td>
</tr>
<tr>
<td><strong>Aspirations:</strong></td>
</tr>
<tr>
<td>2.1. University ensures that sustainability related information is communicated to students and staff in a digestible format.</td>
</tr>
</tbody>
</table>
2.2. University integrates social, economic and environmental sustainability into its curriculum and develops interdisciplinary education programmes related to sustainability.

2.3. University provides distance learning opportunities and scholarships to attract more students to study sustainability and become future sustainability agents.

Theme 3: Research

**Strategic guideline:** In a sustainable university research focuses significantly on sustainability topics.

**Aspirations:**
3.1. University supports and encourages students and faculty members to pursue a research for sustainable development.
3.2. University shares research results with the public.

Theme 4: Student and alumni engagement

**Strategic guideline:** In sustainable university students and alumni are an integral part of the university’s and society’s sustainable transition.

**Aspirations:**
4.1. University creates opportunities for students to be sustainability change agents by involving and guiding them in sustainability related researches, projects, and events.
4.2. University supports students’ initiative by creating paid positions in the sustainability governance organization. Students are trained and mentored by their supervisors.
4.3. University maintains connections with alumni. Communication channels between alumni and current students are established to share sustainability related experience and knowledge.

Theme 5: Social practices

**Strategic guideline:** In sustainable university students, faculty members and staff are not subject to structural obstacles to health, influence, competence, impartiality and meaning making.

**Aspirations:**
5.1. University protects its students’, faculty members’ and staff’s right to freedom of peaceful assembly and association. No one may be compelled to belong to an association.
5.2. University creates and preserves necessary conditions to realize its students’, faculty members’ and staff’s right to freedom of opinion and expression. University is open to change and responsive to these opinions and expressions to take initiatives for future improvement and development.
5.3. University creates education and training opportunities for its students, faculty members and staff to encourage them to reach their full potential.
5.4. University is committed to providing equal opportunity for all and refrains from discrimination of any kind in employment, educational programs and activities, and
admissions.

5.5. University ensures that there are no obstacles for students to get a decent education and for faculty members and staff to receive appropriate performance-based remuneration.

5.6. University guarantees that students, faculty members and staff abstain from corrupt practices or acts of bribery to obtain an unfair advantage.

5.7. University forms inclusive learning and teaching curriculum fostering learning of students with disabilities.

5.8. University provides disability-friendly services and facilities.

5.9. University provides distance learning opportunities and scholarships to increase the accessibility of its education.

5.10. University provides a healthy and safe environment for students, faculty members and staff.

**Theme 6: Environmental practices**

**Strategic guideline:** In a sustainable university contribution to systematic increases in concentrations of substances extracted from the Earth’s crust and produced by society and degradation of nature is eliminated.

**Aspirations:**

6.1. University maps impact transport areas and activities for the full scope of campus operations. University measures baseline for sustainable transport and sets targets beyond legal compliance and local planning requirements.

6.2. University maps construction and refurbishment impact areas and activities for the full scope of campus operations. University measures a baseline and sets targets for construction and refurbishment going beyond legal compliance and local planning regulation requirements.

6.3. University maps impact areas and activities on biodiversity for the full scope of campus operations. University prepares an action plan for the protection of biodiversity.

6.4. University maps waste and physical resource management areas and activities for the full scope of campus operations. University measures a baseline and sets targets for waste and physical resource management going beyond legal compliance and local planning regulation requirements.

6.5. University maps energy and water consumption impact areas for the full scope of campus operations. University is committed to promoting energy and water efficiency and aims to reduce its carbon dioxide emissions.

**Theme 7: Outreach and networks**

**Strategic guideline:** In a sustainable university community engagement, partnerships and networks are initiated and leveraged to move university and society towards sustainability.

**Aspirations:**

7.1. University seeks a range of partnerships with the local community, educational institutions, governmental, non-governmental organizations and industry to expand its projects’ sphere of influence and spread the sustainability message. University invests
necessary efforts, time, and resources to build trust and ensure continuity of these partnerships.

7.2. University facilitates academic mobility to share knowledge and best practices through active collaboration and exchange agreements with other universities.

Theme 8: Visibility

**Strategic guideline:** In a sustainable university information about events and projects related to sustainability is visible for all.

**Aspirations:**
8.1. University announces all upcoming events, activities and projects related to sustainability through different information and communication channels popular among university members.
8.2. University updates its website on a regular basis and publishes the results of the completed projects, activities, and events which are related to sustainability there.

Theme 9: Financial Management

**Strategic guideline:** In a sustainable university financial operations are aligned with the ethical investment policy.

**Aspirations:**
9.1. University ensures that all institutional investments and banking practices are transparent and conducted in a socially, economically and environmentally responsible manner.
9.2. University assesses suppliers’ labor practices and impacts on society and environment before establishing financial collaborations with them.

Theme 10: Organizational self-assessment

**Strategic guideline:** In a sustainable university organizational learning and improvement is incorporated in its culture.

**Aspirations:**
10.1. University evaluates its sustainability initiatives internally to eliminate possible gaps in future.
10.2. University regularly uses sustainability self-assessment, auditing and reporting tools to identify points of compliance, gaps and track progress in its practices.

Theme 11: Celebration of success

**Strategic guideline:** In a sustainable university all success is celebrated.

**Aspiration:**
University celebrates sustainability related achievements with the university members and local community.


Table 3.1. The FSSD concepts integrated in the Initial Conceptual Framework for Sustainable Universities

<table>
<thead>
<tr>
<th>Theme number and title</th>
<th>FSSD concepts integrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theme 1: Strategic Planning</td>
<td>A clear definition of sustainability based on environmental, social and economic pillars; steps of ABCD procedure with a clear emphasis on building a shared vision within university and backcasting.</td>
</tr>
<tr>
<td>Theme 5: Social practices</td>
<td>5 social sustainability principles covering elimination of structural obstacles to health, influence, competence, impartiality and meaning making.</td>
</tr>
<tr>
<td>Theme 6: Environmental practices</td>
<td>3 environmental sustainability principles covering elimination of systematic increases in concentrations of substances extracted from the Earth’s crust, concentrations of substances produced by society and degradation by physical means.</td>
</tr>
</tbody>
</table>

3.1.2 Discussion

Social pillar of sustainability tends to be neglected by policy makers in general (Boström 2012). The majority of academic papers on sustainability governance at universities reviewed by the researchers lacked social approach. Also strategic planning for sustainability was not clearly articulated in these papers. The FSSD concepts integrated in the Initial Framework for Sustainable Universities filled these gaps.

The legal documents were reviewed to elaborate on social aspect of sustainability. The researchers’ focus was on legal documents related to human rights as this area of law is closely associated with social sustainability. Through the use of legal documents related to human rights, social sustainability areas which require universities’ attention were specified and made more tangible.

As outlined in the research design the 5LF served as a basis for the Initial Conceptual Framework for Sustainable Universities. The table below shows the 5LF applied to the Initial Conceptual Framework for Sustainable Universities with an explanation of rationale of the information contained within each of its five levels:
Table 3.2. 5LF and The Initial Conceptual Framework for Sustainable Universities with the rationale

<table>
<thead>
<tr>
<th>5-Level Framework</th>
<th>The Initial Conceptual Framework for Sustainable Universities</th>
<th>The rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systems Level</td>
<td>Themes</td>
<td>Themes are included because they give whole systems view of universities’ impact on society and environment.</td>
</tr>
<tr>
<td>Success Level</td>
<td>Definition of sustainability with 8 Sustainability Principles set as system boundaries</td>
<td>Definition of sustainability suggested by the FSSD is clear and uses holistic approach through three environmental and five social sustainability principles.</td>
</tr>
</tbody>
</table>
| Strategic Level   | Strategic guidelines                                        | Strategic guidelines are critical as they support strategic decision making process of the universities.  
The focus of the study was to develop these guidelines to define the strategy of universities for moving towards sustainability. |
| Actions Level     | Aspirations                                                 | The aspirations are included because they suggest good practices in the field and are good starting points for enhancing universities’ sustainability governance. |
| Tools Level       | -                                                           | Tools are not included as they are university specific. |

3.2 Phase 2: Analyzing the current reality of sustainability governance in universities

3.2.1 Results

Universities. Sample universities were from five different countries: Australia, Egypt, Sweden, the Netherlands and Turkey. Three out of five universities (60%) were public and two out of five universities (40%) were private.

