

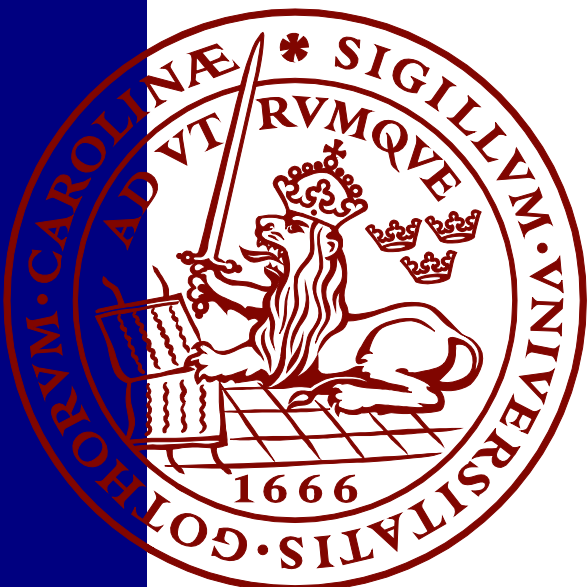
Leading Sustainability Transformations

On the role of leadership development for organizations change in the German automotive industry

Lea Sina Schulz

Master Thesis Series in Environmental Studies and Sustainability Science,
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A thesis submitted in partial fulfillment of the requirements of Lund University
International Master's Programme in Environmental Studies and Sustainability Science
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Lund University Centre for
Sustainability Studies



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Submitted May 13, 2024

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Abstract

The global need to take urgent action to address climate change presents the German automotive industry with its biggest transformation in history. While environmental targets are being set, the importance of leadership in the transformation process has so far received little attention. Using a Causal Model of Organizational Performance and Change, and the Transformational Leadership framework, this thesis explores the role of leadership development in shaping organizational change towards the sustainability transformation of the industry. By interviewing personnel developers at large German Original Equipment Manufacturers (OEM) and external leadership coaches as a control group, results reveal that OEMs are on track, however, the connection between Transformational Leadership and the sustainability strategy in leadership development programs is unclear, with a gap between academia and industry being identified. Due to future relevance and great potential impact on climate action, more company-specific studies and enhanced collaboration between researchers and industry are recommended.

Keywords: Organizational Change, Transformation, Leadership, Corporate Culture, Strategy, Automotive

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List of Abbreviations

EV	Electric Vehicle
GAI	German Automotive Industry
LDP	Leadership Development Program
OEM	Original Equipment Manufacturer
ST	Sustainability Transformation
TL	Transformational Leadership

1. Introduction

1.1. Organizations need to change

Global surface temperature increased by 1.1°C in 2011-2020 compared to pre-industrial levels due to human activities and thus greenhouse gas emissions (IPCC, 2023). However, still too little is being done to reduce emissions: Carbon dioxide emissions from industry and fossil fuels increased globally from 25.50 billion tons in 2000 to 37.15 billion tons in 2022, which means a net increase of almost 12 billion tons within a little more over 20 years (Global Carbon Budget, 2023). Organizations play a crucial role here, as they need to transform their businesses towards sustainability, not only to limit their own business risks due to upcoming climate regulations (Manzione Filho, 2022), but most importantly to achieve ambitious emission reductions goals and limit global warming – although currently companies still do not match the reductions needed for staying below 1.5°C global warming (NewClimate Institute, 2024).

