Corporate leadership development programs towards sustainability

Anna Rosengren
Mohamed Maher
Niklas Eklund

Blekinge Institute of Technology
Karlskrona, Sweden
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Abstract:

With the increasing level of complexity that leaders face today represented in the accelerating pace of technology advancement and globalization, along with the climate change indicators reaching unprecedented levels, the need for good leadership quality is greater than ever. The Framework for Strategic Sustainable Development provides a systems perspective, a principle based definition and a way to operationalize sustainability, however still there is a need to specify what is required for leaders to lead organizations through this process.

The aim of the thesis is to explore how corporate leadership development companies can develop the essential leadership competencies to address the sustainability challenge. The study used the Key competences in sustainability framework as a base to interview six leadership development companies from different areas in the world. The findings revealed that there is an essential need for self-development for leaders to handle complexity, as well as the need from leaders to create the proper conditions for their organizations to utilize the competences from the KCSF. Furthermore the results also showcased the need for standard common definition regarding sustainability.

Keywords: Leadership Development, Sustainability, Complexity, Leadership Capacity, Competencies
Statement of Contribution

This research was started based on shared interest and passion for leadership and leadership development. Each member of the group came from a background where they have worked with leadership, either in field of assessments or facilitation or as leader of teams and departments. Furthermore, each member of the group have keen interest in sustainability where questioning what leadership is needed to lead towards sustainability. Taking a pragmatic approach allowed us the freedom to try different approaches and directions both in terms of what to focus on in the study, and on and how to design the study.

After an initial process of intensive and lively discussions and literature review we came to an agreement about what we wanted to study; hence, the study involved areas that each of us was interested in, as well as challenged us to work in different ways that none of us had worked before in terms of going with a qualitative approach when each of us had only previous experience using quantitative approaches. Through internal dialogue and outside expertise from the field, we explored what it means to have leadership competencies in sustainability-related issues such as systems thinking, strategic thinking and what personal competencies are needed to work with sustainability as a leader.

Each member was involved in all parts of the research to various degrees. From designing the research to conducting the interviews and transcribing to writing and editing the whole thesis. This thesis would not have been finished without each person’s unique contribution throughout the whole thesis process.

It was a powerful learning process both in terms of deepening our understanding of leadership in relation to sustainability as well as for each of our own personal development as we got first-hand experience on how to work with different worldviews and struggling to find common ground definitions and approaches until we found our way, yet through all of the ups and downs there’s always been a spirit of kindness and care for each other’s well-being. Each of us came out of this experience with deeper appreciation of the challenges of working with complexity and sustainability. This has definitely been an experience that we will not forget.

Anna Rosengren
Mohamed Maher
Niklas Eklund
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We would like to thank all the participating leadership development companies that agreed to work with us, as it was interesting to discuss leadership with them and to learn from them.

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Anna, Maher and Niklas
Executive Summary

This research was carried out to explore how leadership development can play a role in dealing with the global sustainability challenge, by developing leaders' capacity to address complex sustainability problems.

Introduction

Good leadership is the key to success in every enterprise due to the need to cooperate in teamwork to achieve a common goal (Sustainable leadership 2011); yet, currently one of the largest challenges facing humanity is the challenge of transitioning towards a sustainable society. We have reached unprecedented figures in terms of climate indicators (NASA 2017) and we are seeing degradation in the planet eco-systems that could put us on a trajectory that could jeopardize our ability to live according to our current standards of life (Broman and Robèrt 2017). Broman and Robèrt (2017) claims that the challenge is not only about ecological aspects, but also about social aspects; with decreasing levels of trust in several societies that affects their ability to work on the ecological challenges. Furthermore, working on solving these issues requires inter-, -multi, and transdisciplinary approaches that involves different stakeholders and researchers from a range of different disciplines and levels in the society, which increases the complexity of the challenge to work with sustainability related problems. Lichtenstein et al. (2006) argues that traditional views of leadership have become less useful considering the complex nature of the current global system.

One way to address the needed leadership in complexity is presented by Uhl-Bien and Arena (2016), the Complexity Leadership Theory (CLT) presents a model of three required leaderships Operational, Enabling and Entrepreneurial. In the model the enabling leadership facilitates the tension between operational leadership and entrepreneurial leadership, to allow for the emergence of new ways of working in complexity. However, this model does not account for specifically the sustainability challenge, rather it specifies working with complexity.

Broman and Robèrt (2017) argues that a unified framework for sustainable development is needed to strategically move towards sustainability, hence the Framework for Strategic Sustainable Development, FSSD, was developed which is a framework that aims to build a common definition around the challenge of sustainable development based on a rigorous scientific understanding of the socio-ecological system within the biosphere. Based on this understanding the framework provides a principle based definition of sustainability. Furthermore the FSSD provides strategic guidelines on how to strategically work towards a sustainable society within the boundaries of the sustainability principles. However, while the FSSD provides guidelines on how to work towards sustainability it does not provide any explicit guidelines on what kind of competencies and leadership is required to work strategically towards a sustainable society.

The Key Competences in Sustainability Framework (KCSF) was developed to suggest key competences that are required to work with sustainability. The KCSF defines competences in relation to sustainability as ”..complexes of knowledge and skills, and attitudes that enables successful task performance and problem solving with respect to real world sustainability problems, challenges and opportunities” (Wiek, Withycombe and Redman 2011 pp 204).
According to the KCSF the key competences are: Systems thinking competence, Anticipatory competence, Normative competence, Strategic competence and Interpersonal competence.

However the KCSF does not describe how the 5 competences can be developed, furthermore Wiek, Withycombe and Redman (2011) stated that the framework is mainly developed as reference point for academic programs.

This brings us to the core of our research which is about exploring the leadership competencies needed to address the sustainability challenge, how well these competencies are covered in the current programs, and what can be clarified as suggested guidelines. The group was doing this exploration through the lens of corporate leadership development programs, as leadership development companies are in a unique position to influence leaders at multiple levels of the society. In carrying out this study, the research question is:

*How can leadership programs develop the essential competencies to address the sustainability challenge?*

**Sub questions**

1. What competencies are essential to be included in leadership development programs to address the sustainability challenge?
2. To what extent are leadership program providers building competencies for addressing the sustainability challenge today through their programs?
3. What guidance can help leadership program providers integrate these essential competencies into their programs?

The scope of this study focused on corporate leadership development programs rather than other educational institutions.

**Methods**

This study was conducted using a pragmatic research approach with qualitative methods. The study uses the Key competences for Sustainability as starting point for identifying the essential competencies necessary for working with complex sustainable problems. The group found it appropriate to use as it provides an academic base on what competencies are needed to work with sustainability; however, as it was developed in an academic context; adding leadership competencies can help tackle sustainability challenges in organizations.

The data collection was done through semi-structured interviews with six leadership development companies from the following countries, Sweden, UK, US, Canada, New Zealand, and Mongolia. Each interview took in average 60 minutes, all interviews were recorded and transcribed.

The transcriptions were coded in three rounds. The first round looked for how the companies described these competences to find common themes, and what leadership competencies emerged that related to the KCSF. The second round looked at how the companies defined sustainability and how they worked with it. And the third round looked at how the companies responded to the KCSF competences development.
The findings were then discussed in relation to the theoretical frameworks of the KCSF, FSSD, CLT to find similarities and differences; this was then used to provide answers to the research questions as well to provide recommendations for future research.

Results

The results are divided into three parts based, leadership competencies, sustainability, and leadership development techniques.

Leadership competencies

The common themes among the participating companies in describing the KCSF competences were as follow:

- Systems thinking competence - being able to see the multiple interconnected parts of the system(s) they are operating and to seek to understand it rather than simplify it.
- Strategic competence – the ability to connect the ordinary everyday problems with the bigger picture as well as being able to take in multiple perspectives and to be able to act accordingly.
- Interpersonal competence – the ability to understand and emphasize with other people’s perspectives as well being aware of one's own bias and how that affects the worldview.

There were no common themes in the description of anticipatory and normative competences.

Regarding what leadership competencies that came out of the interviews, they spoke in general about the need to understand the context and to create environments where multiple perspectives can be heard in order to build a shared understanding of complexity of the issue.

An additional set of competencies emerged from the interviews and that weren’t classifiable in relation to the KCSF. The group assigned these competencies as self-related competencies, which are directly related to developing personal capacity to build self-awareness and to be able to deal with the uncertainty that comes from working with complexity.

Sustainability in leadership development programs

While none of the interviewed companies stated that sustainability was part of their programs, four of the six companies mentioned that the topic has come up with their clients. Furthermore, when they were asked to define sustainability the responses were different with no common definition, some companies mentioned organizational sustainability while others mentioned the use of less resources that could be an indicator for a need to have a common definition of sustainability as a global growing challenge.

Leadership development techniques

The techniques to leadership development that were presented by the participating companies often sought to expose and challenge the program participants to allow them to see and experience different perspectives, and to help them create a shared common understanding of how the current reality looks like and how to map out trajectories in the future. There were also other approaches that focused on educating participants about mindfulness and ways to build
resilience. Furthermore, many of these techniques aimed to teach participants to challenge thinking, to challenge their own beliefs about themselves and how they see others. One thing that all companies agreed upon was the need for long term engagement with their clients in the development programs to assure lasting effect; however, the follow up differed from the mail communication, to follow up interviews with participants, to simply put long-term engagement as a condition for leadership development.

**Discussion**

The discussion chapter is divided into 5 parts:

**Comparing the interview results with KCSF**

Looking at the results from the interviews in contrast with how the KCSF competences are described, there were some similarities regarding the interpersonal and systems thinking parts. Both the KCSF and the interviews described systems thinking as being able to work with complexity to build a shared understanding as well as being able to understand and work with people using different perspectives at different levels. The leadership competencies from the interviews differed from the KSCF to various degrees, the difference was that the participating companies in general looked at these competencies from the lens of what a leader need to get to be able to create the proper environment to effectively use these competences, on addition to what self-related competencies are needed for leaders to create this space and deal with complexity. The leadership competencies are therefore in contrast to the more operational focused KCSF competences.

**Discussing results within the CLT and FSSD**

The leadership competencies of being able to create the culture or the environment that sizes multiple perspectives to make an effective contribution, and to build a shared understanding towards co-creating solutions, is close to the enabling leadership of the CLT model. According to the CLT model, the enabling leadership main purpose is to facilitate the interaction between the innovative and entrepreneurial system on one side and the operational and administrative system on the other side in organizations (Uhl-bien and Arena 2016).

Sustainability work can be complex and involves multiple stakeholders (Lang et al. 2012). Hence, enabling leadership could play an important role and requires a type of leaders who are able to understand and hold the perspectives of both systems as well as to maintain the opinions and concerns of people within these systems. To come up with emergent solutions that can be operationalized in the entire organization, the CTL model and the leadership competencies from this can be used a complementary tool to the FSSD approach.

Helping leaders to facilitate the interaction between teams and the rest of the operational system of an organization could help integrate sustainability in the organization.

**Discussing leadership development programs in relation to sustainability**

As mentioned in the results part, none of the participating companies worked directly with sustainability in their programs, however four of the companies said that they have had or are having clients that work with sustainability. Furthermore there was no common definition on
what sustainability is, which shows a need for common definition around sustainability. However, as seen in the results several of these companies are working with developing leaders to lead in complex environment with difficult issues. Therefore the argument could be made that they are indirectly developing leaders who could be capable of addressing the sustainability challenge, just not in the direct context of sustainability.

**Discussing leadership development approaches**

Looking at the approaches from the results in relation to the FSSD, several of these technique aim to develop leader’s competencies in systems thinking, how to build and maintain relations with multiple stakeholders with different perspectives. This can be linked to systems level in the FSSD and working with multiple stakeholders which a key aspect of the operational ABCD method in the strategic guidelines. Furthermore the technique result highlighted the need for longer term engagements and follow up when working with leadership development.

**Methodology discussion**

It is important to note that these findings came from an exploratory research design with open-ended questions that have been perceived in different ways by the participating companies. Moreover, as this is a qualitative study, and therefore results were interpreted by the research group, there is a risk for bias that may have affected interpreting the interview result. Therefore the research findings are not to be seen as absolute or generalized, rather as implications that could inspire further researches and testing, particularly regarding the leadership competencies part as it involved the largest degree of interpretation compared to the other parts about sustainability and leadership development approaches.

**Conclusion**

In conclusion, to answer our overall research question in how leadership programs can develop the essential competencies to address the sustainability challenge, and based on findings from this study, a potential benefit for leadership development companies is to adopt a robust and scientifically strong definition of sustainability such as the one presented in the FSSD. The research shows that any engagement in developing leadership, whether for sustainability or not, seem to require long-term engagement and integration with the client organization to have a lasting effect, however this is based on the perspectives of six companies and therefore need further validation. Lastly the research points towards the need to have leadership that leadership competency that allows leaders to deal with uncertainty and complexity on a personal level. This in turn could enable them to work in complex environment that involves multiple perspectives and changing variables and help them to collectively build a shared understanding at hand and come up with strategies to deal with them as well as integrate these solutions in the operational system in their organizations. However as mentioned above this research was done in a exploratory manner and therefore these findings should be seen potential implications rather than as absolute facts as further research is required.
Glossary

Adaptive system: Flexible system that improves its performance (or chances of survival) by monitoring and adjusting its own configuration and operations in response to feedback from its environment.

Capacity: Specific ability of an entity, person or organization, or resource, measured in quantity and level of quality, over an extended period.

Competence: the ability to undertake responsibilities and perform activities to a recognised standard on a regular basis. Plural competences.

Competency: the behaviour that employees should have or develop in order to achieve high levels of performance. The focus here is on the individuals having the right skills and values to carry out the tasks required of them to meet the standards of the organization for which they work. Plural competencies.

Complexity: Condition of having many diverse and autonomous but interrelated and interdependent components or parts linked through many interconnections associated with interrelationships.

CLT: Complexity leadership theory, a model on how to lead in complexity.

Development: The systematic use of scientific and technical knowledge to meet specific objectives or requirements.

Dynamics: Capable of changing or being changed; in a state of flux, not static.

FSSD: A Framework for Strategic Sustainable Development.

KCSF: Key competences in sustainability framework.

Perspective: a particular attitude towards something; a way of thinking about something

Skill: An ability acquired through deliberate, systematic, and sustained effort to smoothly and adaptively carry out complex activities or job functions involving ideas (cognitive skills), things (technical skills), and/or people (interpersonal skills).

