Executive MBA Master Thesis

"Development of leadership culture in support of the Green Transition: The case of the Norwegian Energy sector"

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Self Sense of urgency leadership culture talk Equity Leadership belief Generation transition skills Green culture Resilience Purpose GRIT Live practise Leadership culture Change readiness Walk values green Safety Change Holacracy

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Development of leadership culture in support of the Green Transition: The case of the Norwegian Energy sector

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The uncertain and complex challenges of development of a leadership culture in support of the green transition has given us as researchers and professionals, a broader view of the long-term challenges ahead, and prepared us for more execution of collective leadership in support of the green transition. While exploring leadership theory and practice, valuable insight into the world of academia have given us better tools and frameworks for continued navigation within leadership and when developing a leadership culture.

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EXECUTIVE SUMMARY

This research addresses what is perhaps the biggest blind spot in leadership theory and practice (By, 2021), by exploring the role of 'Purpose' when developing a leadership culture. In this research, the role of purpose is pointing towards the alignment and commitment of long-term goals in support of the green transition.

The research question is: How can leadership culture; – *explained by Drath et al. (2008) as; a system of collective and individual leadership beliefs and collective leadership practices* - be further developed in support of the green transition?

The following quote with respect to leadership set the direction for the topic to be discussed in this thesis; Leadership is a process of energy, not structure. In this way, leadership is different from management— managers pursue stability, while leadership is all about change (Barker, 1997).

The intention of 'Purpose' as both a collective leadership belief and as the "P" in the PAC-ontology (By, 2021), has emerged as an important entry, and as both a primary finding (qualitative data) and secondary finding (literature review), when developing a leadership culture in support of the green transition.

A qualitative method**,** under an interpretivist paradigm, has been applied to collect and explore perspectives on leadership and leadership culture in support of the green transition. Questions were prepared and data was collected through semi-structured in-depth interviews based on a predefined interview guide.

Key findings related to collective leadership practices and collective leadership belief, are illustrated as themes in the figure below:

➢ Purpose: The Green Transition
➢ Psychological safety and Transparency
➢ Holacracy and "Bottoms-up leadership"

The recommendation is to start the development of a leadership culture in support of the green transition, if not already implemented, since the urgency of the future challenges of lack of climate action are well-known. The SDG index and dashboard for Norway in 2020 showed that we have stagnation with respect to UN Goal 13 "climate action" with respect to emissions (Holden, 2021), which could be explained by the new green business segments currently being low marginal businesses. In this context research do emphasize that leaders have an important role to embrace

new thinking, gain and understand the new world view to be able to make future strategies managing sustainability and transition (Laloux, 2015).

The key findings are psychological safety and "Holacracy", both promoting change readiness, continuous learning, creativity and innovativeness towards low carbon emission solutions, by allowing more peer-like, transparent and collaborative initiatives from "bottoms-up" in the work force.

Psychological safety is "a belief that one will not be punished or humiliated for speaking up with ideas, questions, concerns or mistakes" (Edmondson, 1999). This is especially important for the green transition, which are containing a lot of complex challenges, emergent changes, risk of failing, continuous learning and innovations. Creating a working environment with high level of psychological safety present, researchers believe can help organisations and leadership with an entrepreneurial mindset to innovate and handle setbacks.

Holacracy is known as a "flat" hierarchy, with a working environment for fostering flexibility and engagement (Bernstein et al., 2016), and replaces hierarchical pyramids. Power and control are no longer tied to the specific positions of a few top leaders (Laloux, 2015). Holacracy is also supported by complexity leadership: where one sees order in a system as emerging from people, ideas, or behaviours, making leadership not only a top down, but also a bottom-up process (Drath et al., 2008). This is demanding a new generation of leaders – senior individuals with the vision to see where it is best to set aside hierarchy for another way of operating, but also with the courage to defend hierarchy where it serves the institutions fundamental goals (Bernstein et al., 2016).

A further recommendation will be the development of additional supporting leadership X-factors as; GRIT, optimism, onboarding of generation Z and ambidexterity as leadership subjects or themes to investigate further.
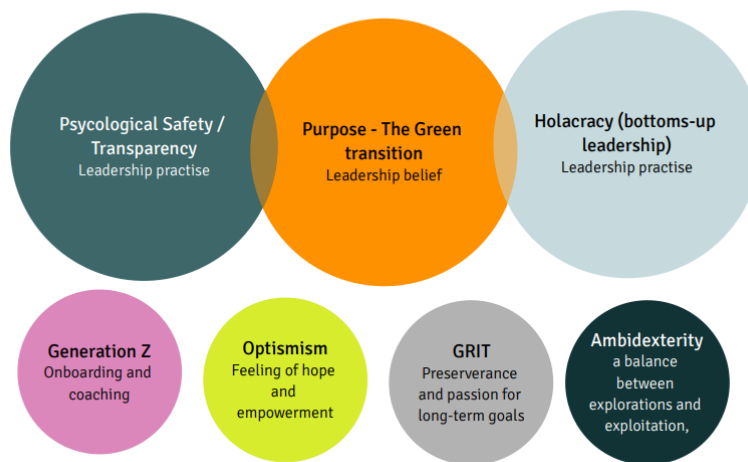
Secondary findings show that the PAC-ontology (By, 2021) with Purpose as the core of the leadership outcome is a beneficial model or ontology to use as a framework with respect to further development of a leadership culture in support of the green transition, hence pointing towards long-term goals. To quote Damon et al (2003, p. 121): Purpose is defined as '…*a stable and generalized intention to accomplish something that is at once meaningful to the self and of consequence to the world beyond the self*.

Future recommendations for academics, practitioners and government/research institutions will be covered in chapter 5.3.

1   INTRODUCTION

This EMBA Thesis is exploring development of leadership culture in support of the green transition in the Norwegian energy sector. In this chapter the research question, the context of the green transition and an introduction to the theoretical framework and the research methodology are reasoned. Key definitions, scope of work and research objectives are explained.

Leadership culture as a system of collective leadership beliefs and collective leadership practises (Drath et al., 2008), will be used as a theoretical framework for the research work when exploring the development of a leadership culture supporting the green transition.

Leadership practices have over the years evolved to interactions in a collective, forming a social execution of leadership culture (Drath et al., 2008). Since leadership today is about influencing other team members, more people can execute leadership parallelly in a team. Leadership should be focused on leadership practices as constructed in interactions (Crevani et al., 2010).

Leadership is defined by Rost (1997) as: "(…) an influence relationship among leaders and collaborators who intend real changes that reflect their mutual purposes." (p. 11) and changed his initial definition by substituting the word 'followers' with 'collaborators'.

This is also supported by By (2021, page 5:), stating; "*Leadership is something we all can contribute to, and everyone doing so are leading, and everyone leading are leaders*". In this context the following support his statement; "Leadership is a process of energy, not structure". Leadership is also said to be different from management— managers pursue stability, while leadership is all about change (Barker, 1997). Change and leadership are intrinsically linked (Kotter, 1996), and only through 'enabling change, can we reframe leadership challenges in order to anticipate new imaginative and progressive ways forward' (By, 2020, p. 5).

Leadership includes search for new opportunities and therefor involves risk. Leadership also involves setting a direction, create a clear vision and strategy, communicate the vision, involve or engage, negotiating and establishing professional networks (Kotter, 1990). Bennis show a distinct difference in the role and nature of leadership versus management; Leaders ask "why" and "what" and managers ask "how" and "when" (Bennis, 1989) and supports that it is equally clear that leaders initiate change, and managers increasingly play a vital role in implementation of change (Kanter, 1989).

Both managers and leaders have traditionally been individual people with a formal organisational hierarchical authority, while leadership and management today are considered processes and process driven, since "Leaders can be in all sorts of positions in today's organisations due to leadership being a skill not an authority" (Beer et al., 1990).

1.1   Research questions

The aim of this thesis is to explore the following research question:

> ➢ How can leadership culture be further developed in support of the green transition? The case of the Norwegian Energy sector.

This research is focusing on collective leadership beliefs and collective leadership practices, and how a system of collective acts further can create collective patterns which will develop leadership culture in support of the green transition. Since objectivity is hard for those who live within a culture, understanding the theory behind leadership culture as a preparation for analysis of required data will follow.

Leadership Culture is defined as; "*Pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems*" , also supported by; "*culture is the way we do things around here*" (Schein, 1992, p. 12 /2006 p. 13). This definition might also deal with the possibility that such cultures develop over time, following predictable patterns of increasing complexity (Torbert, 2004).

Petroleum Safety Authority Norway (PSA) sets an example of the importance of leadership practices in a leadership culture; "*As important as the process and principles organisations adopt, is the culture of an organisation. We can gain insight into a culture by listening to what people say and by looking at the way they behave. The relationship between words and deeds is precisely the point at which an understanding of the culture in an enterprise can be gained. Words and deeds must correspond*" (Petroleum Saftey Authority, HMS og kultur, 2003)

The intention of this research work is also to further explore the role of "Purpose" while exploring development of a leadership culture in support of the green transition. The PAC-ontology focus on Purpose, Alignment and Commitment as leadership outcomes to reach long-term goals (By, 2021) and is used as a framework for further development of leadership culture, see Figure 2. The presence of a purpose, as in the PAC-ontology, is expected to lead to greater persistence as it resonates across time and context, meeting the demands and challenges of the twenty-first century, as evidenced by the climate crisis, a challenge of large scope most likely only solved in partnership (By, 2021).

Also supported by Burns (1978, p. 3) stating; '…leadership is nothing if not linked to collective purpose'. This is having gone rather unnoticed in academic research until Kempster er al. (2011) identified the current position of purpose in leadership studies as one of all-too-often-being taken-for-granted.

1.2   The Green Transition

The green transition is about how Norway will become a low-emissions country by 2050 as stated by the Norwegian government (Norwegian Ministry of Climate and Environment, 2021 b).

The context of the green transition is in addition a global collective long-term goal. This is supported by the UN Goal 13) of Climate Action and in addition the EU Climate action and emissions reduction.

The green transition must be global. At the same time, Norway, like all countries, must find its own way to a green economy. If we are to achieve the targets in the Paris Agreement on cuts in emissions of greenhouse gases, it requires a restructuring that includes all areas of society and actors. Innovation and technology development are one of the keys to the green transition, and businesses is a central force (Norwegian Ministry of Climate and Environment, 2021 b). The KonKraft report (KonKraft, 2019) states that; "The oil and gas industry in Norway must reduce their absolute greenhouse gas emissions with 40 percent by 2030 compared by 2005, and further reduce emissions to close to zero in 2050".

The Norwegian energy sector, referenced and limited to as the petroleum industry in this research work, has provided Norway as a nation with a welfare that will be challenging to replace in a short-term view. Knowledge and expertise from the Petroleum sector are important for the energy transition. Emission from the petroleum industry makes up about a quarter of the total Norwegian greenhouse emissions, hence the green transition in this industry has significant impact (Norskpetroleum.no, 2022).

The transition requires vast amounts of investment, innovation, skilful policy design and implementation, technology deployment, infrastructure building, international co-operation and efforts across many other areas (International Energy Agency, 2023). As an oil-exporting nation, Norway faces dilemmas in this transition that pose both challenges and opportunities that are specific

to Norway (Morris, 2019). However, the global nature of climate change means the Norwegian trends in the green transition will need to be viewed in an international context (Skjoldager, et al., 2021).

The context of the green transition is uncertain and complex, and there is a lack of proven and known solutions, which will require more innovation and technology development with an entrepreneurial mindset with a long-term horizon or view. This is supported by; "When situations lack analogies to the past, we have trouble envisioning how they will play out in the future". "Moments of uncertainty hold great entrepreneurial potential" and "It is precisely in these contexts—not in stable times—that the real opportunities lie to gain competitive advantage through strategy." It takes strength to stand up against the tyranny of the present and invest in "future imagination". Strategic future foresight makes both possible—and offers leaders a chance for legacy (Scoblic, 2020).

NORWEGIAN ⬤ PETROLEUM

> 120 FIELDS

Since the start, 120 fields on the Norwegian shelf have produced oil and gas. At year-end 2022, 93 fields were in production.

78 DISCOVERIES

At year-end 2022, about 78 discoveries were being considered for development. Most of them are small and will be developed as satellites to established fields.

1 015 BN. NOK

The government's estimated total net cash flow from petroleum activities in 2023. This includes taxes, fees, dividend and SDFI.

232 MILL. SM3 O.E.

Norway's production was about 232 mill. Sm^3 o.e. in 2022. More than half part of the volume is natural gas.

1 900 BN. NOK

The export value of crude oil, natural gas and condensate in 2022. This equals 73 per cent of the total value of Norway's exports of goods.

149 BN. NOK

Investments in the petroleum sector accounted for about 1/6 of total investments in productive capital in Norway in 2022.

48 % REMAINS

Total petroleum resources are estimated at 15.8 billion Sm^3 o.e. 52 per cent has been produced, sold and delivered.

8800 KM

The total length of the Norwegian gas pipeline network is about 8800 kilometres, which is roughly the distance from Oslo to Bangkok.

200 000

Total employment in the petroleum sector in 2020 was about 200 000 people.

Figure 1: Facts about Petroleum Activities NCS (Norskpetroleum.no, 2023)

1.3   Scope of research work

Leadership culture is a system of individual and collective leadership beliefs and collective leadership practices, as illustrated in the PAC-ontology (By, 2021), according to Figure 2, illustrating the theoretical framework for developing a leadership culture, where the collective focus on Purpose, Alignment and Commitment towards long-term goals are referenced as the PAC-ontology.
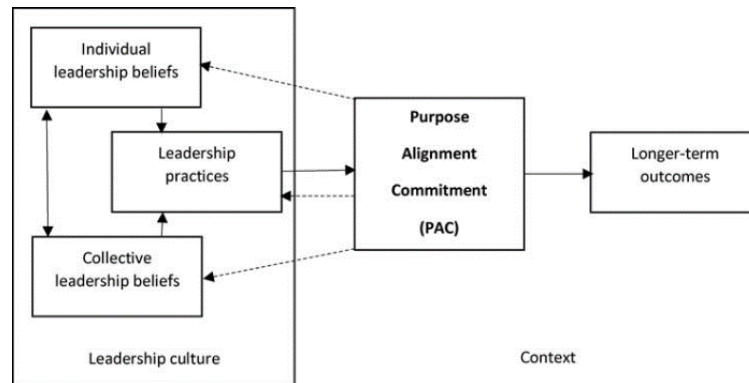
Figure 2: PAC-Ontology (By, 2021)

The application of the PAC-ontology does not necessarily exclude the application of other leadership ontologies or models; hence they can co-exist. The ambition is to define and contribute to the further development of leadership ontology and leadership culture where the PAC (Purpose, Alignment, Commitment) ontology is used as a framework for further discussions.

In this thesis the PAC-ontology, where the focus is on Purpose rather than Direction as in the DAC-ontology (Drath et al., 2008), and further development of PAC-ontology seen through the "The Telos Leadership Lens" (TLL) consisting of the following principles (By, 2021) are discussed towards the findings from the qualitative data:

➢ Leadership is a responsibility of the many, not a privilege of the few
➢ Leadership is the collective pursuit of delivering on purpose.
➢ Leadership purpose is to be guided by internal goods.

Research methodology

The research methodology chosen for this thesis is a qualitative method.

The intention of the research questions is to explore top leaders (e.g. General Managers, Directors and Vice Presidents) perspectives and reflections of collective leadership beliefs and -practices supporting the development of a leadership culture in support of the green transition.

Different perspectives of leadership culture are found in the contrast of the diversity of companies the informants represent, all primarily related to petroleum activities, also covered in Data Triangulation in Chapter 3.9. The informants represent companies categorized as:

➢ "Energy companies in transition" preserving oil & gas production while aiming to embrace and build-up renewables or low carbon solutions,
➢ "Born Green companies" that could include digitalization, battery technology and clean energy start-ups within carbon storage as an example, and
➢ "Authorities and Interest organizations".

The following source of information is relevant for the conclusion of the research question and will give the background for discussions of qualitative data (primary findings) towards the theoretical literature review (secondary findings), and finally a recommendation for development of leadership culture in support of the green transition.

Figure 3: Research methodology and question

1.4   Key Definitions

Leadership	"(…) an influence relationship among leaders and collaborators who intend real changes that reflect their mutual purposes." (Rost, 1997, p. 11) and changed his initial definition by substituting the word 'followers' with 'collaborators
Leadership culture	"Pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems" Schein (1992, p. 12).
Leadership ontology	"The theory of entities that are thought to be most basic and essential to any statement about leadership." Drath et al. (2008).
Purpose	'…A stable and generalized intention to accomplish something that is at once meaningful to the self and of consequence to the world beyond the self, Damon et al. (2003, p. 121**).**
Leadership development	refers to developmental processes in which the whole of a collective engages: the development of the leadership beliefs and -practices that are development of the leadership culture Drath et al., (2008).

The green transition	is about how Norway will become a low-emissions country by 2050 (Norwegian Ministry of Climate and Environment, 2021 b). To achieve this they state, "we must transform ourselves into a society where growth and development take place within nature's tolerance limits. Society must go through a green transition, there must be a transition to products and services that have significantly fewer negative consequences for the climate and environment than today. It will be demanding but is entirely possible".
Generation Z	refers to the demographic cohort following Millennials, born between the mid-1990's and the mid-2010's. They are the first generation that have grown up entirely in the digital age. Generation Z are likely to have a significant impact on society and the workforce in the years to come (Staglin, 2022).
Authentic leadership	Authentic leadership is demonstrating the acceptance of organisational and personal responsibility for actions, outcomes and mistakes, to be non-manipulating of subordinates and to exhibit salience of self over role (Henderson & Hoy, 1983, pp.67-68)
GRIT	Having passion and perseverance for very long-term goals (Duckworth, 2016). "It is a growth mindset, a resilience that makes a person determined to bounce back from failures and setbacks".
Ambidexterity	A balance between exploration of new competencies or business segments and exploitation of current business segments (Scoblic, 2020), specifically for an Energy company in transition.
Psychological Safety	"a belief that one will not be punished or humiliated for speaking up with ideas, questions, concerns or mistakes" (Edmondson, 1999, page 355)
Holacracy	Form of self-management with a "flat" hierarchy, with a working environment for fostering flexibility and engagement (Bernstein et al., 2016), and replaces hierarchical pyramids. Organizations are seen as living entities, oriented towards realizing their potential or purpose. Power and control are deeply no longer tied to the specific positions of a few top leaders (Laloux, 2015).
TELOS	An overarching and ultimate goal of contributing to the good of humankind (By, 2021)
Complexity leadership	where one sees order in a system as emerging from people, ideas, or behaviours, making leadership not only a top down, but also a bottom-up process (Darth et al., 2008)
Optimism	Optimism is a mental attitude characterized by hope and confidence in success and a positive future. Optimists tend to view hardships as learning experiences or temporary setbacks. Even the most miserable day holds the promise for them that "tomorrow will probably be better." (Scott, 2022)

Figure 4: Table of key definitions

1.5   Limitations

This research explores development of a leadership culture in support of the green transition. A limitation is that the informants are formal leaders", hence the focus is limited to a specific group of employees. Reflections and view on development of future leadership and leadership culture could be different from other parts of the work force. A perspective from the outside of the industry towards the Energy sector may also deviate.

The green transition is a related to a long-term goal and a future context with uncertainty. There are several skills and competencies that can be developed further, but further analytical work of development of leader and leadership skills has not been discussed in this research work.

This research work has not assessed the economics of developing renewable energy sources, new technology or low carbon solutions. The aim of the research is development of a leadership culture in support of the green transition.

1.6   Summary of Research objective/ Outline of thesis

This chapter gives the background of objectives and reasoning for how this thesis research question emerged. The aim of the research is a recommendation for development of a leadership culture in support of the green transition based on the framework of PAC-ontology (By, 2021). Leadership culture as a system of collective leadership beliefs and collective leadership practices provided by the qualitative data analysis will conclude and answer this thesis research question.

The outline of this thesis is listed below:

➢ The theoretical review of leadership ontology: "Figure 4: Table of key definitions" and in chapter 2 "Theory and literature review"
➢ The methodology of choice and qualitative data analysis: Chapter 3 "Research Methodology". Questionnaire, guideline, and transcripts for interviews are found in "Appendix B: Interview Guide" and "Appendix C: Interview transcript".
➢ Findings from data collected and analysed, as well as discussions towards literature review and research question are found in Chapter 4 "Findings and discussions".
➢ Conclusion and recommendations for further research work is found in Chapter 5.

2 LEADERSHIP ONTOLOGY AND LITERATURE REVIEW

2.1 Chapter introduction

The intention of this chapter is to explore existing leadership theories and leadership practices forming leadership culture in support of the green transition.

The concept of a leadership culture of a group is defined by Schein (1992) in table 1.4. Such a theory might also deal with the possibility that such cultures develop over time, following predictable patterns of increasing complexity (Torbert, 2004). Since objectivity is hard for those who live in the culture, understanding the theory behind will follow in this chapter.

In the following sections the development or evolution of leadership ontology is described.

The words ontology and ontologies are explained by the nature of reality that is to be studied' (Terre Blanche et al, 1999, p. 6) by asking the question "What is the nature of reality?" (Creswell & Poth, 1997, s.20).

The ontological model of leader and leadership opens up and reveals the actual nature of being when one is being a leader and opens up and reveals the source of one's actions when exercising leadership (Erhart et al., 2012).

2.2 Development of Leadership theory and practice

Society's demand for affordable, reliable and sustainable solutions will be a topic for consideration when developing a leadership culture supporting the green transition. This is supported by; "When the world changes so radically, "more of the same", will not work in the most businesses" (Snabe & Trolle, 2021, page 25).

Conventional leadership theory has been based on the understandable but incorrect perception of a direct cause-effect relationship between the leader's abilities, traits, actions and leadership outcomes (Barker, 2001, pp. 477–478). As a result, conventional leadership research, theory and practice are, or have until now, still been gravitating around the role and persona of the designated leader(s) (By, 2021). This confirms that leadership traditionally have been synonymous with a set of skills belonging to people with authority, while a leader traditionally has been synonymous with a top-down position in a hierarchy, and the ability to command and control. It has also been said that leadership scholars often describe leadership theory as being highly diverse and lacking integration (Stogdill, 1974), and "there are almost as many different definitions of leadership as there are persons who have attempted to define the concept" (Bass, 1990, page 11), hence some further exploration of leadership theory are required.

Burns' (1978, p. 1) observation that 'If we know all too much about our leaders, we know far too little about leadership' still holds true. Burns (1978) implied that leadership is a relational aspect, which should be seen as something different than leaders. The is supported by " the concept of leadership culture also supports a relational understanding of leadership" (Drath, 2008, page 646.). The idea of a leadership culture locates the source of leadership not in individual minds but in the interaction of beliefs and practices at the collective level (Drath, 2001).

Seeing leadership in the lens of relational theory removes the notion of leaders and followers as something indispensable, but instead "… local-cultural ideas that are socially constructed for the purpose of providing a basis for social co-operation" (Drath et al., 2008, p. 641). This is also supported

by (Drath et al., 2008) stating; "shared leadership means a social process of interactive and collective influence, and not leadership being passed on between the individuals in a group". Leadership practices has over the years evolved to interactions in a collective forming a social execution of leadership culture (Drath et al., 2008). This is also aligned with Rost (1997) definition of leadership in table 1.4. Rost (1993) also refers to the essential nature of leadership by enshrining the pivotal role of purpose at the core of leadership theory and practice. Purpose is defined as '…a stable and generalized intention to accomplish something that is at once meaningful to the self and of consequence to the world beyond the self, Damon et al. (2003, p. 121**).**

According to By (2019), "leadership is something everyone can do, and which is a responsibility that we all should contribute to", hence building upon the difference between a leader and leadership, as a person (i.e the leader) with authority, versus a process or a skill. In this context we will continue with the definition of leadership as a process. As stated by By (2019, p. 3), "Leadership is a verb, not a noun".

2.3 Tripod Ontology

Several definitions of leadership focus on the three entities of the TRIPOD-Ontology; or "the **leader-follower-common goal**"- ontology.