The success of organizational change towards sustainability transformation (ST) depends on several important factors – not only the external environment, individual and organizational performance, but above all, what lies in between: leadership and its relation to the organization’s mission and strategy as well as its company culture (Global Carbon Budget, 2023). “Leadership is a set of behaviors used to help people align their collective direction, to execute strategic plans, and to continually renew an organization” (McKinsey & Company, 2022) – but how important is it to be a good leader and what qualities are required? Leadership is about influencing and motivating individuals to achieve things, they would not be able to do on their own. Moreover, it is not a skill you are born with, but you learn it (McKinsey & Company, 2022). Feser et al. (2015) conducted a survey with 189,000 people in 81 different organizations globally to investigate which leadership styles are most common, all based on relevant academic literature as well as practical perspectives. What they found out is that the following 4 types of behavior were mostly associated with top leadership: To be supportive, to operate with strong results orientation, to seek different perspectives, and to solve problems effectively. Transformational Leadership (TL) plays a special role for being known to drive the sustainability performance of an organization (Althnayan et al., 2022) due to its relevant characteristics to master ST: “The transformational leader uses charisma, individualized consideration, and intellectual stimulation to inspire employees to make extraordinary efforts” (Bass, 1985, p. 26).

Seizing new perspectives is particularly relevant at the present time, as society, politics and businesses are facing a huge transformation – driven primarily by environmental change. Without adequate leadership qualities being trained and learned in a leadership development program (LDP), change in organizations cannot be driven forward since only a dedicated team is strong enough (Siggins, 2024) to master the sustainability challenges of the future – affecting the automotive industry in particular due to its great environmental responsibility.

1.2. The global automotive industry

“We aren't addicted to oil but our cars are”, a powerful quote from the documentary *Who killed the electric car* by Paine (2006). With an annual revenue of 2.32 trillion Euros in 2022, the global automotive industry is one of the biggest industries worldwide (Statista, 2023b) for solid reasons: Providing people with mobility and freedom, cars and busses moving people, trucks delivering all items and service needed, and key public services managing waste, emergency- and postal services (ACEA, 2023a).

Current numbers on global employment in the automotive industry vary, however, direct employment in 2017 was estimated around 14 million workers globally (ILO, 2020). The fact that this number has risen since then – despite the COVID-19 pandemic – is not only evident in car sales, increasing from 63.8 million units in 2020 up to 67.3 million units in 2022 (Statista, 2023c): today, solely in Europe, over 13 million people are employed in the automotive industry, which accounts for 7% of all employment in the European Union (ACEA, 2023b).

1.3. The German automotive industry

One major player is Germany, with an over 60% growth rate of Research and Development in Europe, and a production of 3.1 million cars in 2021 (MacDougall, 2022). German Original Equipment Manufacturers (OEMs) – corporations reselling product (parts) within own branding but provided by another firm (CFI, n.d.) – are responsible for one fifth of all cars in international production lines as well as exporting 77% of all cars manufactured in Germany in 2021. In addition, German OEMs account for one third of global spendings in automotive Research & Development (MacDougall, 2022). In 2022, the German Automotive Industry (GAI) employed 774,339 people (Statista, 2023a). Within the upstream network, the GAI is generating employment in further economic sectors – like rubber and metal products – as well as in other sectors like services, or business consultancies, which accounts for approximately 660,000 employees (Schott, n.d.). The great economic and, above all,

social importance of the GAI for the country is further displayed at the 640,000 employees, which work in downstream economic sectors like the automotive trade (Schott, n.d.).

1.4. Sustainability as a major transition for the German automotive industry

However, the GAI not only greatly contributes to the German economy and secures jobs – it bears considerable environmental responsibility and is challenged in the worldwide transition towards Electric Vehicles (EVs) by China and the United States (Fritz, n.d., Waldersee & Wacket, 2021). Directly impacting the production supply chain, climate regulations cause tremendous change while at the same time highlight the urgency climate protection (Strötzel & Brunkhorst, 2019). Indeed, despite globalization and digitalization, environmental regulations are the most important driver of transformation in the automotive industry (Strötzel & Brunkhorst, 2019).