Sustainability practitioners. Four out of five (80%) sustainability practitioners from mentioned above universities were full-time administrative staff whereas one (20%) was a Master’s degree student working part-time at the university sustainability office.
The positions of these sustainability practitioners were as follows: Presidential Intern in the Office of Sustainability; Student Assistant; Principal Advisor in Sustainability; Environmental Coordinator; Director (See Appendix H for the profile of sample universities and sustainability practitioners).

Classification of results according to the themes of the Initial Conceptual Framework for Sustainable Universities

The Initial Conceptual Framework for Sustainable Universities has eleven different themes related to sustainability governance in universities. In this section, results gathered through surveys, interviews and official documents of sample universities are presented by classifying them according to the themes of the Framework.

Theme 1: Strategic planning

Recently established sustainability offices. According to the survey and official documents of all sample universities (100%), sustainability governance offices were established within the last five years. Among these five offices, two of them (40%) were created in 2011, two (40%) in 2012 and one (20%) in 2014.

Multi-department responsibility. According to data collected from survey, interviews and official documents, all sample universities (100%) have several departments, offices and other internal organizations which operate in the field of sustainability. Among these are Office of the General Secretary, research institutes focusing on environmental and social aspects of sustainability, Office of the Student Affairs, student unions and departments with a focus on construction and procurement.

Vision of success. According to official documents, all sample universities (100%) have a clear vision of success. Some of these visions speak of ‘sustainability’ whereas some do not. “Training talented students as innovators who will contribute to a sustainable society” is specifically mentioned in the vision of Sample University 2. Similarly, Sample University 3 also explicitly include “being recognized as a leader in embedding sustainability in all aspects of the University’s operations, teaching and learning, research and engagement.” in its vision. On the other hand, Sample University 1, 4 and 5 (60%) do not directly include the term ‘sustainability’ in their vision.

An interesting initiative taken by Sample University 3 is the development of the Sustainability Charter. During the creation phase of the document, the university consulted students, staff, alumni and its community in over a ten-week period. The Charter identified a set of principles and commitments that will be reflected in priority actions through the Sustainability Plan.

Definition of sustainability. According to the survey results, two sustainability practitioners out of five (40%) stated that their university has a definition of sustainability which is published officially, whereas three (60%) said they do not have any definition. However, later in the official documents of those universities the definition of sustainability was found. Thus the data collected through survey and document content analysis were contradictory. For example:
Sustainability practitioner from Sample University 2 said that their university did not have a clear definition of sustainability in her answers to survey. During the interview, the practitioner was also unable to give a clear definition of sustainability. Nevertheless, sustainability was named as one of the core values of the university and explained in details in their official Strategic Plan document for 2015-2020.

Sustainability practitioner from Sample University 1 stated in her answers to the survey that their university does not provide a definition of sustainability. In the official documents, there was also no clear definition of sustainability. However, the university had several official reports related to social and environmental sustainability. Furthermore, the University was using United Nations Environment Programme’s (UNEP) Greening Universities Toolkit V2.0 whose one of the aims is defining sustainability.

In her answers to the survey, sustainability practitioner from Sample University 5 said that their university did not have a definition of sustainability and made an interesting clarification during the interview: “Our university is signatory to many international initiatives and member of international organizations related to sustainability. We are working a lot on sustainability and we cover both social and environmental pillars. However, we are strategically not ready to promote sustainability as a core value in our official documents. Maybe this is something cultural. For other universities in the country as well, sustainability is not a priority.” (Sustainability Practitioner 5) The Sustainability Report of Sample University 5 for the financial year 2013 - 2014 included detailed descriptions of university’s sustainability-related initiatives.

Action prioritization process. Findings from interviews indicated that sustainability practitioners use several criteria to prioritize various sustainability related projects. All sample universities (100%) said that they are using strategic planning approaches in their planning and decision-making processes.

The sustainability practitioner from Sample University 2 emphasized the importance of sustainability office members’ enthusiasm when deciding to carry forward a project: “When we talk about a sustainability project we see who is the most enthusiastic about it. This person takes the project and becomes the project leader. If there is no one interested in that project, we do not carry it forward.” (Sustainability Practitioner 2)

The sustainability practitioner from Sample University 1 stressed the importance of prioritizing projects which are related to emergent social and environmental problems where the university is located: “Since the university is located in a desert, we give great importance to energy and water consumption projects. Projects related to energy and water consumption can be proposed directly to the finance department and very easily implemented.” (Sustainability Practitioner 1)

Collaboration with other departments. One sustainability practitioner underlined the importance of having a close relationship between sustainability practitioners and other departments of the university: “As a sustainability practitioner, I am working very close to the Chief Financial Officer (CFO). Some people may think that this is a funny
connection with sustainability, but it is really good in a large organization particularly where there is a cost constraint. There is a lot that can be done in sustainability if you look at financial clever solutions. So having that support and connections with the CFO has been fantastic.” (Sustainability Practitioner 3)

Challenges. During the interviews and answers to surveys, sustainability practitioners mentioned several challenges they experienced in sustainability governance.

As one of sustainability practitioners explained in interviews, projects related to sustainability tend to be postponed by the senior management in the prioritization phase: “Maybe it is something cultural. In our country sustainability is not the priority for universities. Senior management has different agenda. They never openly say no to sustainability related projects, but also they never make them a priority.” (Sustainability Practitioner 5)

According to interviews, it is challenging for sustainability practitioners to get support from all university units: “board of the university does not give much importance to food, because it brings them costs”; “we need to go to each department at our university to do auditing, and we need them to prove that they do what we tell them what they have to do, and it is challenging because sometimes people don’t like to collaborate”; “it is difficult to get the senior management involved, to get them committed, make them understand the importance of sustainability for university.” (Sustainability Practitioners 2, 4, 5)

Theme 2: Education for sustainability

Sustainability in curriculum. Data collected through survey, interviews and official documents of universities show that all sample universities (100%) are offering sustainability related courses to their students.

According to data gathered through interviews and official documents, Sample University 1 provides optional sustainability related courses to its students. A majority of these courses are about environmental sustainability.

Sample University 2 has well developed educational programmes aiming to have an interdisciplinary approach to sustainability. The university offers an opportunity for every student to pursue a minor degree in sustainability. Similarly, Sample University 3 offers several multidisciplinary education programmes related to sustainability.

In Sample University 4, sustainability is integrated into the curriculum and around 300 sustainability related courses are being provided to students. At the beginning of the semester, freshman students are educated about sustainability. The sustainability practitioner explained as follows: “Our university is technical. Therefore, we have been focusing a lot on environmental sustainability during the last years. However, we have realized that we have to focus on social and economic sustainability as well so these aspects are also introduced to education.” (Sustainability Practitioner 4)

In Sample University 5 many sustainability and social impact related courses are available for students. These courses focus on both social and environmental sustainability. Migration and gender are among the topics which are being focused. It is
also noted that some courses are not officially listed as ‘sustainability related courses’ although they are linked to sustainability.

**Challenges.** Some universities experience difficulties of integrating sustainability in some majors such as Law and Medicine which qualify as civil service. Sustainability practitioner from the Sample University 2 explains as follows: “You cannot give up a law course that may be important for specialization for a sustainability course.” (Sustainability Practitioner 2)

**Theme 3: Research**

The research findings from **interviews** and **official documents** indicate that all sample universities (100%) integrate sustainability in their research. Moreover, the universities encourage their students and faculty members to pursue a research about sustainability. As a sustainability practitioner from Sample University 2 wrote in her answer to the survey: “We encourage research on sustainable topics and connect students interested in them with relevant professors.” (Sustainability Practitioner 2)

According to **interviews**, all sample universities (100%) have research institutes and centers which receive funding for research projects in the field of sustainability. The sustainability practitioner from the Sample University 3 explained that their aim is to “integrate sustainability into all Ph.D. programmes to nourish research for sustainability” (Sustainability Practitioner 3). Sustainability practitioner from Sample University 5 stated that they conduct several research projects on energy, gender and migration (Sustainability Practitioner 5).