Uncertainty: Situation where the current state of knowledge is such that the order or nature of things is unknown, the consequences, extent, or magnitude of circumstances, conditions, or events is unpredictable, and credible probabilities to possible outcomes cannot be assigned.
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1 Introduction

"80% of CEOs anticipate significant complexity ahead, less than half feel prepared to handle it."
IBM survey 2010

Good leadership is the key to success in every enterprise that requires cooperation and teamwork to achieve a common goal (Sustainable leadership 2011), taking into consideration that the small groups of people who occupy the top of an organization have a significant effect on organizational outcome. Business is affected by changes and challenges that are created because of the accelerating rate of globalization and technology; hence the today’s global leaders need to acquire a different set of competencies to enable them to implement their vision and to effectively lead their organizations (Chuang 2013). These competencies are assumed to get more focus in the future when leader’s capacity and approaches are getting more complicated with the increased interaction that is caused by technological development in different areas (Punnett 2004).

One of the main areas where this can be seen is sustainability, which is one biggest challenge that society faces today. With climate change indicators reaching record high numbers (Nasa 2017) and the increased complexity in the political and economic sphere showcased by the election of Trump, Brexit and the financial crash of 2008 (Uhl-Bien and Arena 2016), the challenge of moving towards a sustainable society “which meets the needs of the current generations without compromising the ability of future generations to meet their own needs” (United Nations 1987) has become increasingly complex.

1.1 The complex nature of sustainability challenge

It is easy to only think of the climate change and CO2 when talking about sustainability, as it often get the most coverage in media and with solution to being touted that we simply need to reduce CO2 emissions. However as Broman and Robèrt (2017) state, it's more than that, it's about the decreasing quality of the ecosystem which could put us on trajectory that could jeopardize humanity’s ability live on this planet as it currently does. It's about decreasing levels of trust in many societies that decreases their ability cohesively work on the ecological challenges. Add continuous population growth and the financial systems increasing impact on both the ecological and the social system, and the picture gets even more complex. Which prompts the question, can one work to address this massive challenge?

According to Lang et al. (2012) research in the sustainability field state that to address this challenge the work needs to be done through inter-, multi, transdisciplinary approaches, including practitioners, different stakeholders, corporations, science institutes and more. However one of the main challenges that have emerged from the research into sustainability is the lack of studies into the value systems and the leadership that is required to lead the transdisciplinary and multi stakeholder work that is required (Lang et al. 2012). The complexity of researching sustainability comes from the fact that it must draw upon scholarly work from a
range of disciplines, and that such a broad basis is necessary to understand and address the urgency of sustainability challenges (Jerneck et al. 2011).

McCann (2010) describes leadership for sustainability as leadership that is concerned with creating current and future profits for an organization while improving the daily interaction of all involved parts. Furthermore Ferding (2007) states that sustainable leadership reflects an emerging purposeful consciousness among people who are choosing to live their lives and lead organizations in ways that account for their footprint on the earth, society and the health of a global economy, therefore it is important to understand what complexity is.

"The wicked social and environmental problems we face, then as leaders and change agents we have a responsibility – and precious opportunity – to develop ourselves into these more complex ways of seeing and relating with the world." (Brown, 2013).

1.2 Complexity

When describing complexity Uhl-Bien, Marion, and McKelvey (2007) say that the term complexity captures the greater levels of uncertainty, ambiguity, interdependencies and interrelatedness that now characterize the environments in which organizations operate in today, and that the rapid shifts social, technological and economic environments will produce greater degree of complexity than what we experience today. Uhl-Bien and Arena (2016) state that Complexity is about rich interconnectivity. With “rich” meaning that when things interact, they change one another in unexpected and irreversible ways. For example Broman and Robèrt (2017) talks about the unexpected and disastrous impact CFC gas had that on the ozone layer as an example of how things can lead to unplanned consequences.

One of key concept in complexity is emergence, Rotman (2009) defines emergence as the arising of novel and coherent structures, patterns, and properties during the process of self-organization in complex systems and that behind emergence is that idea that there may be at a higher (macro) level that cannot be understood by reduction to lower (micro) levels (Sawyer 2005: Rotmans 2009).

1.3 Complexity leadership theory

From a leadership perspective Clarke (2013) argues that Complexity Leadership Theory (CLT) begins with a number of important assumptions about the nature of reality within complex situations or environments, with the first being to recognize open systems such as work organizations as too dynamic and unpredictable to be defined by simple models. Hazy and Uhl-Bien (2015) further argue that the complexity approach to leadership is not focused on a single individual leader rather that it’s a recognizable pattern of social and relational organizing among autonomous heterogeneous individuals as they form into a system of action. Uhl-Bien and Arena (2016) state that the dynamic nature of emergence means that adaptive responses cannot be managed in the traditional command and control sense; instead, they would need to be enabled. That leaders need to enable adaptive responses in complex environments by engaging in and creating conditions that feed and fuel emergence.

Uhl-Bien and Arena (2016) presents a way for organization that work in complex adaptive systems, it’s that describes model of three different kinds of leaderships that are needed: the operational leadership, the entrepreneurial leadership and the enabling leadership. The Operational leadership is the formal design and alignment of systems and processes for
efficiently executing on ideas and converting them into productive outcomes, that is the operational that is mostly seen in today's organizations. Entrepreneurial leadership is about new ideas, innovation, learning and growth for the organization, this is the leadership that pushes the boundaries and experiment and prototype. Enabling leadership is about the enabling of conditions that effectively support and sustain adaptive space that allow the interaction and facilitation for the creative tension between the entrepreneurial leadership and the operational leadership and prevents the suffocation of either.

Rotman (2009) state in similar terms that a certain amount of diversity is required for us to explore a variety of innovative options instead of looking for the optimal solution, and that space for experimentation is needed to reduce the some aspects of the high level of uncertainty in complex environments.

The focus is therefore on how leadership might bring about conditions that enable or facilitate organizational effectiveness, in contrast to determining it (Clarke 2013). Or as Geez-Frazier (2014) states that the key is to enable instead of control. Whilst individual leaders are seen as important and requiring a particular set of skills, leadership development also involves shaping the context, particularly structures and cultures (Clarke 2013).

How ever to do any research into sustainable it is helpful it is important to have a clear definition what sustainability means. The most famous definition of sustainable development is the Brundtland definition which defines it as ”..the development that meet the needs of the present without compromising the ability of future generations to meet their own needs.” (United Nations 1987). However that is easier to say than to put in action, as the word needs can be interpreted in many different ways depending on the person and the context they live, is needs the basic things that allow us to survive, or does it also include things such living standards, social aspects such security, ability to influence and grow as a person. Broman and Robèrt (2017) argues that a unifying framework for sustainable development is needed to strategically towards sustainability.

1.4 Strategic Sustainable Development

Hence, the Framework for Strategic Sustainable Development (FSSD) was developed as a strategic framework to help build a common language around sustainability based on rigorous scientific understanding of the socio-ecological system within the biosphere,. The framework helps leaders’ backcast from an envisioned future within the boundaries of sustainability principles into the current reality, and provides strategic guidelines that help prioritize strategic actions that need to be taken to reach that vision (Broman and Robèrt 2017).

The FSSD is based on a generic five level framework that has been applied to the socio-ecological system that that is planet earth, with goal to move towards a sustainable society in the biosphere (Broman and Robèrt 2017).

1.4.1 The five levels of the FSSD

The systems level: the systems level helps leaders understand the system their organizations operate in. The systems level gives leaders clear understanding of the global socio-ecological system, that is the society within the biosphere, the sustainability challenges at the global scale, and how their organization affect the systems and are affected by the system.
The success level: leaders always need to have a clear definition of success, and what principles need to be considered to define success.

Based on the system's understanding of the socio-ecological system and the above conditions, the FSSD defines sustainable society within the biosphere by the following eight principles, three of which are ecological and five are social:

Ecological principles: nature is not subject to systematically increasing …
1. ... concentrations of substances extracted from the Earth's crust.
2. ... concentrations of substances produced by the society.
3. ... degradation by physical means. This includes among others thickness and quality of soils, the availability of fresh water, the biodiversity, and other aspects of biological productivity and resilience, over-harvesting forests and over-fishing.

Social Principles: people are not subjects to structural obstacles to…
1. ... health. People are not exposed to dangerous working conditions or insufficient rest from work. Possibilities to avoid injury and illness, physically, mentally or emotionally.
2. ... influence. People are not hindered from participating in shaping the social systems they are part of, including free speech or opinions.
3. ... competence. People are not hindered from learning and developing competence individually or together.
4. ... impartiality. Not exposed to partial treatment, discrimination of unfair selection to job positions.
5. ... meaning making. Not hindered from creating individual meaning or co-creating common meaning, cultural expression or co-creation of purposeful conditions.

The strategic guideline level: The strategic guidelines level includes guidelines on how operationalize the principle based approach to sustainability from strategic perspective. This include a step based approach called ABCD that can be used to move an organization to its vision within the boundaries of the sustainability principles. In summary the process starts at A) creating an envisioned future within the boundaries of the sustainability principles followed B) assessing the current reality of the organization. This followed by C) collaborative creative brainstorming on how to bridge the gap between the envisioned future and the current reality, followed by D) a method for prioritizing the ideas coming from the brainstorm.

Broman and Robèrt (2017) stresses that this process is process is not exclusive and rigid step by step procedure rather they say that it’s an iterative process and one can move between the steps as necessary and that its open to be used with other tools and methodologies.

The actions level: The FSSD suggests at the actions level all concrete actions decided by leaders during the strategic planning to move towards sustainability.

The tools level: The FSSD suggests at the tools level tools decided by leaders during the strategic planning to move towards sustainability.

Broman and Robèrt (2017) state that the FSSD provide rigorously scientific tested can provide strong way towards understanding and working strategically towards sustainability. However in its strategic guidelines while it provides guidance on how to work strategically towards sustainability it does not provide explicit guidance what kind of leadership nor what competencies are required to do this work.
1.5 Key competences in sustainability framework

The Key Competences in Sustainability framework (KCSF) was developed through a comprehensive literature review of research in sustainability (Wiek, Withycombe and Redman 2011). The aim of the framework is to provide an overview of key competences to work with sustainable development. Wiek, Withycombe and Redman (2011) argue that the use of key competences provides a reference scheme that allows evaluation of participants learning of teaching effectiveness. The framework defines competence in context of sustainability as “..complexes of knowledge and skills, and attitudes that enables successful task performance and problem solving with respect to real world sustainability problems, challenges and opportunities” (Wiek, Withycombe and Redman 2011 pp 204).

It uses the model shown in Figure 1.1 to describe complex sustainability problems.

![Figure 1.1. The integrated sustainability research and problem-solving framework, Wiek, Withycombe and Redman 2011.](image)

The model is structured in four modules: analyzing the current problem constellation(s); creating and crafting sustainability visions (“problem solved”); exploring less desirable future scenarios that might become reality without interventions towards sustainability; developing and testing strategies to transition from the current state to sustainable states without getting deflected towards undesirable pathways (critical intervention points (Wiek 2010; Wiek, Withycombe and Redman 2011).

The key competences framework identified 5 key competences that need to be integrated into in order to solve complex sustainability problems (figure 1.3). These competences are systems-thinking competence, anticipatory competence, normative competence, strategic competence and interpersonal competence (Wiek, Withycombe and Redman 2011). The framework defines the following competences as following:

Systems-thinking competence: the ability to analyze complex systems across different domains and across different scales, taking into consideration cascading effects, inertia, feedback loops and other systemic features that are related to sustainability problems. Systems thinking competence is a prerequisite for identifying intervention points, anticipate long term trajectories and building transition strategies towards sustainability.

Anticipatory competence: the ability to analyze, evaluate and create rich ”images” of the future in relation to sustainability. This competence is divided into the creative work of creating these
envisioned futures and the analytical work to analyze, anticipate and prevent unintended harmful consequences.

**Normative competence:** the ability to collectively map, specify, use, reconcile and negotiate sustainability principles, values, goals and targets. It enables leaders to assess the current and future states of socio-ecological systems and to collectively create and craft sustainability visions for these systems. The framework states that normative competence is important for constructing direction and orientation about deliberative change. Note here, the key competences framework does not provide a definitive definition of what these principles, goals and targets are.

**Strategic competence:** the ability to collectively design and implement transitions, interventions and strategies towards sustainability. It requires keen understanding of strategic concepts as well as technique and methodologies on how to design, test, implement and evaluate actions and strategies, while working with different stakeholders. In layman’s terms this competence is about “getting things done.”

**Interpersonal competence:** the ability to motivate, enable and facilitate collaborative and participatory problem solving. This includes skills in communication, deliberation, leadership, empathy and negotiation. The framework states that the capacity to understand and facilitate diversity across cultures, societal groups and communities is a key component of this competence. Solving sustainability problems requires strong stakeholder collaboration and negotiation with actors from a variety of disciplines and different groups (politicians, business and community leaders, activists and so forth). The framework argues that an integrated approach with these competences is needed (see figure 1.2).

![Figure 1.2. The 5 competences in sustainability as linked to the framework Wiek, 2011.](image)

Wiek, Withycombe and Redman (2011) describe this model by applying to a sustainable urban development project. That to develop test and implement strategies for sustainable development requires strategic competence, to do that one would have to assess the current and past developments as well potential future development paths which requires systems thinking competence. These future development paths need to be assessed against criteria for sustainability which require normative competence. Furthermore these strategies have to be capable of being continuously adapted and redirected towards the sustainable vision which requires anticipatory competence. Lastly to make all of this work one has to collaborate with
multiple stakeholders across multiple sectors, in order to build systems understanding of the issue, build shared sustainable visions and to able to implement strategies that involves actors from all of these sectors, all of this requires interpersonal competence.

However the KCSF does not describe how these competences can be developed, furthermore Wiek, Withycombe and Redman (2011) state that the framework is mainly developed as reference point for academic programs.

1.5.1 KCSF competences versus leadership competencies

Peter Ellis and Jane Abbott (2011) highlighted that the Chartered Institute of Personnel and Development (CIPD) (2011) makes a clear distinction between competence and competency, when it regards competency as the behavior that employees should have or develop in order to achieve high levels of performance. The focus here is on the individuals having the right skills and values to carry out the tasks required of them to meet the standards of the organization for which they work. Competence on the other hand is seen as having the technical ability to undertake the job and is demonstrated by outputs in occupational standards of performance.

By mentioning this point of differentiation between the two definitions, we realized that that KCSF was not very clear in that difference. Wiek, Withycombe and Redman (2011) suggest that the framework is for academic research for problem solving and sustainability, and that reflected technical ability more than individual development, which tends more to be a competence.