Although there has been an apparent diversity of leadership definitions, they are all unified under the tripod ontology – **leader, follower, common goals** (Drath et al., 2008). This is further explained by Figure 5: Tripod Ontology Shared goals mean that a leader guides a group of individuals toward accomplishing a vision through the organization's stated mission and values (Oral, 2019).
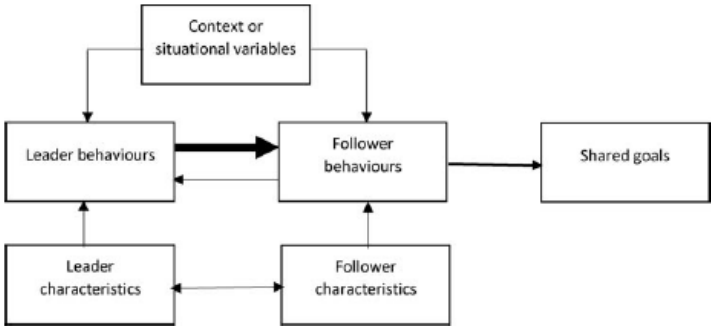
Figure 5: Tripod Ontology

The tripod ontology has been the widely accepted leadership ontology — with focus on leaders, followers, and shared goals — but it is becoming less useful for understanding leadership in contexts that are increasingly peer-like and collaborative as in today's sustainable organizations (Drath, et al., 2008). This means that teamwork or collaboration among peers that are characteristic of teamwork today is not valued in the Tripod ontology, ref. also 2.3.1. Bennis's (2007) articulation of the tripod describes leadership in its simplest form, since leadership theory itself deals with leadership well beyond its simplest form, and in this sense, all theory today treats the elements of the tripod in a much more nuanced and subtle way.

When exploring leadership ontology further, it is from Drath et al., (2008) view that an ontology of leaders, followers, and their shared goals is too narrow to support emergent theory in the directions of leadership development already underway within the field of purpose in the twenty-first century.

2.3.1   Limitations of the TRIPOD

Three emerging areas of leadership theory are especially illustrative of how the tripod is becoming too narrow (Drath et al., 2008):

➢ **Shared leadership**

The necessity of shared leadership largely stems from the complexity imposed by the external and internal dynamics of an organization. Shared leadership has come into existence to deal with the complexities of this nature (Contractor et al., 2012). Drath et al. (2008) point out that shared leadership in this context means a social process of interactive and collective influence, and not leadership being passed on between the individuals in a group. By seeing the collective, itself, as one of the main sources of influence, one also identifies an inter-relating system of individuals as an origin of leadership, as it takes not only leaders but also interaction within the group to create leadership influence.

➢ **Complexity leadership theory**

Complexity leadership theory sees leadership as something that is too complex to be described simply as individuals' behavior, but instead as complex interactions of many forces (Uhl-Bien & Marion, 2007). Complexity leadership framework sees order in a system as emerging from people, ideas, or behaviours, making leadership not only a top down, but also a **bottom-up process** (Drath, et al., 2008). Moreover, there is always an element of uncertainty in any complex system and therefore the determinism of the tripod ontology seems to fall short of developing a comprehensive leadership theory (Oral, 2019).

➢ **Relational leadership theory**

The relational theory, as a general conceptual scheme, elucidates that meaning creation is essential for leadership and is continuously made, maintained, and negotiated over time in the context of ongoing relationships in an organization. In fact, the meaning of the tripod is constantly being framed and reframed both contextually and periodically (Drath et al., 2008), and individuals do not only enter into relationships but are also brought into being by those relationships (Drath, et al., 2008).

Seeing leadership in the lens of relational theory removes the notion of leaders and followers as something indispensable, but instead "… local-cultural ideas that are socially constructed for the purpose of providing a basis for social cooperation" (Drath et al., 2008, p. 641).

The complexity theory, shared leadership approach, and the relational theory are the emergent ideas about leadership that are not addressable aptly by the tripod ontology and leads to leadership theories in which leadership is seen as a socially constructed, evolving tool that adapts to suit emergent purposes (Drath, et al., 2008).

2.4   DAC Ontology (Direction, Alignment, Commitment)

In the DAC ontology (Darth et al., 2008) the presence of direction, alignment, and commitment (DAC) and a future long-term outcome sets the framework or context for developing a leadership culture. A key element of the DAC framework is how leadership beliefs are instantiated into leadership practices.

The DAC-ontology studies how a group of people together produce DAC (Direction, Alignment and Commitment) through co-operation, collaboration and interaction, and this is referred to as "shared leadership" (Drath et al., 2008). It is important to clarify that the DAC-ontology acknowledges previous leadership theory and the TRIPOD-ontology as a foundation to build further on. In this alternative way of seeing leadership, the traditional theory is simply reframed with knowledge of how people with the roles of leaders and followers interact to produce DAC.

In the DAC ontology the leadership practices reflect leadership beliefs held individually or collectively. The web of belief interacts with the web of practice, which in time produces a stable system of belief-and-practice, which again could be framed as the leadership culture within a group, ref. Figure 6.

The question about leadership with the DAC ontology becomes, "what beliefs and practices enable people in collectives with shared work and common goals to produce DAC?" (Drath et al., 2008).
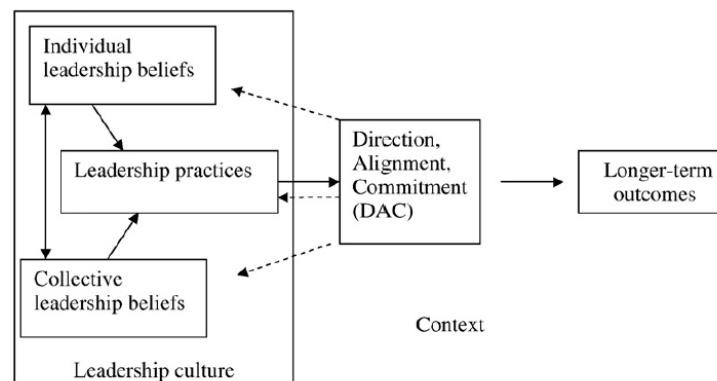
Figure 6: DAC -Ontology (Drath et al., 2008)

An important product of the DAC framework is the achievement of longer-term outcomes and goals of a collective, such as adaptation, sustainability, the flourishing of certain values or the achievement of certain outcomes. The production of DAC is therefore a shorter-term criterion for effective leadership. DAC is not an end-product itself, but a means to the longer-term outcomes, which means that "producing DAC" should be understood to mean not just producing DAC once and for all but also reproducing DAC, developing DAC, and re-creating DAC in ways that contribute to the longer-term outcomes (Drath, et al., 2008). This is also a way of giving attention to continuous learning and improvements within a group. Since the leadership practices are based on the leadership beliefs, changing leadership practices ultimately calls for transformational change at the level of leadership beliefs. Thus, the feedback loop from DAC to the underlying leadership beliefs are assumed to be the key to developing leadership practice. (Drath, et al., 2008)

2.4.1 Leadership beliefs

Leadership beliefs are understood in the DAC framework context as leadership values (beliefs about what is right or good), motives (beliefs about reasons for action) and desires (beliefs about what is desirable) (Drath et al., 2008). Leadership beliefs are dispositions to behave; where leadership behavior can be explained by a process of influencing a team to reach a common goal which can be performed by anyone in the team (Drath et al., 2008).

An individual's beliefs can be expressed in sentences (Rorty, 1990). Over time, individuals learn about one another's beliefs and influence one another in the beliefs they hold, and in this way some beliefs may become widely shared, forming collective beliefs (Drath et al., 2008).

From the perspective of the DAC framework, leadership beliefs as a shared resource for producing DAC is a basic and necessary element of leadership (Drath et al., 2008).

2.4.2   Leadership practices

A leadership belief is a disposition to behave; A leadership practice is the playing out of that disposition. Thus, observable practices can be assumed to be the instantiation of some belief or beliefs (Drath et al., 2008). A leadership practice is a pattern in the behavior of a collective aimed at producing DAC.

The DAC framework assumes that some leadership beliefs are instantiated in practice; although not all leadership beliefs may be instantiated by practices, all practices reflect some leadership belief (or beliefs) held individually or collectively. The key difference in the concept of leadership practices compared to the tripod ontology is that practices are understood as collective enactments, such as patterns of conversation or organizational routines that include and transcend individual behavior.

Also, since leadership is about influencing other team members, more people can execute leadership parallelly in a team, and leadership should be focused on leadership practices as constructed in interactions (Crevani et al., 2010). Processes broadly characterized as organizational learning, teaming, and dialogue—if they aim at producing DAC—can be described and understood as leadership practices.

This makes collective leadership practises and their origins by leadership beliefs, a basic shared pattern in a collective or a company that leads to the leadership culture in the DAC framework.

Leadership context is the background enveloping leadership culture where leadership beliefs and practices are generated and justified.

2.4.3   Leadership culture

Leadership culture is explained by Drath, et al., (2008) as a system of collective and individual leadership beliefs and collective leadership practices.

From the perspective of the DAC framework, changing the beliefs and behaviors of people in positions of authority are necessary but not sufficient to bring about changes in a leadership culture. It is equally important to change the beliefs and behaviours of everyone who thinks and acts in ways that sustain the culture. This is the only way to change the overall web of belief and practice that comprises leadership culture (Drath et al., 2008).

Eckert and Drath (2009) describe leadership culture as a pattern of basic shared assumptions, the beliefs, that a collective must apply and also teach to new members for the collective to be able to produce DAC. As a product of a culture of beliefs and practices, leadership is seen as a collective activity even when it manifests in formal individual leaders.

2.4.4   Leader and leadership development

Further development of leadership culture from the perspective of the DAC framework supports a distinction between leader development and leadership development (Day, 2000).

Leader development is understood as the growth of an individual's skills, abilities, and knowledge with respect to being a leader or taking on a leader role. Within the DAC framework, the term leadership development refers to developmental processes in which the whole of a collective engages: the development of the beliefs and practices that are development of the leadership culture. (Drath, et al., 2008).

When developing leadership as part of developing a future leadership culture, the acquisition of new competencies and skills by individuals as well as at the collective level is required (Drath et al., 2008).

See also APPENDIX G: Sustainability skills.

2.5   PAC-Ontology (Purpose, Alignment, Commitment)

The introduction of the PAC ontology is based on the DAC ontology in which the D (Direction) is replaced by the P (Purpose) (By, 2021), see also Figure 2: PAC-Ontology (By, 2021)**.** In the PAC ontology the purpose driven leadership is in focus. Purpose can be seen as the pursuit of a worthy idea and activity, the outcome of which goes beyond the individual and the individual organization (By, 2021). Addressing what is perhaps the biggest blind spot in leadership theory and practice (By, 2021), the PAC-ontology this way explores the role of purpose and long-term common goals in leadership.

The application of PAC ontology does not necessarily exclude the application of traditional models as the Tripod or the DAC-ontology, hence they can co-exist.

Purpose is a central, self-organizing life aim that organizes and stimulates goals, manages behaviours, and provides a sense of meaning. The presence of a purpose is expected to lead to greater persistence than other important life goals because a central, self-organizing life aim resonates across time and context meeting the demands and challenges of the twenty-first century (By, 2021), and is something to investigate further in support of the green transition in the Energy sector.

Purpose is also said to be at the highest level of analysis and provides some degree of centrality in a person's identity (By, 2021). McKnight and Kashdan (2009) believe purpose may not be available to every person. Just as 'A person who is unable to grasp abstract concepts might find it difficult to generate a purpose since purpose requires insight, introspection and planning' (McKnight & Kashdan, 2009, p. 243), it can be argued that some organizations may find it challenging to generate and sustain a purpose.

This is supported by purpose being a complex concept reflecting differentiation interests where most organizations have multiple, conflicting and/or concealed purposes of which the pursuit will benefit particular stakeholders to the detriment of others. It can also be linked to conflicts based on dynamics of power, politics, culture and identity (By, 2021).

What great companies have in common is business philosophies founded on purpose and supporting core values (Collins & Porras, 2005). Defining purpose as "The organization's fundamental reason for existence beyond just making money and being a perpetual guiding star on the horizon". Kempster et al., (2011) argues that a shift in leadership scholar from leader-follower relationship to leadership purpose, will generate more value for the shareholders and simultaneously be aligned with interests of other stakeholders like employees, communities, societies and the environment, hence supporting the UN's SDG goals.

Maak (2007) emphasises the importance of responsible leadership in creating social capital and sustainable business. Through the strong believe in purpose and co-delivery based on purpose, the next generation of leadership models may form.

Furthermore, one observes that leadership practices, in all sectors, have 'succumbed to the corrupting influence of money, status and power' (Kempster et al., 2011, p. 323). Due to these practises, one could argue that organizational purpose plays a strategic role for longer-term outcome and should be a duty to implement through leadership practises (By, 2021). Leadership convention is in this way outdated and in urgent need of a much-required update (By, 2021). If one is to stand any chance of delivering on the UN's SDGs and other complex challenges lying ahead of us, one simply can't continue relying on what is an outdated leadership convention designed to deliver external goods to the detriment of what is best for most.

Leinwald et al., (2022) suggest that leaders of the future need the capabilities to deliver on its purpose, along with leaders who can mobilize to get there. Focus on structures and mechanisms that will help

lead the company to its new destination is by the strategic thinking. With a clear "why" behind your purpose, you can lead a team with both logic and passion. This is also supported by future thinking or anticipatory competence when anticipating future trajectories from a systems perspective, by identifying intervention points and critical factors, and for testing transition strategies calls for long-term future orientation and envisioning (Wiek et al., 2011).

The PAC ontology and the emerging leadership model TLL following in the next section offer to enshrine the pivotal role of purpose at the very heart of leadership convention (By, 2021).

2.6   Telos Leadership Lens (TLL)

Emerging from this line of thought is a new theoretical lens with purpose at its very core (By, 2021).

The Telos Leadership Lens (TLL), with its name from (MacIntyre, 2004) Aristotelian definition of Telos as; "an overarching and ultimate goal of contributing to the good of humankind".

The "Telos Leadership Lens" (TLL) consist of the following principles By (2021):

➢ Leadership is the responsibility of the many, not a privilege of a few
➢ Leadership is the collective pursuit of delivering on purpose
➢ Leadership purpose is to be guided by internal goods (exemplified by the UNs sustainability Development goals).

When combining TLL and PAC a new leadership model emerges (see Figure 7). Figure 7 combines TLL and the PAC ontology indicating relationships essential to the pursuit of delivery of purpose informed by internal goods, here exemplified as sustainable development. This emerging leadership model is intended to support organizations gearing up to deliver on internal goods as exemplified by the UN's Sustainable Development Goals.
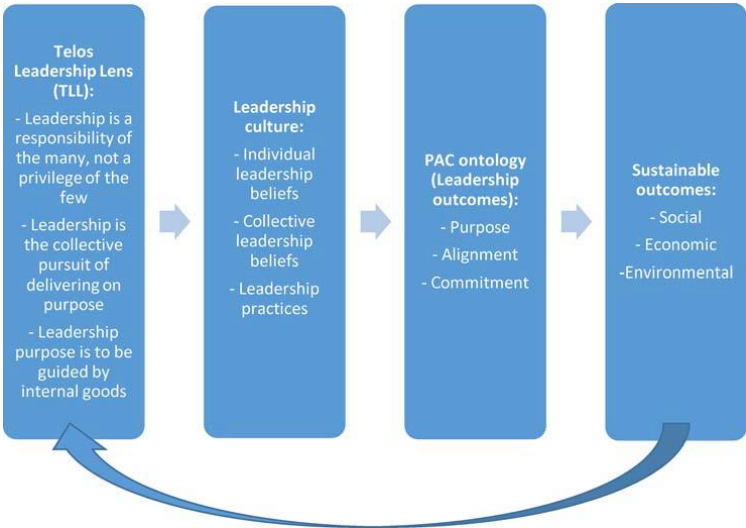
Figure 7: TTL- An emerging leadership model (By, 2021)

The Telos Leadership Lens suggests greater leadership capacity and capabilities than what is currently acknowledged by leadership convention, and with an emphasis on purpose and collective doing. The Telos Leadership lens facilitates the exploration of long-term sustainable outcomes and leadership goals. In this way the PAC framework exemplifies a continues learning loop resulting in long term outcomes of sustainability when seen through the TLL (Telos Leadership Lens).

2.7   Tomorrow's leadership practises and leadership culture

2.7.1   "Bottoms-up" leadership and Holacracy

The introduction of "Bottoms-up leadership" or Holacracy is chosen as a theoretical framework for a future collective leadership practise in support of the green transition.

In an organisation with "Bottoms-up leadership" one operates effectively with a system based on peer relationships. The organisations set up structures and practices in which people have high autonomy in their domain and are accountable for coordinating with others. Power and control are deeply embedded throughout the organizations, no longer tied to the specific positions of a few top leaders (Laloux, 2015), and this is only possible with emphasis on delivering on purpose and collective goals.

In "Teal organisations" one creates an environment wherein people feel free to fully express themselves, bringing unprecedented levels of energy, passion, and creativity to work. Teal organizations base their strategies on what they sense the world is asking from them. Agile practices that sense and respond, replace the machinery of plans, budgets, targets, and incentives. Paradoxically, by focusing less on the bottom line and shareholder value, they generate financial results that outpace those of competitors (Laloux, 2015). The whole notion of competition makes no sense," says de Blok (De Blok, 2016); "If you share knowledge and information, things will change more quickly."

Control and self-correction are embedded in the system, and no longer requires leaders "to be on top" of everything at all times. A Varshney and Varshney survey shows that workforce agility in "Holacracy Environments" requires leadership that is collaborative, people-oriented and focused on self-organising teams with interchangeable roles and responsibilities. This is also supported by; "Knowledge workers strengthen the leadership practises when 'everyone' executes leadership within a group or a given context", also known as "shared leadership" (Drath et al., 2008).

In the "Teal" paradigm, they don't force a course of action; they try to listen to where the organization is naturally called to go (Laloux, 2015). With a clear "why" behind your purpose, you can lead a team with both logic and passion.

Most observers who have written about holacracy take extreme positions, either celebrating these "bossless", "flat" work environments for fostering flexibility and engagement or denouncing them as experiments that ignore how things really get done (Bernstein et al., 2016). Holacracy or other forms of self-organisation have been getting a lot of press. Most companies should, however, not adopt their principles wholesale. Organisations can use elements of bottoms-up initiatives in areas where the need for adaptability is high, and traditional models where reliability is paramount (Bernstein et al., 2016). Most likely elements of self-organisation will become valuable tools for companies of all kinds in future.

When leadership is a shared responsibility, everyone must understand and practise it. It is less about supervision and direction, and more about designing, facilitating and coaching. This is demanding a new generation of leaders – senior individuals with the vision to see where it is best to set aside hierarchy for another way of operating, but also with the courage to defend hierarchy where it serves the institutions fundamental goals (Bernstein et al., 2016).

2.7.2   Psychological safety

Psychological safety is "a belief that one will not be punished or humiliated for speaking up with ideas, questions, concerns or mistakes" (Edmondson, 1999, p. 355). Caldwell & Sprinks (2013) refers to softer leadership skills as communication, listening, team building, negotiation, adaptability and networking to obtain psychological safety. Edmondson (1999) continues with; "psychological safety is defined as

a shared belief that the team is safe for interpersonal risk taking". Psychological safety is a sense of confidence that the team will not embarrass, reject, or punish someone for speaking up. This confidence stems from mutual respect and trust among team members".

Trust is defined as the expectation that others' future actions will be favourable to one's interests, such that one is willing to be vulnerable to those actions (Robinson, 1996). Psychological safety involves but goes beyond interpersonal trust; it describes a team climate characterized by interpersonal trust and mutual respect in which people are comfortable being themselves" (Edmondson, 1999).

Values as openness and trust, or value thinking is interlinked as a sustainability skill supporting psychological safety and show how "purpose" is a driving motivator and outcome in decision making (Wiek, et al., 2016). Authentically leadership has become the new standard for leadership, i.e leadership including high self-awareness and values as openness and transparency. Acting directly in line with personal values, convictions and feelings seems intuitively right. Research results also show that psychological empowerment moderates the relationship between leadership, authentic and transformational, and innovative behaviour (Groselj et al.,2021).

The provision of a psychologically safe work environment i.e., one in which employees feel safe to voice ideas, willingly seek feedback, provide honest feedback, collaborate, take risks and experiment, is one way to overcome threats to individual and organizational learning (Edmondson, 1999). Psychological safety does in this way support a productive and constructive culture of error – being able to openly discuss mistakes and learning from failures. If psychological safety is not included, an organisation will fail to innovate (Edmondson, 1999).

This is also supported Tverlid (2020) stating, "Focus on possibilities without worrying about what could go wrong" and builds upon the importance of psychological safety as a prerequisite for emergent change and innovative solutions.

2.7.3   GRIT and Resilience

Dr. Angela Duckworth (2016) define GRIT as a "perseverance and passion for very long-term goals." It is a growth mindset, a resilience that makes a person determined to bounce back from failures and setbacks (Agarwal, 2019). Managing through all the unknowns and having the ability to motivate and inspire through re-occurring set-back, GRIT is a desired skill for an entrepreneur and innovation, and in this context viewed as a mindset in support of the green transition. GRIT is the tendency to sustain interest in and effort toward very long-term goals (Duckworth et al., 2007).

Many successful leaders and businesspeople are lauded as "great geniuses," but psychologist Angela Duckworth argues that talent and intelligence matter less to success than GRIT: "the personality trait behind perseverance, hard work, and goal setting". Her work has fuelled debates about which matters more- talent or effort. She thinks of these four elements as stages in the development of grit, and argues that these stages build upon each other:

➢ **Interes**t: without an interest in a skill or subject, a person won't start down the path to mastery.
➢ **Practice**: practice takes over once interest has evolved from playful exploration into something more deliberate.
➢ **Purpose**: after a person has achieved a certain level of mastery and can begin to look outward to figure out how their skill can benefit others.
➢ **Hope:** because it fuels the other stages with a feeling of optimism and empowerment.

Her research shows that GRIT is developed by age, and that the Generation Z has less Grit than most senior leaders in the Energy industry today as an example. The research work is based upon a large amount of data through a random questionnaire; also called the GRIT-scale in Appendix H.

2.8   Chapter summary

In this chapter leadership theories and -ontologies have been explored to provide a fundament for further discussions of findings towards the research question of development of leadership culture in support of the green transition. The subject of leadership, both the theoretical framework and within experienced leadership practice, has developed and evolved over the last century.

From the tripod, through the DAC and further to the PAC ontology and the Telos Leadership Lens, leadership has evolved from individual leaders' skill sets to a collective and social effort, and outcomes based on shared leadership beliefs and leadership practises leading to a collective leadership culture.

Leadership culture has been explained by (Drath et al., 2008) as common leadership beliefs and leadership practises applied in a collective. To understand what is needed to develop a leadership culture, the two entities has been detailed out.
In the DAC-ontology the presence of Direction, Alignment and Commitment (DAC) sets the framework or leadership outcome for development of a leadership culture. The DAC-ontology studies how a group of people together produce leadership through co-operation, collaboration and interaction. In the DAC-ontology and the complexity leadership framework, one sees order in a system as emerging from people, ideas, or behaviours, making leadership not only a top down, but also a bottom-up process (Drath et al., 2008).

While Drath et al. (2008) claims that the "direction" is a result of goals, aim and mission, By (2021) claims that "purpose" is more prominent, replacing the DAC with PAC (Purpose, Alignment, Commitment) ontology. In this thesis the PAC-ontology is the fundament for further research, and further development seen through the "The Telos Leadership Lens" (TLL), by By (2021) will follow. An important outcome of the PAC framework is the importance of "Purpose" and the influence this has on long term goals in performing organizations both as a motivation factor and providing a more meaningful long-term end-result. Purpose is increasingly being touted as the key to navigating the complex, volatile, ambiguous world we face today, where strategy is ever changing and few decisions are obviously right or wrong (Craig & Snook, 2014).

Introduction to future leadership practises forming a leadership culture by use of bottoms-up leadership and "holacracy" and the importance of psychological safety to support transparency and innovations has been presented. The skill of GRIT, described by Duckworth (2016) as "passion and perseverance for very long-term goals" embrace the context of development of leadership culture in support of the green transition.