**Theme 4: Students and alumni engagement**

The majority of sustainability practitioners talked in their **interviews** about their busy daily routine. For instance, sustainability practitioner from Sample University 4 said the following about their work: “It has been a lot of daily work, we try to coordinate the system and so there are a lot of procedures, a lot of different projects; it is a huge organization, we really need more support from students.’ (Sustainability Practitioner 4)

**Student engagement.** According to the **survey**, all sample universities (100%) involve students in their sustainability governance activities, mostly through participation in sustainability related events and projects. In three out of five sample universities (60%), students have an opportunity to work at sustainability offices as interns or in the position of student assistants. Students engaged in sustainability work of the office get special guidance and are mentored by their supervisors. In some sample universities students and alumni get affiliated with sustainability related activities of the university while being members of a student union or a graduate student association.

Sample University 4 which does not provide any paid positions to its students at university sustainability office acknowledged the potential benefits: “We have not employed any students so far; we are going to look at it. It would be interesting if we could have a student to do an audit for us and we pay for them. It would be a win-win approach: The student could get experience and we could get some help and new ideas.” (Sustainability Practitioner 4)
Another comment made by a sustainability practitioner was about the engagement of different actors to move the university towards sustainability: “Our aim is to involve more and more people in our projects and in this way improve awareness. To put students and staff in contact. To gather everyone together towards a common goal. Having students and staff directly involved with our work has been really exciting.” (Sustainability Practitioner 4)

Alumni engagement. According to official documents, three sample universities out of five (60%) establish connections with alumni to share experience and knowledge with current students. For example, an official document of the Sample University 2 states that alumni are their most important connection to society and they welcome their involvement in the education and research through their contributions in the alumni circles and various other activities. Besides that, it is written in the university’s Strategic Plan 2015 - 2020 the following: “We believe that it is important to keep in touch with our alumni around the globe and to enable them to contribute to the mission of the university.” (Sustainability Practitioner 2)

Theme 5: Social practices

Continuous learning. All sample universities (100%), according to their official documents, provide opportunities for its students, faculty members and staff to receive additional training that is needed to reach their full potential.

Health and safety. It is also worth mentioning that according to official documents, healthy and safe environment for students, faculty members and staff is a priority for every sample university (100%).

Transparency and inclusiveness. The additional common pattern of sample universities, according to interviews and official documents, is that they all aim to be as transparent and inclusive as possible through ensuring that there is no any kind of discrimination and students, faculty members, and staff abstains from corrupt practices.

Freedom of expression. According to the official documents, four sample universities out of five (80%) clearly state that they preserve freedom of expression for university members.

Accessibility of education. All sample universities (100%) promote their education by making it more accessible to people with different abilities, people from different regions and countries, and those with limited financial opportunities. For instance, three sample universities out of five (60%) provide disability-friendly services and facilities, and according to interviews and official documents, all sample universities (100%) offer distance learning opportunities and scholarships.

Theme 6: Environmental practices

Initiatives. According to survey, interviews and official documents, all sample universities (100%) have initiatives aimed to contribute to environmental sustainability. For instance, the sustainability practitioners wrote in the survey that they organize events
and start projects related to the impact on the environment, such as ‘Campus Farmer's Markets’, ‘Earth Week Festival’, ‘Reduction of Carbon Footprint’, ‘selling recyclables to fund sustainability internships’, developing ‘databases to promote carpooling’, "How to Run a Sustainable Office" series” (Sample University 1), ‘Green Mind Award’ (Sample University 2), ‘Bike Day’, ‘Beehives on Campus’ (Sample University 4), ‘Rethinking Paper’ (Sample University 5).

**Operations.** According to official documents, all sample universities (100%) try to address environmental challenges connected with unsustainable transportation, construction, physical resource management, irrational consumption of energy and water, production and distribution of waste, negative impact on the biodiversity.

**Challenges.** Lack of data is an issue for universities trying to address sustainability challenges. Sustainability practitioners say about it the following: “We still have some issues with different measurement all our travels and how much CO2 emissions, as the data are not available and not measurable.” (Sustainability Practitioner 4)

**Theme 7: Outreach and networks**

**Outreach.** According to data collected from survey, three out of five (60%) sample universities have partnerships with the local community, educational institutions, governmental and non-governmental organizations and industry. Two out of five (40%) did not have any collaborations with the community.

An interesting initiative is taken by Sample University 5 is the coordination of educational programme to support teachers of the local community for self-development and the social impact on university's’ community.

**Networks.** From the survey, interviews and official documents four out of five (80%) sample universities have active collaboration and exchange agreements with other universities and share their best practices and knowledge. All sample universities (100%) are members of national, regional and international networks related to sustainability such as International Sustainable Campus Network, Nordic Sustainable Campus Network, Tertiary Sustainability Network and The Association for the Advancement of Sustainability in Higher Education.

**Theme 8: Visibility**

**Channels of sustainability communication.** According to interviews and official documents all sample universities actively use various channels of communication to announce their events, activities, and projects that relate to sustainability. Data collected from the interviews, survey and official documents all sample universities (100%), put significant efforts to make the information related to sustainability visible and accessible for all, updating their website and publishing the results of the completed projects, activities, and events.

**Challenges.** During interviews sustainability practitioners added that they “have a problem of communicating and reaching students”. In order to engage students more into sustainability related events and projects, universities use social media. However, this
method of attracting students does not usually work. For instance, when the event or project is advertised in the internet, “it is difficult to make them go online”; “it is a bit difficult because we have only a website but the student doesn't use it this much, they use Facebook and we don’t have Facebook yet, we don’t have Instagram.” (Sustainability Practitioner 4)

Theme 9: Financial management

From interviews and survey, sustainability practitioners from four out of five (80%) sample universities did not provide information related to financial management.

Assessment of suppliers. All sample universities (100%) assess their suppliers’ labor practices and impacts on environment and society before establishing financial collaboration with them according to official documents. Sample University 3 mentioned that the assessment of the suppliers is made before procurement process.

Budget for sustainability. Although the Initial Conceptual Framework for Sustainable Universities did not have a strategic guideline or aspiration related to budget for sustainability, the interviews showed the importance of allocating financial resources for sustainability practices. The significance of having a budget for sustainability is going to be discussed in the Discussion section.

Challenges. According to the survey, the majority of the universities experienced financial challenges when designing and building “smart and CO2 neutral campuses.” Therefore, money is a crucial issue for a university striving to become sustainable. Sustainability Practitioner 4 explain it as follows: “it is hard to do a project which costs money, some projects are really expensive”; “we still don’t have recycling bins everywhere, and we need to install them in all 5 campuses everywhere, it costs a lot”; “it’s a challenge to do what you need to do with limited resources.” (Sustainability Practitioner 4)

Theme 10: Organizational self-assessment

Self-assessment tools. According to the surveys, all universities (100%) use self-assessment tools or indicators to measure their success in sustainability.

According to surveys, interviews and official documents, Sample Universities 3, 4, and 5 are members of International Sustainable Campus Network (ISCN) and publish ISCN-GULF Sustainable Campus Charter Reports. Apart from ISCN-GULF Charter Guidelines, Sample University 3 uses Sustainability Reporting Guidelines - Global Reporting Initiative (GRI) to disclose its positive and negative impacts on the environment, society and the economy. Sample University 4 is using external and internal auditing tools and ISO14001 certified. Sample University 1 is completing an institutional Carbon Footprint report every year.

Theme 11: Celebration of success

There was not a variety of information accessible related to the celebration of success in sample universities.
An interesting initiative is taken by Sample University 2 is the organization of a competition to select the most sustainable office of the university. “Through this competition, the departments in the university are being kept motivated to be more sustainable.” (Sustainability Practitioner 2). Competitions are aimed to bring improvement in the teamwork and quality of the work. Participants who achieve great results in these competitions receive rewards and title of the most sustainable department at the university.

Staff and faculty members engagement

The Initial Conceptual Framework for Sustainable Universities did not have a strategic guideline or aspiration related to staff and faculty members engagement. However, the interviews and survey showed the importance of engaging university members in sustainability related activities and projects. Hence, the researchers feel the need to change the name of the Theme 4 of the Initial Conceptual Framework for Sustainable Universities which will be elaborated in Discussion section (Phase 3).