As a result, in this study the use of the term competence will be for the KCSF, while the term competency will be used to refer to leadership competencies that were suggested by the participating companies.

1.6 Corporate sustainable leadership development

Alexander and Buckingham (2011) argues that sustained organizational growth can best be stimulated by attention to the common good and the capacity of corporate leaders to create commitment to the common good. Furthermore Broman and Robèrt (2017) states that to work towards sustainability, a system approach is necessary with an understanding of the complex system that the society exists in. This complexity raises the question of how to appropriately approach leaders' training and development? Is it enough to provide tools and skills, or are there different aspects still required?

Adams (2011) argues there is now a pressing need to develop the skills and values that are required to engage critically and in a transformative manner, while understanding the boundaries and connectivity in the system that they interact within in the everyday practices. While MacDonald and Shriberg (2015) raises the issue that it’s not enough simply acquire leadership skills and knowledge about sustainability and that therefore programs aimed leadership development need to expand in depth and duration or focus on certain niches within sustainability leadership. In addition to that, recognizing and encouraging diversity in leadership has become essential to ensuring that solutions to these pressing global issues serve the interests of all (Adam 2011). MacDonald and Shriberg (2015) say that the act of providing both a knowledge base and set of sustainability leadership competencies for addressing wicked problems to create a more sustainable world is an immense and complex commitment.
1.7 The required type of leadership

Niekerk, and Waghid (2004) state that leadership can be seen as the integral component of organizations that determines the direction and creates the vision. Lichtenstein et al. (2006) describe leadership as the dynamic that goes beyond the capabilities of individuals alone and become the product of interaction, tension, and exchange rules governing changes in perceptions and understanding.

The type of leadership that is currently most favoured is described as transformational. Transformational leaders motivate and inspire by appealing to team members’ sense of what is ethical and moral (Ellis 2015). Transformational leaders are forward-looking and have a vision for how they want their team to work and who can articulate this vision (Reynolds and Rogers, 2003). The continuum model (figure 1.3) describes the level of authority, the power and influence of leadership. It also describes the area of freedom for managers and the area of freedom for non-managers. Ellis (2015) gives an example in an emergency, a leader may need to be autocratic, but in the general run of practice, this leader will need to be democratic and inspirational but also states that a total “tell”-situation does not exist because you never know how a group will react. In the “sell”-situation, a leader is directing the team, but the authority is less. In the “consult”-situation, the leader act as arbiter. They consult and discuss with the team what should be done. In a “participating”-situation, the leader helps set the agenda as to what work needs to be done, but does not interfere with how the team achieves this. Ellis (2015) means that leadership has multiple identities and operates at many different levels.

Lichtenstein et al. (2006) further elaborates that leadership can be seen as a complex dynamic process that emerges in the interactive of people and ideas, which he calls the adaptive leadership dynamic. This dynamic provides insights about the nature of leadership and its outcomes in the organizational fields. Stocker and Bossomaier (2014) states leadership is also about dealing with human complexity; they highlighted that human society involves many networks of human relationships that form the social system, as well as the interaction between
people, institutions and processes; they also included that social organization has evolved many ways to reduce and contain complexity in different ways.

Based on this Lichtenstein et al. (2006) argues that traditional views of leadership have become less useful considering the complex nature of the current global system. Niekerk and Waghid (2004) further argues that management’s role and organizational leadership need to change to reflect these new realities and therefore require a move away from the command and control approach to a different style of leadership. As leaders often operate in complex situations where they are dealing with dynamic systems or networks, where they are required to make decisions in a continuously changing environment, Hannah et al. (2013) argues to do that effectively leadership need to be able to adjust their behavioral responses to the rapid-and sometimes sudden- change as well to engage others to achieve effectiveness. Therefore, Lichtenstein et al (2006) argues leadership theories need a transition to new perspectives that fits the complex environment that organizations face today. Hannah et al. (2013) continues on this thread by stating that leadership is more than just a skill, or an exchange, or a symbol; leadership emerges from a dynamic interaction.

Connecting this with sustainability, Adams et al. (2011) state that addressing the pressing climate change and sustainability issues requires collaborative work in new ways through different aspects. These aspects can be grouped as: multi-stakeholder partnerships, engaging with stakeholders, multi-disciplinary research and working across functions in an organization. They further argues that this complexity requires responsible leadership that goes beyond following sustainability regulations and complying with the law and that there is a need for the type of leadership that understands the value of, and the need for, collective action to achieve economic progress and societal well-being (Adam et al. 2011).

In summary, good leadership has been key to success in almost every enterprise that required cooperation and teamwork interaction to achieve a common goal and at this moment the group argues there is no more common nor urgent enterprise then work towards sustainability. However the challenge is complex and complexity is something that the old models of leadership have not been developed for, therefore new models of leadership are needed. Complexity Leadership Theory offers model on what leadership is required in complexity, yet to lead one has to know what to lead towards. The FSSD provides an operationalized way to work strategically towards a sustainable society, yet it does not specify what competencies a leader needs to do this work. And where the KCSF offers the key competences necessary for working in sustainable development, it is aimed academic programs and doesn’t explicitly take into account the leadership aspect of strategically working towards sustainability nor does it present a definition of sustainability, hence this can be where the principled definition of sustainability from the FSSD and leadership aspects of the CLT could complement this framework.

The FSSD state what success is in terms of sustainability and how to work towards it, Complexity Leadership Theory (CLT) state what leadership is needed in complex environments, which is a label the group argues sustainability work fall under, and the KCSF state what competences are needed to solve complex sustainability problems. This study seeks explore how these frameworks can used by to help leadership development companies develop the necessary competencies for leaders to address the sustainability challenge.

This brings us to this study, this research will investigate various leadership development approaches with different leadership development companies in combination with the above
mentioned frameworks to assess what leadership competencies are essential to be developed to address the sustainability challenge as well how to develop them.

1.8 Research question

The aim of this study is to explore how to develop leadership competencies that are essential to be included in leadership development programs to address the sustainability challenge.

Research question

How can leadership programs develop the essential competencies to address the sustainability challenge?

Sub questions

1. What competencies are essential to be included in leadership development programs to address the sustainability challenge?
2. To what extent are leadership program providers building competencies for addressing the sustainability challenge today through their programs?
3. What guidance can help leadership program providers integrate these essential competencies into their programs?

1.9 Scope and limitations

The scope of this study is to focus on assessing corporate leadership development programs from the sustainability perspective; the concern was to determine the essential competencies that need to be included in developing attendees’ capacity to lead in complexity towards sustainability. The decision for focusing on corporate programs rather than universities, corporate MBA’s or other educational entities was made based on the literature research. Most of the research into Sustainability programs has been based on university programs and this group found little research from the corporate leadership development perspective. Therefore the group argues that looking at how corporate leadership programs are currently developing competencies for addressing the sustainability challenge could provide additional insights on what competencies are needed as well as how to develop them.

Furthermore the scope of this research only covers leadership competencies within its scope, other aspects that influences leadership such as for example geographical culture, organizational structure, technology and similar aspects are considered out of scope.

Furthermore this study was conducted using qualitative methods, therefore it is inherently limited to the groups own judgment and interpretation of the data.

This research is limited to:

1. Using the definition of sustainability as stated by the sustainability principles in the Framework for Strategic Sustainable Development.
2. The leadership program providers (six companies), who responded to the invitation to participating in the study.
3. The perspectives of the representatives of the companies that we interviewed.
4. The interpretations of the data by the individuals in this research group.
2 Methods

This study was done in three phases: Selecting a framework, conducting data collection and finally consolidating the results with the theoretical frameworks of the CLT, FSSD and the KCSF to answer the research on how leadership development companies can develop the essential competencies for addressing the sustainability challenge.

2.1 Methodological approach

This study was conducted using a pragmatic research approach based on practical research methodologies. A pragmatic approach means that the group used the methods most suitable to answer the research question (Savin Baden and Howell Major 2013). The reason behind was due to a few key factors such as allowing the group to work more based on what made practical sense rather than be bound by philosophical stance, the constraints in terms of time and accessibility to participatory companies and finally the personal preference of the group.

2.2 Framework for key competences for sustainable development

This study used the Key Competences in Sustainability Framework developed by Wiek, Withycombe and Redman (2011) as a starting point for identifying the essential competencies needed to address the sustainability challenge. The framework identified 5 key competences necessary for successful work in the sustainability field: systems-thinking competence, anticipatory competence, normative competence, strategic competence, and interpersonal competence. It was also highlighted in the article that there is no agreement on leadership competences; however the group decided to work with this framework as this article has been cited 228 times from Springer Link.

Why is it appropriate to use to answer our research question?

The Key Competence in Sustainability Framework (KCSF) is using a simple model to describe the complex challenge of the transition to sustainable society (Figure 1.2). It then prescribes which competences are needed in each part of the model, providing a comprehensive map of both what competences are necessary in working with sustainability and when and where they are necessary. Our research questions ask how leadership program providers can develop the leadership competencies necessary to address the sustainability challenge. This framework maps out what these key competences are from problem solving perspective and where they are needed. Furthermore Wiek, Withycombe and Redman (2011) makes a clear distinction between general competences and key competences, the latter being critically important for sustainable development, the group wants to see if these competences can be applied from a leadership perspective or if there are additional competences needed.

Wiek, Withycombe and Redman (2011) states that there is a need for follow up studies which looks into to real life application of these competences and how they can be developed.

Using the KCSF for business leaders

Wiek, Withycombe and Redman (2011) state that insights of this research could benefit processes in designing and revising academic programs however they further say that it could also support institutional decisions such as hiring and training faculty and staff. The framework was based on a comprehensive literature review that looked university programs aimed at
producing graduates that are working with sustainability related work. The group argues that between business leader working on a sustainability problem and a graduate working on a sustainability problem, the difference lies in the scale of the program and the experience and larger resources that the business leader can draw upon rather the nature of the problem and the competencies needed to solve it.

2.3 Data collection

The data collection was done through interviews with six leadership development companies from the following countries, Sweden, UK, Canada, New Zealand, and Mongolia.

2.3.1 Participating companies

The participating companies were chosen based on three criteria 1) maximum variation in terms of size, target groups, geographical location and approach. 2) They are acknowledging the increasingly complex environments leaders work in 3) their clients are mainly corporations or from the business sector 4) Accessibility, due to the time constraints the group chose the ones that said yes to the initial invite. The following information is a summarized profile for each company as displayed on their webpages:

Clear Impact Consulting Group Inc. -”simple truth, consistently applied.”

The company is working with organization and the people within them, facilitating the application of leadership solutions for organization development. The company believes that companies need to design an overall leadership development strategy, and then integrate it into all aspects of their organizational culture (Clear Impact 2017). They are working with:

- Living Systems Perspective
- Contextual Thinking
- Leadership/Professional Development Programs
- Holocracy

Cultivating Leadership -”because leadership grows.”

The company provides practical and transformative experiences and conversations. They work on developing leader's ability to deal with complexity, ambiguity, and volatility (Cultivating leadership 2017). The company uses theoretical knowledge and practical tools and structures to help clients:

- Expand personal view and improve relationship as a way to lead to new solutions
- Creating a culture that is more open to change and innovation
- Improve understanding of changes to make massive difference

Harthill -”transforming organizations and leaders.”

Harthill approach is to develop capabilities in response to leaders’ professional context, existing abilities and the emerging demands of tomorrow (Harthill 2017). They focus on:

- Action Inquiry
- Vertical and horizontal development
- Developing strategic and systemic capability
MiL Institute- "unique business-driven leadership development based on ARL®."

MiL Institute offers business and leadership development based on a company’s conditions. The company develops people within the organization to work together better, become more productive and more innovative and develop as self-motivated players with a will to learn.

The company’s method is to integrate leadership development and the development of business activity. Action Reflection Learning: People learn from practical, real life situations more than in any other way. A humanistic view of human beings, an action-oriented approach to change and development and multi-facetted perspectives on leadership and learning form a vital platform (MiL 2017).

The Nomadic School of Business- "helping leaders disrupt, simplify and re-think their entire business community."

The Nomadic School of Business brings inspiration from nomadic communities to the field of leadership development. They run creative, transformative programs for teams and individuals that encourage a nomadic approach to strategy, life and leadership. Cutting through business jargon, they support individuals and teams as they create intuitive plans that everyone can understand, own and deliver.

The company enables leaders to create a sense of ownership for their teams by opening the space for the team's feedback to their leaders about team member threats and opportunities and what should happen from the teams view (Nomadic School of Business 2017).

Pacific Integral -"awakening the future of leadership."

The company brings a profound transformation to its clients. Pacific Integral uses the approach is a combination of education, psychology, business, research, information technology and contemplative practice. Their approach centers around five key dimensions: Causal leadership, Global awareness and intent, Evolutionary spectrum of human development, Community and collective intelligence, and Transformative collaboration action (Pacific Integral 2017). Pacific Integral offers:

- New strategic insights and pathways
- Less inter-personal and organizational conflict
- More engaged, inspired leadership and staff
- Quicker, better decisions
- Faster learning and adaptation to change

2.3.2 Interview protocol

An interview protocol was created with questions based on the KCSF that contained general questions around what is good leadership and complexity, questions related to the key competences, how the companies follow up after their program and a final open part that captured the data that were not addressed in the previous questions. The interviews were done according to the semi-structured method, which allowed the group to ask follow up questions and to inquire into emerging topics that went outside the interview protocol (Savin Baden and Howell Major 2013). The reason for having semi-structured interview was to allow participating companies to add other leadership competencies that are related to leadership
towards sustainability and considered essential when designing leadership programs. Furthermore as the KCSF was developed in academic context and the interviews take place in a business education context, the group wanted to be open for additional factors not mentioned in the KCSF.

Five of the six interviews were conducted online and one interview was done face to face. The interviews lasted around 45-60 minutes each, was done with two members of the group, one group member focused on the questions in the interview protocol (Appendix 1) and the other focused on looking for follow up questions.

2.3.3 Coding
The coding was conducted in three rounds.

The first round was to code the transcriptions based on the 5 competences from the KCSF this was done in two parts. In the first part the group looked for common themes in how the companies described the competences, to see if there is any common understanding around them. In the second part the group looked at the interviews as whole through the participating companies' lens as experts in the field of leadership development to identify competencies related to leadership, and relate these leadership competencies to the five key competences from KCSF (Appendix 3). For the sake of clarity the results that emerged from this coding will be called *competencies* and the KCSF will be called *competences*.

Furthermore in this part the group looked for patterns that didn’t fit with the competences described in KCSF to see if there are additional competencies that are essential for leadership development to address the sustainability challenge.