3   RESEARCH METHODOLOGY

3.1   Chapter Introduction
The choice of research paradigm is presented in this chapter. Thereafter the reasoning for, and approach in the data collection followed by data analysis are justified for this qualitative research

work. The research methodology is summarized in Figure 8. The quality of data is assessed by its trustworthiness. Ethical considerations and reflections are found at the end of this chapter.
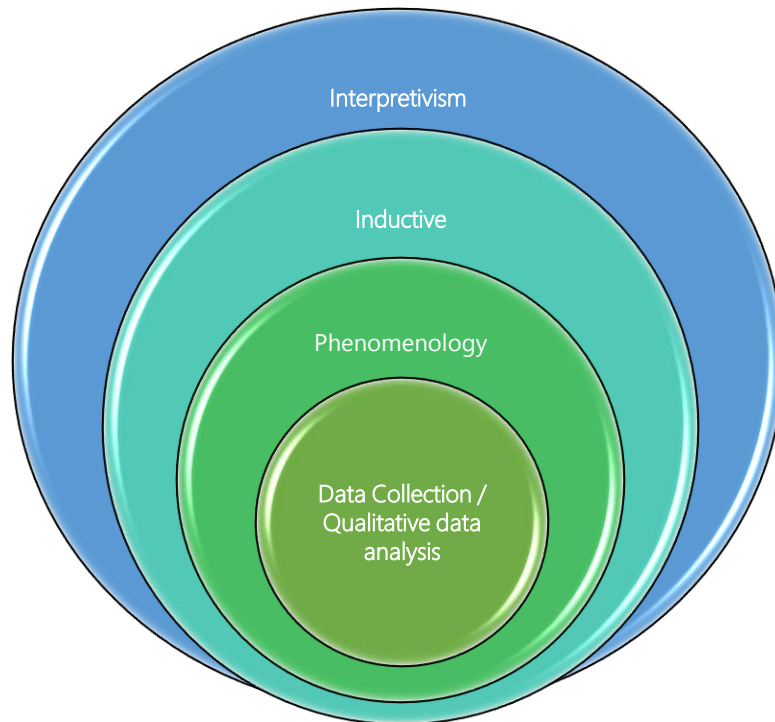
Figure 8: Research methodology in this thesis

3.2   Research Paradigm

Guba and Lincoln (1994) define a paradigm as a basic set of beliefs or worldview that guides research action or an investigation. This worldview is the perspective, or thinking, that informs the meaning or interpretation of research data. Paradigms are important because they dictate and influence what should be studied, how it should be studied, and how the results of the study should be interpreted. Ultimately, paradigms are not true or false; as for ways of looking, they are only more or less useful. (Babbie, 2007).

Lincoln and Guba (2005), states that a paradigm comprises of four elements, **epistemology, ontology, methodology and axiology** (Figure 9). Each paradigm has a distinctive profile across the four elements (see Figure 10 for comparison of the interpretivism and positivism paradigms).
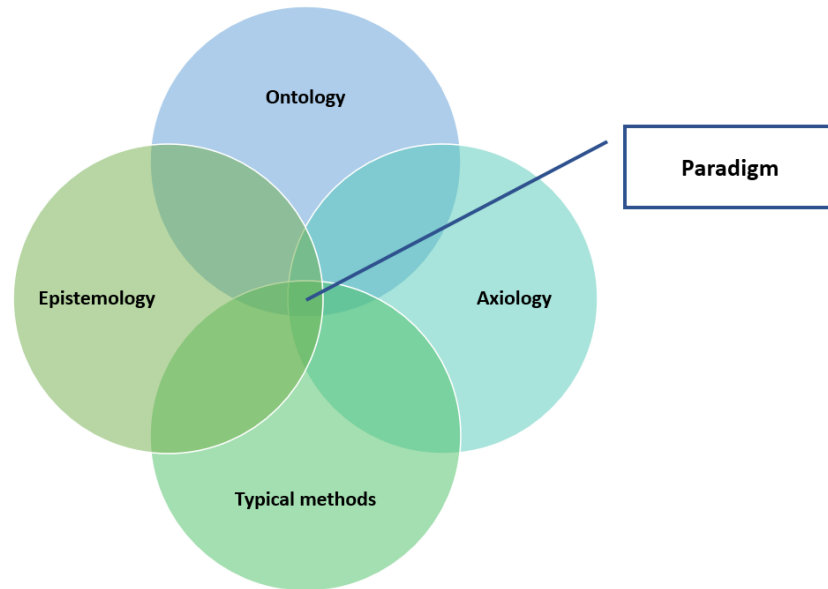
Figure 9: The four elements of paradigm (Lincoln &Guba, 2005)

An **interpretivist paradigm,** chosen for this thesis**,** enables researchers to gain further depth through seeking experiences and perceptions of a particular social context. The interpretive aspect means that the approach seeks to understand peoples lived experience from the perspective of people themselves, which is often referred to as the "inside perspective". This involves studying the subjective meaning that people experience rather than focusing on facts, as in the positive paradigm. The central endeavour of the Interpretivist paradigm is to understand the subjective world of human experience (Guba and Lincon , 1994). In this research work, this is translated to the subjective perspective of leaders in the Energy sectors. The Interpretive paradigm acknowledges that people's perceptions and experiences of reality are subjective; therefore, there can be multiple perspectives on reality, rather than a single truth as proposed in positivism.

The contrast between an interpretivism and positivism paradigm is compared in Figure 10 below.

	Interpretivism	Positivism
Ontology (Nature of reality or being)	Complex, rich Socially constructed through culture and language Multiple meanings, interpretations, realities Flux of processes, experiences, practices	Real, external, independent One true reality (universalism) Granular (things) Ordered
Epistemology (What constitutes acceptable knowledge)	Theories and concepts too simplistic Focus on narratives, stories, perceptions and interpretations New understandings and worldviews as contribution	Scientific method Observable and measurable facts Law- like generalisations Numbers Causal explanation and prediction as contribution
Axiology (Role of values)	Value-bound research Researchers are part of what is researched, subjective. Researcher interpretations key to contribution Researcher reflexive	Value free research Researchers is detached, neutral and independent of what is researched. Researcher maintains objective stance.
Typical methods	Typically, inductive. Small samples, in-depth investigations, Qualitative methods of analysis, but a range of data can be interpreted	Typical deductive highly structured, large samples, measurements, typically quantitative methods of analysis, but a range of data can be analysed

Figure 10: The contrast between the interpretivism and positivism paradigms in the dimensions of ontological, epistemological, axiology and typical methods (Saunders et al, 2019)

3.2.1 Phenomenology

The interpretivism approach in **phenomenological** research**,** focuses to understand and describe the essence of a lived phenomenon (Creswell & Poth, 1997). In this case, "leadership culture in support of the green transition" consciously experienced by leaders in the Energy sector. The researchers got deep insight and understanding of how the leaders think and describe "their lived experience" and in addition expanded the researcher's awareness and knowledge about this phenomenon.

3.3 Methodology: qualitative

As earlier described, the content of this thesis research design should be seen within a **qualitative research design**, as the data applied consist of words, contrary to quantitative data consisting of numbers.

Alvesson & Deetz (2000) define qualitative research as "an inductive study of socially constructed reality, focusing on meanings, ideas and practices, taking the native point of view seriously, without questioning either the wider context of it or the process forming it" (p. 5).

The qualitative data collected in this thesis allow for researching complex phenomena, with a subjectivist perspective, inductive meaning and a focus on factors connected to a context through a small sample size (Alharahsheh & Pius, 2020).

Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible (Denzin & Lincoln, 2000, p. 4-5).

Interpretivism and positivism are the underlaying paradigms of qualitative and quantitative research, respectively (ref Figure 10). The characteristic of qualitative research is illustrated in the table 11 below (Hennink et al., 2010).

	Qualitative research
Objective	To gain a contextualised understanding of behaviour believes, motivation
Purpose	To understand why? How? What is the process? What are the influences or context?
Data	Data are words (called textual data)
Study population	Small numbers of participants selected purposively (non probability sampling). Referred to as participants or interviewees
Data collection methods	In-depth interviews, observations, group discussions
Analysis	Analysis is interpretive
Outcome	To develop an initial understanding, to identify and explain behaviour, believes or action

Figure 11: Key characteristics for qualitative research (Hennink et al., 2010)

3.4   Reasoning- inductive

The relationship between theory and research is most often considered as **deductive, inductive,** or **abductive** strategies.

The deductive approach is initiated in theory, leading to findings by testing a theory. If research starts by collecting data, and theory is generated or build, then an inductive approach is applied. Reasoning, not uncommonly, can also be both inductive and deductive, hence abductive, ref list of the different reasonings as entries to research as shown in table Figure 12 (Saunders et al, 2019).

For this thesis, due to its connection to humanities and its emphasis on the importance of subjective interpretations, the inductive approach is regarded the most suitable to be informed by the interpretivist philosophy (Saunders et al, 2019)

	Deduction	Induction	Abduction
Logic	In a deductive inference, when the premises are true, the conclusion must also be true	In an inductive inference, known premises are used to generate untested conclusions	In an abductive inference, known premises are used to generate testable conclusions
Generalisability	Generalising from the general to the specific	Generalising from the specific to the general	Generalising from the interactions between the specific and the general
Use of data	Data collection is used to evaluate propositions or hypotheses related to an existing theory	Data collection is used to explore a phenomenon, identify themes and patterns and create a conceptual framework	Data collection is used to explore a phenomenon, identify themes and patterns, locate these in a conceptual framework and test this through subsequent data collection and so forth
Theory	Theory falsification or verification	Theory generation and building	Theory generation or modification; incorporating existing theory where appropriate, to build new theory or modify existing theory

Figure 12: Deduction, induction, and abduction: from reason to research (Saunders et al, 2019)

3.5   The qualitative research cycles.

The framework for how this thesis has been conducted is according to the 'Hutter-Hennink qualitative research cycle' (ref Figure 13). This cycle consists of the three interlinked cycles: the design cycle, the data collection cycle and the analytical cycle (Hennink et al., 2010, p.5).

The first part of the research cycle is the design cycle. This thesis followed the four main tasks as illustrated in Figure 13. First the research questions and objective was formulation (ref chapter 1.1), then research literature was reviewed (ref chapter 2), developing a conceptional framework for the study, and selecting methods of data collection (as described in this chapter).

The data collection cycle is the second cycle, and consist of designing the research instrument (ref chapter 3.7) including defining interview guide and questions (ref Appendix B: Interview Guide), recruiting participants, and collecting data. The inductive iteration involved using what was learned in a pilot interview to guide subsequent data collection to go deeper into research issues and thereby generating richer and 'thicker' data when proceeding (Hennink et al, 2010).

The analytic cycle compromised the core task of this qualitative analysis and is described in chapter 3.8.
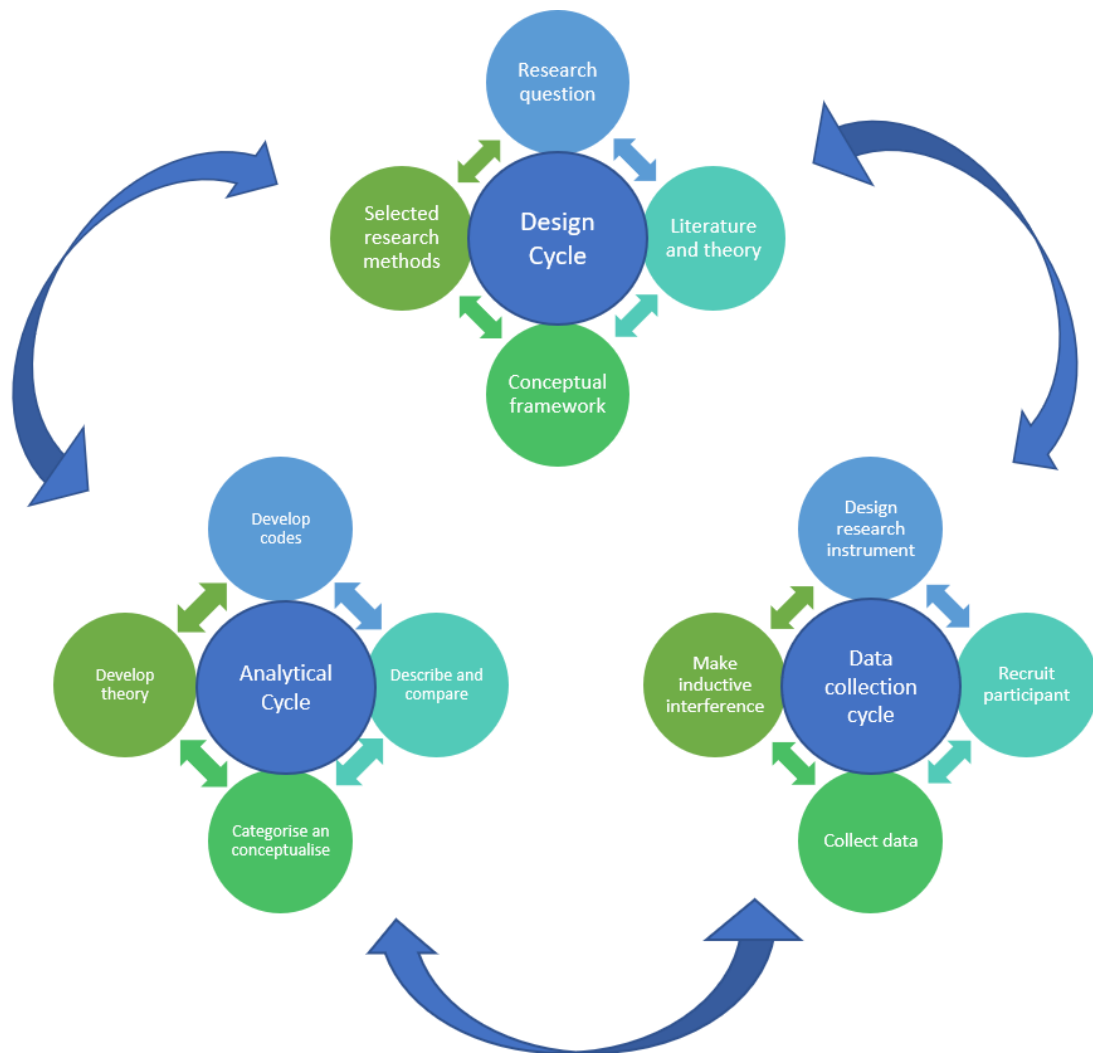
Figure 13: Hutter-Hennink qualitative research cycle (Hennink, et al., 2010)

3.6   Design research method

The researchers utilised data gathered through in-depth interviews, with the researchers acting as participant observers. Semi-structured interviews were favourable as they gave the informants opportunity to introduce aspects that have not already been identified in the underlying theory (Kvale & Brinkmann, 2009). Flexible data collecting methods were achieved by in-depth interviews that gave comprehensive and detailed descriptions (Johannessen et al., 2010)

The purpose of these interviews was to describe the meaning of this thesis phenomenon that several individuals shared (Marshall & Rossman, 2006). The informants were chosen based on assumed experience, knowledge, perspective and reflection on the Energy sectors strategies, structures, organization, and processes.   The informants consisted of leaders likely to be involved in, with knowledge of, or opiniated in the topic of leadership, leadership culture and it`s development of leadership culture to support the green transition. Adequate number of informants, 13 in total, were chosen and regarded to give valid results. The informants were selected by non-probabilistic

sampling technique. This method is chosen when a specific group of participants are more desirable in advancing the research project´s objectives. Hence the selection method is subjective, i.e non-random.

Volunteer sampling could be subject to selection bias as potential only people who care strongly about the subject, often in one direction, may prioritize time for interviews. Awareness should therefore be brought to the accessibility of the community and their related willingness to participate, also called "convenience or opportunistic sampling" (Terre Blanche et al, 1999). An additional factor is that all the informants were subjects for tight work schedules, and for this reason may not find time for interviews. In the hindsight few invitations to interviews were turned down for this reason.

3.6.1   Interview guide

The interview guide,"Appendix B: Interview Guide", was developed based on the research question and literature review (ref chapter 2). With an inductive approach, open ended questions were defined to stimulate for open conversations where informants were allowed to speak freely of their perspectives related to a leadership culture in support of the green transition. The aim was to understand what is needed in present and future leadership culture, and if leadership development was required in development of a leadership culture in support of the green transition in the Energy sector.

The information script to the informants is found in the "Appendix C: Interview transcript".

3.6.2   Pilot interview

According to Kvale (1997) a pilot interview is recommended to take place before the actual research starts. A pilot interview was performed by applying a first draft of an interview guide on a "real" informant. The objective was to carry out a small-scale test of a draft interview guide in line with chosen methodology and to probe how well data gathered answered this thesis research question. This was followed by adjusting the interview guide to get more focus towards the topics of interest and avoid misunderstandings.

Parallelly the researchers experienced reluctance when asking leaders from the industry to participate with disclosure of views and statements on behalf of the companies they represented.

The interview with the pilot-informant was redone after the above-mentioned adjustments and is used as contribution to the data analysis.

The pilot interview was used as part of an iterative process by parallelly re-visiting literature and refining the research question and interview guide/ questions, according to the design cycle, ref. chapter 3.5

3.7   Data collection

The interviews were mainly performed face-to face, and the remaining by video conferencing (via Teams). Face to face interviews were preferred as this atmosphere was believed to give best room for communication of complex themes. However, with "post-covid" digital competency and comfort of video conferencing it was found equally good as interviews face-to-face. The questions were

intentionally open ended to give the informants the opportunity to voice their own thoughts and opinions (Eddles-Hirsch, 2015).

Based on the context of the green transition and the complexity of development of leadership culture, several sub questions were needed to capture relevant data, though with the ambition to ask all as open ended, ref interview guide (Appendix B: Interview Guide).

The interviews lasted between 45-60 minutes, though without any strict timeframe. The focus was on creating a natural conversation, that stimulated the informant to share true reflections, views and emotions. All interviews were planned so that one researcher was tasked with leading and asking questions while the other researcher was responsible for taking notes. Before all interviews, a pre-interview meeting was made between the researchers to agree on tasks and internally brief each other on the informants and companies they represented, in context of the green transition. Additionally, post-interview meetings to review data were performed. This functioned as a quality check and alignment on that all relevant data was captured in the raw data. No audible records from the interviews were made.

The interview guide was shared with the participants prior to the interviews. This was done to allow the informants to prepare and reflect on the topics to be answered and discussed prior to the interviews. To allow the informants to speak freely, the interview guide was not followed strictly. Before bringing the interviews to a close, a final check by the researchers was performed to ensure valuable information had been captured.

3.8   Analysis of Data

In a phenomenological study, data analysis should describe "what" the informants have experienced and "how" they have experienced it (Moustakas, 1994, p.95).

The analytic cycle (ref Figure 13) compromised the core task of this qualitative analysis. Codes were developed following Strauss and Corbin (1990) inductive approach beginning with generating many codes that reflect only the data. This way the data spoke for itself. The codes consisted of significant statements and quota highlighted to provide an understanding of how the participants experienced the phenomenon (Creswell & Poth, 1997). This can be found in Appendices D, E and F.

By reading and re-reading (and re-reading again), themes emerged. The "open codes" were reduced to "focused codes" as a categorization of themes related to leadership culture in its context. Common patterns and similarities across the interviews were this way identified, though also contrasting findings, (Appendices D, E and F).

Findings were connected to concepts and theories in the pre-existing literature, discussed as supporting, challenging or lacking connection. This way inductive findings from the "analytical cycle" linked back to the "design cycle" (ref Figure 13) when comparing findingd with the original conceptional framework. A linar version of the anlytical work is illustrated in figure 14. Applicability to other context were discussed and suggested. The analysis work was concludeted by answers this thesis reseach question and listing recommendations for future work.
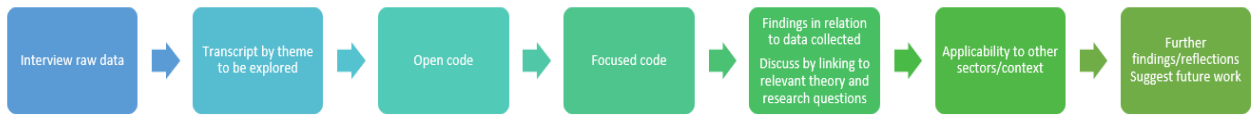
Figure 14: Outlined inductive approach of the analytical work in this thesis.

After the analytical work had been performed, the researchers share the conclusion: "Coding is the most laborious and time-consuming part of interview research" (Deterding & Waters, 2018).

3.9   Data Triangulation

Particularly associated with qualitative research methods, triangulation typically involves examining data from multiple sources and perspectives and leads to a more comprehensive understanding of the phenomenon of interest (Hastings, 2010). One purpose is to provide multiple lines of sight and multiple contexts to enrich the understanding of a research question.

When qualitative researchers locate evidence to document a code of theme in different sources of data, they are triangulating information and providing validity to their findings (Creswell & Poth, 1997)

The informants are representing a diversity of companies within the Energy sector in Norway, primarily related to petroleum activities. The different perspectives explored in this research is given by choosing top leaders from various companies with different premises for development of a leadership culture in support of the green transition:

➢ "Energy companies in transition" preserving oil & gas production while aiming to embrace and build-up renewables or low carbon solutions,
➢ "Born Green companies" built on green technology/segments, like digitalization, battery technology and clean energy start-ups within carbon storage or ammonia as example.
➢ "Authorities and Interest organizations".

By this approach, it could be explored if an" Energy company in transition" experience development of leadership culture in support of the green transition differently from "born green companies". A different perspective is the reflections from Authorities and industry interest organizations and how they apprehend changes and development of leadership culture in support of the green transition across the industry.

3.10   Trustworthiness of the collected data

In all research work, the credibility must be questioned. Whether one is deliberately aware of them or not, at every stage in research one will apply several forms of assumptions (Burrell & Morgan, 2016). These include (but are not limited to) bias towards the realities encountered in the research (ontological assumptions), about human knowledge (epistemological assumptions), and about the extent and ways own values influence the research process (axiological assumptions). These assumptions inevitably shape how research questions are understood, the methods used and how the findings were interpreted (Crotty, 1998).

In qualitative research, reliability is difficult to measure, as the data collected is contextually dependent and the observations are valuable (Johannessen et al, 2016). Research bias could lead to false conclusions and a misinterpretation of the truth.

In research conducted within the Interpretivist paradigm, four criteria of trustworthiness as replacements for reliability and validity are identified: **credibility, dependability, confirmability,** and **transferability** (Guba (1981).

Credibility refers to if data and data analysis are believable, trustworthy, or authentic (Guba, 1981). The credibility of this research can be questioned by that informants or leaders may, due to their formal position, answer bias and/or from a political view. On the other side, it may be likely that formal leaders, or the informants, have full ownership of the company's vision and mission, and therefore are speaking their true reflections.

Disadvantages associated with interpretivism relate to the subjective nature, and thereby great room for bias on behalf of researchers. Karamagi (2021) states that primary data generated in interpretivist studies cannot be generalized since data is heavily impacted by personal viewpoint and values.

Dependability refers to the ability of observing the same outcome or findings under similar circumstances. Identical interview guides were shared prior to each interview. Even though the interview guide was not followed strictly, the interview questions were, as far as practical possible, phrased the same way each time, though in different languages. Nevertheless, with an inductive approach, and open-ended questions, sub-questions (not listed in the interview guide) had occasionally to be asked to get the conversations within pre-defined boundaries. The researchers acknowledges that this may have impacted **criterion of dependability.**

Of the thirteen informants, three were non-Norwegian speaking. This can have led to misinterpretations of the data when translating. This is aligned with what 'van Nes' et al. (2010) states "As interpretation of meaning is the core of qualitative research, and translation is also an interpretive act, meaning may get lost in the translation process" (p.313).

Confirmability is the principle of objectivity, referring to which extent the findings of a research project can be confirmed by others. The overriding goal is to ensure that the researchers biases are minimised, from contaminating the results of the data analysed (Guba 1981). Shenton (2004) explains that to achieve this criterion, steps must be taken to help ensure that the work's findings are the result of the experiences and ideas of the informants, rather than the characteristics and preferences of the researchers. Every effort is made to try to understand the viewpoint of the subject being observed, rather than the viewpoint of the observer (Kivunja & Kuyini, 2017). Research bias could lead to false conclusions and a misinterpretation of the truth. The researchers acknowledge the challenge of research bias, and being two interviewers, observations and understandings were calibrated against each other to possibly disclose bias thinking.

Transferability represents the researcher's efforts to provide enough contextual data about their research so that people can relate findings to other contexts (Lincoln and Guba 1985). Erlandson et al. (1993) argue that since by definition, interpretivist research is context-specific, with regard to location, situation, time and participants, generalizability of the findings of research conducted within the interpretivist paradigm is practically impossible. The researcher partly supports this statement, as the green transition is a unique phenomenon, lacking analogies to the past. Nevertheless, the researcher believes several themes are transferable to development of leadership culture related to other challenging context.

3.11   Ethical considerations

This project was reported to NSD (from 1. Jan 2022 Sikt- Kunnskapssektorens tjenesteleverandør, u.d.) to protect and ensure privacy of the data collected. A consent form shared with all informants, was created according to guidelines, and attached to the NSD application, (found in Appendix A: NSB application for informants). The application described the projects' objective, privacy of collected data, and information withdrawal at the end of the project.

The informants' identities were treated confidentially. All data were stored on password protected computers during the data analysis until this thesis was finalized and data could be erased.

3.12   Reflection

Bias cannot be excluded from qualitative research. The two researchers represented two different company categories with different perspectives, allowing for different opinions and views of the research context, as mentioned in the chapter 3.9 Data Triangulation".

Looking back, by being two researchers performing this research work, with different experiences and prejudice, contrasting assumptions were encountered throughout the research process. Different interpretations of the "reality" and data were discussed on several occasions. Further, how to shape and direct the research and analytical work to findings, through coding and themes were subject in many discussions. This process of re-confirming alignment, both enriched the research work, and was found demanding. Both researchers agree that the result presented in this research work, provides better quality than if the work had been carried out individually.