Challenges. According to the findings, sustainability practitioners mentioned weaknesses of their sustainability governance which are directly connected to the heavy workload of the sustainability office. Sustainability practitioners say the following about this issue: “The university is a huge organization. It’s very hard to keep track of everything going on in university. Sustainability is not the only job of the sustainability office. We need to collaborate, but sometimes we do not have enough time and human resources to do this.” The difficulty of involving faculty members was also discussed during interviews: “Faculty members are busy with research. We cannot involve them in the projects directly because of this. We sometimes get ideas and feedback from them.” (Sustainability Practitioners 4 and 5)

3.2.2 Discussion

Theme 1: Strategic planning

Sustainability governance in universities has gained importance and became a central issue in higher education over the recent decades (Lee, Barker, and Mouasher 2013, Larrán et al. 2015). Both policy makers and public drew attention to the importance of embedding sustainability in university operations and integrating sustainability across all of its activities, responsibilities, and mission (Glasser et al. 2005 and Larrán et al. 2015). As Milutinovic’ and Nikolic’ (2014) explain, a vision of sustainability in a university aims to create an environment where everyone has the opportunity to receive a good quality higher education, learns values, behaviors, and lifestyles required for a sustainable future (Larrán et al. 2015).

Vision of success. It is essential for a university to clearly articulate sustainability in its vision of success. Framing the vision leads to finding out sustainable potentials, facilitates planning and decision making (Broman and Robèrt 2015). It guides the institutions on what to preserve and what to change (Collins and Porras 1996). During
interviews, Sample University 3 emphasized the importance of creating the university vision together with multiple stakeholders involved in all spheres of university operations, education and research. Senge explains the benefits of building a shared vision as follows: “When more people share a vision, the vision becomes a mental reality that people can truly imagine achieving. They now have partners, co-creators; the vision no longer rests on their shoulders alone.” (Senge 2008)

Definition of sustainability. According to findings, even though universities define sustainability in their reports and other official documents, not all sustainability practitioners are on the same page as there is lack of a shared mental model of sustainability across university staff. The results suggest that the definition of sustainability that a university uses is very vague and lack whole system perspective. Therefore, sustainability practitioners have their own understanding of sustainability which sometimes radically differ. Hence, several sustainability areas are left uncovered in their operations, education, and research. A widely agreed, thoroughly articulated, and well communicated definition of sustainability would help universities to build a common language to govern their sustainability effectively (Broman and Robèrt 2015).

Action prioritization process. Another interesting finding is that universities mostly have different prioritization principles in terms of which project they should carry forward first. For instance, in some universities sustainability practitioners use deadlines and enthusiasm about the topic in the team as indicators for prioritization, in other universities they start with a “low hanging fruit” project, other sustainability practitioners orientate on projects of current interest in their local area. It may be concluded that some universities do not have a comprehensive approach to strategic planning. Therefore, sustainability practitioners act spontaneously while trying to adapt to the current situation and predict trends. The results suggest that as sustainability offices are relatively new, they have not developed the approach for strategic planning towards sustainability yet.

The role of culture in sustainability is widely discussed and debated in literature (Soini and Dessein 2016). This is because achieving sustainability goals is closely dependent on human accounts, actions and behavior which are embedded in culture (Soini and Dessein 2016). Therefore, the cultural context is essential for embedding sustainability in the vision and strategy of universities. For instance, sustainability may not be the priority in the country, therefore, senior management does not include sustainability in the vision of the university. Unfortunately, sometimes due to these limitations bright ideas of sustainability practitioners cannot be implemented.

Collaboration with other departments. Sustainability governance at universities is time consuming, requires a lot of resources and collaborative work (Sharp 2002). Therefore, the researchers recommend to all departments at universities to be more open and supportive to sustainability offices. Moreover, a larger number of sustainability practitioners would positively influence the flow of work as each one is responsible for different aspects of sustainability and all tasks can be accomplished sooner in a bigger sustainability team.

Challenges. The results suggest that due to lack of support from senior management, many sustainability related ideas cannot be put into practice and remain on paper.
Therefore, it is essential to raise awareness of the senior management about sustainability challenge and persuade them on the importance of the proposed actions.

**Theme 2: Education for sustainability**

Education for sustainability is a widely supported and researched area (Higgins and Thomas 2016). Since the United Nations Decade of Education for Sustainable Development started in 2005, the role of education institutions’ in sustainable development has been well emphasized (McKeown 2015). The importance of changing curriculum and adapting it to cover sustainable development shows itself (Higgins and Thomas 2016).

*Sustainability in curriculum.* According to the findings from one of the interviews, integrating sustainability into curriculum appears as an emerging trend in universities (Sustainability practitioner 2). These courses make a better impression of university in terms of giving importance to sustainability. The results suggest that it can be one of the reasons why sustainability courses do not always cover three pillars of sustainability.

*Challenges.* Sustainability curricula in universities tend to not cover the three pillars of sustainability and focus more on either social or environmental aspects depending on the specialization of the university. For instance, a technical university may offer several courses in engineering and mechanics, but exclude social sustainability. Therefore sustainability courses in universities may lack holistic approach.

Moreover, according to the findings, some sample universities do not offer sustainability courses to students who study majors such as law and medicine which have a civil effect. These majors tend to have a heavy workload with mostly mandatory courses which reduces students’ freedom to choose the courses they want.

**Theme 3: Research**

The role of research at sustainable universities can be summarized as developing environmental integrity and contributing to the overall wellbeing of society by generating knowledge, enhancing mobilization and implementation for a more equitable, healthier and happier system (White 2013).

According to findings, research for sustainability is not a problem in the majority of universities as they actively encourage students and faculty members to contribute finding solutions for sustainability challenges.

**Theme 4: Students and alumni engagement**

*Student engagement.* Universities are increasingly using the campus as a laboratory not only to implement sustainability projects, but also to develop skills for students to make them leaders of the organizational change for sustainability (Shriberg and Harris 2012). Research shows that engaging students in sustainability projects gives them an opportunity to gain a deep understanding and first-hand experience of change management complexity, build leadership skills, boost their confidence and enrich their resumes (Shriberg and Harris 2012). Student engagement in sustainability is not only
beneficial for the students themselves, but also for the universities as students enrich the projects with their enthusiasm and creativity and also help the university to see its current reality from a different perspective and assist staff in performing sustainability activities (Shriberg and Harris 2012, Dahle and Neumayer 2001). Yet the research results show that only few sample universities provide an opportunity for students to be a part of a sustainability office through internship positions.

As sustainability integrates social, economic and environmental aspects, it is very difficult to stabilize university’s operations and minimize their negative impacts in regards to these three domains alone. “Heavy workload” is the phrase that sustainability practitioners may say relatively more often if one asks to describe their daily routine. The more support they get, the faster and more effective their work will be. In order to get inspiration and combine efforts, sustainability practitioners may engage students in their projects and events. While participating in sustainability related activities students actually learn what sustainability is and, hence, tend to change their unsustainable behavior and lifestyle.

An interesting example of unifying staff’s and students’ efforts in moving society towards sustainability is Green Office model, a sustainability hub at a university. Green Office provides the legitimacy, resources and support for student-led change process towards sustainability (rootAbility 2016).

As it is hard for sustainability offices to coordinate and control all sustainability related matters, the researchers of this study suggest having student sustainability ambassadors in each faculty of the university. The students who get elected as sustainability ambassadors would serve as a liaison between the sustainability offices and faculties. This would also facilitate the communication and visibility of sustainability related activities and projects among students. The practice of collaboration between ambassadors and sustainability offices can be also applicable to other university units such as financial, health and human resources departments.

Alumni engagement. According to the results, the majority of universities establish connection with alumni. Alumni play integral role in society’s transition towards sustainability as they spread awareness and trigger behavior change in their communities by using the knowledge and skills they acquired during their university education (MacDonald and Shriberg 2015).

Theme 5: Social practices

Social sustainability is a broad concept which is strongly related to fundamental human rights and freedoms. As a safe and healthy environment is a prerequisite to the enjoyment of other rights (Rudd and Walsh 1993, and UNEP), it should be one of the priorities for universities to advance in sustainability.