The second round of coding was conducted by searching for techniques used by the participating companies. The techniques the companies used were sorted into the 5 competences as for each competence the group asked how the companies were developing it.

The third round of coding was done using sustainability as code, where the group searched how the companies defined sustainability and how they worked with sustainability.

These three rounds were created to identify results that could help us answer the research questions.

2.4 Creating recommendations

The final part of the research was about discussing the findings from the interviews in relation to the KCSF, CLT and the FSSD to come up with a way that could help leadership development companies who seek to integrate sustainability into their programs in order to contribute to addressing the sustainability challenge.

2.5 Quality criteria

Bryman (2008) state that there are four criteria when checking quality control in qualitative research. These are external/internal reliability and external/internal validity. Where external reliability is how replicable a study is and internal reliability is about having more than one perspective that agrees what is seen and heard in the research. External validity refers to the
degree that the findings of the study can be generalized across the field of study and internal validity refers how the findings from the study correlate with the theoretical ideas that are developed from them.

Assessing this study using these criteria the group agrees with Bryman that external reliability for qualitative research is a difficult criteria to meet as social setting like an interview can’t be frozen. The group has been transparent about the methods and literature used in designing this study however even if someone went through the same steps and interviewed the same people with the same questions and use the same methods of coding, the results might be different.

In terms of internal reliability the study was designed to ensure that there was always multiple perspectives on all interpretations in the research. All interviews were conducted by two people, all transcriptions were gone through by all members of the team and questions were solved together. The coding was initially done separately by each member of the groups and then consolidated together; the final part of the coding was done by two people and then reviewed by the third person in the group.

In terms of external validity, Bryman (2008) state that this can be a problem for qualitative research due to the small sample sizes of the study. The group recognizes that this argument can be brought against this study as well due to the sample size being only six companies. The group tried to avert this by looking for high variety in the participating companies in terms of geographical location, size and general approach to leadership development. That means that while the end results cannot be fully generalized, it can provide guidance and implications for further research that looks that looks at larger sample sizes.

In terms of internal validation, the group used credible and highly cited frameworks as base for this study to ensure that the end results are backed by existing theories. Furthermore the group aims aimed to link the results to currently existing research in the field, in order to further strengthen them.

2.6 Ethical aspects

Savin Baden and Howell Major (2013) state that if the answer is no to the following four questions:

Does the research involve a vulnerable population?
Does the research pose a greater than minimal risk?
Does the research pose a minimal risk?
Does the research pose a less than minimal risk?

Then then it can be classified as a low risk study from an ethical perspective. In applying these questions to this study the group argues that the answer to each is no. The population of the study consists of people who are working as program developers/researchers/facilitators in organizations and the data sought is about their work not personal life. Therefore the group argues that they are not a vulnerable population, furthermore due to the focus of this study on leadership programs and concepts rather than individuals and/or groups the group argues that there is a minimal risk of ethical transgressions on individual or group level. Therefore it is our beliefs that that this study qualifies for a low-risk review classification.
When it comes to ethical conduct Savin Baden and Howell Major (2013) identifies four core areas:

- Efficacy of design
- Excellent treatment of individuals
- Plausibility of products
- Transparency of process

The research study was conducted with these four areas applied into each step of the way. That means that the group ensured that the research contributed to field of sustainability (efficacy of design). The group made sure that all participants understood the purpose the research before any interview and were given the option of anonymity or the choice to leave the study. Furthermore no recording nor observation or data collection was done without the consent of the participants. To ensure that the interviews were correctly collected did not cause any harm to the participants or their organization we sent the final transcriptions and asked them to go through them correct any misunderstandings. And as a final point the group has clearly stated their background and transparent about any potential biases that could have affected the study. Beyond that all results published in the report will be anonymous.
3 Results

In this part the results from the interviews and the coding of them will be presented. The results are divided into four parts. The first part is a summary of the results to give an overview of the findings from the interviews. This is then followed by a more detailed description of the results divided into the three following parts: Leadership competencies, Sustainability, Leadership development techniques.

3.1 Summary results

The summary starts with the leadership competencies followed by Sustainability and ending with the results from the leadership development techniques.

Leadership competencies
The below summary starts with the general themes that came up when the companies were asked to described the 5 sustainability competences from the KCSF. Followed by the summary of what competencies came up when the companies talked about these 5 competences. These competencies will be compared to the 5 competences in KCSF in the discussion to highlight overlap and differences.

Out of the KCSF competences, three of them were described general themes that were shared among the companies; these were Systems thinking, Strategic and Interpersonal competences. There was no common theme regarding anticipatory or normative competence. For systems thinking it was described as seeing the multiple interconnected parts of the relevant systems and the need to seek to understand the system rather than simplify it. The strategic competence was described as the ability to connect the ordinary small day to day things with the larger picture as well as being able to take in multiple perspectives and prioritize action. The descriptions that came up regarding interpersonal competence were about being able to understand and emphasize with other people’s perspective as well as being aware their own bias in how they see the world.

In terms of leadership competencies that emerged from the coding, in general they talked about the ability to create an environment where multiple stakeholders can be brought in to share their views and help co-create a shared understanding of the issue at hand. Furthermore some of the leadership competencies emerged where understanding the context, be able to understand and influence the culture that they are working in, identify leverage points and the ability to emphasize and understand other people’s perspective.

In addition to finding competencies that could be grouped into the 5 competences of the KCSF, an additional set of competencies emerged from the interviews that weren’t classifiable under the lens of the KCSF. The group assigned these competencies as self-related competencies, which is directly related to developing personal capacity.

Sustainability
This part summarizes the answers from the companies when asked how they defined sustainability, and if and how they are working with sustainability through their programs.
As seen in details in part 3.3, while none of the interviewed companies stated that sustainability was part of their programs, four of the six companies mentioned that the topic has come up with their clients. One them mentioned that they currently working with a client regarding on how to be environmentally friendly and not go out of business. Furthermore when asked to define sustainability the responses were diverse with some mentioning the planet's resources and others talked about win-win situation, no clear definition emerged.

**Leadership development techniques**

Below is summary of how the companies answered when asked how to develop the 5 competences from the KCSF, as well how they followed up with their participants after their program, further details can be found in part 3.4.

**Systems-thinking Competence**

The general theme that emerged when asked how the companies go about to develop systems thinking was the importance of exposing participants to different perspectives and to challenge them to acknowledge that there is more than their own perspectives.

**Anticipatory Competence**

In terms of anticipatory competence the techniques differed in how they were implemented whether using seasons as metaphor for assessing where you are to listing influential factors in decision making or using models like the Cynefin framework. Yet the common theme that each of these methods is to create a shared, common understanding the reality they operate in, as well as provide elements allows to predict what might happen in the future to various degrees.

**Normative competence**

When asked how they work with sustainability, two of the companies shared how they work with personal sustainability and how practices such as mindfulness and building resilience could help one to live more sustainably on a personal level.

**Strategic thin Competence**

The way the organization worked with the developing strategic competence was the most diverse. From models such as leadership versatility models and theory U to building curiosity and experimentation to helping leadership teams prioritize and ask critical questions as well as build shared ownership with their plans.

**Interpersonal Competence**

In terms of building interpersonal competence the common theme that sticks out are that the companies are challenging people’s beliefs about themselves and how they see the others and the world around them.

**Follow up**

When asked about how the companies are following up with participants after the program the overall theme was that, it is highly important and that there a multiple ways of doing it. Some companies brought up the need to tie in the program with everyday work of the participants. What stuck out though was the need engage with participant over longer periods of time and that short 1-2 day workshops seems to be less useful.
3.2 Leadership competencies

As mentioned in the methods section 2.3.3 the interviews were coded in relation to the 5 competences from the KCSF framework in two ways, first in terms of what common themes emerged from how the companies described these 5 competences, and secondly in term of what leadership competencies emerged from the interviews as a whole which are grouped according to the KCSF scheme and compared to how the KCSF describes them (see Appendix for full list) to highlight similarities and differences.

Leadership competencies that emerged from the interviews was grouped in relation to the needed competences on the KCSF, in addition to one more essential group, that is self-related competencies. Hence, these competencies were grouped as leadership competencies.

The competencies were grouped into the following six overarching leadership competencies:

- **Systems-thinking related competencies:** as the foundation behind understanding complexity.
- **Anticipatory related competencies:** are the foundation behind making future-oriented and effective decisions.
- **Normative related competencies:** are the foundation behind setting standards for transformation.
- **Strategic related competencies:** are the foundation behind
- **Interpersonal related competencies:** as the foundation behind creating the space to engage others using emotional intelligence.

And a sixth group (outside from the KCSF) of competencies emerged from the interviews:

- **Self-related competencies:** these competencies are related to one’s own self-awareness and ability to deal with uncertainty.

These overarching competencies are described in the following sub chapters, starting with the general theme of how the companies described them followed by the leadership competencies that emerged from the coding.

3.2.1 Systems-thinking competencies

As seen in Table 3.1 the common theme when describing systems-thinking is that it's about seeing multiple interconnected variables/parts and that it's important to seek to understand and not simplify it.

<table>
<thead>
<tr>
<th>Systems thinking</th>
<th>Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple interconnected parts</td>
<td>5</td>
</tr>
<tr>
<td>Seek to understand and not simplify</td>
<td>4</td>
</tr>
</tbody>
</table>

Five of the participating companies described systems thinking as the ability to perceive and recognize that there are multiple factors at play in any given moment.
They elaborated that leaders have to look at everything existed in the context, and also the context has multiple factors both internally and externally. They stated that these factors have relations between each other, and consequently they affect the environment they are existed in. They further said that leaders need to be aware that people's experience of these systems varies despite being in the same context.

- "An ability to perceive and recognize that there are multiple factors at play in any at one moment, to discern the key components that you know need to be worked with and addressed."

- "A need to have an awareness of the fact that people are experiencing different thing even if they are working in the same organization."

Four organizations spoke of the need to monitor and understand the systems both as whole and to understand what is underneath the surface of those systems. To think in a way that recognize and connects multiple variables with each other.

**Leadership competencies that emerged**
The systems-thinking related competencies that came up during the interviews are competencies that are related to leadership contextual intelligence that enables one to understand situations and to engage with uncertainty and are able to work with emergence in complex environments. Furthermore the interviews spoke of the ability to re-learn, about understanding multiple organizational functions and how they connect as well as being to understand and work with how different variables connect with each other.

### 3.2.2 Anticipatory competencies
In the Table 3.2 it shows that there is no common theme describing anticipatory competence.

<table>
<thead>
<tr>
<th>Anticipatory</th>
<th>Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develops over time</td>
<td>2</td>
</tr>
<tr>
<td>Adapt to a changing</td>
<td>1</td>
</tr>
<tr>
<td>Thinking about multiple factors</td>
<td>1</td>
</tr>
<tr>
<td>Short and long term is interconnected</td>
<td>1</td>
</tr>
</tbody>
</table>

Two of the six organizations stated there is clear connection between the long term and the short term thinking. That to think and act long term one needs to understand the small everyday life questions. One of these two mentioned that it is a kind of paradox

- "One of the paradoxes I think of the modern world is that we both have to understand the impact but in order to do anything about it we have to be thinking short term. You know we got to do stuff. We got to experiment we got to try things out got to learn quickly."
Two organizations stated that the ability to think long term and be future oriented is something that develops as people mature. They say that in the early stages of development one might be able to look at the past to predict the future and that one's ability to look further into the future develops as they develop.

- "I think that is implicit in the idea as leaders develop, they become more capable of taking a longer term view."

One organization said that it’s about thinking about not just what I as a leader is going to do next year but also how the world will change in the next year. To understand that your experience will not necessarily continue in a linear path. Another organization described anticipatory thinking as being aware of multiple factors when making decisions.

- "Anticipatory thinking is how many factors you can be aware of when thinking about affecting something."

**Leadership competencies that emerged**

The anticipatory competencies that came up during the interviews relate to the leadership capacity to think and predict the future in a way that connects both long and short-term planning and decision making. One of the companies talked about seasonality thinking that is to think of their work in terms of seasons with different attributes, such as winter for harsh external conditions and spring as a period of renewed energy.

### 3.2.3 Normative competencies

As shown in Table 3.3, there was no common theme except that it is related to leadership emerged in this part.

<table>
<thead>
<tr>
<th>Normative thinking</th>
<th>Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership for sustainability</td>
<td>3</td>
</tr>
<tr>
<td>Multiple stakeholders</td>
<td>2</td>
</tr>
<tr>
<td>Time</td>
<td>2</td>
</tr>
</tbody>
</table>

Three organizations talked about how leadership affects sustainability, mainly focused on organizational sustainability from a people perspective such as:

- "I can’t see anything else than good leaders have to have sustainability thinking because if they don’t have that they are going to tear down the people that they are working with."
"Certain leadership styles can lead to large amounts of individuals, not feeling accountable or not really concerned or not even questioning how sustainable their companies actually is."

Furthermore two organizations talked about dealing with multiple stakeholders with different or competing interests and how they might get impacted. That leaders need to be aware of multiple factors and multiple stakeholders when working with sustainability challenges.

"Certain leadership styles can lead to large amounts of individuals, not feeling accountable or not really concerned or not even questioning how sustainable their companies actually is."

Two organizations mentioned that sustainability requires looking at time as an important factor, one of them mentioned that:

"The connection between leadership and sustainability is leadership is multi-dimensional and one of the dimensions of leadership is to leave a legacy."

Leadership competencies that emerged

The normative competencies that came up during the interviews relates are competencies that relates to develop leaders’ logical thinking and reasoning in order to re-create new things based on proper understanding of the context.

### 3.2.4 Strategic competencies

The common theme seen in table 3.4 is that strategic competence is about the small everyday things and the ability to understand the context and act on it.

<table>
<thead>
<tr>
<th>Strategic thinking</th>
<th>Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connecting ordinary things to the larger picture</td>
<td>5</td>
</tr>
<tr>
<td>Able to understand multiple perspectives and act</td>
<td>4</td>
</tr>
</tbody>
</table>

Out of the six organizations five of them saw strategic competence as working on small everyday things and not necessarily doing any big moves.

"A leader that is the good in strategic leadership they are good at strategic aspect in the everyday life that others would say "that is just an ordinary everyday problem."

It is about being adaptive and do the right things at the right times, both in short and long term. One of the five said that strategic thinking is an inherent part of being human and explained by saying that
• "When you get up in the morning you go through an implicit process of figuring out how you are going to manage all of the competing demands on your time and energy. And the various implications of the choices you make."