The researchers experienced that coding-work was underestimated regarding how laborious and time-consuming this part of the research was and share the reflection that the research work was an iterative process. Re-visiting different stages of the qualitative research cycle was done throughout the research, from the start until the final delivery.

3.13   Chapter Summary

This qualitative research work, within the interpretivism paradigm, with a phenomenological approach and inductive methodology, is used to answer the research question. This was assessed suitable for exploring 'lived experience' in the search of development and knowledge when investigating the phenomenon 'development of leadership culture in support of the green transition'.

Data were collected through semi-structured interviews. The participants were selected through a non-probabilistic method based on volunteering of leaders from the Energy sector.

A qualitative analysis was executed, where data were coded and further compressed into categories within different themes. By use of an iterative process, data collection, background literature review of theory and analysis were re-visited and re-collected several times.

In qualitative research, reliability is difficult to measure, as the data collected is contextually dependent and the observations are valuable (Johannessen et al, 2016). Trustworthiness of collected data was acknowledged and considered during the data collection process and the reminding research work.

4   FINDINGS AND DISCUSSIONS

4.1   Chapter introduction

This chapter presents results from the qualitative data (primary findings) and discusses the primary findings towards the literature review (secondary findings) and the research question. Furthermore, the applicability of the findings to other contexts is discussed.

When performing qualitative research, under an interpretivist paradigm, significant amount of data has been collected, which has been categorized into specific themes related to a collective leadership belief or a collective leadership practise to answer the research question.

The research question is listed below:

How can leadership culture; – *explained by Drath et al., (2008) as; a system of collective and individual leadership beliefs and collective leadership practices* -**be further developed in support of the green transition**?

The research question is addressing the biggest blind spot in leadership theory and practice (By, 2021), since the intention has been to further explore the role of "Purpose". The role of 'Purpose' as both a collective leadership belief and as the "P" in the PAC-ontology (By, 2021), has emerged as an important entry, and as both a primary (qualitative data) and secondary finding (literature review), when developing a leadership culture in support of the green transition.

Emergent findings related to development of collective leadership practices to reach the long-term goal of the green transition are the following themes, ref. figure 15: "psychological safety and transparency" and "Holacracy and bottoms-up leadership" in addition to the leadership belief of "Purpose of the green transition". The recommendation is to start the development of a leadership culture in support of the green transition at present, if not already implemented, since the urgency of the future challenges of lack of climate action are well-known.

Figure 15: Themes to be discussed as findings related to a leadership culture in support of the green transition.

The aim of the data collected was to understand the various leader's perception of leadership beliefs and leadership practises when developing a leadership culture supporting the green transition in the Energy sector, hence a triangulation of data from different company categories was collected, ref. Data Triangulation (Chapter 3.9).

For the different company categories, the informants represented, there will be a variety of collective leadership practises and -beliefs that will be important when developing a leadership culture in support of the green transition. The "Born Green's" long-term goals and "Purpose" is clear; they do not have other business segments and the long-term goals is to become commercial in

support of the green transition. For some of the "Energy companies in transition", the reality is different, since there is some ambiguity with respect to "Purpose" of the green transition, currently being a low marginal industry, compared to the perseverance of ongoing petroleum production with high margins. For the Authorities and interest organisations, the embracement of the new "green segments" and goals towards lower emission in their areas of responsibility, was established with a clear responsibility and "Purpose" going forward. Both the "born green" and "energy companies in transition" currently need funding to invest in new, non-commercial business segments, either from other business segments or from investors.

The following themes defined as a system of collective leadership beliefs and collective leadership practices, emerged and forms the outline of the findings and discussion that will follow in this chapter:

- ➢ **Purpose: The Green Transition**
- ➢ **Psychological safety and Transparency**
- ➢ **Holacracy and "Bottoms-up leadership"**

4.2   Purpose as a collective leadership belief
Findings

"Our "Purpose" is the organisations "**WHY**?"", informant L, a Vice President, stated.

This was supported by Informant C; "*The answer to the open question: "WHY?", is a good reflector of the company's purpose, existence and long-term goals*".

This is further elaborated by informant M, a Chief Executive Officer (CEO) and Founder, stating:

"*A Purpose is to make an impact, and do something important to society, and our business goal is to support the green transition to a low-carbon society by further development our technology*".

And supported by Informant B, a Managing director:

"*The purpose of the green transition is today the whole organizations responsibility*" and continued with "*We need to get everyone involved if we are working towards a common and purposeful long-term goal as the green transition*".

This was supported by Informant G, a Managing director, stating:

"Supporting t*he green transition is not a choice anymore*" and "*the environmental carbon emissions are affecting all of us* ".

Both informant G and B stated uniformly that the purpose of the green transition is:

 "*Not really a choice of not acting at all*" and "*rather a question of how one is going to contribute to a common and collective purpose as the green transition*".

Informant F and H shared a different perspective.

"*The new green segments are so far low-margin business*es", and "w*e need to make the new green business segments commercial in support of the green transition in the future*".

Informant L expressed the following concern: "*the purpose of the green transition is somewhat unclear in our organisation", "since we have a challenge to convert some of the low carbon initiatives to an economic robust solution in short term*", and in addition "*It is a barrier to work with stakeholders that are not aligned with respect to current and future long-term goals for the green transition*".

An opposite reality was expressed by informant I, a Vice President, who added:

"*The work with low carbon solutions is creating an explorative working environment*" and continued with the following statement.

"*People are purpose-driven and are excited about trying out and working with new and purposeful green solutions*".

The purpose of the green transition is also important when onboarding new members.

"*The young generation, or generation Z, have been part of an educational program that support value thinking and sustainability goals as the climate change*",

and "*Gen Z believe strongly that climate action is a purposeful goal, hence we need to onboard, coach and support them with both "Facts & Feeling"*"" informant G added and was supported by informant F, H, B and C.

As most of the informants emphasised the purposeful "onboarding of Generation Z", it was also mentioned by informant L that.

"*Practising authentical leadership with respect to creating a sense of urgency for the purpose of green transition*" will be important going forward, also when onboarding generation Z, ref. also Key definitions in Figure 4.

And as concluded by informant J, referencing both current and long-term goals for the green transition:

"*It is a noble and purposeful thing to provide energy to the world*".

Discussion

Establishing a purpose in support of the green transition was mentioned by most of the informants as an important leadership outcome in support of collective long-term leadership goals.

A clear summary from the primary findings was that establishing a clear "Purpose" is the organisations "why", and the organisations "why" is specific, unique and cannot be replicated (Rey & Bastons, 2019).

This is also supported by secondary findings since, purpose is considered important as it aligns everyone towards a common goal, which is a key determinant in collective leadership (Drath et al., 2008). Understanding leadership practices as the overall pattern of behavior aimed at producing PAC (Purpose, Alignment and Commitment) ref. Figure 2 (By, 2021), makes every member of a collective a participant in leadership practices and is thus an integral contributor to the production of PAC (Eckert & Drath, 2009).

Leinwald et al., (2022) suggest that leaders of the future need the capabilities to deliver on its purpose, along with leaders who can mobilize to get there. Focus on structures and mechanisms that will help lead the company to its new destination is by the strategic thinking. With a clear "why" behind your purpose, you can lead a team with both logic and passion. This is also supported by Damon et al., (2003) definition of purpose as '*an intention to accomplish something that is at once meaningful to the self and of consequence to the world beyond the self*', hence building upon the global goal of climate action (UN Goal no.13) to be solved in partnership (UN Goal no. 17).

The primary findings show however, a variation of the "purpose" with respect to the long-term goals of the green transition. In leadership a purpose could be linked to a company's values, visions, missions

and long-term goals. Informant L, in an "Energy company in transition", expressed some ambiguity with respect to the purpose, alignment and commitment (PAC) towards the long-term goal of the green transition due to the challenge of current short-term goals:

"*We have a challenge to convert some of the low carbon initiatives to an economic robust solution in short term*".

For the "Authorities and interest organizations" the situation was different since they were given new areas of responsibility related to "new green segments" and thereby embraced the new responsibilities and the purpose of the green transition.

Several informants talked about the purpose of "living the values", and the "born green" business segments, referenced values as "courage" and "passion" supporting their purpose of being innovative with an entrepreneurial mindset in support of long-term goals. It is in addition claimed that value-based leadership gives leaders and organisations the flexibility to lead through ambiguity and change (Frost, 2014).

It is also claimed that purpose increases stamina to stay in difficult situations, making people less prone to stress and illness and ability to producing long term durable benefits (McKnight & Kashdan, 2009). Stamina can also be translated into GRIT (Duckwoth, 2016), which is explained as the perseverance and passion for very long-term goals.

It is in addition suggested from By (2021) that a further focus on the Purpose in the PAC-ontology, ref. figure 2., can result in more meaningful long-term outcomes for a business unit with respect to reaching sustainable goals, in this research in support of the green transition. As a summary a clear purpose in life is not only hypothesized to lead to healthier and longer lives (McKnight & Kashdan, 2009), but also to support individual, group, organizational and institutional fulfilment and success. The UN's goal of climate action brings in the "The Telos Leadership Lens" (TLL) consisting of the following principles (By, 2021): 1) Leadership is a responsibility of the many, not a privilege of the few, 2) Leadership is the collective pursuit of delivering on purpose and 3) Leadership purpose is to be guided by internal goods. In this context one could also add the attitude of being "optimistic" for long-term goals, ref. key definitions in figure 4, meaning that one is hopeful and confident about the future when developing a leadership culture in support of the green transition.

Snabe & Trolle (2021) claims that companies that are managed according to a meaningful higher purpose, are able to create sustainable success for all stakeholders over time. They also state that companies that are managed for short term profits often fail to stay relevant when fundamentals are changed in the industry, as an example in support of the green transition, and they claim that purpose driven organisations attract the best talents and achieve higher levels of engagement and therefore have higher capacity to re-invent themselves (Snabe & Trolle, 2021).

The best talents for future work stock could be from Generation Z, which was mentioned as a conscious generation with respect to their values and view of the climate actions, questioning Norway's continuation of production of fossil fuel and in general having higher awareness towards the purpose of the green transition and corresponding values. This indicates the importance of communicating and "lead by example" to enhance the purpose of the green transition in the energy sector going forward when onboarding the new generation. The use of authentical leadership, which involves a long-term focus on purpose and collective goals, will most likely help to inspire and onboard generation Z when working towards the long-term goals of the green transition. This is also supported by Authentic leadership which are characterised by "purpose, meaning and values" (George, 2004), ref. also key definitions in figure 4.

4.3   Psychological safety and Transparency

Findings

"*Transparency, openness and trust are basic requisites for making psychological safety present in our organization*", Informant H shared.

This was supported by; "*Only by allowing a leadership culture where it is possible to talk about challenges and difficult tasks, one will obtain the leadership culture with psychological safety present, that we believe is required for managing a transition or a complex change as the green transition*".

Informant C shared the following:
"*We allow people to "try and fail", hence make mistakes and thereby show vulnerability*".

The ability to handle setbacks, discuss and learn from mistakes was also mentioned as important from Informant C, a General Manager, who stated;

"*a leadership culture with "punishment" and "top-down" mentality is today outdated and not in line with expectations from either current or for the onboarding work force in Norway*".

"*We give priority to active listening, and are close to the ongoing discussions, debate and activities*",

Informant B stated, followed by "*Highly competent people are mainly independent, but still all of us need some motivation, guidance and correction to ensure we work towards a common goal*".

"*We need to learn by taking risks, trying out new things and allowing continuous learnings from mistakes to support a transition*" Informant C added.

The connection between psychological safety and innovation is further elaborated in the following statement: "*Innovation happens in psychological safe working environments*" informant K added.

"*We have created a room for error where everyone can feel safe to have ideas and be able to make mistakes*", informant B stated.

"*We have a generosity in the organization to support psychological safety*". Informant F added; "*Allowing employees making mistakes are most likely the most important activity for learning and preparing the organization for a transition.*"

By bringing in "humbleness" informant B stated that «*We need to have high self-awareness as an industry to understand the outside view, and to be able to show respect and co-operate with other stakeholders with different views and opinions*".

Informant A continued; "*Leaders could do with more humility, but I have to say, it is a skill that is difficult to promote in leadership development.*"

"*People will meet high expectations when working with new innovative solutions, but they should also be offered the psychological safety and trust to go outside their comfort zone, and they need to take risks, make mistakes and keep learning and growing*", informant H stated.

Discussions

The provision of a safe working environment is defined by psychological safety; "a belief that one will not be punished or humiliated for speaking up with ideas, questions, concerns or mistakes" (Edmondson, 1999), and she continues with; "*psychological safety is defined as a shared belief that the team is safe for interpersonal risk taking*, (page 355).

Psychological safety is a sense of confidence that the team will not embarrass, reject, or punish someone for speaking up. This confidence stems from mutual respect and trust among team members. Trust is defined as the expectation that others' future actions will be favourable to one's interests, such that one is willing to be vulnerable to those actions (Robinson, 1996). Psychological safety involves but goes beyond interpersonal trust; it describes a team climate characterized by interpersonal trust and mutual respect in which people are comfortable being themselves" (Edmondson, 1999).

The importance of allowing for humbleness, humility and making mistakes by being both transparent and vulnerable, hence creating psychological safety, was a clear recommendation from the primary findings with respect to a leadership culture in support of the green transition. This is also supported by the literature review with respect to the importance of continuous learning; When developing leadership as part of developing future leadership culture, the acquisition of new competencies and skills by individuals as well as at the collective level is required (Drath, et al., 2008), and when one is instituting the change, it is important to articulate the connections between new behaviours (beliefs) and organizational success, making sure they continue until they become strong enough to replace old habits (culture) (Drath et. al, 2008), hence changing leadership practices ultimately calls for transformational change at the level of leadership beliefs, and psychological safety and transparency is an emerging theme in support of the green transition and the required changes and innovations that are required to reach the long-term goal.

According to the Petroleum Safety Authority (2019) continuous learning is a key principle in the petroleum industry today and continues with; Knowledge and technology development are basic prerequisites for the continuous improvement work in the petroleum industry. The primary findings show that psychological safety is a leadership practise that will promote continuous learning. Humbleness and humility are leadership practices or skills to develop and preserve as it supports a working environment which will promote psychological safety, continuous learning and innovation according to informants. Caldwell & Sprinks (2013) refers to softer leadership skills as communication, listening, team building, negotiation, adaptability and networking to obtain psychological safety.

Psychological safety and transparency are important for innovation, since continuous learning by "allowing mistakes", handling setbacks and the ability to try out new ideas will support an entrepreneurial mindset, which again will promote the development of a leadership culture in support of the green transition. By use of authentical leadership one is in addition supporting psychological safety, by being relationally transparent, behaving honestly, and adopting a balanced processing of information, authentic leaders act as role models, stimulating trust and integrity within the organization (Walumbwa, et al., 2011)

Managing all the unknowns and having the ability to motivate and inspire through re-occurring setbacks, GRIT**,** passion and perseverance for long-term goals (Duckworth, 2016), is a desired leadership skill for innovations and in support of the green transition. It is a growth mindset, a resilience that makes people determined to bounce back from failures and setbacks (Agarwal, 2019), hence a leadership practise or skill supporting psychological safety and to be considered when developing a leadership culture in support of the green transition.

4.4 Bottoms-up-Leadership and Holacracy

Findings

"*Collective and shared leadership are today the whole organizations responsibility*" informant A stated.

Supported by Informant B; "*We need to get everyone involved if we are working towards a common and purposeful goal as the green transition*".

"*To obtain the required culture we need to offer psychological safety for all employees to lead from bottoms-up*"., Informant B added.

"Leading from bottoms-up" was supported by Informant H.

"T*o innovate one have to create chaos, this does not mean anarchy, but we need leaders who allow serving from "bottoms-up"*, and "*This requires some new frameworks, purpose and long-term goals*".

Also supported by; "*It is important to give employees space and freedom to develop new ideas*".

Informant K stated that "*Based on a company build with a very flat organizational structure, less power distance, and high autonomy, we do not need a CEO since we are all committed and aligned for delivering on the same common long-term goals*".

This focus on "leading form bottoms-up" is related to that innovation involves a new set of skills and mindset, not necessarily coming from the formal leaders in the industry, Informant H added.

Allowing "self-management" and giving knowledge workers the freedom to develop themselves and deliver on common goals without disturbing them with micro-management, will be the key for a future leadership practise Informant C added.

"*The traditional hierarchical frameworks are not working so well in an innovative business segment, since we need new innovative ideas supporting bottoms-up leadership*", Informant H added.

"*Generation Z is emphasising value thinking and high autonomy*" informant G stated and continued with; "*Only by motivating and inspiring the new generation Z with use of both coaching and mentoring compared to traditional leadership, will we be able to onboard them*".

Discussion

The evolution of a leadership practise from "top-down leadership" to "bottoms-up leadership" with emphasise on collective leadership execution, also supported by "holacracy", was very present in the feedback from most of the informants. This is supported by the literature describing the development of leadership ontology evolving from the tripod ontology to DAC-ontology (Drath et al, 2008), and later PAC-ontology and the TELOS Leadership lens (By, 2021), the latter supporting collective leadership practises.

Based upon the primary findings it was made clear that leadership in support of the green transition was viewed as something everyone could and should do, hence allowing leading from "bottoms-up" instead of "top-down". This is also supported by secondary findings stating that; common feedback is that knowledge workers strengthen the leadership practises when 'everyone' executes leadership within a group or a given context", and this could also be known as "shared leadership" (Drath et al., 2008).

Holacracy are described by Laloux, (2015) "In a "Teal organisation" one operates effectively with a system based on peer relationships. The organisations set up structures and practices in which people have high autonomy in their domain and are accountable for coordinating with others. Power and control are deeply embedded throughout the organizations, no longer tied to the specific positions of a few top leaders (Laloux, 2015). This is also in line with feedback from informants working specifically with new innovative solutions related to the green transition, hence allowing for "bottoms-up" leadership. Rather than seeing change and innovations as top-down driven, the emergent approach tends to see change driven from the bottom up (Bamford & Forrester, 2003).

Paradoxically, by focusing less on the bottom line and shareholder value, organisation's where people have high autonomy in their domain and are accountable for coordinating with others, generate financial results that outpace those of competitors (Laloux, 2015).

Organisations can on the other hand use elements of holacracy in areas where the need for adaptability is high, and traditional models where reliability is paramount (Bernstein et al., 2016). This is also supported by informants who share that a traditional hierarchy is a good fit when executing projects where reliability is high, and context is well known. In other contexts, as in a "born green" or an innovative environment in support of the green transition, a different reality and adaptability to a more flexible hierarchy is the key to support fundamental shifts and transitions.

The next generation of "self-managing" teams is demanding a new generation of leaders – senior individuals with the vision to see where it is best to set aside hierarchy for another way of operating, but also with the courage to defend hierarchy where it serves the institutions fundamental goals (Bernstein et al., 2016). Most likely elements of self-organisation will become valuable tools for companies of all kinds in future, and also as a leadership practise in support of the green transition.

This is also supported by the complexity leadership framework which sees order in a system as emerging from people, ideas, or behaviours, making leadership not only a top down, but also a bottom-up process, that lead to emergent and productive collective action (Drath et al., 2008). The collective leadership practise and collective leadership beliefs are the fundamentals for development of a leadership culture, ref. figure 2.

Generation Z is also said to be "power distant", having less trust in authorities and hence having less trust in hierarchies. They are searching for more purpose in work life, work-life-balance, and are demanding more coaching and mentoring compared to traditional top-down leadership (De Witte, 2022), which was mentioned by important when onboarding the new generation.

In this context Ambidexterity, ref. figure 4 key definitions, related to different business segments within an "Energy company in transition" where there are requirements for different leadership practises has emerged as a supporting theme. Ambidexterity is a balance between developing the traditional oil and gas operations and exploring and carving out new green energy segments. This is also supported by; organisations need to both exploit existing competencies and also explore new ones in order to survive and thrive (Scoblic, 2019). The different business segments within an "Energy company in transition" have distinct ways of operating and are according to informants requiring different organisational structures. Making leadership a "bottoms-up" process is given priority in the new green business segments, since carving out new green business segments requires more innovation and new technical solutions and ideas, not necessarily coming from top-down leadership.

This is also supported by (Dutton et al., 2002) who states, "Leaders need to recognize and support instances where spontaneous organizing and compassionate action occur at the lower levels of the company, and by supporting bottom-up initiatives, those can take hold and have a transformational effect".

4.5 Applicability to other contexts.

This research work and the research question; "development of a leadership culture in support of the green transition" have been discussed in this chapter. It has emerged that a clear PURPOSE is essential for reaching long-term goals as the green transition. The definition of purpose by Damon et al. (2003) is 'an intention to accomplish something that is at once meaningful to the self and of consequence to the world beyond the self' is supporting the context of the green transition and the evolution and growth that is required in the long-term, both as a leadership belief but also as leadership outcomes supporting the long-term goals.

The findings related to "the development of a leadership culture in support of the green transition", is applicable to a wide range of contexts and across domains. With a future leadership culture built upon purpose, psychological safety and "holacracy" one should benefit most companies in different transitions, and support development and growth towards long term goals.

As no context nor transition is the same, defining what is situational specific is recommended done early. In this way one can prioritize which focus areas or challenges to mitigate and improve early in the process.

Climate action (No. 13) is only covering one of the UN Goals, as listed in the figure below. Applicability of "development of a leadership culture" in support of other UN Goals and as an example UN Goal 7) "Affordable and Clean Energy", being a highly relevant topic, will be a context that could be explored in future.

Figure 16: UN Sustainability goals

4.6 Chapter summary

The "findings and discussions" in relation to the different themes emerging from the qualitative analysis of development of a leadership culture in support of the green transitions have been discussed in this chapter.

The most important finding is to establish a collective "leadership belief" with a clear Purpose towards the green transition, also highlighted as a the 'P' in leadership outcome in the PAC-ontology towards the Purpose, Alignment and Commitment towards the long-term goal. Findings related to development of collective leadership practices have been discussed toward the literature review and the research question as the following emergent themes: **psychological safety** and "**leading from bottoms-up" or Holacracy**.
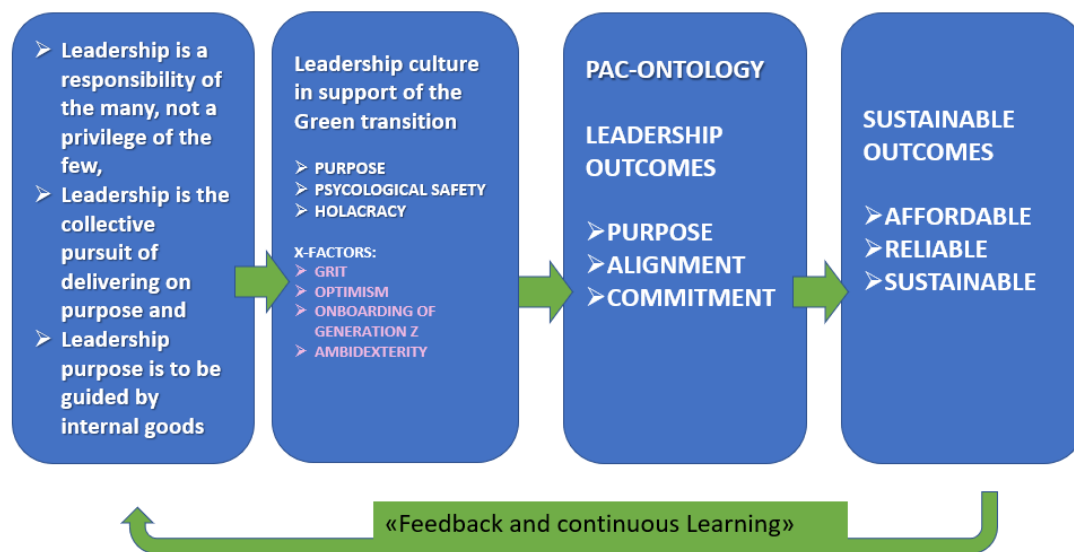
Figure 17: Leadership culture in support of the green transition translated from PAC to Telos leadership lens (By, 2021)

A summary of "findings and discussions" is visualised in the Figure 17 translated from the PAC-ontology (By,2021) and his TELOS Leadership Lens (TLL).

The development of a working environment with psychological safety is a prerequisite for innovation and continuous learning, while preparing for emergent changes as in a transition in the years to come. The recommendation is to allow for more Hoalcracy and peer-like and collaborate initiatives from "bottoms-up" in the work force, supporting an entrepreneurial and innovative environment. This is also supported by Dutton et al., (2002) stating; "Leaders need to recognize and support instances where spontaneous organizing and compassionate action occur at the lower levels of the company, and by supporting bottom-up initiatives, those can take hold and have a transformational effect".