According to the survey, interviews and official documents of sample universities, the majority of universities align with social sustainability in campus. However, there is still room for improvement. Universities need to allocate financial resources, adapt their policy, curriculum, infrastructure and train their staff to assure an inclusive, impartial environment for all members (Forlin 2014).
Theme 6: Environmental practices

Universities have a fundamental role in creating an ecologically healthy society (Dagiliūtė and Liobikienė 2015). They need to address global environmental challenges not only by engaging in sustainability education and research, but also demonstrating best practice in their own operations (Ralph and Stubbs 2013). This way universities may have both multiple and multiplier effects on society (Ralph and Stubbs 2013) and they can contribute to environmental awareness and behavior (Dagiliūtė and Liobikienė 2015).

**Initiatives and operations.** According to findings, sample universities take actions to contribute to environmental sustainability. The range of their projects is very wide: addressing various issues related to environment such as unsustainable transportation, construction, physical resource management, irrational consumption of energy and water, production and distribution of waste, negative impact on biodiversity. While choosing environmental sustainability projects sample universities prefer focusing on issues of current importance.

Theme 7: Outreach and networks

Educational change is closely interconnected to wider social change. Therefore, universities that wish to be change agents in sustainability, need to build and strengthen their local, national and global alliances (Wade 2013 and Ginsburg et al. 1991). Networks and outreach may facilitate information sharing, promote learning and lead to actions (Wade 2013). Through networking and outreach, universities’ sustainability actors who work in isolation receive an opportunity to talk about their work, progress, and challenges with others who are sharing similar experiences (McKeown 2015). In this regard sample universities use their local, regional and international networks to share best practices and build new collaborations with other organisations.

Theme 8: Visibility

The effective usage of modern and professional communication tools is necessary to realize the goal of sustainability in society (Godemann et al. 2011). This is why sustainability communication, a new interdisciplinary field of research and professional practice, is evolving (Franz-Balsen and Heinrichs 2007). The continuous visibility of sustainability initiatives in a university campus is vital to change people’s attitudes and engagement (Franz-Balsen and Heinrichs 2007).

**Channels of sustainability communication.** According to the results of the research, all sustainability practitioners understand the necessity of communicating sustainability, as knowledge and awareness about sustainability should not circulate only in the room of sustainability office but should reach all people who are involved in decision making which define the path that the university will step on. Sustainability practitioners use various tools for engaging new actors and spreading the information about sustainability, among which are social networks, social media, posters, newsletters, etc.

**Challenges.** However, some sample universities have a problem of communicating and reaching students. The results suggest that it may be due to several factors: advertisement of sustainability related activities is not creative enough for the 21st century’s youth; the
official communication channels of the universities are not up-to-date which means that they are not frequently used by students.

**Theme 9: Financial management**

Sustainability policies and practices need to go beyond the boundaries of organizations and need to be incorporated in their supply chain and investment management (Meehan and Bryde 2011). In this respect, a strategic guideline on financial management is needed for universities to make decisions encompassing the environmental, economic and social elements of sustainability (Meehan and Bryde 2011).

*Assessment of suppliers.* Information about the procurement process which was found in the official documents was not very clear and complete. Therefore, the researchers would like to emphasize that this area needs particular attention. It is important to have financial collaboration with suppliers who aim to reduce their negative impact on the society and environment, hence, encourage transition of society towards sustainability.

*Budget for sustainability.* Another aspect of financial management at universities that drew attention of the researchers was the internal budget allocated to sustainability offices. Sample universities emphasized the importance of having sufficient budget for their activities and projects as financial resource is usually a prerequisite to put ideas in action. Some sample universities expressed that their actual budget is much less than they need. In this regard, in order for universities to allocate more budget for sustainability offices senior management needs to be convinced of the return on investments from sustainability offices’ activities (Willard 2012).

*Challenges.* Universities often find it challenging to promote sustainability on campus as it may bring extra costs for universities to pay. The priority is given to other projects and activities. Therefore, as also explained above, the senior management of universities need to be persuaded into the ‘business case benefits’ of sustainability (Willard 2012).

**Theme 10: Organizational self-assessment**

There is an increasing pressure on universities to be more transparent in terms of their operations (Bice and Coates 2016). At the same time, the necessity of measuring universities’ sustainability efforts shows itself since ‘what gets measured, gets done’. (Shriberg 2002). The self-assessment tools provide universities calculable and comparable data, identify best practices and trigger continuous improvement (Shriberg 2002) by increasing their transparency and accountability at the same time (Bice and Coates 2016).

*Self-assessment tools.* According to the results of the research, sustainability offices use several tools for self-assessment such as ISCN-GULF Sustainable Campus Charter Reports, Global Reporting Initiative (GRI) Sustainability Reporting Guidelines, ISO 14001, Carbon Footprint report. The only recommendation that the researchers would give in regards to self-assessment tools is to ensure that these tools are comprehensive and cover not only one sphere of operations, but rather suggests which areas of sustainability work need more improvement.
Theme 11: Celebration of success

As Meadows explains transforming the current unsustainable industrial system to a next stage of evolution is not a disaster, but an amazing opportunity (Meadows et al. 2005). Therefore, it is important for a university to celebrate success in its journey to become an organization contributing to sustainability (Sterling et al. 2003).

Celebration of success is a motivator for all actors involved in the sustainable transition of the university. While celebrating the team of change makers feels more connected, more connected, more enthusiastic and optimistic about what they are all doing as a team. This is a reward for them for being patient and determined, hardworking and hopeful.

Staff and faculty members engagement

Educating and building the awareness of staff is an important and successful strategy for universities to govern their sustainability (Ralph and Stubbs 2013). According to the findings, sustainability practitioners feel need for collaboration with students and faculty members in order to brainstorm ideas for new projects and events. Collaboration with all university members helps to have the whole systems perspective about what is currently going on in campus and which areas of sustainability need to be taken into consideration for improvement.

It needs to be mentioned what role faculty members play in creating a living laboratory for sustainability. Faculty members are knowledgeable in their field of interest and highly influential academic community at universities. They design and teach some courses, supervise graduate students and do researches. These people potentially have a great effect on students because it is faculty members who guide them in their learning. Thus, it is critical that all teaching staff is aware of sustainability challenges and willing to spread this knowledge to students from the perspective of their teaching disciplines. In order to raise faculty members’ awareness universities should encourage their continuous learning and participation in sustainability related events and project of universities. This is where and how they can make a great contribution to sustainability. Nevertheless, according to the researchers’ findings, this is not the case in the majority of universities. Sustainability practitioners experience difficulties with involving faculty members due to their concentration on the primary work at a university, so they can hardly find time to participate in any additional activities. The results suggest that faculty members experience pressure because of necessity to publish articles and other academic papers on the regular basis. Therefore, they do not usually get engaged with any type of events different from their research area. In spite of that, they may still propose any ideas to sustainability offices and provide them feedback about sustainability governance. It is interesting to note that several universities do not involve faculty members and the staff of the university in any activities related to sustainability because their main focus is on the students who will become future change agents. The researchers argue that sustainability practitioners should not target only students in their projects and events, but all people involved in university life. For instance, sustainability practitioners may organize workshops about sustainability for people working in the canteen who are directly connected with such areas of environmental sustainability like energy,
waste, etc.; for drivers whose awareness about sustainability challenge will help to reduce CO2 emissions through smart driving; for cleaners who work with potentially environmentally hazardous chemicals; and for other university members who contribute to sustainability.

The researchers need to emphasize that the initial Conceptual Framework for Sustainable Universities does not cover themes related to the engagement of staff and faculty members and budget for sustainability practices. Therefore, the researchers are going to discuss how the Conceptual Framework for Sustainable Universities can be enhanced in Phase 3.

**Overview of challenges which represent gaps in sustainability governance of sample universities**

*Challenge 1:* Lack of holistic definition of sustainability which contains environmental, social and economic pillars;  
*Challenge 2:* Social sustainability tends to be not in the agenda of sustainability offices;  
*Challenge 3:* Lack of a university vision which includes ‘sustainability’;  
*Challenge 4:* Sustainability practitioners may not be aware about the definition of sustainability;  
*Challenge 5:* Difficulty of involving university members in sustainability related projects and activities;  
*Challenge 6:* Lack of sufficient financial resources allocated to sustainability;  
*Challenge 7:* Action prioritization process lacks strategic approach;  
*Challenge 8:* Lack of support from all university units;  
*Challenge 9:* Difficulty of integrating sustainability in majors such as medicine and law which qualify as civil service;  
*Challenge 10:* Weak collaboration with local community;  
*Challenge 11:* Difficulty of communicating sustainability and reaching students;  
*Challenge 12:* Achievements in sustainability work are not visible to the whole university and not celebrated by all university members.