Furthermore four of the six organization identified the need to understand the situation one is on and be able to act on it. That to act strategically is to take multiple perspectives in consideration, recognize the complexity and still be able to prioritize action both for long and short term. They say that a leader has to be aware where they are, where they are going and what you seek to accomplish and be willing step out and say what supports you and what doesn’t support to reach where you want to go.

Leadership competencies that emerged

The strategic competencies that came up during the interviews relates are competencies that relates develop leadership adaptive capacity in creating a culture enables proper responses to change, as well as things such as the ability to prioritize, to work with values and to identify leverage points and the ability to predict and respond to changing events.

3.2.5 Interpersonal competencies

The two themes that comes out in in Table 3.5 is that interpersonal competence is about understanding others people's perspective as well as developing self-awareness.

Table 3.5 Interpersonal competence described from the interviewed companies

<table>
<thead>
<tr>
<th>Interpersonal</th>
<th>Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand other people's perspective</td>
<td>5</td>
</tr>
<tr>
<td>Self-awareness</td>
<td>4</td>
</tr>
</tbody>
</table>

Five of the organizations highlighted the need to understand others perspectives, to see things through different lenses and to be able to work across diversity. That as a leader one needs to be able to read the situation, and to understand other people.

• "I have to understand what makes you tick, what is it that you feel motivated by, what is demotivating."

They also say that a leader also have to be able to build and maintain relationships and be able to influence others.

• "The ability to build and maintain relationships to influence people who may see things differently."
Furthermore four of the organizations talked about the need for self-awareness in dealing with interpersonal work. For example how you identify yourself as a leader, to being aware of lenses you see the world through such as through lens of your culture, education, bias and work. One of the organization spoke of leadership as how to best use yourself as tool,

- "It’s important if you work as a leader you have to understand that you use yourself as the main tool."

Leadership competencies that emerged

The interpersonal competencies that came up during the interviews are competencies that relates to relationship development and the ability to see and emphasize with other people's perspective. Examples of these competencies includes developing the common sense that allows leaders to have intuitive understanding of the culture in order to be able to create the environment of safety and trust where participating is genuinely activated, where multiple stakeholders can collaborate to create common interest and co-create better decisions. Developing these competencies is the development of sustainable relationships.

3.2.6 Self-related competencies

The competencies emerged from the interviews as an essential part that was needed to be able enable the capacity to fully utilize the other competencies.

- Certain personal attributes: courage, patience, because it is very difficult to push a predetermined agenda in a complex environment. It takes a lot of courage and persistent to get something done.

- If you work as a leader you have to understand that you use yourself as the main tool; you talk and you act as a role model and so forth.. it is important for you to understand yourself and how you can use yourself; what is your strengths and your weaknesses and continuously develop keep that tool sharp.

The self-related competencies that came up from the interviews are related to personal development that can be developed through self-awareness and personal practice; examples of these competencies included the awareness of personal strengths, weaknesses, and personal bias as the foundation for self-development prior to interpersonal competencies. Developing these competencies is the development of personal quality that was mentioned by one of the participating companies as an essential part to avoid the unconscious reinforcement of undesired personal behavior by the organizational culture. Working on self-related competencies was seen as important to develop the essential personal capacity that facilitates the activation of interpersonal competencies according to one company. Such competencies are connected with mindfulness, courage, and the ability to take initiative.

3.3 Sustainability

Each company was asked how they would personally define sustainability (Appendix 5). The results were that four of the companies talked about sustainability from an individual or people perspective. They further talked about self-sustainability and the practice of mindfulness and building resilience in leaders.
• “Leadership is about growth, I think if you create an environment within which people don’t grow, it is not sustainable.”

Three organizations said that sustainability is about creating win-win situations so that people can get their needs met. That it’s about creating a better world for all in social ecological change. Likewise three companies talked about the planets resources. That it’s about not exhausting the planets resources and that we do things in ways that uses as little resources as possible.

• “Sustainable is something we’ll use as little resources as possible. Destroy as little resources as possible.”

When asked if they are working directly with sustainability in their programs, none of them said that they were. However one company mentioned that they working with through humanitarian charities, another company mentioned that they had participants who were working within the field of sustainability. Four of the companies said that the topic of sustainability has come up during conversations with clients.

• “We are working with a beer company that is now also a dairy company and a lot of the issues we are working with them is how to be a sustainable beer company and also environmentally friendly dairy company and not go out of business.”

3.4 Leadership development techniques

For each of the interviewed companies the group asked how the interview subjects are working with developing the competences from the key competence framework, with the exception of the normative competence where the group asked if they were working with sustainability and if the answer was yes then the group asked for examples. Furthermore each company was asked how they followed up with participants after the program, below are the results grouped into the overarching competencies from the KCSF.

Note that the self-related competence is not included here as it emerged from the coding of the interviews and techniques on how to develop this competence was not asked.

**Systems thinking competence**

One company said that they use the integral framework to “look a complex challenges in the world so we can take on an challenge like acts of terrorism ... we look at it we attempt to look at from multiple perspectives.”

Another company talked about how they bringing people from different departments and create the space where they feel open and free to speak in regards to what they are experiencing, and that they made sure that leader is in middle of that conversation.

Another company described how they teach their participants about culture and systems and how they interact. The company stressed that it’s important to create and maintain dialogue where people feel that they can share their experience. And if someone is sharing a problem to always ask “what is the culture might be contributing to that? What is the context? And tell me what you know about the context?”

**Anticipatory competence**
One of the companies talked a tool called seasonal visioning that they use to develop ways to work with anticipatory competence

- “We use a tool called seasonal visioning. This tool encourage attendees on our programs to think of their business cycle as a seasonal wheel. We ask them which season they feel they are experience in the moment. Winter is the season of down time, spring is the season of challenges and possible growth, autumn is the season of slowing down and preparation.”

Another company said that they taught their participants to list factors before they make a decision, which they then combine with the other participants and put on a board say that these are factors, because normally each participants have only one or two of the factors in mind and don’t get the whole picture, that is how they create higher level of thinking.

- “We taught them to list factors before they make a decision so that when they have something in front of them. They first combine and put up on a board and they say "where are the factors that we need to consider making this decision.", because normally each one of them has one or two of those in their minds. We structurally create this level of higher level of thinking.”

Another company said the used a variety of tools and models such as clarity management and Cynefin framework and are using questions as a tool.

- “Introducing tools like clarity management and the Cynefin framework and the getting them to ask different sets of questions around the different domains that they may be working with.”

One company said that they did not work with anticipatory or future-oriented thinking in the programs but suggested the following:

- “Through our imagination is one, through drawing on our experience and seeing the repercussions of choices over time those are the things that I can think of.”

**Normative competence**

In terms of techniques on how to develop normative competence, the interview questions did not necessarily reflect the normative aspect of this competence rather it asked about it from a sustainability perspective, therefore the techniques that came out were more about techniques to develop personal sustainability, with the word sustainability in this context being defined as the ability for the person to sustain themselves. The issue about the normative competence is further discussed in the method discussion in part 4.5.

- “I think terms of maybe we do introduce leaders to ideas around mindfulness and meditation and so on so on a personal level enabling them to be more self-sustaining does come into it.”

- “Another metaphor for sustainability is resilience and you know and we think about resilience as our capacity to adapt some kind of adverse experience then the program also is supporting and cultivating resilience in individuals in systems so it’s also contributing to sustainability in that way.”
Strategic competence

One of the companies talked about how they help management teams prioritize and to create a culture of asking themselves what their key success factors are, what they were in the past and if they are still valid today and will they be valid tomorrow.

Another company said they try to help people understand the difference between complex and complicated. They further mentioned said that they work with the leadership versatility model.

- “... and it is a fantastic model because that little diagram you just draw, and what that little circle does is that it accounts for most of all leaderships and most systems.”

Another company said they work a lot with asking questions rather than solving problems, and that they try to encourage their participants to be more curious and experiment:

- “We get people to do stuff to try stuff out to experiment to understand the system and learn about the system and to experiment to see if what they are doing are nudging the system in the direction that they want.”

Another company said they work with Theory U as a structure to support action.

- “We work with theory u as a structure to support action so in other words there's a whole process of analyzing what is happening in the situation understanding it from the mind from the hearts and then letting go of all of that to then discover what's the future that's want to emerge and then basically precipitating and helping to shape that or make that possible.”

One company mentioned that they develop strategic thinking by helping leaders to make their teams take ownership of the plan, and how to involve them in the planning

- “It is helping the leader to actually make the team to take ownership of the plan. That can be quite challenging. And we usually do that by simply asking the team to give feedback on the plan and come up with their own threats and opportunities and what they think should happen.”

Interpersonal competence

One of the companies spoke about showing that there is a different way of leading people, that it can be more a representative rather than direct and that they did this by “either through stories, analogies or photos or indeed by bringing leaders to actually witness and learn from nomadic communities.”

Another company mentioned that they base their work on the habits of mind and the programs.

- “It comes back to the same range of tools that we have arranged at habits of mind we base of our work on habits of mind and the programs.”

Another company shared that worked a lot with shadow practices at both collective and individual work to help people recognize their own shadow at work uncover what is at play underneath the surface

Follow up after the program

40
When asked if and how the organizations follow up with participants after their programs each organization answered that they did follow up however how they did it differed. The one common theme was that three organizations stated that their programs are run over time and that they incorporate the structures that the participants are working in into their programs, such work related structures. Two of these stressed the need to be able to work with people over longer time with time between each session.

- “If you just have a training during the weekend it is entertainment, if you want to have an impact on sustainable change, we need to be working with you over time.”

Beyond that the following approaches were taken by the companies to follow up after their programs ended:

Sending emails with all materials and output, including photos from the training the day afterwards.

Having participants do a developmental assessment at the beginning of the program and then do one every two years after that for as long as they want, as well as doing graduate reunions, calls, groups similar things.

Doing formal evaluations as well as doing 3 part interviews before and afterwards with the participants and their boss. To build a common understanding on what the participants wants to develop, how the participant and the boss will be using the learning’s the modules during the program and afterwards.

- “That we really is eager that will happen is that what will happen is that the boss pays attention because it’s so easy to send him to a course and then nothing happens so we really ask the boss a lot of questions.”
4 Discussion

This research was designed to explore how leadership development programs can develop the essential competencies that allow participants to build better capacity for addressing sustainability challenges. The discussion part refers back to the literature in the introduction or the results, statement that are not referred to back to these are coming from the group.

The discussion chapter is divided into 5 parts:

**Essential competencies** – in this part the results from the first round of coding will be discussed in relation to the 1st sub research question. These results are the common theme descriptions of the KCSF competences from the companies as well as the competencies that emerged from the interviews.

**How companies work with sustainability** – in this part the results from the 2nd round of coding are discussed in relation to the 2nd research question, these results are the descriptions of how the companies defined sustainability and how they worked with it.

**Development techniques** – in this part the results from the 3rd round of coding are discussed in relation to the 3rd research question. These results are the description of how the companies answered when asked how to develop the capacity to work with the KCSF competences.

**Additional findings** – in this part, the group shared additional aspects that came out during the interviews that could have an impact on corporate leadership development towards sustainability; however, as the results in this part were not conclusive these findings are to be seen as potential implications towards future research into the field.

**Methodology discussion** – in this part the group discusses the methods used in this study, why they were used and how the study could have been done differently.

4.1 Essential competencies

This part of the study focused on essential leadership competencies to address the sustainability challenge, using the KCSF as an academic base for exploring what essential competencies are needed from the perspective of leadership development companies.

This section is divided into three parts, the first sub-chapter shows the comparison of the interview results within the KCSF, this is followed by part that discusses the implications from this analysis in relation to the CLT and the FSSD and how these results are related to the 1st sub research questions, which is:

*What competencies are essential to be included in leadership development programs to address the sustainability challenge?*
4.1.1 Comparison of the KCSF and the interview results

This part of the discussion looks at the comparison of each KCSF competences in relation to the interview results, highlighting what can be seen as essential leadership competencies (Appendix 2). This is followed by an elaboration of the self-related competencies that emerged from the interviews.

Systems thinking competencies

Systems thinking appeared as the competency that was agreed upon by most participants in terms of description about perceiving and working with multiple interconnected variables and that it’s important to seek to understand how these variables are connected with each other rather than trying to simplify. The competencies that emerged were about contextual intelligence, adaptability, resilience, thinking out of the box, working with emergence in complex environment and engage with uncertainty.

This follows relatively close to the description of Wiek, Withycombe and Redman (2011) that describes it as the ability to collectively complex systems across different domains and across different scales. The main difference being that the interview results focused more on the personal capacity to deal with the context of working with multiple systems whereas the KCSF focused on more the ability operationalize this through analyzing different aspects of a systems such as cascading effects, feedback loops.

Anticipatory competencies

As seen in table 3.2, there was no common theme for describing this competence. The competencies that came out during interviews were about the leadership capacity to think and predict the future in a way that connects both the long and short-term in planning and decision making while another talked about the adaptability to change, whereas another talked about being able to hold multiple factors in mind. One company mentioned seasonality thinking, which is using metaphors of the seasons to help work with future oriented work.

This is somewhat in line with how Wiek, Withycombe and Redman (2011) describes the anticipatory competence as they state that it's the ability to collectively analyze, evaluate, and craft rich ‘‘pictures’’ of the future related to sustainability issues. It similar in the sense that both the results and the framework talks about the need to craft images of the future however where focus more on connecting it with the current reality whereas the framework specifies the need to analyze and evaluate these images.

Normative competencies

As seen in table 3.3 there is no common theme in regards to this competencies. Three companies mentioned leadership for sustainability under the normative competencies, which was not an expected answer, while two companies talked about the multiple stakeholders, and two companies related time to the normative competencies. The reliance on the response around this competencies may need further investigation, as interview questions might not have properly conveyed the intended meaning. The competencies that emerged were related to logical thinking and reasoning in order to re-create new things based on proper understanding of context.

This results differed to a certain degree when comparing them to the way this competence is described in the KCSF (Wiek, Withycombe and Redman 2011) where it was described as the ability to collectively map, specify, apply, reconcile, and negotiate sustainability values,
principles, goals, and targets. While both the KCSF and the results speak about the need to understand the context, the KCSF focus more on the ability to create a shared understanding of sustainability and what means for the involving parties whereas the interviews are to some degree more focused the internal capacity that is required to do these things.

**Strategic competencies**

Strategic competencies were supported by more consensus among the participating companies, which was somewhat expected due to the common connection between leadership and strategy in the development programs. The common theme when describing this competency was about connecting the everyday ordinary things to the larger context, as well as the need to build an understanding from multiple perspectives and as to be able to act on that understanding. The competencies that emerged where, the ability to take in multiple perspectives and recognize the complexity at hand, adaptability, awareness of context, working with values, and be able to prioritize actions in this complex environment as well as to create a culture that is capable of responding to change.