An additional emerging discovery is that most of the workforce within the group belonging to leadership today, will be retired in 2050, hence onboarding, coaching and supporting Generation Z when they enter the Energy industry is critical and need attention. Having skills and attitude of "optimism" while working towards long-term goals and dedicate and develop people with GRIT, "passion and perseverance towards long-term goals" will enhance leadership culture in support of the green transition. The collective leadership -beliefs and -practises forming a leadership culture as discussed in this chapter is also recommended supported by the following specific themes or x-factors in support of the green transition:

➢ **Generation Z:** Onboarding and coaching with purpose and value thinking.
➢ **Optimism:** Optimism is a mental attitude characterized by hope and confidence in success and a positive future. Optimists tend to view hardships as learning experiences or temporary setbacks. Even the most miserable day holds the promise for them that "tomorrow will probably be better" (Scott, 2022). Could also be translated into "Feeling of hope and empowerment in support of the green transition".
➢ **GRIT:** Having passion and perseverance for very long-term goals (Duckworth, 2016).
➢ **Ambidexterity:** A balance between developing the traditional oil and gas operations and carving out new green energy segments, or a balance between exploration of new business segments and exploitation of existing ones (Scoblic, 2022).
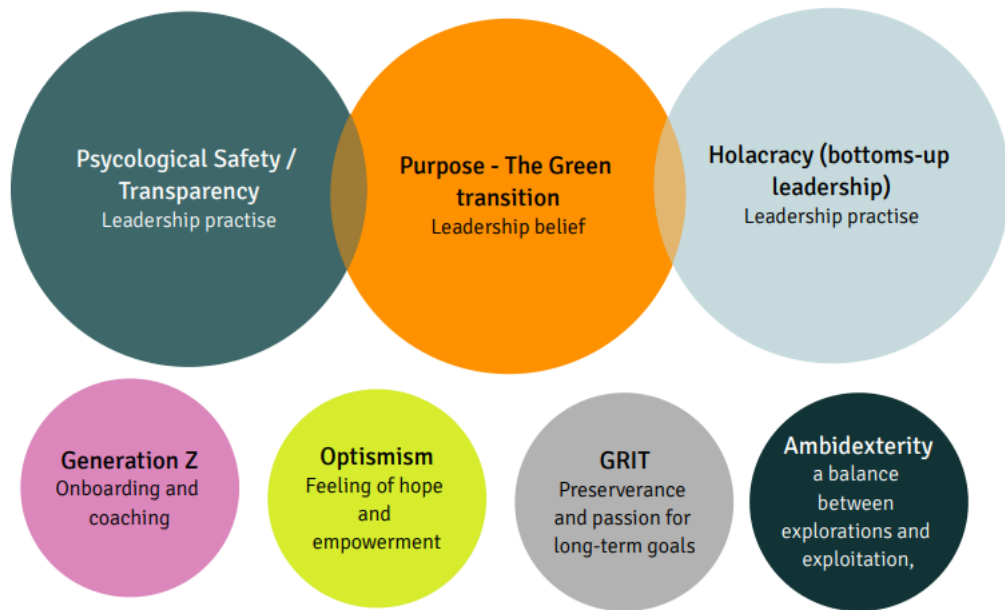
Figure 18: Summary of leadership culture in support of the green transition

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 Research question –development of leadership culture

The aim of this chapter is to summarise the research findings, discussions, conclude the research question and give recommendations to academics, practitioners, and government/research institutes.

The research question:

"Development of leadership culture in support of the green transition: The case of the Norwegian Energy sector", will be concluded in this chapter.

Leadership culture has previously been defined by Schein's in table 1.4 (1992, p. 12) as; "*pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems*".
The definition is building upon a collective exercise of leadership, with a pattern of repetitions and learnings, and is including the onboarding and coaching of new members in the group, e.g onboarding of Generation Z in the conclusion.

In the previous chapters, the methodology of choice, the literature review (secondary findings) and the primary findings from the qualitative data collection have been discussed in relation to secondary findings (theory) and the research question.

Leadership culture is a system of collective and individual leadership beliefs and collective leadership practices (Drath et al., 2008), as visualised by themes in the figure below and discussed in chapter 4 "Findings and discussions".
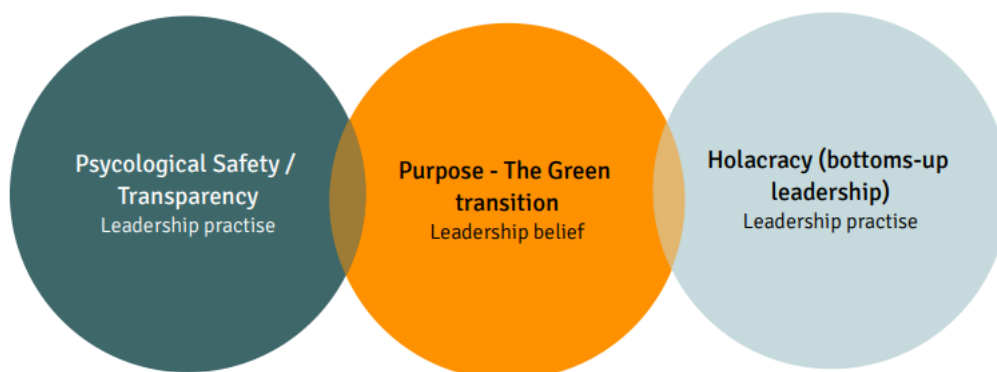
Figure 19: Themes supporting a leadership culture in support of the green transition.

The collective leadership practises are the execution of leadership, as illustrated by the statement from the Petroleum Safety Authority Norway below: "*As important as the process and principles organisations adopt, is the culture of an organisation. We can gain an insight into a culture by listening to what people say and by looking at the way they behave. The relationship between words and deeds is precisely the point at which an understanding of the culture in an enterprise can be gained. Words and deeds must correspond*" (Petroleum Safety Authority, 2003).

The "words on the wall", or the leadership vision, mission and beliefs, must correspond with the leadership behaviour or the execution of leadership in a group, here referred to as collective leadership

practises. This is supported by; "Culture is the way we do things here" Informant G stated and supported by Informant L; "Culture is eating strategy for breakfast".

A clear PURPOSE towards long-term goals, in this context the green transition, is considered important as it aligns everyone towards the common goal, which is a key determinant in collective leadership (Drath et al. 2008). Damon et al (2003) definition of purpose as 'an intention to accomplish something that is at once meaningful to the self and of consequence to the world beyond the self', is used to support the role of a collective purpose in this research question.

This is also supported by Burns (1978), that does in addition state that "*leadership is nothing if not linked to a collective purpose*", hence also aligned with the PAC-ontology (By, 2021), where Purpose, Alignment and Commitment aligns people in a collective to work towards long-term goals, ref. figure 2.

In the following quote, the purpose driven leadership is linked to sustainability; "*Knowledge economy companies need to be aligned with social improvement challenges not only to promote sustainable innovation but also because knowledge workers need to feel their work is meaningful in both organizational and social terms, hence again that they believe that their work has purpose*" (Losada-Vazques, 2022), which are supporting our primary findings, or the leadership belief of purpose as a "theme" and as a secondary finding in the 'Purpose' in the PAC-ontology (By, 2021).

What great companies have in common is business philosophies founded on purpose and supporting core values (Collins & Porras, 2005). Defining purpose as "The organization's fundamental reason for existence beyond just making money and being a perpetual guiding star on the horizon".

Development of leadership culture with psychological safety and "holacracy" emerged as primary findings or themes, acting as a key enabler in support of an entrepreneurial and innovative business segment.

Creating a working environment within a group with psychological safety present is key for continuous learning and innovations; "psychological safety is defined as a shared belief that the team is safe for interpersonal risk taking". In this way psychological safety promote "a sense of confidence that the team will not embarrass, reject, or punish someone for speaking up or making mistakes. This confidence stems from mutual respect and trust among team members" (Edmondson, 1999). Creating the right working environment with psychological safety present, researchers believe can help organisations with an entrepreneurial mindset to innovate, promote continuous learnings and handle setbacks.

The evolution of a leadership practise from "top-down" leadership to leadership executed in a collective, also supported by "holacracy", was very present in the feedback from most of the informants. This is supported by the literature describing the development of the leadership practise evolving from the tripod ontology to DAC-ontology (Drath et al., 2008), and later PAC-ontology and the TELOS Leadership lens (By, 2021), supporting collective leadership practise and collective leadership beliefs as a system for developing a leadership culture. Holacracy is also supported by complexity leadership framework which sees order in a system as emerging from people, ideas, or behaviours, making leadership not only a top down, but also a bottom-up process, that lead to emergent and productive collective action (Drath, et al., 2008).

The context of the green transition is uncertain and complex and are aiming towards the long-term goal of the Norwegian Energy industry becoming a low-emission industry before 2050. The uncertainty and complexity are based upon the lack of known solutions, hence requiring more innovation and an entrepreneurial mindset with a long-term horizon or view. The recommendation to solve this challenge

is to develop scenarios for the different "future picture's" one have been visualising in support of the green transition. The aim of "Future thinking" is not to predict the future but rather to make it possible to imagine multiple futures in creative ways that heighten our ability to sense, shape, and adapt to what happens in the years ahead. Strategic foresight or "future thinking" doesn't help us figure out *what* to think about the future. It helps us figure out *how* to think about it (Scoblic, 2020).

In addition to the main themes discussed in chapter 4 "Findings and discussions", four new themes are added as a suggestion to develop or consider as x-factors when developing a leadership culture in support of the green transition.
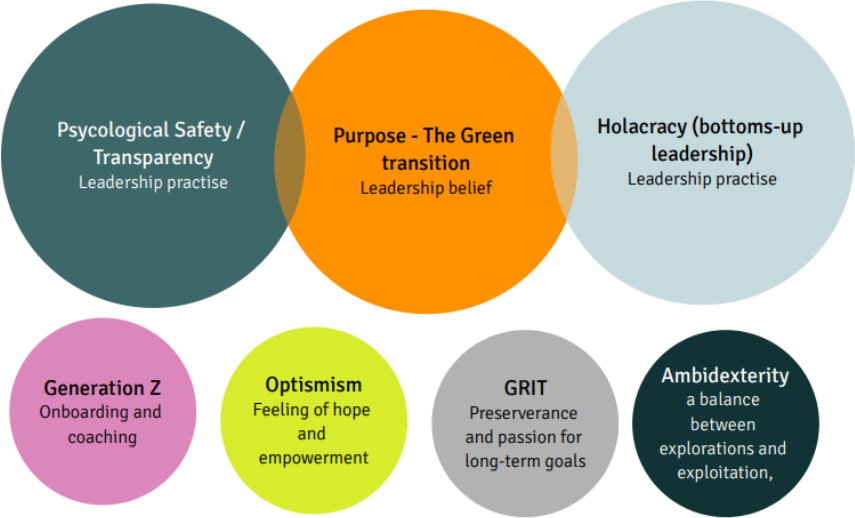
Figure 20: The "Themes" discussed as findings in Chapter 4 with additional X-factors in support of the Green Transition

The first X-factor is referencing Schein's definition of "Leadership culture", that includes new members entering the group or collective:

➢ **Onboarding of Generation Z**

A reflection from several informants is that the Generation Z brings different expectations and purpose driven values towards future development of leadership culture. Generation Z are likely to have a significant impact on society and the workforce in the years to come, so onboarding into the existing workforce in the Energy industry will be an important part of maintaining and developing a leadership culture in support of the green transition. "*Gen Z value diversity,* are *socially conscious, take action to support causes they believe in (purpose), are independent, autonomous and value authenticity and transparency"* (De Witte, 2022)*.*

With them comes presumptions of getting a plan for training and development, motivation and inspiration. Patience and long-term concentration, on the other hand, are not their strong points (Asare, 2019). Young people don't want a boss-boss, they want a mentor (De Witte, 2022). Duckworth's research on GRIT (2016) shows that Generation Z have less GRIT or resilience than older generations, possibly due to less experience with setbacks, and as an industry the recommendation is to provide "coaching" and "mentoring" when onboarding the new generation.

> **GRIT**

GRIT has been defined by (Duckworth, 2016) as "passion and perseverance for very long-term goals." Passion is to follow your heart and interests; perseverance is showing stamina and resilience towards long-term goals. "It is a growth mindset, a resilience that makes a person determined to bounce back from failures and setbacks". Managing all the unknowns and having the ability to motivate and inspire through re-occurring set-back, GRIT is a desired skill for entrepreneurs and when developing a leadership culture in support of the long-term goal of the green transition. Duckworth's research shows that GRIT is developed by age, and that a psychological safe working environment will be beneficial for developing GRIT (Duckworth, 2016).

Duckworth's theory is also supporting the PAC-ontology (By,2021), since she states that; "If everyone's goals aren't aligned, a culture won't be gritty. It takes effort to achieve the alignment. Sustaining a gritty organisational culture requires clear communication of values by leadership, programs that celebrate successes, and the promotion of "growth mindset" that embraces continuous improvement and learning from setbacks. People driven by a purpose bigger than themselves, one that resonates with the mission of your organisation" (Duckworth, 2016).

It is a recommendation that GRIT or resilience, as a collective leadership practise or skill supports the development of a leadership culture in support of the green transition.

> **Optimism**

Optimism is "a mental attitude characterized by hope and confidence in success and a positive future. Optimists tend to view hardships as learning experiences or temporary setbacks. Even the most miserable day holds the promise for them that "tomorrow will probably be better." (Scott, 2022). With situational awareness to the context of the green transition, optimism as a catalysator is recommended. Even though this was not mentioned directly from any of the informants, it emerges through analysis that optimism is beneficial in a work environment with defeats, re-thinking and setbacks. *"Optimism is a pragmatic enthusiasm for what can be achieved"-* Bob Iger (CEO of Disney).

When situations lack analogies to the past, we have trouble envisioning how they will play out in the future. This is also supported by the following quote: "Moments of uncertainty hold great entrepreneurial potential" and "It is precisely in these contexts—not in stable times—that the real opportunities lie to gain competitive advantage through strategy " (Scoblic, 2020).

"After all, leaders will be judged not only by what they do today, but by how well they chart a course toward tomorrow" (Scoblic, 2020), and an optimistic attitude is relevant in all possible future visions.

> **Ambidexterity**

Ambidexterity is a supportive theme since organisations capable of exploiting their existing business segments while simultaneously exploring new opportunities need to pay attention to both business models (Scoblic, 2020). The two imperatives might also compete for resources, demand distinct ways of thinking and requires different organisational structures." Doing one makes it harder to do the other, and ambidexterity demands leaders to resolve this paradox. The goal is to think about the future in a way that would inform and improve the ability to operate in the present" (Scoblic, 2020). As part of the green transition, Energy companies in transition are already implementing organizational changes to manage ambidexterity. This means that while they continue to focus and develop their traditional oil and gas operations, they are also carving out new green business energy segments such as renewable energy and low-carbon technologies.

5.2   Conclusions

To summarise the discussions in relation to the secondary findings: Leadership context is the background enveloping leadership culture where leadership beliefs and practices are generated and justified. The TELOS-leadership lens, which are a further development of the PAC-ontology (By, 2021) is illustrated in a "translated version" below. The "Telos leadership lens" combines TLL and the PAC ontology indicating relationships essential to the pursuit of delivery of purpose informed by internal goods, here exemplified as sustainable outcomes.

Figure 21: Translated version of "themes" into the "Leadership culture" in the Telos Leadership Lens (TLL)

Continuous learning, or in other words, a stepwise transition to better achievements by changing leadership practices ultimately calls for transformational change at the level of leadership beliefs (Drath, et al., 2008), and this could also lead to development of a leadership culture in support of more sustainable outcomes as the green transition.

As a summary, the following entities are discussed and recommended steps to conclude the research question and develop a leadership culture in support of the green transition in the Norwegian Energy sector:

- ➢ **The purpose of the green transition** as a collective leadership belief and leadership outcome
    - o Focus on Affordable, Reliable and Sustainable solutions in support of the green transition in the Norwegian energy sector.
- ➢ **Development of Leadership practises** as psychological safety and holacracy (leading from bottoms-up), based upon collective leadership practises and -beliefs.
- ➢ **Development of supporting leadership themes as X-factors;** GRIT/Resilience, Optimism, Onboarding of generation Z and Ambidexterity
- ➢ Focus on the **collective** execution of leadership and collective pursuit of delivering on **purpose, or how** a group of people together produce leadership through co-operation, collaboration and interaction (Drath et al., 2008).

5.3   Recommendations

Recommendations to Academia

	RECOMMENDATIONS FOR ACADEMIA	See more information
1	How can further development of leadership culture require both leader and leadership development, and how important are the acquisition of new competencies and "sustainability" skills in support of the green transition in the Energy sector?	Appendix G– Leadership skills, ref. Chapter 2.4.4 Leader and leadership development
2	Further research on development of leadership culture and PAC- ontology (By, 2021) with Purpose, Ambidexterity, GRIT, Optimism and Generation Z in support of the Green transition.	See Chapter 5
3	Explore how Generation Z will impact leadership culture in support of the green transition in the Energy sector?	See Chapter 5

Recommendations to Practitioners

	RECOMMENDATIONS FOR PRACTITIONERS	See more information
1	Ambidexterity and its challenges with focus on both exploration of new business segments and exploitation of existing ones, for energy companies in transition building up green segments must be addressed. The new green business segments must be handled below a different business model than the existing exploitation and development of petroleum. The two business segments have different margins and risks, and there are a need for fundings or investments to make the new green business segments commercial in the long-term.	See Chapter 5
2	Phycological safety as a working environment leadership practise, including open communication, humbleness, transparency and execution of authentic leadership, are collective leadership skills and practises in support of innovation as required in the green transition.	See Chapter 4
3	Collaboration in support of the green transition is more complex, with new partners and stakeholders, across domains and disciplines. Collaboration skills, political skills and communication skills are recommended developed in addition to skills directly associated with this thesis emerging findings or themes.	See Chapter 4

Recommendation to Governments/Authorities and research institutions

	Recommendation to Government, authorities and research institutions	See more information
1	**We support the Norwegian Governments statement; :** "……, ensuring a high level of relevant skills in the workforce will be essential to the success of Norway's green transition. To create new jobs in Norway and strengthen the country's competitive position, we will need to give priority to innovation and development. Cooperation between the business sector and research and innovation groups and institutions increases the likelihood that climate-related solutions will be developed in Norway."	The Norwegian Government
2	It will be important to give priority to development of sustainability skills in support of innovation and development, including research- and innovation institutions. Authorities and research institutions should even more actively support and stimulate, by founding and regulation, innovation and development of skills, through research and education institutes to accelerate the green transition.	See Appendix G
3	Innovation Norway will have to be a decisive player for Norway to succeed in the green shift. They need an even better toolbox to assist Norwegian businesses with the green transition. As a comparison the IRA* was adopted by a democratic majority in Congress, and signed by President Biden on 16 August 2022. The legislative package will, among other things, contribute to a green transition and emission cuts in the USA over a 10-year period. The IRA is described by several as a turning point for green transition, with significant subsidies that have a direct impact on investments and existing production in a number of green value chains.	Innovation Norway *IRA (Inflation Reduction Act, USA)

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7   APPENDICIES

7.1   Appendix A: NSB application for informants

Vil du delta i forskningsprosjektet vårt?

"Exploring Leadership culture in support of the Green Transition, The Norwegian Energy Sector as a case"

Dette er et spørsmål til deg om å delta i et forskningsprosjekt hvor formålet er å intervjue ledere om deres syn på utvikling av en ledelseskultur som er til støtte for det grønne skiftet. I dette skrivet gir vi deg informasjon om målene for prosjektet og hva deltakelse vil innebære for deg.

Formål

Vi ønsker å forske på lederskapskultur og hvilke endringer som kan være nødvendig for å støtte det grønne skiftet. Det vil undersøkes om nye kompetanser er nødvendig for å styrke omstillingen olje og gass industrien nå gjennomgår.

Dette er et forskningsprosjekt som er en avsluttende oppgave som del av EMBA master studie ved Universitetet i Stavanger..

Hvem er ansvarlig for forskningsprosjektet?

EMBA studiet ved Universitetet i Stavanger er ansvarlig for prosjektet.

Hvorfor får du spørsmål om å delta?

Vi ønsker å undersøke perspektivet til ledere i Energi Sektoren som ansees å ha innsikt og refleksjoner rundt problemstillingen vi vil forske på. Personene er valgt ut fra vårt utvidede nettverk i industrien basert på frivillig samtykke.

Hva innebærer det for deg å delta?

Hvis du velger å delta i prosjektet, innebærer det at du svarer på forhåndsdefinerte spørsmål i et intervju rundt temaet lederskap og lederskapskultur. Intervjuet vil ta ca.30- 45 minutter. Spørsmålene i intervjuguiden omhandler dine refleksjoner rundt lederskap og lederskapskultur som vil være til støtte for den grønne omstillingen Energi sektoren gjennomgår. Dine svar fra intervjuet blir registrert elektronisk i Word som rådata under selve intervjuet.

Det er frivillig å delta
Det er frivillig å delta i prosjektet. Hvis du velger å delta, kan du når som helst trekke samtykket tilbake uten å oppgi noen grunn. All informasjon knyttet til deg vil da bli slettet. Det vil ikke ha noen negative konsekvenser for deg hvis du ikke vil delta eller senere velger å trekke deg.

Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger

Vi vil bare bruke opplysningene om deg til formålene vi har fortalt om i dette skrivet. Vi behandler opplysningene konfidensielt og i samsvar med personvernregelverket. Informasjon som navn og firma vil bli anonymisert allerede ved notater fra intervju. Ingen utover vi som arbeider med oppgaven vil ha

tilgang på informasjonen. Notater vil bli lagret på passord sikret PC. Navn og firma vil ikke bli gjengitt i selve oppgaven og heller ikke kunne spores tilbake personer/firma i endelig oppgave besvarelse.

Hva skjer med personopplysningene dine når forskningsprosjektet avsluttes?

Prosjektet vil etter planen avsluttes i slutten av august 2023 (omtrent når oppgaven blir godkjent). Etter prosjektslutt vil datamaterialet med opplysninger knyttet til deg slettes.

Hva gir oss rett til å behandle personopplysninger om deg?

Vi behandler opplysninger om deg basert på ditt samtykke.

På oppdrag fra Universitetet i Stavanger har Sikt – Kunnskapssektorens tjenesteleverandør vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

Dine rettigheter

Du har rett til:

- innsyn i hvilke opplysninger vi behandler om deg, og å få utlevert en kopi av opplysningene

- å få rettet opplysninger om deg som er feil eller misvisende

- å få slettet personopplysninger om deg

- å sende klage til Datatilsynet om behandlingen av dine personopplysninger

Igjen vil belyse at verken navn, firma eller stilling vil kunne føres tilbake til kilden i hverken rådata fra intervju eller i endelig oppgave besvarelse.

Hvis du har spørsmål til studien, eller ønsker å vite mer om eller benytte deg av dine rettigheter, ta kontakt med:

- EMBA Studenter: Anna Østhus: annaosthus@hotmail.com eller Nina. Ringøen: nina. ringoen@ptil.com

- Universitet i Stavanger ved veileder Professor Rune Todnem By, email: rune.t.by@uis.no

Hvis du har spørsmål knyttet til vurderingen som er gjort av personverntjenestene fra Sikt, kan du ta kontakt via:

- Epost: personverntjenester@sikt.no eller telefon: 73 98 40 40.

Med vennlig hilsen

Nina Ringøen og Anna M Østhus

EMBA Master studenter og oppgaveansvarlige

Samtykkeerklæring

Jeg har mottatt og forstått informasjon om prosjektet «Exploring Ledership culture in support of the Green Transition, The Norwegian Energy Sector as a case», og har fått anledning til å stille spørsmål. Jeg samtykker til å delta i intervju.

Jeg samtykker til at mine opplysninger behandles frem til prosjektet er avsluttet

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(Signert av prosjektdeltaker, dato)

Interview guide: Executive MBA Thesis 2022/2023

UIS ExMBA program / Masteroppgave E-MBA 300

Nina Ringøen and Anna M Østhus

Research questions that will be further investigated are:

- How can leadership culture be further developed in support of the green transition? The case of the Norwegian Energy sector.
- How can further development of leadership culture require both leader and leadership development, and how important are the acquisition of new competencies and sustainability skills in support of the green transition?

The green transition is about how Norway will become a low-emissions country by 2050.

A key argument from the government is that knowledge and expertise from the petroleum industry are important and must be applied in developing and building new energy activities.