The above mentioned challenges will be addressed in phase 3 through making iterations in the Initial Conceptual Framework for Sustainable Universities.

### 3.3 Phase 3: Developing the Conceptual Framework for Sustainable Universities

#### 3.3.1 Results

The aim of the Phase 3 was to improve the initial Conceptual Framework for Sustainable Universities. Along with the findings from survey, interviews and document content analysis, the 3-nested dependencies model was used by the researchers to complement the Framework.
First of all, the 3-nested dependencies model was used to understand how different themes relate to each other and fit together as a holistic model. The themes of the Framework are placed in three different spheres which represent: the university as an organization, the society and the environment (Figure 3.4). Also relevant actors in the system are identified and located within these three spheres. Furthermore, the relationship between different themes and spheres is indicated by using yellow and blue dots next to university theme names. A yellow dot beside a theme represented interconnection with Society sphere whereas a blue dot meant interconnection with Environment sphere and a green indicated University sphere. Based on this color coding, a few gaps are spotted in the initial Framework for Sustainable Universities which will be discussed in the results section below.
Change 1:

The researchers consider staff and faculty member’s engagement as an integral part of sustainability governance at universities. Therefore, they suggest making the following changes in the initial Conceptual Framework for Sustainable Universities:

- Rename Theme 4 “Student and Alumni Engagement” as “University Members Engagement”. By changing the name of the Theme 4, its scope will be broadened to cover staff and faculty member’s engagement.
- Rewrite the guideline according to the new scope of the theme.
- Add aspirations which cover staff and faculty member’s engagement along with student and alumni engagement.

Change 2:

The research findings of Phase 2 suggest that the budget for the sustainability practices is a significant indicator of success for a university striving for sustainability. Therefore, the researchers want to make the following changes in the initial Conceptual Framework for Sustainable Universities:

- Add aspirations about university budget allocated for sustainability practices under the Theme “Financial Management”.
- Rewrite the guideline according to the new scope of the theme.

Conceptual Framework for Sustainable Universities

The Conceptual Framework for Sustainable Universities (See Appendix G) is the product of the initial Framework enriched by additional literature review, surveys, interviews and official documents gathered from the sample universities and the 3-nested dependencies model.

In order to address gaps in sustainability governance of sample universities which were not covered by the Initial Framework for Sustainable Universities, there is a need to make the following changes to the Conceptual Framework for Sustainable Universities:
Theme 4: University members engagement

Strategic guideline: In sustainable university the members of the university are an integral part of the university’s and society’s sustainable transition.

Aspirations:
4.1. University creates opportunities for students, staff and faculty members to be sustainability change agents by involving and guiding them in sustainability related workshops, researches, projects, and events.
4.2. University organizes consultation forums where sustainability practitioners engage university members in discussion of solutions for sustainability challenges that the university can address.
4.3. University supports students’ initiative by creating paid positions in the sustainability governance organization. Students are trained and mentored by their supervisors.
4.4. University maintains connections with alumni. Communication channels between alumni and current students are established to share sustainability related experience and knowledge.

Theme 9: Financial management

Strategic guideline: In a sustainable university financial management is aimed to contribute to sustainable development.

Aspirations:
9.1. University ensures that all institutional investments and banking practices are transparent and conducted in a socially, economically and environmentally responsible manner.
9.2. University assesses suppliers’ labor practices and impacts on society and environment before establishing financial collaborations with them.
9.3. University allocates a budget for the sustainability practices.
3.3.2 Discussion

The following table presents how the challenges which were identified in Discussion of Phase 2 are addressed by the aspirations of the Conceptual Framework for Sustainable Universities.

Table 3.3. Challenges and Aspirations as their solutions

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Aspiration</th>
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</thead>
<tbody>
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<td>Challenge 1</td>
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</tr>
<tr>
<td>Challenge 2</td>
<td>5.1; 5.2; 5.3; 5.4; 5.5; 5.6; 5.7; 5.8; 5.9; 5.10</td>
</tr>
<tr>
<td>Challenge 3</td>
<td>1.2</td>
</tr>
<tr>
<td>Challenge 4</td>
<td>1.2</td>
</tr>
<tr>
<td>Challenge 5</td>
<td>4.1; 4.2</td>
</tr>
<tr>
<td>Challenge 6</td>
<td>9.3</td>
</tr>
<tr>
<td>Challenge 7</td>
<td>1.1; 1.2; 1.3</td>
</tr>
<tr>
<td>Challenge 8</td>
<td>1.4</td>
</tr>
<tr>
<td>Challenge 9</td>
<td>2.2</td>
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<tr>
<td>Challenge 10</td>
<td>7.1</td>
</tr>
<tr>
<td>Challenge 11</td>
<td>8.1</td>
</tr>
<tr>
<td>Challenge 12</td>
<td>11.1</td>
</tr>
</tbody>
</table>

The Conceptual Framework for Sustainable Universities may serve as a road map for universities that aim to establish or improve their sustainability governance. The Framework suggests strategic guidelines and ‘aspirations’ for universities to guide them in their transition to the ‘sustainable university’. One of the sustainability practitioners said in the interview that “sustainability is a journey; it does not have a scale”. The researchers support this point of view; accordingly, they believe that ‘aspirations’ may inspire universities during the process of creating their vision of success.

The researchers anticipate that the Conceptual Framework for Sustainable Universities will draw the attention of the sustainability practitioners to the blind spots in their sustainability governance at universities which they may identify after reading guidelines. They also expect sustainability practitioners as a team to get some insights about the governance which would help develop it and take it to the higher level.
4 Conclusion

One of the main functions of universities is generating new knowledge through research and becoming the driving force of innovation and technology needed for sustainability. Another critical role is being the educators of future generations. By equipping their students with necessary skills to address the sustainability challenge, universities will bring capable change agents in the world. Furthermore, as any other organization, universities should apply sustainability to their operations and activities to minimize their negative impact on the environment and society.

Universities’ vital role in sustainability journey requires them to become experienced managers of sustainability governance. To be able to fulfill this calling need, besides teaching, researching and managing their operations’ impact on the environment and society, universities are to include “learning” in their core mission (Sharp 2002). By becoming successful learners of sustainability, universities can advance their sustainability governance.

To answer the research question: “How can sustainability governance in universities be enhanced to make universities effective in addressing sustainability challenges?”, a set of strategic guidelines and aspirations under 11 themes was prepared through a process of reviewing existing literature and analyzing current reality of sustainability governance in universities. The end result, the Conceptual Framework for Sustainable Universities, was designed to bridge the gaps in sustainability governance of universities and provide a strategic approach for universities addressing sustainability challenges. The Framework integrates several FSSD concepts in its body and makes a contribution to Strategic Sustainable Development (SSD) as it empowers universities to become leaders in society’s transition towards sustainability.

Further Research

Further research is needed to test the Conceptual Framework for Sustainable Universities in practice and identify which tools it is needed to be combined with. Moreover, the Framework needs to be updated time after time in order for it to remain topical for universities’ sustainability governance.
References


Dagiliūtė, Renata, and Genovaitė Liobikienė. 2015. University Contributions to Environmental Sustainability: Challenges and Opportunities from the Lithuanian Case.


Kuhn, T. S. 1962. The Structure of Scientific Revolutions. Chicago, IL: University of Chicago UP.


Missimer, Merlina. 2013. The Social Dimension of Strategic Sustainable Development. School of Engineering, Blekinge Institute of Technology.