This is somewhat similar to the way the competence is described in the KCSF. Wiek, Withycombe and Redman (2011) who described this competence as the ability to collectively design and implement interventions, transitions, and transformative governance strategies toward sustainability, whereas the results from the interviews empathized the ability to build a bigger picture and on how to act on it.

**Interpersonal competencies**

The two common themes when describing interpersonal competencies were the need to understand other people’s perspective as well as being aware of your own biases and worldview, several companies linked self-awareness with the quality of interacting with others. The competencies that emerged where the ability see and emphasize with other people’s perspective and to be able to create a environment where people feel safe to be genuinely engaged in collaboration co-creation.

This aligns mostly with how the interpersonal competence is described by Wiek, Withycombe and Redman (2011) in that it speaks of the need to understand and work with people across different cultures and perspectives to create spaces for collaborative work. What sticks out from the interviews is the emphasis on the need to create an environment that foster greater interpersonal relations.

**Self-related competencies**

Self-related competencies were brought up by several companies, either by mentioning the term self-awareness, or other related competencies such as awareness of personal bias, self-identification, cognitive intelligence, mindfulness, patience, courage, personal capacity.

Self-related competencies appeared as an essential part of the participating company’s leadership programs, as they were mentioned by almost all of the participating companies in a way or another for example the term cognitive intelligence was mentioned by one of the companies during the interview as a way to help participants contextualize different issues. While another talked about the need for leaders to use themselves as their main tool for leadership, in contrast the KCSF competences does not mention this aspect. The self-related competencies are to be seen as a sixth competence to complement the KCSF, if it were to be used as for leadership development.
As seen above some competencies appeared in more than one category, this could be due to the similarity and the interconnectivity between several competencies such as systems thinking versus strategic thinking, the interrelationship among leadership competencies such as questions related to anticipatory competencies and questions related to strategic competencies. For example one company mentioned that they saw all of these competencies as one big interconnected thing, rather than as separate competencies.

In summary what kept coming up during the interviews that when talking about leading in complex environments and the KCSF competences where the ability to create an environment that fosters collaboration and a shared understanding based on multiple perspectives that allows for a greater understanding of the complexity of the issue. As one interview called it, work in complexity cannot happen without collaboration, which echoes the direction of the current trend of leadership according to Ellis (2015), this stands in contrast with how the more operational descriptions of the competences in the KSCF. Furthermore as mentioned before, to work in this environment requires certain competencies related to one’s self such being aware of their bias and see situations from others perspective, being able to engage and act in uncertainty as well being able to hold multiple perspectives while not losing focus on your own opinion.

4.1.2 Discussion of the competencies results in relation to the CLT and FSSD

Uhl-Bien and Arena (2016) state that in working with complexity there is need for an enabling leadership that facilitates the interaction between the more innovative parts of an organization and the often larger and stronger operational part of organizations. This enabling leadership is about creating the conditions that supports the adaptive space that facilitates the interaction between these two parts. This is done by one hand protect the entrepreneurial leadership from being hindered as it explores new ways of changing the organizations, and on the other hand to facilitate the way these new findings are moved to the operational part where they are operationalized in terms of policies, processes and guidelines (Uhl-Bien and Arena 2016).

Putting this in relation to the results of the interview, to lead in with this kind of enabling leadership a leader would need to be able to hold the different perspectives of the innovative and operational and create the environment where these two groups could interact where the creative tension between create emergence rather than deadlocked arguments. This is similar to some of the general themes that came out of the interviews. As the competencies that emerged from the interviews generally spoke of the need to create the environment where people could safely share their experience to build greater systems understanding of the issue, about how build the conditions that allows for genuine collaboration in addressing complex issues. All the while being aware one’s own biases, perspectives while having the capacity to be comfortable in uncertainty and allow for emergence of new ideas and solution. These results points towards a connection between the result from the interviews and what essential competencies a leader need in the enabling leadership part in the CLT model.

Applying this to the context of sustainable development, the strategic guidelines from the FSSD provides an approach through the ABCD model on how organizations can strategically work towards sustainability (See appendix 4). These guidelines are to be seen as a general approach and are open for complementary tools, techniques and other approaches (Broman and Robert 2017). Here the group sees how complexity leadership theory can serve as a useful complement. As working with sustainability can be seen as complex work that requires work with multiple stakeholders at different level (Lang), and in this complexity what often happens is that organizations goes back to ordered solutions in line with traditional management which can do
more harm than good (Uhl-Bien & Arena 2016). A need for enabling leadership from LT could be seen in the ongoing interaction between the leadership team/action group working with the ABCD process and the rest of the organizations. This would require the leaders who are working with this interaction to be able create an environment where multiple perspectives can be heard and the organization can capitalize on the creative tension potential tension the operational system in and the new sustainability focused work system (Uhl-Bien and Arena 2016).

Relating this back to the research question regarding, what essential competencies are necessary to address the sustainability challenge. The competencies that kept coming up over and over again in the interviews were about working with multiple perspectives, creating a culture that allows it to respond to change, building a shared understanding of the context and that in complexity there are a lot of variables and they change all the time. In addition the self-related competencies that concerns the individual leader’s capacity to deal with uncertainty and complexity. These competencies could help leaders integrate the change that working with sustainable brings in order to integrate into them into the larger operational systems in their organizations. These competencies could potentially help leaders create the adaptive space that is that could help to integrate sustainability into to the operational systems of organizations.

4.2 Leadership development and sustainability

This part of the discussion looks at how the participating companies worked with sustainability, while the group recognizes that due to small sampling size of 6 companies these results cannot be generalized. However due to the variety of the participating companies these results can serve as an implication on how the bigger picture looks like.

As seen from the interviews, none of the companies work directly with sustainability in their programs, with a few mentioned how their programs affect personal sustainability. However four of them mentioned that they or have had customers that work with sustainability. Furthermore, the definitions of sustainability varied from company to company where most of them looked at it from individual or organizational perspective. There were some that mentioned the planet’s resources and the need to reduce the use of them, while one of the companies briefly mentioned the socio-ecological system and the need for an integrated approach. However as showed by Nasa (2017) the effects of the current unsustainable path can lead to consequences that reaches far beyond having less resources, which in turn can have massive impact on society. Considering that most of them focus on transformational experience and organizational effectiveness as shown in their description in the their techniques, the argument could be that they don’t see sustainability in itself as the main interest or focus of their programs, as a result sustainability was ill defined in relation to the global sustainability challenge as a major issue.

The answer to that argument comes in from the result that shows that four of these companies work with clients that are dealing with sustainability and in the simple reality of the problem at hand. That is that the current unsustainable trajectory of human society will affect everyone on this planet and to solve these problems the world needs more leaders to take the lead in moving towards a sustainable society (Broman and Robèrt 2017). Here leadership development companies could be seen as uniquely positioned to contribute to the solution of this problem through their interactions with leaders on multiple levels in society. By developing leader’s ability to see the sustainability problem in all its complexity, to come up with strategies and ways to bring in multiple stakeholders into these strategies, and to give leader’s the space and
safety to explore the issues from different perspectives and to learn how to become aware of their own role and purpose and how to sustain themselves while working in this complex environment.

To be clear, the group recognizes the issue in asking leadership development companies to adopt the agenda of sustainability. While that would be an ideal case, imagine the impact if every leadership development in the world worked to develop leaders that are working towards sustainability. It is not practical solution due to the various different directions these companies have. However the group argues that there is nothing that stops leadership development programs from adopting a practice of incorporating parts of sustainability frameworks such as the FSSD in their programs, at the very least to have robust and scientific definition of what a sustainable society is, because the challenge that leaders face today in regards to sustainability is not likely to go away anytime soon.

To summarize and relate this back to the 2nd research questions on to what extent leadership development companies are working with sustainability. From the companies that we interviewed we saw that while they are not directly with sustainability, they are working with clients and organizations that are directly involved with sustainability. Furthermore as seen in the previous part of the discussion, the companies we interviewed are in different ways developing the capacity and competencies to lead in complex environments, hence one could argue that they are indirectly contributing towards developing the leaders needed to address the sustainability challenge.

4.3 Leadership development program’s techniques

This part of the discussion looks at the results from the leadership development techniques that came out from the interviews; this part aims to answer the 3rd research questions on what guidance can help leadership development companies integrate these competencies in their programs.

When summarizing the techniques that came out of the interviews what comes out are techniques that exposes and challenge participants to different perspectives, that help them create a shared common understanding of how the current reality looks like and how to map out trajectories in the future, there are also techniques that teaches them about mindfulness and builds resilience. Furthermore these techniques aim to teach participants to challenge status quo through models and techniques as well how to create a culture of strategic thinking, to challenge their own beliefs about themselves and how they see others.

Which brings forth the question, can these techniques build the essential competencies to address the sustainability challenge. Looking at these techniques in relation to the FSSD (Broman and Robèrt 2017), there is an overlap in the area building awareness and shared understanding of how the system works as the FSSD relies its system level to describe conditions of the challenge we face today in moving towards sustainability. Furthermore these techniques aim to help participants build and maintain relations with multiple stakeholders which is one of key requirement for the operational ABCD method (see Appendix 4).

Looking at FSSD and ABCD in relation to complexity leadership theory, the main relations lies in the methods aim to build the competence of holding multiple perspectives and to facilitate the interaction between different polar opposites such as the operational vs the entrepreneurial leadership's as described by Uhl-Bien and Arena (2016). Furthermore these models also help
to build the personal capacity deal with working with complexity and in the uncertainty that it can create.

Beyond techniques, what each of the companies agreed upon was the need to follow up after the training, with some argued that they refused to work unless their clients committed to run their programs for several months. Others questioned the usefulness of short 1-2 day workshops, whereas others spoke of how they involve the participants’ organizations in their program. This implies the need for time and connection to the day to day work as an important factor in leadership development. That it takes time and it cannot take place in a vacuum; rather, that it requires a connection with the reality that the participants are facing.

The group argues that the FSSD could be used in leadership development in combination with some of these techniques to practice the competencies of systems thinking, strategic thinking and the how to involve multiple stakeholder groups, because even if leaders are not working directly with sustainability they are still working in an increasingly complex environment, one that due to the Paris agreement the Sustainable development will require organization to take sustainability into account.

To relate this back to 3rd research question, in terms of guidance that could help leadership development companies integrate sustainability into their programs to develop leaders capable of addressing the sustainability. Based on the results the group recommends first of all adopting strong a definition of sustainability and an understanding of what it means to work with sustainability for organizations, here the FSSD can play major role as it provides that. Furthermore the group recommends that these sustainability leadership programs are integrated or are working closely with the clients organizations, and that it takes place over longer periods time with continuous follow up that supports the implementation of the learned skills. In terms of guidance regarding the essential competencies, as seen in techniques above most of the participating competencies are already working with complexity in different ways that develops participants competencies in working with multiple stakeholders, building awareness of the complexity of the system and building the personal capacity to deal with the uncertainty it brings. What the group would recommend would be to take these techniques and use them in the context of sustainability, justifying to their clients that sustainability is a variable in business life that has to big impact to be ignored.

4.4 Additional findings for future research regarding leadership development for sustainability

This part of the discussion chapter highlights some of the findings that emerged from the interviews that could serve as consideration for future research.

4.4.1 Skills, competencies and capacity

Developing leaders’ capacity to lead in complexity towards sustainability is a sophisticated process that needs to consider several layers of development to achieve the expected outcome of building leadership capacity able to address sustainability challenge. Based on the interviews the group sees that designing a leadership program that can help deliver the essential level of capacity for organizations’ leaders to work with sustainability needs to go beyond the behavioral skills-workshops that focuses only on techniques to be used by leaders. Some of the interviewees argued that acquired these skills without other essential considerations such as
personal capacity blocks people’s ability in using these skills when they need them. To use another example in terms of systems thinking: learning systems thinking skills and techniques doesn’t necessarily mean that the person will act not out of their personal bias. However, having the competence to see the need the practical ability to include others’ opinions can minimize the influence of personal bias by collaborating in defining the problem and co-creating the solution to complex problems.

4.4.2 Leaders and organizational culture

Some of participating companies mentioned that there is a strong connection between the individual behavior and the organizational culture to the extent that they wonder if the individual behavior was due to level of personal development or it was reinforced by the organizational culture.

Organizational culture may needs to be considered in the program design; as one company said, culture determines how people in the organization perceive different things such sustainability, system boundaries, future sustainable vision, in addition to organizational values are all variables that differ from one context to another.

4.4.3 Challenges in designing leadership development programs

Many challenges were presented during the interviews that highlighted several considerations that create challenges when developing leadership for corporate leaders. These challenges included things such as:

How to ensure that the learned competencies go beyond being experienced exercises a training room and are brought out in real life context. It was a point of concern for one company to make sure that what is being developed in their modules is reinforced outside of the context of the training program. They stressed the need to give leaders something they can go away with, that makes an immediate difference in the work that they do. One of the companies talked about that a way work with this could by measuring the effect of how the newly developed methods and techniques that participants have develop affects their day to day work.

Some companies brought up the messiness of working in complexity; and reflected about a need for more focus to be put on systems thinking and complexity-related issues, preferably with practical experience and applications that can use real examples from the work context. Additionally they raised the challenge on how to make sure that the new ways of communication that participants learn in the program, stays with them after the program in their day to day life.

Another challenge was about being able to deliver what clients are actually looking for in comparison to way the companies are offering. That also determines another gap between what needs to be delivered in terms of training objectives to increase leadership capacity towards sustainability from one side, and the expected focus of the client organization that comes mainly from their values on the other side in terms of profits, effectiveness and ROI.

The definitions of some crucial terms such as complexity, sustainability, systems thinking varied widely from one company to another; for example, although they all mentioned...
complexity; the definition of complexity was not same among the six participating companies. Moreover, boundaries was another point of difference where the boundaries for some company were context of the team, for another it was the organization. That bias in the definition may create different objectives and expected outcomes when designing leadership programs towards sustainability.

In summary the findings highlighted that there are many considerations to take into account when designing leadership development programs for sustainability. When looking at from a competencies perspective as this study has done can provide some guidance. There are still several other aspects such culture, definitions, balancing the needs of the clients with what you are offering as well as the challenge to ensure that what is being taught actually is actually being put to use. These are aspects could useful considerations for further research.