The time from "challenge to solution" must be reduced to respond to the need of urgency, ref. NOU - 2023:3 «Mer av alt – raskere» (Energikommisjonens rapport).

Leadership culture can refer to the values, beliefs, attitudes, and behaviors that are characteristic of an organisation's leaders and leadership practice, and that shape the way employees think and act.

Leadership can be the process of influencing and guiding individuals or groups towards the achievement of a common goal or vision. It involves the ability to communicate a vision, inspire and motivate others, make decisions, manage resources and create a positive work environment.

Interview objective:

In this interview we are seeking the perspective of leaders to understand what is needed in present and future leadership culture and if leadership development is required in support of the green transition in the Energy sector.

Hvilke tanker har du om Ledelse?

Hvordan tenker du om forskjellen mellom ledelse/leder versus Lederskap?

Hva tenker du er god utøvelse av lederskap?

Hvordan formes lederskaps kultur og hva er egentlig kultur?

Hvilke verdier er viktige ved utøvelse av lederskap?

Hva er fremtidens lederskaps kultur i forbindelse med det grønne skiftet?

Hva må vektlegges ved utvikling av en ny lederskaps kultur iforbindelse med gjennomføringen av det grønne skiftet?

Hva kan vi ta med oss videre fra det vi gjør i dag innen olje & gass sektoren iforbindelse med gjennomføringen av det grønne skiftet?

Hva er ledelses utfordringene ved levering på «det grønne skiftet»?

Er det behov for ny kompetanse innen ledelse og lederskap mht gjennomføringen av det grønne skiftet?

Hvilke arbeidsprosesser er viktige i forbindelse med det grønne skiftet?

Hva bør vi gjøre mer eller mindre av?

Hvordan bør en vektlegge verdien av ESG profil /score / GHG ?

"ESG stands for the environmental, social and governance-related commitments, programs, policies and practices to measure the sustainability and ethical impact of a business or company".

The questions are translated to English and listed below:

1.	What are your thoughts (or beliefs) about Leadership?
2.	How do you define the difference between a Leader versus Leadership?
3.	What do you think is a good exercise of leadership?
4.	How is leadership culture shaped and what is leadership culture?
5.	Which values are important when exercising leadership?
6.	What is the future leadership culture in connection with the green transition?
a)	What must be emphasized when developing a new leadership culture in connection with the implementation of the green transition?
b)	What can we take with us further from what we do today within the petroleum sector in connection with the implementation of the green shift?
7.	What are the leadership challenges when delivering on the "green transition"?
8.	Is there a need for new competences within leadership regarding the implementation of the green transition?
9.	Which work processes are important in connection with the green transition?
a)	What should we do more or less of?
10.	How should one emphasize the value of ESG* profile / score / GHG** reporting?
*ESG stands for the environmental, social and governance-related commitments, programs, policies and practices to measure the sustainability and ethical impact of a business or company.	
**GHG-reporting: Green House Gas – reporting as scope 1- scope 3	

7.3 Appendix C: Interview transcript

Spørsmål INFORMANT A	Tema / Funn
Tanker om «Ledelse»	Ledelse er kulturbygging Alle har et forhold til Ledelse. Samhandle, Samarbeide, Ett FAG med verktøy og modeller
Ledelse versus Lederskap	Ledelse er en posisjon /Lederskap er utøvelsen /Lederen skal være med å bygge identitet / Alle skal lede seg selv/ Self Management/ **Alle har et forhold til Ledelse uavhengig av om du har en formell lederrolle.**
Utøvelse Lederskap	Motivation / support / psycological safety Medarbeidersamtaler/ **endring til å praksis** - Utvikle folk - motivere og inspirere. Fokusere på styrker. sette sammen komplementære ferdigheter, se folk, behandle folk forskjellig
Ledelseskultur	One Team, felles verdier, måte å opptre på. **Få det beste ut av laget - felles oppgaver og felles leveranser . Psykologisk trygghet.** Bevisst forhold til Ledelse - **prisgitt den situasjonen man har** Budskapet er tydelig - konseptet - et system - gode rammer. Utvikling og trene.
Verdier i ledelses utøvelse	SAFER. ONE TEAM. Finne verktøy - egne arbeidsprosesser. Selvledelse. Behandler Ledelse som et FAG - er ett fag for alle - men ledere har ekstra oppgaver. Utvikling av både seg selv og andre. Partnere. Psykologisk trygghet. Vi er forskjellige.
Fremtidens lederskapskultur	Skal gjøre mye ENDRING - Transformasjon - skal gjøre ting annerledes. Bry seg om andre. Trene på ENDRING. Endringsledelse. De my kere egenskapene - UNLEARN - mer av de menneskelige egenskapene enn vi er vant med Ser løsninger på tvers - samarbeid - lede og selv ledelse. Endring - lede mangfoldige team
Ledelses utfordringer ved levering på «det grønne»	Designe endringen, designe Purpose, hvordan får de eierskap ++ Hvordan få med folk ? Det er så store endringer på gang - må tilnærme oss dette på en annen måte
Behov for ny kompetanse	Historie fortelling. **Kjører en endringskampanje** og kompetanse for alle innen endring. Design Thinking. Double diamond . Endrings agenter og fasiliteter den . Tilnærming til risiko - mye som kan gjøres lettere. Dele på risiko og andre former for Profit/loss bonus. Alli ansemodeller.
Arbeidsprosesser (bevare eller fornye)	Bevare mye av det vi gjør i dag . Det er så store endringer på gang - må tilnærme oss dette på en annen måte Lager et program - noe som treffer alle / ledere. Vi er tvungne til å tenke mer metodikk og ta med flere modeller
ESG Profil og GHG	**Dette er en del av selskapskulturen. Jobbe for S'en. Alt er med.**

Spørsmål – INFORMANT B	Tema / Funn
Tanker om «Ledelse»	Setter retning og det Administrative . Handlingsplan og dynamikk Ambisjon og langsiktig tenkning. Snakke om det – Justere kurs "vaktmesterrollen" . Retning, ambisjon og langsiktig tenkning
Ledelse versus Lederskap	To-veis kommunikasjon . Justerte på strategi og ambisjon - **skal stå over lengre tid.** Lederskap går i hele organisasjonen **alle får eierskap** . Lederskap må ned i bunnlinjen – alle må med. Ti års perspektiv er ikke nok - må ha et lengre perspektiv. Ny regjeringsplattform - 2030
God Utøvelse Lederskap	Gi tilbakemelding - hva forventes av samfunnet rundt. Samfunnsansvar. Løfte blikket – det store bildet Strategi og veien videre . Ledelse er kontinuerlig utvikling - endring hele tiden Må være åpen for endring hvis man er en LEDER. Alle må være åpne for endringer
Ledelseskultur	Lederskap går i hele organisasjonen **- alle får eierskap.** Raushet og trygge . Utenfor blikket på egen bransje. Hva må vi som bransje levere på ? Være en relevant Næring. Klima biten er i dag omfavner alt det vi gjør. Må gjennomsyre alle ledd - Må også trenge inn hos Brønn Lederskap går i hele organisasjonen - alle får eierskap. Rom for feil - alle må føle seg trygge til å få ideer og kunne gjøre feil Ha en raushet i organisasjonen for å kunne bevege seg videre.
Verdier i ledelses utøvelse	Unge mennesker har nye ideer. Generasjon Z Ulik kompetanse Trygghet - ikke slå ned ideer. Etterrettelig Pålitelig Troverdig. Ulik kompetanse . Sjefen - mer kommando i tidligere tider Få en kultur -. Snakke om det. Justere kurs . Lytte godt og være tett på. Høykompetente mennesker - selvstendige . Alle må sees allikevel og få justert kurs hvis det ikke levers godt nok.
Fremtidens lederskapskultur	Klima biten omfavner alt det vi gjør - skattebetingelse og leteaktivitet Justere kurs . Lytte godt og være tett på Høykompetente mennesker - selvstendige . Arbeidsmiljøundersøkelser – motivere. Er viktig å være «Fakta baserte». Generasjon Z Ulik kompetanse. Kan være veldig uenige på enkelte områder men veldig like på andre områder. Må ha en Genuin tro på det grønne skiftet. Svare etterrettelig - være raus - ikke ta alt i verste mening. Prøv å forstå hva de prøver å si. Proaktive, fremtidsrettet - LANGTIDS PERSPEKTIV. Må vise respekt . Være relevante - justere grunnlaget - følger med verden . Verden har endret seg ++ Når vi skal forsere noe - må vi samarbeid bedre. Noen plasser er det ikke en kultur ennå - noen unge ønsker dette sterkt
Ledelses utfordringer ved levering på «det grønne»	Levere på en annen bunnlinje - en annen business modell. Krevende å ta veivalg og vite om de er relevante om 10 år. Må ta dette løftet nå for å være relevant. Tør man ta dette valget ? Trenger vi å si det utad…kommunikasjon. Vi kan ikke kjøre på som før. Ledelses utfordringene - må materialiseres - mye subsidier i starten. Er det 1 - 3 år til de blir konkurranse dyktige. Mye fora og mye info gratis.
Behov for ny kompetanse	Ting har forandret seg veldig - mer kompetanse om politikk og byråkrati. Dette samarbeider vil kunne bidra med hjelp til det grønne skiftet Kompetanse på effekt av foreslåtte endringer - areal - nytt areal. Ny kompetanse - det kan være - men hvis en følger med i tiden. Ting har forandret seg veldig - mer kompetanse om politikk og byråkrati. Dette samarbeidet vil kunne bidra med hjelp til det grønne skiftet . Kompetanse på effekt av foreslåtte endringer - areal - nytt areal. Fortsetter å lete etter de rette ressursene. Kommunikasjon - oppdatert - produsere på klima og miljø.
Arbeidsprosesser (bevare eller fornye)	Kommunikasjon, Endringsprosesser, Endring, Lean, Agile, Marginer Skal du få med alle - må du omsette og lage en relevant KPI el som gjør at det er relevant for den enkelte . «Sense of urgency». Alle må være åpne for endringer. Skal du få med alle - må du omsette og lage en relevant KPI el som gjør at det er relevant for den enkelte. Hvordan få alle med ? Tusen tonn med CO2 - hvordan kan dette oversettes til den enkelte medarbeider ? Boards - få alle til å være med å delta - ser på detaljene og er med og måler . Overordnede mål - gjenkjenner seg selv. Arbeidsprosesser - finne måter å synliggjøre det en gjør på Jeg er med på en …god ting…..og produserer energi. Kobler sammen miljøer som normalt sett ikke jobber på tvers - nødvendigheten
ESG Profil og GHG	ESG må være en del av DNA'et, større del av hva vi gjør. Mer enn KLIMA, også Menneskerettigheter. Hvor investerer en ? **Narrativt at vi er energi leverandør - er en treghet - compliance sikkerhet. Dette holder ikke lenger. Større del av en helhet - tok en del tid å finne ut av dette. HVOR ER EN I VERDEN ?** **ESG profil ? Hvor invester vi ? Åpen - humbleness**

Spørsmål INFORMANT C	Tema / Funn
Tanker om «Ledelse»	Leader er mer enn Manager og administrativ. Bedre å snakke om **administrasjon og lederskap.**
Ledelse versus Lederskap	Veldig tydelig skille mellom **ledelse og lederskap.** Personell kan utføre dette uten å ha en rolle - formell rolle. Lederskap er en type aktiv myndighetsutøvelse. Ligge i forkant. Forstå rammevilkårene.
Utøvelse Lederskap	Lederskap er å være på søken etter endring og identifisere behovet for endring. Forstå endringer som kommer. Mer enn å lever på økonomi og det tekniske. Våge å være seg selv. Være ærlig. Gi folk rom til å feile. **Evne og vilje til å endre seg selv** . **Organisasjonspsykolog**
Ledelseskultur	Ved å gjøre ting annerledes kan vi oppnå noe mer. Endringer vil ha følge konsekvenser - mindre risiko og bedre kost For å ha en god kultur - må en tillatte at folk gjør feil og at en blir utfordret. Må tolerer at du blir utfordret og at det blir stilt spørsmål . **Ved å gi folk lov til å feil er det rom for ny tenkning, innovasjon og endring**
Verdier i ledelses utøvelse	Hva og Hvorfor ? Ikke Hva og hvordan ? Den norske modellen.
Fremtidens lederskapskultur	Ikke tilstrekkelig endring . Må våge å gjøre feil og la andre feil for å få til endring. Må tenke nytt. Norsk Petroleums næri ng for mye GRUPPE TENKNING.
Ledelses utfordringer ved levering på «det grønne»	Noen må utfordre etablerte sannheter. Tilbuds siden - stiller ikke gode nok krav Stiller gjerne krav til etterspørsel.. Se konsekvensene i et større bilde - **stiller de ubehagelige spørsmålene ?**
Behov for ny kompetanse	Stå i det - **våge å ta debatten** Ikke ny kompetanse - anvendt lederskap - **må benytte seg selv som et verktøy** Andre meninger - vær åpen
Arbeidsprosesser (bevare eller fornye)	Gjøre en rasjonell vurderinger. Se konsekvensene i et større bilde - **stiller de ubehagelige spørsmålene ?** Kvite oss med Ukultur – folk som benytter hersketeknikker.
ESG Profil og GHG	ESG - har falt veldig etter krigen i Ukraina Opptatt av klima+++ Trenger et reelt skifte - stille høyere krav til oss selv..

Spørsmål INFORMANT D	Tema / Funn
Tanker om «Ledelse»	**Ledelse - prinsippene er de samme** Men det er annerledes - da en må tenke grønt - tenk ut av boksen… Må ha fokus på Forenkling Rene olje & gass selskap - er ofte egne TR dokument Kan vi finne på noe nytt ? Utfordre -Hvorfor ? Utfordre ?
Ledelse versus Lederskap	**Ledelse er det samme - må utfordre - være tøffere** Trivsel, arbeidsmiljø, konkurransedyktige ordninger -Verdier - ting endrer seg - Preferred , profitable, Pluralistic , Brave, Open, responible , Empowered
Utøvelse Lederskap	**Utfordre ved å leve i - strukturert kaos** - informere og gi trygghet på veien videre . Informere og proaktiv ledelse - ligge ett hakk i forkant Du må like å stå i en skiftende situasjon - læring - trygg på egne valg Må tåle støy - kreative sjeler - en viss størrelse - utfordrende
Ledelseskultur	Ledelse er det samme. - Hvilken rolle har selskapet ? Pioneers (brøyte vei) Jobber hardt og flere timer - langt større fleksibilitet .Hjemmekontor ordning - gjør noe med miljøet . Etablere gode team - informasjonsflyt
Verdier i ledelses utøvelse	**Ledelse er det samme - må utfordre - være tøffere** Trivsel, arbeidsmiljø, konkurransedyktige ordninger Verdier - ting endrer seg - Preferred , profitable, Pluralistic, Brave, Open, Responible , Empowered Har idealisme og ønsker å være med på det grønne skiftet
Fremtidens lederskapskultur	Ledelses kultur- strukturerte systemerdet kreves at du har systemer og er akkreditert ISO sertifisert 9001 følgesårsrapport- bærekrafts rapport Sertifisert- årligauditering Bruke systemene- Prosesser- utvikles sammen med andre**Utfordre ved å leve i strukturert kaos** informere og gi trygghet på veien videre Informere og proaktiv ledelseligge ett hakk i forkanDu må like å stå i en skiftende situasjonlæring- trygg på egne vaglMå tåle støy- kreative sjeler en viss størrelse utfordrende . Etablere gode teaminformasjonsflyt
Ledelses utfordringer ved levering på «det grønne»	Generelt er **Ledelse er det samme** i O&G og i grønne bedrifter. Det handler om å skape godt arbeidsmiljø og leve opp til verdier bedriften setter. Dårligere lønnsbetingelser, men spennende arbeidsoppgaver. Bevisst valg for å redusere kostander Tjener ikke penger – og derfor stort fokus på kostander
Behov for ny kompetanse	Kan vi finne på noe nytt ? Utfordre -Hvorfor ? Utfordre ? «Folk er redde for Endringer»….Alt vi har lært er nyttig -Folk er generelt redde…
Arbeidsprosesser (bevare eller fornye)	**Negative utslipp - biogen utslipp** – ikke kan kuttes - hvordan kan dette reguleres ? Aksjonærer - vise respekt Tenker hele tiden; Hva venter en med ? Generelt må alt forenkles, rammeverk, lover og regler, interne arbeidsprosesser, standarder. Og alt skjer for tregt! **Too slow .** IAR - Joe Biden -Støtte nye prosjekter - og oppstart - Norge sakker akterut Amerikanske arbeidskraft++ -Ursual Fon Den leien - skal matches internt i EU -Storpolitikk IPSEI - ENOVA fond - interesting project - 172 miliard- utbetales først ved milepæler - FEED
ESG Profil og GHG	Åpenhetsloven - ytterste ledd i kjeden Social ESG - er pliktig til å gå i alle ledd

Spørsmål INFORMANT E	Tema / Funn
Tanker om «Ledelse»	EN tid med endring Behov for endring - mye usikkerhet Kravet til ledere - **til å ha domene kunnskap vil bli viktigere.**
Ledelse versus Lederskap	**Ingen kan være ledere alene i dag. Verden er for kompleks. Må spille hverandre gode.** Evne å få til andre ting. Bør ha kunnskap - evner ikke å ta beslutninger hvis ikke
Utøvelse Lederskap	Nysgjerrig, Empower , retning, Raskere ta beslutninger. Kan gå for mye i detaljene. Viktig å ha balanse. Ha kunnskap om et domene. **Mye nytt – teknologi.** Sette en retning - **VISJON**
Ledelseskultur	**Norge har en konkurransefordel.** **Visjon er ikke en demokratisk beslutning.** Kulturen er det organisasjonene er og ønsker å bli. Innenfor noen rammer. Retning.
Verdier i ledelses utøvelse	**I ledelsen må en stå for kulturen og ansvarlig gjøre – vise retning** Ansvarlig gjøre ved endring. Tillitt og åpenhet. Den norske modellen. Tillate feil. Levere. Tydelig budskap.
Fremtidens lederskapskultur	Hva og hvorfor ? Ha langsiktige mål. Trenger dette for å få profitt. Stå i det. Ulike typer stake holders -**kommunikasjon ?**
Ledelses utfordringer ved levering på «det grønne» Behov for ny kompetanse	Tar litt lett på det ? Nysgjerrig, kamp, det krever intellekt og tid. **The green digital twin** - avgjørende for verden - klimakrise og krig. Samarbeide på tvers av domener. Komplisert - mange kilder - mye informasjon Ting går fortere - en annen type ledelse - Alignment
Arbeidsprosesser (bevare eller fornye)	Digitalisering og profitt. Standardisering. Kontinuerlig forbedring. Mer standardisering & innovasjon. Vi må lære av det - **kontinuerlige forbedringer : -)** Vil være positivt. Norsk system + insentiver + skattelette Mer standardiserte innovasjon . Lederutvikling - skifte ut folk - må være bevisst - sette en standard
ESG Profil og GHG	**Lederutvikling, UN GOAL 6 og 10 må prates om på verdensbasis.**

Spørsmål INFORMANT F	Tema / Funn
Tanker om «Ledelse»	Ledelse er viktig - avgjørende for å levere. Viktig det du sier og gjør Også Ikke sier og ikke gjør - hva er det du ikke gjør .Veldig bevisst i valg som Leder
Ledelse versus Lederskap	Leder og lederskap - går inn i hverandre - trenger begge . Følge opp det som er sagt, aksjoner, levert ihht forventninger Lederskap. Sette retning, ambisjon, langsiktige må. Frihet til å levere. hvordan skal vi nå målet. Ledelse - tilllitsbasert - Leadership
Utøvelse Lederskap	God utøvelse: EN rød tråd - fra toppen til bunnen. Alle forstår sitt bidrag - hva er endringene og forventningen ? Engasjement - vise at det har betydning ? Hva ? og Hvorfor ?
Ledelseskultur	EN læringssløyfe. Veldig tydelig ihht strategi - omsette dette ? Verdier som gjelder for bedriften. Danner grunnlag for kulturen - og at det er en hensikt og en Purpose. Lager en grunnmur - hva er en felles oppfatning - Hva er verdiene ? Lederskaps visjon - skal levere sikkert – kulturbygging. Hvordan hver enkelt medarbeider oppfatter dette og oppfører seg Aldri helt i mål - litt ulike fortolkni nger. Jobbe med dette og ha dialog rundt dette
Verdier i ledelses utøvelse	De viktigste verdiene er bedriftens verdier, Er det ett verdi sett og er de eksemplifisert ? Grunnlag for å diskutere og bruk e verdiene ? Verdier for å bygge kultur ? Verdier til lederne var viktigere. I dag er verdiene satt i system
Fremtidens lederskapskultur	I dag er verdiene satt i system. Accountable, Visible and Engaged. Caring, mennesker , miljø . Bruke verdiene. Transform or Perform .
Ledelses utfordringer ved levering på «det grønne»	Vi må endre oss veldig mye for å få ned utslippene. Har ikke løsningen ? Må våge å feil - skal gjøre det effektivt og fort ? Hva er løsningen ? God dialog - kompetanse om hva som kreves ? Kostnadsnivå et ? Prøve og feile? Må gi folk lov til å tenke og samhandle på tvers eksternt
Behov for ny kompetanse	Samarbeide på tvers - klarer oss bra på mye på egen kompetanse. Men på det grønne skiftet - må samarbeid mer ekstern. Handlingsp lan Må også utarbeide noen nye arbeidsprosesser . Fakta, Forståelse, Kommunikasjon Man er aldri ferdig utlært - for ny kunnskap - kurs
Arbeidsprosesser (bevare eller fornye)	Må gi folk lov til å tenke og samhandle på tvers eksternt. Samarbeide på tvers - klarer oss bra på mye på egen kompetanse Men på det grønne skiftet - må samarbeid mer ekstern. Handlingsplan . Må også utarbeide noen nye arbeidsprosesser . **Du må kunne noe fra før eller så må du ha kunnskap eller evne ?** Samhandling - total bildet - på tvers av disipliner
ESG Profil og GHG	Hele livssyklusen til et produkt eller et utslipp ? ESG fokus og Environment blir bare større fremover - og det er bra Det er bra - det er ikke bar med S i enkelte land **Vi må begynne å måle – få tall på ting – forbedring ?**

Spørsmål INFORMANT G	Tema / Funn
Tanker om «Ledelse»	**Både administrere og styre. Motivere, styre, bevege,** Fronte saker – kommunikasjon Tydelige krav til ledelse - Budsjett og plan. Budsjett og plan Jobber mer i TEAM - - mer kultur - lyttende og åpen. Ulike Mennesketyper
Ledelse versus Lederskap	Leder - lederskap på norsk . Lederskap - egenskapene På individ nivå - utfører Prosess for å påvirke **Det å oppnå resultater er et hovedmål** Få til det - da gjør en noe riktig
Utøvelse Lederskap	Firkant - kontekst - rammer - støtte - få til noe. Hvis en vet hva en vil ? Kontekst og bakgrunn ? Handlingsrommet - støtte en må gi. Kontekst - forståelse - på alle arenaer i større eller mindre grad ? Ulik grad av coaching. Må være tilpasset de menneskene og oppgavene en skal gjøre Forstå hvem du har med å gjøre - åpen dialog Åpenhet - tillitt - - dialog - lytte - fange opp - endre
Ledelseskultur	**Det er sånn man gjør det her ?** Ledelses kultur - personlighet, ytre forhold, oppgaver - kontekst Tør å ta i de vanskelige sakene - si ifra og hvordan en blir møtt Varsler og bekymringer - ledelse Nå målene - tillitt og åpenhet . Kontinuerlig jobb med kultur når det kommer inn nye folk – felles forståelse
Verdier i ledelses utøvelse	Verdier kan hjelpe til diskusjon - kan også være lite bevisst . Diskusjon og interaksjon - Mindre hierarkisk prosess - mer medvirkning Forankring rundt beslutninger . Slipper da omkamper -Beslutningsprosessen tar lengre tid - har medvirkning og deretter raskere gjennomført Klare å balansere fakta og følelser - denne balansen - engasjere unge. Human skills vinkling - lederutvikling - vektlegges mer. Mindre toleranse og forståelse for å snakke med flere aspekter i en sak
Fremtidens lederskapskultur	Forstå de unges engasjement og behov . **Fakta og følelser (hjerte) - må håndtere dette på en annen måte .** Mindre toleranse og forståelse for å snakke med flere aspekter i en sak Må håndtere ulike aspekter Endringsledelse - vesentlig i alle skifter og behov. Arbeidstaker involvering. Må ta en økonomisk risiko - tørre og håpe og tro Skal du inn i det grønne skiftet - ta nye muligheter og investeringer . Har ikke alle svarene -
Ledelses utfordringer ved levering på «det grønne»	Industrien er både gode og dårlige på endringer - god og dårlig . KOMPLEKST. Olje pris - svinger . **Kortsiktig - ikke så smart - LANGSIKTIG** Prosjekter taes av hvis det ikke er fornuftig...Noe sunnhet i det hele . **Må ta en økonomisk risiko - tørre og håpe og tro** Skal du inn i det grønne skiftet - ta nye muligheter og investeringer Har ikke alle svarene - Klare å balansere fakta og følelser - denne balansen - engasjere unge Human skills vinkling - lederutvikling - vektlegges mer Forstå den nye generasjonen – Generation Z . Kompleksitet - digitalt og autonomi - mennesker
Behov for ny kompetanse	**Dette er ikke et valg lengre. Det grønne skiftet - må være med** Har kommet langt ? Som Nasjon og verden - Må ta økonomisk risiko Ta med kompetanse og kapasitet - teknologi - har hatt store marginer . Forventninger - gode ordninger . Ikke det samme spille rommet
Arbeidsprosesser (bevare eller fornye)	Ta med kompetanse og kapasitet - teknologi - har hatt store marginer - **Ikke så stor grad av spesial bygging -** Ikke en plattform som er lik Standardiserte løsninger - ta med noe og slippe noe. **Organisasjonsendringer? Lite effekt ? Det en uting ?** Balanse gang - endrings kultur og endringsledelse - hva er riktig kke kopiere kompleksiteten – styringssystem. Forstå den nye generasjonen - Kompleksitet - digitalt og autonomi - mennesker .Trygghet - evne til å sette seg inn i dette ?
ESG Profil og GHG	ESG - viktig - finans - analytikere ESG er kommet for å bli -den norske modellen bevares. Bevisstgjøring - Social - fattigdom + S E- Environment Åpenhet og transparens rundt dette - hvordan leverer en ? Investert i Fornybar - etterspørres - og synliggjøres