Missimer, Merlina. 2015. Social Sustainability within the Framework for Strategic


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Appendix A: Relevant Research Methods

Social Change Approach

The social change approach aims to explore how sectors of society define sustainability in context, the process of making a dialogue possible, and strategies for achieving goals that were set. This approach is directly connected with the field of governance and transitions management in universities (Miller, Thaddeus 2012). Loorbach considers transitions management as “a deliberative process to influence governance activities in such a way that they lead to accelerated change directed towards sustainability ambitions.” (Loorbach, Rotmans 2010). This approach is appropriate to the research as it is stakeholder-oriented, interdisciplinary and incorporates a systems perspective as well as this research (Miller, Thaddeus 2012).

Methodology for Problem Solving in Organizations

Problem solving methodology for organizations is a knowledge-intensive field which aims at problem solving. Instead of merely explaining the problems, this methodology designs the “preferred.” Hence, the focus of this method is designing what an organization should look like to improve its performance. The current reality of the organization is analyzed, and causes of unsatisfactory performance are detected. Later, suggestions are provided (Van Aken 2012). This methodology is directly relevant to the authors’ work since they intend to improve the sustainability governance models of universities.

Future Oriented Approach

Future-oriented approach is appropriate when it is necessary to define desirable visions for given communities and possible scenarios (Brewer 2007). It enables a wide range of agents together explore various development trajectories and alternative futures, based on jointly agreed upon criteria and stakeholder participation (Robinson et al. 2011). As the authors will use FSSD in their research, future-oriented approach to its scenario and visioning methodologies may be of help as it facilitates decision-making for sustainability that is needed for sustainability governance initiatives in universities.

Transdisciplinary Research

The current sustainability challenges are complex, an integral part of the society and related to many areas of knowledge. Solutions to address these challenges require fundamental changes in the system. Therefore, new ways of research design and collaboration between academia and practitioners are vital (Rittel and Webber 1973) to utilize all intellectual resources, value the contributions of all academic disciplines as well as sources of information outside academia (Brown, Harris, and Russell 2010).

Transdisciplinary research enables mutual learning between academia and practitioners by integrating knowledge from various scientific and societal bodies of knowledge. It is solution-oriented and aims at creating solutions for actual problems (Lang et al. 2012).
Appendix B: The Strengths and Weaknesses of Different Research Methods

Document content analysis:

<table>
<thead>
<tr>
<th>The Strengths</th>
<th>The Weaknesses</th>
</tr>
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<tbody>
<tr>
<td>Stable, exact, broad coverage</td>
<td>Retrievability, biased selectively</td>
</tr>
<tr>
<td>Provide access to official discourse</td>
<td>Less empirical than other data forms</td>
</tr>
<tr>
<td>Good for tracking event chronologies</td>
<td>Tend to be created for a particular purpose (such as promoting a person or an organization), so in some ways, documents can be ‘staged’.</td>
</tr>
<tr>
<td>Reveal what people do or did as well as what they value</td>
<td></td>
</tr>
<tr>
<td>Tangible examples of social meaning-making</td>
<td></td>
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<tr>
<td>Data that might not be gained through other data collection approaches</td>
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</tbody>
</table>

Survey:

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<th>The Strengths</th>
<th>The Weaknesses</th>
</tr>
</thead>
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<tr>
<td>Cost efficient</td>
<td>Response rates are typically low</td>
</tr>
<tr>
<td>No interviewer, respondents may be more willing or comfortable to share information</td>
<td>No interviewer, responds cannot probe</td>
</tr>
<tr>
<td>Convenient data selected method</td>
<td>Inaccuracies due to poorly articulated or misunderstood questions</td>
</tr>
</tbody>
</table>

Semi-structured interview:

<table>
<thead>
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<th>The Strengths</th>
<th>The Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Targeted and insightful</td>
<td>Possible response bias</td>
</tr>
<tr>
<td>Provide access to feelings, experiences, opinions, explanation</td>
<td>They are time consuming and resource intensive</td>
</tr>
<tr>
<td>Time is used efficiently</td>
<td></td>
</tr>
<tr>
<td>Keep the interaction focused</td>
<td></td>
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# Appendix C: Coding Matrix

## Coding matrix of the sample universities according to the Conceptual Framework

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</table>
General disclaimer:
- Even if there is partial compliance, it is evaluated as “YES”.
- When the answer is clearly “No”, it is evaluated as “NO”.
- Some people who filled the survey misunderstood the questions. Therefore, they gave conflicting answers to the survey and interview.
## Appendix D: Literature Review Sources

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## Appendix E: Sample of the Sustainable University Questionnaire

### Identification Data

<table>
<thead>
<tr>
<th>Name/ Surname</th>
<th>Is your university public or private?</th>
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<tr>
<td>University name - University country</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>What is your status in your University?</th>
<th>What is your position in your sustainability governance organization?</th>
</tr>
</thead>
</table>

### Administration, Mission, and Planning

1. When was your sustainability governance organization established?
2. Are there any departments/offices/internal organizations other than yours which support or complement sustainability governance activities?
3. Does your university have an official sustainability definition? Is it published in official documents?
4. What is the vision of success for your university?
5. What are the goals and objectives of your sustainability governance organization? What is its mission?
6. Does your sustainability governance organization use any framework or strategic planning approaches in its decision making process?
7. Does your sustainability governance organization have independent decision making and action implementation capacity?
8. Can your sustainability governance organization participate in or influence the decision making processes of other departments in university?
9. Has your sustainability governance organization experienced any challenges throughout its establishment and/or implementation of its activities? If yes, can you mention some of these challenges?

### Operations and Practices

10. What sustainability projects, events, and activities are your sustainability governance organization currently running?
11. Are these activities strictly environmental or to what extent does your sustainability governance organization also run activities focused on social or economic sustainability, such as health, gender equality, refugees, minimum wage, research, curricula development, etc.?
12. Are there any courses related to sustainability in your university?
### Stakeholder Engagement

13. Does your sustainability governance organization involve students in its activities? If yes, to what extent are they involved?

14. Does your sustainability governance organization engage any other university members (e.g. faculty members, administrative managers, etc.)?

15. Does your sustainability governance organization collaborate with the local community?

### Publications and Assessment Tools

16. Is your university a member of any regional, national or international networks related to sustainability (e.g. ISCN, GUPES, etc.)? If yes, please mention them.

17. Does your university use any self-assessment tools or indicators to measure its success in sustainability (e.g. certification tools, reporting guidelines, etc.)? If yes, please mention them.

18. Does your university publish sustainability reports or disclose official documents related to its practices and activities?

### Analysis

19. In your opinion, what are the current strengths of your university’s sustainability governance?

20. In your opinion, what are the possible gaps in your university’s sustainability governance? What could be improved from your perspective?

### Practicalities

- How detailed and up-to-date is your website? Are there any activities that are not reflected there?
- How do you communicate your activities and projects within the university? Do you use social media effectively? Do you use e-mails, posters?
- Do you think that your office and its activities are visible enough?

### Close

- Closing statements and thanks for the participation
## Appendix F: Sample of the Interview Questions

### General
- Introductory statements and rapport building.
- The daily duties and responsibilities of the interviewee in the sustainability governance organization.

### Operations and practices
- Do your sustainability governance organization use framework or strategic planning approaches in planning and decision making? If yes what are they?
- Is there a hierarchy in the structure of your organization? Is it vertical or horizontal? Is there a formal boss - employee relationship?
- How often do you have regular meetings? What is the aim of the meetings? Who participates in these meetings?
- Do your sustainability governance organization have good connection between your organization and the other department and offices?
- What is the annual budget specifically invested into sustainability at your university? Do you get any funding from external organizations?
- Among the following, what are the areas that your office focuses on?
  - Energy management.
  - Biodiversity protection
  - Building energy and emissions
  - Minimization of toxic materials
  - Sustainable campus planning, design, and development
  - Sustainable building construction and renovation
  - Water management
  - Waste management
  - Carbon reduction
  - Sustainable dining services
  - Sustainable transport
  - Landscape management
- In case students or staff has dissatisfaction with any type of occupation how can they resolve it? Is there an opportunity of speaking to any responsible department?
- How does your university ensure there are diversity and equal opportunities for all?
- Does your university assess suppliers for impacts on society and environment before collaborating?
- Are there anti-corruption officers who ensure transparent and safe environment?
- What about distance learning for students with disabilities or those who can’t afford to go to the university? Are there any facilities for educating them?
- Where is the place of your organization in the overall structure of the university? Is it under a specific department?
- How do you decide which projects you are going to carry forward? Do you have specific criteria for prioritising those projects? Do you monitor occupational health and safety or are there departments responsible for that?