4.5 Methodology discussion

In this chapter we will discuss our methods, why we chose them and what, what their strengths and weaknesses are and how this study could have been done differently. This discussion will critically look at the choice of frameworks, the way the selection of participating companies, the data collection and the coding of the results.

Starting with the framework, the group chose to work with an already existing framework, the KCSF, based on key competences for working in sustainability. The argument was that due to its frequent citations in other work and it’s relatively newness it would provide strong base from which to answer our research question. Another way to go would be to create a new contextual framework based on literature reviews and exploratory interviews. The choice to go with an existing framework was due both time constraint as well as a recognition that the field of leadership theory does not suffer from a lack of new models. The group recognizes that when it comes to leadership, to only focusing on competences is to limit the topic. The focus could also have been on capacities, attitudes, and values or taken an integrated approach including all factors.

In terms of participating companies in the framework, there could have been a more diverse spread in terms of pedagogical approach among the different companies, as four of the six companies shared a theoretical base in the Vertical learning. Another approach could have been to work with companies that all shared a similar theoretical framework. The reason why we went with the companies in our study was partly due to time and accessibility and partly that they all were working with complexity in some form or another that differed from the KCSF. Another critique could be that this study could have been done with companies that focus on sustainable leadership development, if so, we could have expected to get their techniques and insights on how to work with leadership towards sustainability. Our argument for not including them is that we wanted to create something that was useful for companies that currently do not work with sustainability, and therefore we needed input from companies.

In regards to data collection, the argument could be made that an ethnographic approach focused on observation in real life would have been a better approach to answer our research question, however that requires time and accessibility that was not possible in this study. Furthermore, one can argue that questions could have been phrased differently, our justification for the way generalness of the question was that we wanted the questions to on one hand reflect the framework that we used (KCSF) and on the other hand still be open enough to allow the companies to share their unique perspective. The argument could be made that questions
regarding the normative competence didn’t necessarily reflect the content of the competence which resulted in the difference in result in comparison to the KCSF, which can be seen as a fair criticism. However the group means that the KCSF talks about how to normalize sustainability which is hard to answer if a company doesn’t necessarily work with sustainability. The group recognize that the question regarding sustainability could have been more precise.

Furthermore, the argument could be made that the focus should be on participants of these programs rather than on the people who are working with the programs, as it could show what actually gives results from the ones that are being developed. This was discussed heavily in the group and discarded due to lack access to this population.

In regards to the results, it is important to note that these findings came from an explorative research design with open questions could have been interpreted in different ways by the participating companies, as mentioned in the discussion part 4.1 this could be reason the companies described certain terms. Furthermore as this is a qualitative study and therefore results were interpreted by the research group, who each have a background in leadership or leadership development, there is a risk for bias that could led to the interview result being misinterpreted. Therefore these findings are not be seen as absolute or generalized, rather as implications that could provide inspiration for further research and testing. This particularly in regards to the leadership competencies part as it involved the largest degree of interpretation in relation to the other parts about sustainability and leadership development techniques. For the latter two parts the group is fairly confident in result regarding the lack of clear definition of sustainability among leadership development companies and the result that showed the need for programs to have long term engagement with their clients to have any affect, either through follow up after the program or through longer programs. This come from the fact these result came from all participating companies and they were clearly stated in the interviews, leaving less room for interpretation
5 Conclusions

What competencies are essential to be included in leadership development programs to address the sustainability challenge?

In conclusion the leadership competencies that emerged from this study that the group deems are essential to address the sustainability address are the ability to work with multiple perspectives, creating a culture that is able to respond to change, building a shared understanding of the context of the complex environment, in that it involves a lot of variables that are changing at different pace. Furthermore what came out of this study was the need for self-related competencies such as self-awareness and mindfulness that allows leaders to be aware of their own bias as well to help them engage with the uncertainty that comes from working in complex environment. These competencies could help leaders create the adaptive space that is to integrate sustainability into to the operational systems of organizations.

To what extent are leadership program providers building competencies for addressing the sustainability challenge today through their programs?

While the programs that participated in this study did not directly work with sustainability, one can say they are to different degrees indirectly developing competencies that allows for leaders to address the sustainability challenge. They do this by training them to see the world through different perspectives, explaining what complexity is and how to deal with and the uncertainty it can create, by providing tools and techniques to build shared understanding around complex issues and ways to achieve it.

What is missing though is the sustainability part. While none of the companies spoke against the need for sustainability, the definitions of what it is. And while the argument can be made that it is outside their scope. This group argues that due to their unique position in society where they are able to influence leaders at multiple levels in both private and public sectors, and due to the severity of the global sustainability challenge, that sustainability should be part of their scope. At minimum leadership development companies should be able to define it and have a basic understanding the system behind it, and here the FSSD can help by providing both.

What guidance can help leadership program providers integrate these essential competencies into their programs?

Based on the study there are two parts to this questions, on the hand what is essential when developing leaders in general, and what is essential when it comes leaders with the specific focus on addressing the sustainability challenge. For the first part what came out from this study was need for time and connection to the real life work of the participants, and secondly came the need to include at minimum definitions on what sustainability means, how to work towards it and what competences are required for that, here the FSSD bridge that gap by providing common language and definition for addressing the sustainability challenge. Regarding on how to develop the essential competencies most of the participating competencies works with complexity in different ways that develops participants competencies in working with multiple stakeholders, building awareness of the complexity of the system as well building the personal capacity to deal with the uncertainty it brings. However it’s not explicitly done within the context of sustainability, justifying to their clients that sustainability is a variable in business life that has too big of an impact to be ignored.
In summary, to answer our overall research question in how leadership programs can develop the essential competencies to address the sustainability challenge. Based on this study, the group could see the benefit that adopting a robust and scientifically strong definition of sustainability such as the one presented in the FSSD. This could allow them to easier work with clients that are facing issues regarding sustainability. Furthermore the findings show that any leadership development engagement, towards sustainability or not, should take place over a longer period of time, either by follow up or by longer programs. The results also pointed out there are benefits to working closely with the client organizations, by integrating the programs with their daily work.

Lastly in terms of what leadership competencies to develop to address the sustainability challenge, the study implied that these leadership competencies are the ones that allow leaders to deal with uncertainty and complexity on a personal level. To enable to them bring in people with multiple perspectives together to collectively build shared understanding of the complex problem at hand and come up with strategies to deal with them, as well as integrate these solutions in the operational system in their organizations. However further research is required in order to test and validate these findings.

5.1 Further Research

There are multiple path to that future research can take based on this study, as mentioned in the discussion part 4.3 some of the findings that came out the interviews that talked about the relevance of culture in regards to leadership development and how it can play a large role in leadership. Furthermore several new models came out such as for example the seasonal mapping and polarity management that could be interesting to explore in how they can help organizations transition towards sustainability.

Looking at from an FSSD lens, one interesting path could to investigate the leadership of the organization that have applied the FSSD in their organization, what kind of leadership qualities were needed to successfully transition the organizations towards sustainability. Additionally, studies looking corporate leadership development companies that are already working directly with sustainability could interesting to conduct to see how they integrate sustainability into their programs as well to compare their approach in regards to the leadership aspects versus more traditional leadership development companies. In similar fashion research that follows leadership programs that actively want to incorporate sustainability into their program could provide interesting insights into the challenges that companies in this field face if they seek to move in the direction of sustainability.
References


Ng, F. S. David. 2015. Leadership learning for complex organizations. *Cogent Education* 2 (1)


APPENDIX 1 - Interview Protocol

Interview protocol

**Project:** A conceptual framework to develop leaders capable of addressing the global sustainability challenge

<table>
<thead>
<tr>
<th>Time of interview:</th>
<th>Place:</th>
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<tbody>
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<table>
<thead>
<tr>
<th>Date:</th>
<th>Interviewee:</th>
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<tbody>
<tr>
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</table>

<table>
<thead>
<tr>
<th>Interviewer:</th>
<th>Company:</th>
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</thead>
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</table>

Roles: 1 person focus question, 1 observer who focus on follow up question (asked along the way).

**Interview procedure**

You have been invited to participate in a research study investigating leadership programs and thinking about competencies for leaders in a complex future. The purpose of this study is to investigate what leaders learn when they participate in your leadership programs. During the interview, you will be asked to respond to several open-ended questions. The procedure will involve taping the interview, and the tape will be transcribed verbatim. Your results will be published in a master thesis at BTH this summer. A follow-up interview will clarify if everything is correct before this is published.

**Introduction questions**

1. What are the differences between developing business leaders vs developing university students
2. What made you chose to work with leadership development?
3. What are the most rewarding aspects of this kind of work?
4. How do you personally view good leadership?
5. What do organizations ask you to help them with in leadership development? Why do you believe they ask for that?
6. How do you define complex environments?
7. What are the key competences necessary to lead in complex environments?
**Systems thinking competence:**

7. How would you describe system thinking? Follow: In your opinion what do you think are the key elements of systems thinking?

8. How do you develop improved system thinking capability? Could you share any examples?

**Anticipatory competence:**

9. How do you balance the short term and long term thinking?

10. How would you describe future oriented thinking?

11. How do you develop future oriented thinking? Could you share any examples

**Normative competence:**

12. How would you personally describe sustainability?

13. How do you see the connection between leadership and sustainability?

14. Are you working with sustainability in your programs? Could you share any examples of if and when sustainability comes up when you are working with your clients?

**Strategic competencies:**

15. How would you describe the ability to act strategically as a leader?

16. How do you develop leaders to act strategically? Could you share any examples

**Interpersonal competencies:**

17. What interpersonal competencies are needed for leaders create collaboration with different stakeholders?

18. How do you develop these competencies? Could you share any examples?

**Outro questions:**

19. What is the most challenging when designing leadership programs?
20. How do you follow up with participants to ensure that they apply what they learn from your programs?

21. Is there something we haven’t addressed yet in your programs that you think we should talk about?

Closing

Thank you for participating in this interview. We appreciate you taking the time to do this. We will contact you again for a follow up interview. If you have any questions feel free to contact me.
## APPENDIX 2- Competency comparison result and key competence framework

<table>
<thead>
<tr>
<th>Overall competency</th>
<th>Competencies that emerged from the interviews</th>
<th>Description from the KCSF framework</th>
</tr>
</thead>
</table>
| **Systems-thinking competency** | - Ability to understand situations  
  - Adaptability  
  - Capacity to engage with uncertainty  
  - Contextual intelligence  
  - Dealing with emergence  
  - Knowing different organizational functions  
  - Re-learning ability  
  - Resilience  
  - Thinking outside the box  
  - Understanding variables’ connectivity | Systems-thinking competence is the ability to collectively analyze complex systems across different domains (society, environment, economy, etc.) and across different scales (local to global), thereby considering cascading effects, inertia, feedback loops and other systemic features related to sustainability issues and sustainability problem-solving frameworks. |
| **Anticipatory competency** | - Creating an environment that can work with both long and short term  
  - Long-term thinking  
  - Polarity thinking  
  - Predicting the future  
  - Seasonality thinking | Anticipatory competence is the ability to collectively analyze, evaluate, and craft rich “pictures” of the future related to sustainability issues and sustainability problem-solving frameworks. |
| **Normative competency** | - Logical thinking  
  - Reasonable  
  - Recreating new things  
  - Understanding the context | Normative competence is the ability to collectively map, specify, apply, reconcile, and negotiate sustainability values, principles, goals, and targets. This capacity enables, first, to collectively assess the (un-)sustainability of current and/or future states of social-ecological systems and, second, to collectively |
| **Strategic competency** | - Ability to create culture  
- Ability to respond to next change  
- Ability to show how things are integrated  
- Adaptive  
- Addressing challenges  
- Awareness of what is happening  
- Creative  
- Doing the right things at the right time  
- Foreseeing challenges  
- Identifying leverage points  
- Overall awareness  
- Post conventional thinking  
- Predicting and responding to events  
- Prioritizing  
- Strategic thinking  
- Working with values  | Strategic competence is the ability to collectively design and implement interventions, transitions, and transformative governance strategies toward sustainability. |
| **Interpersonal competency** | - Culture awareness  
- Ability to empathize  
- Emotional intelligence  
- Ability to work with people  
- Creating safety environment  
- Sharing  
- Procurable  
- Bringing people together  
- Common sense  
- Openness  
- Creating generous and kind workplace  
- Creating Trust  
- Enabling people  
- Building and maintaining relationships  
- Building perspective  
- Collaboration  
- Participating  
- Communication  
- Listening  
- Giving and getting feedback  
- Ability to work with conflict  
- Influencing people  
- Creating a win-win situation  
- Making collective decisions  
- Creating an interest  
- Understanding people  
- Collective decision making  
- Understanding the group dynamics  | Interpersonal competence is the ability to motivate, enable, and facilitate collaborative and participatory sustainability research and problem solving. This capacity includes advanced skills in communicating, deliberating and negotiating, collaborating, leadership, pluralistic and trans-cultural thinking, and empathy. The capacity to understand, embrace, and facilitate diversity across cultures, social groups, communities, and individuals |
| **Personal competency** | - Cognitive intelligence  
- Constructing personal viewpoint  
- Courage  
- Expressing personal values  
- Developing personal attitude  
- Self identification  
- Intuitive  
- Mindfulness  
- Patience  
- Persistence  | The article does not describe personal competencies. |
- Personal capacity

- Self awareness:
  - Being aware of personal bias
  - Knowing own strengths and weaknesses
  - Recognizing that you don't see everything
  - Self awareness
  - Skills
  - Understanding one's own self
APPENDIX 3- Sustainable leadership competencies

This appendix displays the response of the participating companies in relation to the six leadership competencies, and how each of the elements were coded by the team. Competencies are arranged according to the results’ order (systems thinking, anticipatory, normative, strategic, interpersonal, self-related).