Spørsmål INFORMANT H	Tema / Funn
Tanker om «Ledelse»	Ledelse - Perform and Transform. Sette retning for noe nytt som kommer - lav margin - CCS
Ledelse versus Lederskap	Lederskap: Sette retning for en stor bevegelse - ofte på toppleder nivå. Visjonære folk - Leder - på veien dit….. Lederskap lengre frem i tid… Leder - lederskap - sette retning Lederskap er å sette retning - involvering - de ansatte er med og tar eierskap
Utøvelse Lederskap	Hvem ser helheten ? Tett på oppgavene og tett på folkene . Ganske ulik lederskap - ulikt i tidlig fase BD - signerer - veldig ulikt lederskap i neste fase Forretningsutvikling - Prosjektfase
Ledelseskultur	Lytte til verdiene - trygge de - psycological safety . Retning blir til mens en går - YDMYK - bottom -ups -Empowerment ? Alfa Omega ? Hierarkisk - ikke funker så godt nå ….
Verdier i ledelses utøvelse	For å innovere - KAOS - men ikke ANARKI - Tjenende Bottoms -up - Ytre rammer . Gi de ansatte rom til å utfolde seg SHAPE - sette retning - være leder 10% alle har dette i seg - Empower - 10% hva forventes ? Deliver - Hvilket nivå ? Open, Collaborate , Createous , Caring
Fremtidens lederskapskultur	Walk the talk - psykososial trygghet, veldig inkluderende , alle blir hørt - evne å bygge kultur, ivaretatt - Bottoms up - tydelige tilbakemeldinger - klare rammer Følger læreboka Rapporterings kultur - hierarkisk kultur. Må være litt modige - viktige prosesser - mye verdikjeder må læres opp Lederskapskultur vil formes mens en går……Ikke lederne - men empowerment - ikke en leder lengre - Sette retning – Transform - Shape - Empower - bruke folk - har ikke svarene- Customize - prosjektene er ikke like - mer rom for tilpasning
Ledelses utfordringer ved levering på «det grønne»	Ikke nok kunder innen CCS og Hydrogen. Bygge + 2) Myndigheter 3) Kundene - bygge et marked - Collaboration - jobbe innenfor fle re akser
Behov for ny kompetanse	Våge å ta risiko- henger ikke nødvendigvis sammen. Strategic beliefs - Vet ikke nøyaktig hvordan fremtiden ser ut ? Project is king - . Market og politikk is king - hele tiden overvåke - Hva sier politikerne - hvor settes det attraktive ramme betingelser - System forståelse - må lengre n ed i hierarkiet Veldig mye politikk - blir eksponert på prosjekt nivå - Må ta mere av system - struktur - prosjekt må utvides….
Arbeidsprosesser (bevare eller fornye)	Bygger hele lav karbon på skuldrene av olje og gass industrien - Renewables - veldig intenst marked - ikke kostnads effektivt. Veldig dedikerte ressurser Følge politikken så tett at en klarer å styre underveis - være tilsted e - adjust og få støtte ? Prosjektene går i front - ikke lengre bare et bygg - politiske og strategiske føringer og prosjekter
ESG Profil og GHG	Hvem vil ikke klare GHG målene . Det er viktig - oppe i dagen . Karbon sertifikater - helt nye forretningsmodeller .Må vise ut slipps regnskap for et prosjekt - må være med og forstå

Spørsmål INFORMANT I	Tema / Funn
Tanker om «Ledelse»	Redundancy - so many unknowns -
Ledelse versus Lederskap	Leader – leadership: A person versus a process - communicating to lead a group to reach a goal Concept of leadership is something everyone can do - catered for Not one person that can do it all
Utøvelse Lederskap	In green energy - the need for open and honest communication - because there is little set things – uncertainty - Creating a culture for openness - need to be rewarded - this is great! Fail fast - agile – if not we will be screwed. We need to test & try Challenge: Expectations - to deal with this imbalance. Constant change in boundary conditions - All these changes create admin efforts - people need to be flexible . Part of changing plans Take ownership - we do not have previous experience Handling and accept the #unknowns.
Ledelseskultur	Outside comfort zone - Ownership and group spirit is different. Wonderful group spirit . A purpose driven company "A noble thing to provide the world with energy" - a sense of purpose - The people that choose to work in this industry - try something new. Try to be creative - drive people a lot of energy **Ownership and group spirit is different - Wonderful group spirit**
Verdier i ledelses utøvelse	A purpose driven company
Fremtidens lederskapskultur	Enormous opportunities for worldwide jobs Risk and reward - E&P versus CCS **stakeholder management ?** **New solutions** - Pick the one we can use in a strategic partnership
Ledelses utfordringer ved levering på «det grønne»	Availability of cash - where does the money come form Risk averse - subsurface (example) The industry looks for redundancy for all kind of solutions - also for leadership in a new area . Alternative solutions - not equipment redundancy? Towards how we will deal with parts of the value chain Immature market? A range of solutions ? Do we need a back -up?
Behov for ny kompetanse	Micro assumptions - predictions of price . Regulatory framework will develop Market will increase. Also lobbying - important . **Ask the Regulators or government bodies** Need to monitoring develop what's influence the future very closely **Being a good example - walk the talk - a lot of energy's 100 different skills - only tick three boxes : Efficient and successful What comes naturally – Authentically -Transmit the enthusiasm - the industry - the new division !! - Live the entusiasme (Purpose)**
Arbeidsprosesser (bevare eller fornye)	**Company commitment - no niches that you can sit on alone - More of all - full value chain ? Analogue - in general it is the issue that no factory capex - capture technology - Sink - need to architecture - limit stakeholders - people in the room limited -Outside comfort zone**
ESG Profil og GHG	License to operate might depend on ESG . Not the reality of the market ? Will be easier in the future since it will give you advantages in future Morale s - financial maneuvered - Scope 1 - Scope 3 - are obtaining some GHG - being open - 50% love and good example

Spørsmål INFORMANT J	Tema / Funn
Tanker om «Ledelse»	Leader and leadership – the ability to lead – Leader is by position . Leadership is how you execute your leadership . Several different types of Leadership cultures
Ledelse versus Lederskap	Leadership is how you execute your leadership **Top -down:** Seen it all – this is how we are going to do it . Norway is different – lets get everyone involved and see what we can get out of it . Top -down – drilling is a democracy – key line of command
Utøvelse Lederskap	You will have to find your own way of leadership . What is your own styrke ? Strength ? Authentic leadership **? Self insight** ? Way forward. It is important to be <u>open minded</u> . Able to <u>work cross - discipline</u> So much uncertainties – <u>so much unknowns</u> . Be open minded towards other disciplines .**Need much less of top -down leadership**
Ledelseskultur	Different in a new company – less processes in place and less layers – less hierarchy **A different attitude in Leadership culture.** Less risk averse – do not expect the same margins – different drive What is the business drive ? or business model
Verdier i ledelses utøvelse	<u>Value – Brave, Open minded, Care,</u> **Empower, encourage, values** It is dependent upon individual persons . Easier to be brave in smaller companies – more **Open minded**
Fremtidens lederskapskultur	**Entrepreneur approach** – cant do things as we did before (Innovation & Design thinking) **Different mindset .** Decision making – need to become a <u>less meaner – leaner – agil work processes</u> Energy transition <u>Evaluate risk differently .</u> New technologies – funding **Innovation funding** . **Softer side** – more openness for other disciplines – successful as a TEAM -It is a new area of expertise – **you can only be successful if you get input from all others**
Ledelses utfordringer ved levering på «det grønne»	Open minded approach – surface -controlled surface safety valve – all electric Margins will be less – since it is a different approach – we could do things a little easier – Do you really need it ? **For young generation** – it is more important that you do something for the environment – it is a business case – someone is very convinced – young people are very idealistic – old people say that you might have – we have do do something – More attractive than a company not looking for the energy transition
Behov for ny kompetanse	For younger generations it was surprising how environmental they are . **Collaboration** – less need for a top -down company -Responsibility and power **Empowerment – need to build trust** - We have good technical understanding – we have a **lot of experience in technical issues**
Arbeidsprosesser (bevare eller fornye)	Do we need the same Qualification systems as in place or can we <u>make it easier.</u> Do not want to become cowboys. Good momentum before the war – The issue is the Business Case – <u>the business case come from a Penalty</u> (economical…) You have to pay for the CO2 emissions – Political decision Hugh legacy – some experience – made fit for purpose for CO2 – properly tested ?? We are little spoilt economic wise …….good margins in traditional OIL & GAS .We have a lot of processes – **good and bad** Brave enough to let go . We have a legacy, and we have a baggage We need a more fit for purpose approach
ESG Profil og GHG	**ESG Score** – when selecting suppliers **Scope 3** – how much are you going to pay for it ? There are less CO2 form a long distance supplier

Spørsmål INFORMANT K	Tema / Funn
Tanker om «Ledelse»	Ledelse er kulturbygging. Alle har et forhold til Ledelse i dag . Samhandle, Samarbeide,
Ledelse versus Lederskap	Ledelse er en posisjon. Lederskap er utøvelsen. Lederen skal være med å bygge identitet Alle skal lede seg selv/ Self-Management . Ledelse er kulturbygging. Ledelse er mennesker og Purpose Ledelse er noe man er en del av og Lederskap er et fag - noe man utviser
Utøvelse Lederskap	Motivation / support / psycological safety . Det er å få folk til å følge seg trygge, trives og high performance Ta vare på folk og få frem top presentations . Rekruttering - viktig å få folk som passer inn i kulturen Viktig å rekruttere de rette folkene Veldig flat struktur - alle er enige i hva som skjer av aktiviteter og transparency . Utfordring med veldig mange ansatte
Ledelseskultur	Lederskaps kultur Apple - Steve Jobs . Kultur er kjernen av business – «place of belonging » God kommunikasjon med kollegaer - skape bevissthet Får ikke samme dra-hjelp hvis forståelsen ikke er tilstede
Verdier i ledelses utøvelse	Felles sett med forståelse og Verdier Høy grad av integritet - stoler på at vi gjør det rette. Har integritet og tillitt til hverandre og prioriterer « Transparency «
Fremtidens lederskapskultur	Bør vi gjøre noe mere enn i dag ? Tillitsbaserte samfunnet - tilpasset en skandinavisk modell Optimert skandinavisk ledelses metode - utvikle denne videre. Vi har en statsminister i Norge som ber om dugnad - stor kontrast til mindre siviliserte samfunn. De enkelte ansatte får brukt sitt eget potensiale Tar med oss det vi gjør i dag videre
Ledelses utfordringer ved levering på «det grønne»	Mangler kunnskap om det grønne skiftet ?? Se det kommersielle bildet - Sustainable business models —mangler….Mangler det økonomiske incentivet - Ledelse er historie fortellingen - ikke solid enough (huller.) Evidence based ledelse / Troverdighet …..Offshore wind installation - not a ready concept
Behov for ny kompetanse	Ny mindset - for mye fokus på penger og prosesser Den tradisjonelle ledelse versus mer moderne Når skjer Innovasjon - psycological Safety & fellesskap Vi trenger nye løsninger og vi trenger ny Energi . Fokus på Innovasjon - psycological safety ++tillitts basert ledelse
Arbeidsprosesser (bevare eller fornye)	Den unge generasjonen - noen som er utenfor industrien - klimasvingninger – angst Hvem er ansvarlig for inntjening ? Vi trenger ikke en CEO - alle har dette som en del av business case Great place to work - krever opplæring av hver enkelt. Opplæring med Helle Hedegaard Hein - awareness ?
ESG Profil og GHG	Stolte av å bidra med Energi til Europa - troverdigheten Dette handler om grønnvasking - det kan vi ikke stå inne for ? Konflikt -Business case er å fortsette med olje og gass - Videre utvikle og ikke avvikle

Spørsmål INFORMANT L	Tema / Funn
Tanker om «Ledelse»	Leadership - **key role – strategy.** Help others succeed _ **Energise – Motivate** - Strategic level - **helping the organisation** . **Leadership course ? WHY do we do this? What is the Purpose ?** Taking the translation of where the Enterprise is going . **Motivate teams and individuals .** Change - **Why do we need to change?** Need Energy for ensuring action . Gives the direction - support purpose & Context . Strategy to Action . Enabling Energizing - Motivation
Ledelse versus Lederskap	Leadership - the process of influencing - good explanation in Question sheet Leader - **competence of encourage people** - **influencing** - The individual - the organization - **The values, the beliefs ++**
Utøvelse Lederskap	Green Shift: We want to save the planet. In the business world ? Explain the business case and business aspect ? .Potential. margins - Commercial - shareholders WHY are we doing this ? **The leaders being the creator of WHY `?** What are they doing to create a sense of Purpose - Leading by example : Safety, Green Shift . Putting it on the agenda . Authentic interest - Genuinely attention . Motivate, Inspire and Encourage Others . Ensuring organizational competency ' - Green shift, Performance - development . Translating business goals. Communications
Ledelseskultur	Culture - **competency of leadership.** Leadership culture - **The way we do things around here ?** Culture - eat strategy for breakfast . Culture is what is important . Right mindset - fundamental behaviors . This is what you need to influence . Executive attention . Leadership development . Development of leadership - more successful in developing the right culture . What do you applauded as a company . - what do you reward ? Leadership level - culture
Verdier i ledelses utøvelse	SAFER -Safer Sikker, Ansvarlig;forceful Engasjert Respectful . **Those values played out are important** **Living the values .** Individuals and leaders emphasizing the values . With a sense of connectivity - We all have values - different directions . Culture identity . **Find a place for the Green Shift** Responsible – Ansvarlig. Søkende - Leaders need to use their value set to emphasize their actions - **Translate their values into practice** . **Need to anchor your values** . The journey on Safety has created a good common path..
Fremtidens lederskapskultur	Impact of our actions . Environmental impact - look at both the cost and the environmental impact . Bond Markets - investments? ESG well performing companies . Staring to use terms and environmental connections. Muscle for leadership . The journey on Safety has created a good common path. For how to create a culture for all: Green Shift ? Performance review On the agenda ? Change leadership . Green shift : Important to get in the agenda? Long Term Goals ? Replace the SAFETY thing with the ENVIRONMENTAL? . Need to be replaced. The business models are there; "Need to be steered towards the green shift". Relationships . Business model Performance - Safety / Cost .Same agenda for the Green Shift
Ledelses utfordringer ved levering på «det grønne»	2 years ago the Energy security? . Trilemma . Slowed down a little bit Incomplete pictures,. Varied information . Business case - NPV - need to set a target ? Difficult to get through. Not economic threshold - cost more - reduction and cost The green shift delivery – weighting . Important - on the agenda **A barrier can be working with stakeholders that are not aligned** . Not common ground - not same fundamental view . Europeans versus Global can be different. Lack of alignment. **Challenges to convert initiatives to an economic robust solution.** What we do in Norway does not make a difference? Where are the large polluters . One million tons - we have 10% of it . 100 000 ton in total. Could we do it another way ? National level ? Lack of belief in the sense of urgency. Lead in an uncertain environment
Behov for ny kompetanse	**Leader who can articulate – authentic.** Create a sense of urgency for Change . The reward structure ? Not perfect for the Green Shift ? A sense of comfort - complacency ? **A need for new business models .** Environmental performance . Seeking - looking for new solutions . Change leadership . What other solutions are out there **The digital side.** NB - could also be some technical competencies . Looking at the organization - sustainability agenda . New experts - more expertise in these conversations Innovation thinking . Cross-industry learning? . Hear different processes . Change leadership - Authentic way - Purpose
Arbeidsprosesser (bevare eller fornye)	Also the commercial side is important . Innovation . Learning from the outside - being open for that Steel , cement - common ways of addressing the issues . Teams conversations . **Open minded thinking, create learning** Uncertainty ? Pricing on emissions - **changes in legislation** . Strategy simulation – key. **Complexity - central team - scenario analysis** . KPI setting - set new targets . Metrics on stuff . Visibility. Setting goals . Being visible. Need to be Rewarding!
ESG Profil og GHG	Risk and Reputation . It is starting to get into the elements . See the VALUE - accelerate the progress ? ESG reporting - individual departments. Not very good internally - different assets . Not as clearly as we want. Traceability ? The big thing – is DIESEL consumption - RIG USE for Scope 1 . Also some more information on Scope 3 . Supply of Energy in the world today . Long term alliances - longer term strategic issues – Cooperation - Alignment Common goals

Spørsmål INFORMANT M	Tema / Funn
Tanker om «Ledelse»	Leadership - create results in collaboration with those around you? Lead and point out direction and stimulate to do the right ac tivities. Change management - is relevant in connection with the green shift -
Ledelse versus Lederskap	A Leader is a role, and to Lead is a Function. Leadership is execution. But leadership is how one does it Which methods and techniques one uses
Utøvelse Lederskap	Leadership: Trying to motivate - it is important that everyone contributes It means something that you participate and contribut e Make a mark and do something important to society – Purpose. Having a Battery technology is absolutely central - the transition to a low -carbon society. Pre -commercial - not revenue It is important to have a purpose Want to take up the competition - put this on the agenda Values and visions Get the best out of what you have - interaction produces values and results Very good engineers and researchers - commercial solutions They have a doctorate - introverts Force them to interact Many different nationalities and cultures - I think this is a strength. Complementary skills. Team and multi -project work - the engineers must be involved in running machines and be responsible and look at various test steps that they have designed?
Ledelseskultur	Company and cultural values: Respect - a term that is interpreted differently in Asia versus Norway - works with the different u nderstanding of the term. Internal lead role - united company's management platform ++ Eastern Bloc countries to other places where you don't want authori tarian leaders - Norway is different from these countries in terms of leadership Humble in relation to the task - Collaboration - Towards «courag e» - courageous & Passionate Challenge the established - the green shift? Being clear is important Asians - think role and responsibility is somew hat vague in Norway Big cultural differences - we don't do that in Norway - is this from Asia? Be clear and be visionary Must be able to prioritize ?? A bility to say NO? Wants to be close to - but does not engage in detailed management (micro management) Good sparring partner
Verdier i ledelses utøvelse	Collaboration - Towards «courage »- courageous & Passionate ; respect , Humbleness
Fremtidens lederskapskultur	Difference between a former Operator company and a start -up company Fossil company and building on this have a different startin g point • Change and more emphasis on the green shift • We start with blank sheets - more can be released • Motivation - Purpose - what is done is im portant • Use this as a motivator • Deliver extraordinary batteries Proud of the experience from the oil & gas sector - sees that there is a lot of good to take with us further from there • Hybrid solutions can in many cases be attractive? Trying to be relatively brave - interruptive
Ledelses utfordringer ved levering på «det grønne»	• Attractive & exciting, but it is demanding to collect large sums of money • When an investor or an end user hears "new tech nol ogy" - think oj - RISK • Tested & tested - may take longer than planned • Long term • New solutions. A lot of resistance to change Not everyone will be a winner! Someone wants to lose - tolerate losing to fail? • Think about challenges related to RISK - money / investor • Straight heads and compet ence • Time is the biggest challenge? • Efficiency is important? Run many activities in parallel • For better or for worse + • TRL race • 1st generation ++ • Bureaucracy that things take time - Norway compared to CHINA • The competitors are in China - 100 hour week • Effective bureaucracy? • More people and resources and suppliers? • Consultation rounds - many subcontractors?
Behov for ny kompetanse	Safety culture versus Innovation - zero philosophy or higher? • Another type of thinking - is not risk-free • Not new technology but rather improved technology? • Takes a very long time. New report from the UN climate panel - more critical report on climate change? • Change ma nagement • Accelerates bureaucracy No BRAINER NOT TO USE IT Not using environmentally friendly solutions is not an option. To do the rig ht things Compliance & Risk management - make the least possible change? • But within climate challenges, the Status Quo is one of the most dangerous t hings we can do
Arbeidsprosesser (bevare eller fornye)	Innovation can be very different, also include processes? • New technology can seem intimidating and takes a long time • The prototype stage. • Must gain greater general acceptance • Change is the lowest risk
ESG Profil og GHG	Must accept that we must think more circularly and more sustainably Sustainability and climate change? Climate is only one of the goals of the UN We have to think circularly • Start more circularly – also reuse? • More sustainability? ESG - and sustainability profile - Governance - Trade barriers? Opposing forces Political abuse? Renewable electric power - battery capacity must be included as it is too slow with solar and wind