### Curriculum

- How is sustainability a part of the curriculum at your university? Are these courses core, optional or mandatory?
- At the beginning of the academic year, do you participate in the orientation day to inform freshmen students about what sustainability is and to give basic and a general idea of sustainability?
- Does your university provide any scholarships or organize research projects related to sustainability to keep students interested in this topic?
- Do you measure the students’ knowledge on sustainability? Do you do surveys to measure students’ sustainability knowledge?

### Stakeholder Engagement

- What are the requirements for students who want to do an internship or get a paid position at your sustainability office? How do you select these students?
- Do your sustainability governance organization collaborate with the local community? In what way?
- How do you engage staff and faculty members in sustainability at the university? Do you organize sustainability events or activities targeting staff and faculty members?

### Analysis

- What are the strengths of your sustainability governance at the university? Do you use any indicators to understand that you achieved your goals and moving forward?
- How would you improve the sustainability governance of your university?
- What are the key elements of a successful sustainability governance initiative in your opinion (e.g., embedding sustainability in formal and informal learning of students, whole institution strategy, and action plan, etc.)?
<table>
<thead>
<tr>
<th><strong>Practicalities</strong></th>
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<tbody>
<tr>
<td>• How detailed and up-to-date is your website? Are there any activities that are not reflected there?</td>
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<tr>
<td>• How do you communicate your activities and projects within the university? Do you use social media effectively? Do you use e-mails, posters?</td>
</tr>
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<td>• Do you think that your office and its activities are visible enough?</td>
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<th><strong>Close</strong></th>
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<tr>
<td>• Closing statements and thanks for the participation</td>
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Appendix G: The Conceptual Framework for Sustainable Universities

Theme 1: Strategic planning

Strategic guideline: In a sustainable university a unified definition of sustainability and shared vision shape university’s strategic planning which aims to create a “living laboratory” to move society towards sustainability.

Aspirations:
1.1. University has a clear definition of sustainability which covers environmental, social and economic pillars.
1.2. University builds a shared vision in cooperation with all university units which aims to move society towards sustainability.
1.3. University makes a transition towards its vision by determining what the university needs to do today to reach the desired outcomes. University assesses its current reality in relation to the vision to support short-term and long-term strategic planning.
1.4. University supports and creates opportunities for collaboration between its departments to achieve the common goal of a sustainable university.

Theme 2: Education for sustainability

Strategic guideline: In a sustainable university education and learning environment create necessary conditions to equip students, faculty members and staff with essential skills to contribute to sustainable transition.

Aspirations:
2.1. University ensures that sustainability related information is communicated to students and staff in a digestible format.
2.2. University integrates social, economic and environmental sustainability into its curriculum and develops interdisciplinary education programmes related to sustainability.
2.3. University provides distance learning opportunities and scholarships to attract more students to study sustainability and become future sustainability agents.

Theme 3: Research

Strategic guideline: In a sustainable university research focuses significantly on sustainability topics.

Aspirations:
3.1. University supports and encourages students and faculty members to pursue a research for sustainable development.
3.2. University shares research results with the public.

Theme 4: University members engagement

Strategic guideline: In sustainable university the members of the university are an
integral part of the university’s and society’s sustainable transition.

**Aspirations:**
4.1. University creates opportunities for students, staff and faculty members to be sustainability change agents by involving and guiding them in sustainability related workshops, researches, projects, and events.
4.2. University organizes consultation forums where sustainability practitioners engage university members in discussion of solutions for sustainability challenges that the university can address.
4.3. University supports students’ initiative by creating paid positions in the sustainability governance organization. Students are trained and mentored by their supervisors.

**Theme 5: Social practices**

**Strategic guideline:** In sustainable university students, faculty members and staff are not subject to structural obstacles to health, influence, competence, impartiality and meaning making.

**Aspirations:**
5.1. University protects its students’, faculty members’ and staff’s right to freedom of peaceful assembly and association. No one may be compelled to belong to an association.
5.2. University creates and preserves necessary conditions to realize its students’, faculty members’ and staff’s right to freedom of opinion and expression. University is open to change and responsive to these opinions and expressions to take initiatives for future improvement and development.
5.3. University creates education and training opportunities for its students, faculty members and staff to encourage them to reach their full potential.
5.4. University is committed to providing equal opportunity for all and refrains from discrimination of any kind in employment, educational programs and activities, and admissions.
5.5. University ensures that there are no obstacles for students to get a decent education and for faculty members and staff to receive appropriate performance-based remuneration.
5.6. University guarantees that students, faculty members and staff abstain from corrupt practices or acts of bribery to obtain an unfair advantage.
5.7. University forms inclusive learning and teaching curriculum fostering learning of students with disabilities.
5.8. University provides disability-friendly services and facilities.
5.9. University provides distance learning opportunities and scholarships to increase the accessibility of its education.
5.10. University provides a healthy and safe environment for students, faculty members and staff.

**Theme 6: Environmental practices**

**Strategic guideline:** In a sustainable university contribution to systematic increases in concentrations of substances extracted from the Earth’s crust and produced by society
and degradation of nature is eliminated. (Robert et al, 2015,40)

**Aspirations:**
6.1. University maps impact transport areas and activities for the full scope of campus operations. University measures baseline for sustainable transport and sets targets beyond legal compliance and local planning requirements.
6.2. University maps construction and refurbishment impact areas and activities for the full scope of campus operations. University measures a baseline and sets targets for construction and refurbishment going beyond legal compliance and local planning regulation requirements.
6.3. University maps impact areas and activities on biodiversity for the full scope of campus operations. University prepares an action plan for the protection of biodiversity.
6.4. University maps waste and physical resource management areas and activities for the full scope of campus operations. University measures a baseline and sets targets for waste and physical resource management going beyond legal compliance and local planning regulation requirements.
6.5. University maps energy and water consumption impact areas for the full scope of campus operations. University is committed to promoting energy and water efficiency and aims to reduce its carbon dioxide emissions.

**Theme 7: Outreach and networks**

**Strategic guideline:** In a sustainable university community engagement, partnerships and networks are initiated and leveraged to move university and society towards sustainability.

**Aspirations:**
7.1. University seeks a range of partnerships with the local community, educational institutions, governmental, non-governmental organizations and industry to expand its projects’ sphere of influence and spread the sustainability message. University invests necessary efforts, time, and resources to build trust and ensure continuity of these partnerships.
7.2. University facilitates academic mobility to share knowledge and best practices through active collaboration and exchange agreements with other universities.

**Theme 8: Visibility**

**Strategic guideline:** In a sustainable university information about events and projects related to sustainability is visible for all.

**Aspirations:**
8.1. University announces all upcoming events, activities and projects related to sustainability through different information and communication channels popular among university members.
8.2. University updates its website on a regular basis and publishes the results of the completed projects, activities, and events which are related to sustainability there.
Theme 9: Financial management

Strategic guideline: In a sustainable university financial management is aimed to contribute to sustainable development.

Aspirations:
9.1. University ensures that all institutional investments and banking practices are transparent and conducted in a socially, economically and environmentally responsible manner.
9.2. University assesses suppliers’ labor practices and impacts on society and environment before establishing financial collaborations with them.
9.3. University allocates a budget for the sustainability practices.

Theme 10: Organizational self-assessment

Strategic guideline: In a sustainable university organizational learning and improvement is incorporated in its culture.

Aspirations:
10.1. University evaluates its sustainability initiatives internally to eliminate possible gaps in future.
10.2. University regularly uses sustainability self-assessment, auditing and reporting tools to identify points of compliance, gaps and track progress in its practices.

Theme 11: Celebration of success

Strategic guideline: In a sustainable university all success is celebrated.

Aspiration:
11.1. University celebrates sustainability related achievements with the university members and local community.
### Appendix H: Research Sample Profile

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<tr>
<th>Research Sample</th>
<th>University Profile</th>
<th>Public/Private</th>
<th>Representative</th>
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<td>Private</td>
<td>Sustainability Practitioner 1</td>
<td>Employee - Full-time</td>
<td>Presidential Intern in the Office of Sustainability- Full time</td>
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