**Systems thinking competencies**

<table>
<thead>
<tr>
<th>Response by the participating companies</th>
<th>Coding</th>
<th>Participating company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td>Attitude</td>
<td>MIL</td>
</tr>
<tr>
<td>Able to read and understand situations</td>
<td>Ability to understand situations</td>
<td>Mil</td>
</tr>
<tr>
<td>Capable of living and cope with such a situation</td>
<td>Adaptability</td>
<td>Mil</td>
</tr>
<tr>
<td>Adaptability</td>
<td>Adaptability</td>
<td>Pacific integral</td>
</tr>
<tr>
<td>Capacity to engage with uncertainty</td>
<td>Capacity to engage with uncertainty</td>
<td>Pacific integral</td>
</tr>
<tr>
<td>Community decision making</td>
<td>Collective decision making</td>
<td>Nomadic</td>
</tr>
<tr>
<td>Contextual intelligence</td>
<td>Contextual intelligence</td>
<td>Clear impact</td>
</tr>
<tr>
<td>Dealing with emergence and when you cannot rely on linear.</td>
<td>Dealing with emergence</td>
<td>Harthill</td>
</tr>
<tr>
<td>Spend time within different areas within their organization</td>
<td>Knowing different organization departmental functions</td>
<td>Nomadic</td>
</tr>
<tr>
<td>Open to new ideas and new ways of understanding</td>
<td>Openness</td>
<td>Mil</td>
</tr>
<tr>
<td>Being open minded</td>
<td>Openness</td>
<td>Nomadic</td>
</tr>
<tr>
<td>Re-learn</td>
<td>Re-learning ability</td>
<td>Mil</td>
</tr>
<tr>
<td>Level of resilience</td>
<td>Resilience</td>
<td>Pacific integral</td>
</tr>
<tr>
<td>Systems thinking</td>
<td>Systems thinking</td>
<td>Clear impact</td>
</tr>
<tr>
<td>Systems thinking</td>
<td>Systems thinking</td>
<td>Cultivating Leadership</td>
</tr>
<tr>
<td>To think outside the box</td>
<td>Thinking outside the box</td>
<td>Mil</td>
</tr>
<tr>
<td>Have a systemic understanding of complexity or systems of the people in that system or the context.</td>
<td>Understanding people complexity</td>
<td>Harthill</td>
</tr>
<tr>
<td>Recognizes the connections between multiple variables</td>
<td>Understanding variables’ connectivity</td>
<td>Pacific integral</td>
</tr>
<tr>
<td>Expression of connectedness</td>
<td>Understanding variables’ connectivity</td>
<td>Pacific integral</td>
</tr>
<tr>
<td>Understand how groups function</td>
<td>Understands how group function</td>
<td>Mil</td>
</tr>
<tr>
<td>Listen to the wisdom</td>
<td>Wisdom-related</td>
<td>Nomadic</td>
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**Anticipatory competencies**
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<tr>
<th>Response by the participating companies</th>
<th>Coding</th>
<th>Participating company</th>
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</thead>
<tbody>
<tr>
<td>Create the environment to work with both long and short term</td>
<td>Creating an environment that can work with both long and short term</td>
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</tr>
<tr>
<td>Long term thinking</td>
<td>Long-term thinking</td>
<td>MIL</td>
</tr>
<tr>
<td>Polarity of future and past oriented thinking</td>
<td>Polarity thinking</td>
<td>Clear impact</td>
</tr>
<tr>
<td>Try and predict the future</td>
<td>Predicting the future</td>
<td>Pacific Integral</td>
</tr>
<tr>
<td>Thinking of business cycle as a seasonal wheel</td>
<td>Seasonality thinking</td>
<td>Nomadic</td>
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**Normative competencies**

<table>
<thead>
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<td>Logic</td>
<td>Logic</td>
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</tr>
<tr>
<td>Reasonable</td>
<td>Reasonable</td>
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</tr>
<tr>
<td>Recreate new things</td>
<td>Recreating new things</td>
<td>Cultivating Leadership</td>
</tr>
<tr>
<td>Understanding the context</td>
<td>Understanding the context</td>
<td>Clear impact</td>
</tr>
</tbody>
</table>

**Strategic competencies**

<table>
<thead>
<tr>
<th>Response by the participating companies</th>
<th>Coding</th>
<th>Participating company</th>
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<tbody>
<tr>
<td>To create culture</td>
<td>Ability to create culture</td>
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</tr>
<tr>
<td>Response to next years' change</td>
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</tr>
<tr>
<td>Ability to show how things are integrated</td>
<td>Ability to show how things are integrated</td>
<td>Clear impact</td>
</tr>
<tr>
<td>Adaptive</td>
<td>Adaptive</td>
<td>Cultivating Leadership</td>
</tr>
<tr>
<td>Addressing challenges</td>
<td>Addressing challenges</td>
<td>Clear impact</td>
</tr>
<tr>
<td>Understand what is happening</td>
<td>Awareness of what is happening</td>
<td>MIL</td>
</tr>
<tr>
<td>Creating</td>
<td>Creative</td>
<td>Pacific Integral</td>
</tr>
<tr>
<td>Doing the right things at the right time</td>
<td>Doing the right things at the right time</td>
<td>Cultivating Leadership</td>
</tr>
<tr>
<td>Foreseeing challenges</td>
<td>Foreseeing challenges</td>
<td>Nomadic</td>
</tr>
<tr>
<td>Identify the leverage points</td>
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</tr>
<tr>
<td>Overall awareness</td>
<td>Overall awareness</td>
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<tr>
<td>Post conventional thinking</td>
<td>Post conventional thinking</td>
<td>Clear impact</td>
</tr>
<tr>
<td>Predict and respond to what is going on</td>
<td>Predicting and responding to events</td>
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</tr>
<tr>
<td>Awareness of what needs to be accomplished</td>
<td>Prioritizing</td>
<td>Clear impact</td>
</tr>
<tr>
<td>Recognizing that the importance</td>
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**Interpersonal-related competencies**

<table>
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<th>Response by the participating companies</th>
<th>Coding</th>
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<tbody>
<tr>
<td>Able to empathize</td>
<td>Ability to empathize</td>
<td>Harthill</td>
</tr>
<tr>
<td>Ability to work with conflict</td>
<td>Ability to work with conflict</td>
<td>Pacific integral</td>
</tr>
<tr>
<td>Able to work with people</td>
<td>Ability to work with people</td>
<td>Mil</td>
</tr>
<tr>
<td>Bring people together</td>
<td>Bringing people together</td>
<td>Harthill</td>
</tr>
<tr>
<td>Build and maintain relationships</td>
<td>Building and maintaining relationships</td>
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</tr>
<tr>
<td>Building perspective</td>
<td>Building perspective</td>
<td>Clear impact</td>
</tr>
<tr>
<td>Collaboration</td>
<td>Collaboration</td>
<td>Clear impact</td>
</tr>
<tr>
<td>Common sense</td>
<td>Common sense</td>
<td>Nomadic</td>
</tr>
<tr>
<td>Communication</td>
<td>Communication</td>
<td>Nomadic</td>
</tr>
<tr>
<td>Communication</td>
<td>Communication</td>
<td>Pacific integral</td>
</tr>
<tr>
<td>Communication</td>
<td>Communication</td>
<td>Cultivating leadership</td>
</tr>
<tr>
<td>Creating a win-win situation</td>
<td>Creating a win-win situation</td>
<td>Harthill</td>
</tr>
<tr>
<td>Creating an interest</td>
<td>Creating an interest</td>
<td>Cultivating leadership</td>
</tr>
<tr>
<td>Creating a workplace where people are generous and kind</td>
<td>Creating generous and kind workplace</td>
<td>Cultivating leadership</td>
</tr>
<tr>
<td>Creating safety</td>
<td>Creating safety</td>
<td>Clear impact</td>
</tr>
<tr>
<td>Creating trust</td>
<td>Creating Trust</td>
<td>Clear impact</td>
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<tr>
<td>Culture awareness</td>
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<tr>
<td>Emotional intelligence</td>
<td>Emotional intelligence</td>
<td>Clear impact</td>
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<td>Emotional intelligence</td>
<td>Emotional intelligence</td>
<td>Harthill</td>
</tr>
<tr>
<td>Feel the emotional under the surface process</td>
<td>Emotional intelligence</td>
<td>Harthill</td>
</tr>
<tr>
<td>Giving and getting feedback</td>
<td>Giving and getting feedback</td>
<td>Cultivating leadership</td>
</tr>
<tr>
<td>Influencing skills</td>
<td>Influencing people</td>
<td>Harthill</td>
</tr>
<tr>
<td>Listen to opinions that your team have</td>
<td>Listening</td>
<td>Nomadic</td>
</tr>
<tr>
<td>Listening</td>
<td>Listening</td>
<td>Cultivating leadership</td>
</tr>
<tr>
<td>Listening</td>
<td>Participating</td>
<td>Procurable (reachable)</td>
</tr>
<tr>
<td>----------</td>
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<td>------------------------</td>
</tr>
<tr>
<td>Nomadic</td>
<td>Pacific integral</td>
<td>Nomadic</td>
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</tbody>
</table>

**Self-related competencies**

<table>
<thead>
<tr>
<th>Response by the participating companies</th>
<th>Coding</th>
<th>Participating company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of maturity or development</td>
<td>Personal development</td>
<td>Harthill</td>
</tr>
<tr>
<td>Cognitive intelligence</td>
<td>Cognitive intelligence</td>
<td>Clear impact</td>
</tr>
<tr>
<td>Have a point of view</td>
<td>Constructing a viewpoint</td>
<td>Cultivating Leadership</td>
</tr>
<tr>
<td>Courage</td>
<td>Courage</td>
<td>Harthill</td>
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<tr>
<td>Expressing personal values</td>
<td>Expressing personal values</td>
<td>Clear impact</td>
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<tr>
<td>Using a lot more intuition</td>
<td>Intuitive</td>
<td>Harthill</td>
</tr>
<tr>
<td>Mindfulness</td>
<td>Mindfulness</td>
<td>Clear impact</td>
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<tr>
<td>Mindfulness</td>
<td>Mindfulness</td>
<td>Cultivating Leadership</td>
</tr>
<tr>
<td>Patience</td>
<td>Patience</td>
<td>Harthill</td>
</tr>
<tr>
<td>Persistence</td>
<td>Persistence</td>
<td>Harthill</td>
</tr>
<tr>
<td>Personal capacity</td>
<td>Personal capacity</td>
<td>Clear impact</td>
</tr>
<tr>
<td>Being aware of own bias</td>
<td>Self-awareness</td>
<td>Nomadic</td>
</tr>
<tr>
<td>Knowing own strengths and weaknesses</td>
<td>Self-awareness</td>
<td>MIL</td>
</tr>
<tr>
<td>Recognizing that you don't see everything</td>
<td>Self-awareness</td>
<td>Nomadic</td>
</tr>
<tr>
<td>Self-awareness</td>
<td>Self-awareness</td>
<td>Clear impact</td>
</tr>
<tr>
<td>Skills</td>
<td>Self-awareness</td>
<td>Clear impact</td>
</tr>
<tr>
<td>Understanding one's own self</td>
<td>Self-awareness</td>
<td>MIL</td>
</tr>
<tr>
<td>Identifying self</td>
<td>Self-identification</td>
<td>Nomadic</td>
</tr>
</tbody>
</table>
APPENDIX 4- ABCD method

The ABCD method is part of the strategic guidelines of the FSSD, it aims to guide users on how to create strategic plans that can strategically transition their organizations towards sustainability (Broman and Robèrt 2017).

A-step
This part is about envisioning the desired future outcome of the organization within the boundaries of the sustainability principles. This can be done through visioning workshops or through putting the organizations current vision within the boundaries of the sustainability principles as defined by the FSSD.

B –Step
This part is about creating a baseline of the current reality that the organization faces, looking at it from a holistic point of view. This can be done through various tools and methods such as stakeholder maps, supply chain analysis, PESTLE analysis and internal organizational analysis through the lens of the sustainability principles.

C-Step
This step looks at the baseline from the B-step and the desired future of the A-step with the purpose to brainstorm on actions that can bridge the gap. In this step the more the ideas the better, here brainstorming workshops can be of use.

D-step
This is the prioritization step, where the ideas from the brainstorming are judged against at minimum the following criteria:

Does it move the organization in the right direction?
Does it provide a flexible platform for future development towards reach the vision?
Does it provide a good return of investment?

Note that, these are to be seen as minimum criteria and additional criteria can be used based on the needs of the organization.
APPENDIX 5- Companies’ definition of sustainability

These are the result from the companies regarding the question on how they personally define sustainability.

Company A

Well, it is a controversial construct, isn’t it? And there is lots of different elements to it, the most common use of the word seems to be around, looking after the planet’s resources. But I think in business there is often use of sustainability in terms of economics, sustainable business models, which allows the company of maintaining profitability and market share, competitiveness. Sustainability was original used by people like Porter, to think about competition, competitive advantage, you know the original idea of competitive advantage was the sustainable advantage. And so, sustainability I think, is an idea, that invokes trade-offs and invokes a view of a path through time. And also invokes the idea of, multiple stakeholders with different interests, competing interests. And I think the other thing of sustainability invokes the question of about values, systems are in place. So who is valuing what? And in complex system, what people preferring fundamentally different, and what they need to sustain. Sustainability is not so much a project it is more of a situation, that everybody is probably approaching from different positions, and creates dilemmas, and creates tensions. Some of which get managed, some of which get pushed into the long grass of the future, some of them get ignored, and some of them get attended to.

Company B

It’s making sure that what we do it in such a way it will not disturb resources whether its human resources or money or clean water or clean air or whatever it is. Sustainable is something we'll use as little resources as possible. Destroy as little resources as possible and that is also a question about mind-set. Can we do it a little bit better tomorrow, people will not be on sick leave they will not be alienated by working here they will gladly work another year and we had used less time or less money or less water or less oil whatever it is. So to me it is rather simple but then it comes down to individual choice. I love this six cylinder BMW so nice the engine sounds so nice but it’s not good for the environment

Company C

To me sustainability is when we are doing things that add to rather than take away. We are not exhausting resources we creating rather destroying that the sum of the parts are greater than the whole? One of the things about sustainability and I think it’s a paradox for things to sustainable they have to be destroyed and rebuilt they also got to be reformed so I think sustainability within. We work with lead and go it is also the price of renewal it is the price of lead and go and destroy is a probably the wrong word probably lead and go and recreating.

Company D

That if you have a program and it is a great program on engagement or psychological safety, if you don’t look at this current system in which you are going to implement that program and if
you aren’t aware of what supports and detracts from that program and what it would take to implement it successfully and we remove these obstacles and we keep coming back to that, it will not go. And sustainability is also the identification of how different stakeholders might be impacted and integrating that.

**Company E**

The hardest question of all I suppose I mean in general I describe it to people at the most simple level it’s about creating a better world for all, and that is all species and all humans so that is at the most fundamental level. It’s an integrated social ecological change so that is another thing that I like to include in my description because we often forget about the social dimension because it’s often the environmental. And it’s about you known it’s about finding a way for humans and all of life to flourish.

**Company F**

It is not something we technically address head on, I feel like it is something more like a natural output of our programs. Because our program's jaeger peak would talking openly about issues, like sustainability. Both from a personal aspect as can we continually work like this as a team, but then also in the technically aspect, the team will naturally dive into the necessary aspect as well.