7.4 Appendix D: Analytical work Leadership belief and practices

Leadership belief and practise	Open code	Focused Code	Discussion
Informant A Leadership is to Interact , cooperate and collaborate. Good leadership is also to motivate and inspire. All members of the organisation get leadership training. Ledarership is a technical discipline, and there are common models and tools to be used. All employees are encouraged to be leaders, but different formal roles in the organisation. Build character for the company. Live the values. See people and treat people diferently according to different strengths. Transform.	Interact, Collaborate. Motivate. Inspire. Leadership Training. Values. Equity. Self Management. Multidisciplinary skills. Equity. Change and transform.	Collaboration. Psychological safety. Self management, «live the values». Interpersonal skills. Purpose. Multidisciplinary skills. Equity. Change.	➤ Collaboration ➤ Psycological Safety ➤ Live the values ➤ Interpersonal skills ➤ Multidisciplinary skills ➤ Equity ➤ Change readiness ➤ Transparency ➤ Long term goals ➤ Future thinking ➤ Holistic view ➤ Authentic leadership ➤ Humbleness ➤ Agile work process ➤ Political skills ➤ Knowledge workers ➤ Continous learning ➤ Evidence based decissions ➤ GRIT ➤ Urgency ➤ System thinking ➤ Purpose ➤ Transform ➤ Innovation ➤ Decentralistaion ➤ Brave ➤ Several different types of Leadership cultures ➤ Political understanding ➤ Redundancy ➤ Empowerness ➤ Integrity ➤ People ➤ New mindset ➤ No need for CEO ➤ Stratec thinking
Informant B Feedback- To-way communicatipon. The bigger picture. Responsibility for society. Steering towards long term goals. Motivate. Leadership for all. Lead from bottoms-up. Bottom level need to lead. Give Feedback. Empowerment. Ready to change. Strategic thinking.	Openness, Trust, Long Term Goals. Bottom-up leadership. Feedback. Empowerment. Future thinking. Change readiness. Holistic approach.	Psycological saftey, Transparency, self management, Long term goals. Future thinking. Holistic view. Purpose.	
Informant C Allowing employees to «Fail and try» is important . Leadership is a type of active exercise of authority. Stay ahead. Understand the framework conditions. Transparency. Honesty. Willing to change. All employees can lead without formal roles. Humbleness, Look for new opportunities.	Psycological safety. Authentic leadership. Long term holistic view. Transparency . Change readiness. Empowerment.	Psychological safety. Transparency . Change readiness. Interpersonell skills, Holistic view. Authentic leadership.	
Informant D Need to work leaner – simplify all work processes. Walk the talk. Live the values. Stay ahead. Prepare the organistaion psychological saftey. Create a good working environment. Change readiness. Political overview or skills is important.	Collaboration . Lean, Agility, Psychological saftey. Change readiness. Political overview / Holistic view. Future thinking. System thinking.	Collaboration, Agile work process, Psychological safety, change readeiness, Political skills/overview, Future thinking, Holistic	
Informant E A time with change. Need to have knowledge about own domains to be able to take decisions. No one can play alone today. Need a team and make each other better. It is a complex world. Speed. Couriousity. Visions. Long term view. «Live the values». Knowledge workers. Evidence based decission making. Technical domain knowledge to be able to take decissions. Continous learning.	Change readiness. Knowledge based decission making. Courious. Urgency, Agile. Live the values. Holistic approach. Domain knowledge. Interpersonal skills.	Change readiness. Knowledge workers, Sustainability skills, collaboration, Holistic view Interpersonal skills. Continuous learning, GRIT	
Informant F Live the values. Set a direction. Walk the talk. Lead by example. Empower people at different levels in the organisation. Freedom to find new solutions. Innovation. Values. Trust. Openness. Long term goals. Encourage epeople to ask qestions ? Why ? How ? Leadership training.	Change readiness. Lead by example. Live the values. Interpersonal skills. Long term goals. Couriousity. Psychological safety.	Change readiness. Self management. Long term view. Psychological safety. Interpersonal skills. Live the values.	
Informant G Leadership context. Framework. Support - make something happen. Lead and support in all arenas to a greater or lesser extent. Different degrees of coaching. Must be adapted to the people and tasks to be done. Understand who you are dealing with. Openness - trust - - dialogue - listen - change. More team work today. Ensure psychological safety. Be able to talk about the difficult stuff. Deliver according to goal.	Team work. Framework. Situation awareness. Purpose. Support. Values. Communications. Change readiness. Psycological safety.	Collaboration.Holistic approach. System thinking. Purpose. Live the values. Psycological safety.	
Informant H From perform to transform. Setting the direction for a large movement - often at senior management level. Visionary people. Leadership further ahead in time. Leadership is setting direction - involvement - the employees are involved and take ownership. Close to the tasks and close to the people. Quite different leadership - different in the early phase Business development. Serve bottoms-up leadership. Flat hierarchy. Brave. Humbleness.	Perform and Transform. Innovation. Change readiness. Visons. Strategy. Self- management. Decentralisation. Createous. Caring. Shape. Empower. Brave. Humbleness.	Transform. Innovation. Change Readiness. Self-management. Psychological Saftey. Brave. Future thinking.	
Informant I The need for open and honest communication - because there is little set things – uncertainty Creating a culture for openness - need to be rewarded if transparent- this is great! Fail fast - agile – Innovation. We need to «test & try» . "A noble thing to provide the world with energy" - a sense of purpose . The people that choose to work in this industry - try something new. Try to be creative - drive people a lot of energy. Redundancy in commercial solutions and leadership solutions.	Collaboration. Purpose. Holistic view. Openness. Trust. Agile. Empowerness. Urgency. Redundancy. Future thinking. Motivation.	Collaboration, Purpose, Holistic view, Political skills, Psychological saftey, Self management, Urgency, Redundancy Innovation	
Informant J Leader is by position. Leadership is how you execute your leadership. Norway is different. Openness. Multidisciplinary teams . Be open minded towards other disciplines Need much less of top-down leadership. Innovation. Humbleness. Entrepreneur approach – cant do things as we did before. Change readiness.	Trust, openness, the norwegian model, collaboration, Innvation, self management, humbleness, psycological saftey, change readiness	Collaboration, Psychological safety, Norwegian model, Self management, Change redainess	
Informant K – Pilot interview Leadership is building a culture. Leadership is people and Purpose. Culture is something you are part of and Leadership is a subject - something you demonstrate It is to get people to follow you safe, happy and deliver high performance Take care of people and deliver top results. Recruitment - it is important to get people who fit into the culture. Common set of understanding and values . High degree of integrity – trust to do the right thing. Have Transparency, integrity and trust.	No need for CEO. Purpose. People. Integrity. New mindset. Values and people before profit and processes. Psychological saftey. Collaboration.	Integrity – sense of belonging. Purpose. Community. Self management. Collaboration. Paasion. Knowledge worker.	

7.5 Appendix E: Analytical work Leadership Culture

Leadership culture in support of the green transition	Open code	Focused Code	Discussion
Informant A One Team, common values and way of acting. Get the best out of the team - joint tasks and joint deliveries. Psychological safety. Conscious relationship to Leadership - context awareness. The message is clear – create a good framework. Development and training. Will do a lot of CHANGE - Transformation - will do things differently. Care about others. Practice CHANGE. Change management. The softer qualities - more of the human qualities than we are used to. Sees solutions across - UNLEARN - collaboration – leading others and self. Leading diverse teams	One Team, Common values, Design change, Clear purpose, Empowerness, Lead by example, Collaboration, Self Management, Equity, Soft skills, Change readiness, Transform, Humility., Humbleness	One Team, Live the values, Change redainess, Manage change, Purpose, Walk the talk, Collaboration, Multidisciplinary skills, Soft skills, Interpersonal skills, Transformation	➤ Collaboration ➤ Psycological Safety ➤ Live the values ➤ Interpersonal skills ➤ Multidisciplinary skills ➤ Equity ➤ Change readiness ➤ Soft skills ➤ Walk the talk ➤ Communication techniques ➤ Avoid group thinking ➤ Dominating techniques ➤ Micro management ➤ Challenge established thinking ➤ Out of the box thinking ➤ Self management ➤ Flexibility ➤ Learning ➤ Creativity
Informant B Leadership runs throughout the organization - Everyone gets ownership. Fury and safe. Outside of looking at one's own industry. The climate bit is today embracing everything we do - tax conditions and exploration activity Adjust course. Listen well and be close to decision making. Highly competent people in Energy industry. Working environment surveys – motivate and inspire. Listen to new idea's. Deliver on a different bottom line - a different business model. It is demanding to make choices and know whether they will be relevant in 10 years' time. Must take this pledge now to be eligible. ...communication. Sense of urgency. Change readiness.	Self management, Outside look, Future thinking, Strategic thinking, Interpersonal skills, Knowledge workers, Working environment Psycological safety , Collaboration adn communication , Change readiness	Collaboration, Interpersonal skills, Future thinking, Strategic thinking, Holistic view,Change readiness, Knowledge workers, Psycological safety	
Informant C By doing things differently can we achieve more. Changes will have to have positive consequences. In order to have a good culture - you have to allow people to make mistakes and to be challenged. Must tolerate being asked challenging questions. By allowing people to make mistakes, there is room for new thinking, innovation and change. Ask WHY are we doing this ? Purpose. Someone must challenge established truths. Industry does not make good enough demands to our selves. Too much group thinking. See the consequences in a bigger picture - ask the uncomfortable questions? Get rid off domination techniques.	Change readiness, Psychological safety, Make mistakes, Try & Fail, Communication, Dialogue, Group thinking, Challenge established thinking, Holistic view, Open culture without dominating techniques.	Change readiness, Psychological safety, Collaboration, Communication techniques, Avoid group thinking, Holistic view, Avoid dominating techniques, Challenge etsablished thinking.	
Informant D Working environment is good. Create an innovative working environment. Challenge by living in structured chaos - inform and provide security on the way forward • Inform and proactive management - stay one step ahead • You must enjoy being in a changing situation - learning - confident in your own choices • Must tolerate noise - creative souls – Flexibility.	Working environment, Innovation, Flexibility, Chaotic, Change redainess, psycological saftey, Think Ahead, Strategic thinking, Holistic view, Learning loop, Flexibility, Creativity	Working environment, collaboration, flexibility, Innovation, Psychological saftey, Change readiness, Strategic thinking, Learning, Creativity	
Informant E Norway has a competitive advantage due to the Norwegian model and democracy. Visions are not a democratic decision though. The culture is what the organizations are and want to become (within some limits). Leadership is about deliver with purpose and act responsible. Show direction Make responsible changes. Trust and openness. The Norwegian model. Allow for mistakes. Deliver. Clear message. Stakeholders. Long term goals. Communication.	Act, purpose, Norwegian model, Openness, trust, transparency, democracy, Set Visions, Long term goals, Beliefs, Direction, Responsible chnages, Psycological safety, walk the talk.	Integrity, Purpose, Focus, Responsibility., The norwegian model, dmeocracy, Future thinking, Strategic thinking, Change readines, Psycological safety. Direction.	
Informant F A learning loop. Very clear in terms of strategy - convert this? Values that apply to the company. Forms the basis for the culture - and that there is a Purpose. Making a foundation - what is a common opinion - What are the values? Leadership's vision - must deliver safely - culture building How each individual employee perceives this and behaves Never perfect on goals - slightly different interpretations. Work with this and have a dialogue around this. The most important values are the company's values. Is there one set of values and are they exemplified? Basis for discussing and using the values? Values for building culture. Today, the values are set in the system. Accountable, Visible and Engaged. Caring, people, Environment. Use the values. Transform or Perform.	Continous learning, Strategic thinking, Values, Purpose. Exemplified values. Live the values. Values for culture building How each individual employee perceives this and behaves Never perfect on goals - slightly different interpretations. System thinking. Values in a system.	Continuous learning, Strategic thinking, Values, Purpose, Live the values, System thinking, Transform Accountable	
Informant G Culture: "It is how we do it here "? Personality, external conditions, tasks & context. Dare to take on the difficult issues - speak up. How are you met? Alerts and concerns. Reach the goals - trust and transparency. Understand the young people's commitment and needs Facts and feelings (heart) - have to deal with this in a different way. Less tolerance and understanding for talking to several aspects of a case Have to deal with different aspects .Change management - essential in all shifts and needs. Human skills. Digital, Autonomy.	Authentic leadership, Holistic view, System thinking, Psycological safety, Transparency, Facts and feelings (holistic view), System thinking, Communication, Tactics	Psycological safety	
Informant H Listen to peoples values - psychological safety. Direction is created while walking. Humbleness. Bottom-ups leadership. Empowerment. Hierarchical - not working so well now. Walk the talk - very inclusive, everyone is heard - ability to build culture, clear feedback - clear frameworks Follows the textbook Reporting culture Have to be a little brave - important processes - a lot of value chains have to be learned Leadership culture will be shaped as one goes......Collaboration with different stakeholders.	Transform, New type of leadership culture, Ensure psycological safety, Self management, Humbleness, Walk the talk, Empowerment, Feedback loop, Brave, Shape, Change readiness, Out of the box thinking	Collaboration. Interpersonal skills.	
Informant I Outside comfort zone. Ownership and group spirit is different . Wonderful group spirit. A purpose driven company. «A noble thing to provide the world with energy" - a sense of purpose The people that choose to work in this industry - try something new. Try to be creative - drive people a lot of energy. Change in context. Flexibility	Innovation, Outside comfort zone, Purposef. Change, Creativity, Empowerness. Flexibility	Innovation, Psychological safety, Out of comfort zone, Purpose, Empowerness	
Informant J Different culture. Less processes in place and less layers – less hierarchy A different attitude in Leadership culture. Less risk averse – do not expect the same margins – different drive What is the business drive ? or business model. Values- Empower, encourage, open minded. Softer side – more openness for other disciplines – successful as a TEAM. It is a new area of expertise – you can only be successful if you get input from all others. **For young generation – it is more important that you do something for the environment – it is a business case – someone is very convinced – young people are very idealistic – old people say that you might have – we have do do something –**	Self management; multidisciplinary skills, collaboration, open minded, Innvation, Future thinking	.	
Informant K – Pilot interview Leadership culture Apple - Steve Jobs Culture is the core of business - place of belonging Good communication with colleagues - create awareness Does not get the same help if the understanding is not present Common set of understanding and values High degree of integrity - trusts us to do the right thing Have integrity and trust each other and prioritize Transparency What is the management culture of the future Should we do something more than today? Trust-based society - adapted to a Scandinavian model Optimized Scandinavian management method - develop this further We have a prime minister in Norway who asks for help - a big contrast to less civilized societies	Values, Integrity, Common understanding, Trust, openness, transparency, scandinavian model	Values, Integrity, Common understanding, Trust, openness, transparency, scandinavian model	

7.6   Appendix F: Analytical work Challenges

Leadership challenges for delivering on green transition	Open code	Focused Code
Informant A Need to strengthen skill of Change management, Change happens all the time now. It's complex. Unlearn what you have learned from E&P. Change competence must be built on all levels in the company, need to change the mindset. Change must be done in a systematic way. There are so many changes and it is complex, you have to think completely new!	Change management, complex, unlearn, change mindset, strategy for handling change,	Charge management Clear strategy, Complex
Informant B Green transition gives poor bottom line. This is a big challenge. Have to think about how to be relevant in the future as well. Imagine what frameworks you see in the future. There must be a connection between the vision and the contract. Leadership must be anchored throughout the organization. It will be more expensive with the green transition and this must be fully stated in the contract. Companies must understand they will get worse frame conditions if you are not "green". The oil&gas industry has been a cyclical industry – hence we are used to handle changes. But there is a slowness in understanding its role in the environmental perspective. The industry is not so open to the environmental change. We need to understand the big perspective, the geopolitics, need to understand more than what is the industry own customer market.	poor bottom line, relevant in the future , Imagine the future, handle changes, slowness, not so open, understand the big perspective, connection between the vision and the contract.	Urgency, complex, onboarding, uncertainties, Clear strategy/vision, lack of interpersonal skills, low margins
Informant C The industry (E&P) has built a culture of to much group thinking, too much self confidence. Too few evidence based arguments to convince all the technologists, too few critical questions, need room for that statements can be challenged, most companies a re running behind, foresee the political picture, need to develop technology, need to invest in research and development, too little trial-fail, reduce cost, being able to develop without evidence, need more applied leadership.	Group thinking, few evidence based arguments, need for speed, uncertainties of framework, new technology, reduce cost, more trial - fail, applied leadership	Lack of interpersonal skills, complex, Uncertainties, Change management, Technology, Low margins
Informant D Marginal business, changing/uncertain political and authority framework, need to have stamina, labour demanding work processes and complex bureaucracy towards authorities, understand and align on risk level across segment and towards authorities. Oil & gas vs green companies: It's not the same industries. The risk profile is completely different, cannot transfer all risk related requirements on green industry.	Marginal business, change and uncertainty, labour demanding work processes, complexity, resilience, risk understanding	Urgency, Lead Unknown/Uncertainties, Change management, complexity, work processes, Low margins
Informant E Communicate the reasoning and purpose for green solutions. We need to admit when it is low margin, and explain that resultas are long term. Need to have the courage and resilience to implement strategies. Need to have courage to do the «hard talk».	Commiunicate , implement strategies, low margin, courage, resilience,	Onboarding, complex, change resistance, change management, clean strategies/Visions, lack of interpersonal skills, Low margins
Informant F Time-critical, requires technology, far too expensive, need to apply KPI. Must be willing to spend money. Balance risk/safety appetite, clear supplier requirements, work in all axis. Need economical support from authorities	Time-critical, requires technology, far too expensive, risk evaluation, supplier requirements, work in all axis, economical support form authorities	Urgent, technology/innovation, uncertainties, complex, low margin,

Leadership challenges for delivering on green transition -	Open code	Focused Code
Informant G Understand the sense of urgency - need for pace. It is complicated. Do not get paralyzed due to complex tasks. Understand the young people's commitment and needs. Understand and differentiated between facts and feelings. A leader must handle a wider selection of different aspect. Change management is important. Have to deal with uncertainty, what and where are we going. The green transition is not voluntary! You MUST join. Must have a conscious strategy.	Sense of urgency, complex/complicated, young generations requirements, Facts vs feelings, deal with uncertainty, not voluntary, strategy.	Urgency Complex Onboarding Leading unknown/Uncertainties Clear strategy
Informant H Risk understanding. Renewables are not cost-effective enough. Low carbon - many disciplines that must work together, a lot of coordination, all disciplines must be involved. This is low margin, must peel work processes. Must have much closer teams with wider set of different disciplines. Projects are no longer just construction projects, they are political and highly strategic projects. Challenge: expect more from the employees. They are given much more responsibility, and are encouraged to make the way for new project (as now work processer nor solutions are in place). Must take away the hierarchical leadership. To lead in the unknown, everything is uncertain. Must have humility, a skill that is difficult to promote in the leadership development.	Risk understanding, low margin project, many disiplines involved, political and strategic project, employees need to be more self going and decisive, avoid hiercical leadership models, lead the unknown, need humility,	Complex Leading unknown/Uncertainties Clear strategy, Low margin, work processes, lack of inter personal skills,
Informant I No person is qualified as Leader as it is all new. This is not one single project, it is as a company commitment. Stakeholder management, need to manoeuvre between changing frame works, risk/reward, need to get the right partners, margins are low.	Leading the unknown, stakeholder management, understand risk, low margins	Complex Leading the unknown/Uncertainties Clear strategy, low margin
Informatin J Need for an Entrepreneur approach – can't do things as we did before, need to be innovative. Decision making need to become leaner and agil work processes are required. Need to Evaluate risk differently as CO_2 in general has lower risks associated than hydrocarbons. Margins will be less – since it is a different approach – we could do things a little easier than in oil&gas. Need a different approach in Leadership culture: we need to be less risk averse – and have a different driver (or motivator) than profit.	Work processes, innovation, risk evaluation, less margins, leaner decision making, leadership culture/motivation	Work processes, innovation/technology, leading unknown/uncertainties, low margin
Informant K Can be challenging to communicate credible/convincing, knowledge workers asks critical questions: It is difficult to find business models that shows economy. Are we really in a transition? Is the green transition something we can do in Norway where we have good access to energy? Not everyone (in the rest of the world) is as well off as us. Lot of uncertainty.	Critical questions, low margin, Uncertainties	Complex Lead unknown/Uncertainties Clear strategy Change resistance, low margin

Leadership challenges for delivering on green transition	Open code	Focused Code
Informant L The why is important, better planet, make a better place etc. I the business world - need to explain the business case. What are the opportunities, potential market, our enterprise is commercial, need to make this connection stronger. Safety is easier to mak e it commercial. Not at all there yet. We need to get there. More ability to explain our actions. Directing peoples to this, need to also loo k at environmental impact together with cost. Not well coordinated the impact in economic terms. Change leadership - somehow different. The future is not defined, ambiguity, in complete picture. Direction in unknown. Business case mindset need to be changed so that the green shift delivery has a stronger weighting (i.e when compared to traditional business models). This may give conflicting priorities. It may cost more, but should get valued for smaller CO_2 footprint." Working with stakeholders that are not aligned, more global view on stuff, What we do in Norway does not affect the rest of the world. 1 mill CO_2 ….. People need to connect to the solution. Need to es tablish believe in sense of urgency. Need leaders who are authentic. Reward structure is not adequate. Executive get their bonus by the bottom line vs green achievements.	Communicate WHY it is important, make a stronger connection to environment, Change leadership, future pictures, leading the unknown, bring in environment in business models and evaluations, stakeholder management, sense of urgency, authentic leadership, rewards structures	Communication Change leadership Onboarding Leading the unknown, stakeholder management, sense of urgency
Informant M Difficult to get big money with something new. New technology is risky! Demand new solutions. A lot of resistance to change. Not everyone is a winner. Someone is going to lose. Change hurts. Endurance, thinking about how to reduce time. Gets the right mix of skills. More efficient. Running many activities in parallel, early phase on the next generation, parallel to this generation, Bureaucracy means that it takes an unimaginably long time. Political processes that take time - hearings etc, more people and resources, suppliers etc. In Norway y ou depend on develop the suppliers that exist. Suppliers are much slower in Norway and Europe. Zero tolerance and HSE, almost no limits to how far you can stretch this. Innovation involves risk. There is an inertia in the system. The solutions are here. Scaled up, commercialized, etc.	Hard to get investors, Change hurts, endurance, reduce time, mix of skills, parallel activities, bureaucracy, supplier management/relations,	Low margin, Change management, need for speed, multiskilled, stakeholder management, collaboration

7.7   APPENDIX G: Sustainability skills

There are several skills and competencies that have emerged to be developed further in support of the green transition. The table below summarize skills identified from both through the literature review and research data promoting the green transition.

	Leaderships skills development in support of the green transition	Litterture	What	Why?
1	Sustainability skills: Collaboration and interpersonal competence	Wiek et al (2011)	As all relay on collaborative approaches to create ownership for the results, to leverage implementation, and to build joint capacity to cope with complex sustainability challenges	To catalyse problem solving of complex sustainability challenges. Stakeholder management in a new context with new stakeholders.
2	Sustainability skills: **Systems thinking** competence	Wiek et al (2011)	the ability to analyse sustainability problems across different domains (society, environment, economy, etc.) and across different scales (local to global), thereby considering cause-effect structures, cascading effects, inertia, feedback loops and other systemic features related to sustainability issues and sustainability by analysing systems and problem ontologies.	See and understand the whole picture. Understand who to involve, new partnership, political skills. The challenge is complex, many and new disciplines need to cooperate.
3	Sustainability skills: **Futures thinking** or anticipatory competence	Wiek et al (2011)	anticipating future trajectories from a systems perspective, for identifying intervention points and critical factors, and for testing transition strategies.	Proactive, imagen the future with new business models and for see commercialization of ideas.
4	Sustainability skills: **Values thinking** or normative competence	Wiek et al (2011)	specify, compare, apply, reconcile and negotiate sustainability values, principles, goals and targets, informed by concepts of justice, equity and responsibility, in various processes, including visioning, assessment and evaluation.	Take the right decisions.
5	Sustainability skills: **Strategic thinking** or action-oriented competence	Wiek et al (2011)	It is about developing plans that leverage assets, mobilise resources, and coordinate stakeholders to overcome systemic inertia, path dependencies and other barriers to reach envisioned outcomes .	"Getting the job done", gather the correct resources, Drive change.
6	Agile work processes	(Dyer & Ericksen, 2009).	means fast or flexible, and is used in a business context for the ability to adapt to changes	To speed up. Time is treasures. Handle changes. Too many companies suffer from too much bureaucracy and not enough innovation.
7	Design thinking	British DC	Fast problem solving method. Based on iteration, introducing the agile and "lean" work methods	To foster Innovation and support designs that contributes to the solution of the emerging climate crisis
8	Continues leaning	Drath et al (2008)	All individuals/collective keep a continues leaning mindset. Share knowledge. Open mind, curious. Active listening.	To strengthen change readiness, psychological safety and performance. Progress towards new solution. Efficient improvement process towards the green transition.
9	Political skills	Jiang, Ding, Wang, & Li, 2022	Abilities and behaviours that enable individuals to effectively navigate and influence the political landscape within an organization or society.	important in environments where there are competing interests, limited resources, and complex decision-making processes. By developing and utilizing these skills, individuals can build coalitions, gain support for their ideas, and ultimately achieve their goals.

7.8   APPENDIX H: GRIT SCALE

GRIT SCALE

Here are a number of statements that may or may not apply to you. There are no right or wrong answers, so just answer honestly, considering how you compare to most people. At the end, you'll get a score that reflects how passionate and persevering you see yourself to be (Duckworth, 2016).

1. New ideas and projects sometimes distract me from previous ones.

- ➢ Very much like me
- ➢ Mostly like me
- ➢ Somewhat like me
- ➢ Not much like me
- ➢ Not like me at all

2. Setbacks don't discourage me. I don't give up easily.

- ➢ Very much like me
- ➢ Mostly like me
- ➢ Somewhat like me
- ➢ Not much like me
- ➢ Not like me at all

3. I often set a goal but later choose to pursue a different one.

- ➢ Very much like me
- ➢ Mostly like me
- ➢ Somewhat like me
- ➢ Not much like me
- ➢ Not like me at all

4. I am a hard worker.

- ➢ Very much like me
- ➢ Mostly like me
- ➢ Somewhat like me
- ➢ Not much like me
- ➢ Not like me at all

5. I have difficulty maintaining my focus on projects that take more than a few months to complete.

- ➢ Very much like me
- ➢ Mostly like me
- ➢ Somewhat like me
- ➢ Not much like me
- ➢ Not like me at all

6. I finish whatever I begin.

- ➢ Very much like me
- ➢ Mostly like me
- ➢ Somewhat like me
- ➢ Not much like me

> Not like me at all

7. My interests change from year to year.

> Very much like me
> Mostly like me
> Somewhat like me
> Not much like me
> Not like me at all

8. I am diligent. I never give up.

> Very much like me
> Mostly like me
> Somewhat like me
> Not much like me
> Not like me at all

9. I have been obsessed with a certain idea or project for a short time but later lost interest.

> Very much like me
> Mostly like me
> Somewhat like me
> Not much like me
> Not like me at all

10. I have overcome setbacks to conquer an important challenge.

> Very much like me
> Mostly like me
> Somewhat like me
> Not much like me
> Not like me at all