Starting off with the Paris Agreement in 2015 – and thus the agreement to limit global warming to 2°C and possibly to 1.5°C above pre-industrial levels (United Nations, 2015) – Germany aims for Greenhouse Gas emission reductions of 55% by 2030 by inter alia restructuring mobility: one major target is promoting innovative engine technologies and supporting electric mobility by extending financial incentives for purchasing EVs until 2025 and installing a charging infrastructure aiming for 10 million EVs on a national level by 2030 (The Federal Government, n.d.). Summing up, the German Association of the Automotive Industry set the following mission statement “Together with other associations and policymakers, we set common goals to achieve sustainable production for our entire sector. In so doing, we are guided by the Paris Climate Agreement, the Global Compact Initiative, and the Sustainable Development Goals (SDGs) of the United Nations” (VDA, n.d.).

Despite ambitious targets and the support promised by the government, Germans are doubting the country’s competitiveness (Stindt, 2023): according to a study of the Association of German Engineers, more than half of those surveyed do not believe that Germany will still be producing the best cars in the world in 10 to 15 years' time, which is particularly alarming as the GAI makes a significant contribution to its national innovation system (Stindt, 2023). When it comes to sustainability, opinions differ: although two thirds of respondents say that the technologies developed in Germany are particularly sustainable, developments are too slow (Stindt, 2023). Thus, it is obvious that the GAI is currently facing some major challenges – driven by the need for ST.

Despite its importance, links between organizational change and TL in the context of ST have not been explored in the GAI, even though this sector is crucial for the German economy as well as reaching national emission reduction targets and thus environmental protection.

1.5. Thesis aim

The aim of this thesis is not only to benchmark the LDPs in the GAI and to assess their structure to promote transformational, sustainability-oriented leadership qualities, but especially to make recommendations for the industry and further to pave the way for future research in this emerging field. Thus, I derived the following research questions:

1. How is the concept of training structure in different German OEMs?
 - a. How much focus is on leadership training?
 - b. On which topics are training courses offered?
2. What personal characteristics do German OEMs strengthen in the development of its leaders?
 - a. How do these characteristics embody the company's mission?
 - b. How can the corporate culture be described?
 - c. How is the corporate culture supported by leadership training?
3. How sustainability-oriented is the strategic focus of the leadership development programs?
 - a. To what extent are German OEMs aware of how leadership characteristics foster sustainability transformation?
 - b. What role does Transformational Leadership play in leadership development programs?

1.6. Thesis structure

The structure of the thesis is as follows: Chapter 2 introduces the theoretical background on the Model of Organizational Performance and Change as well as the concept of TL. After presenting the methodological approach in Chapter 3, Chapter 4 presents the results of the interviews, mainly focusing on the approach to training, personal characteristics strengthened, mission and corporate culture, as well as the ecological sustainability orientation of OEMs. These findings will be discussed in Chapter 5, including recommendations for OEMs and future research, before Chapter 6 is concluding the thesis.

1.7. Relevance for sustainability science

According to Kates (2011, p. 19450), "sustainability science is a different kind of science that is primarily use-inspired, ..., with significant fundamental and applied knowledge components, and

commitment to moving such knowledge into societal action. ... However, its real test of success will be in implementing its knowledge to meet the great environment and development challenges of this century". Another aspect of sustainability science is to incorporate non-academic stakeholders in the research to impact initial problem statements and to support researchers in concentrating on circumstances of interactions between humans and the environment (Jerneck & Olsson, 2020). Further, the overarching aim of science dealing with sustainability challenges is supporting action and thus reaching actual changes in the world outside of academia (Van Kerkhoff, 2013). "Sustainability fundamentally contains a normative dimension, and such framing is built upon social values and individual beliefs" (Kudo & Mino, 2020, p. 9) which nevertheless should not be underestimated.

The present thesis is a great example of sustainability science, as it focuses on the overarching environmental challenge of global warming and seeks solutions within a specific industrial sector. The goal of the work – not only to capture the current state of German OEMs regarding leadership development, but especially to translate this knowledge into actionable recommendations– is fully in line with sustainability science. In doing so, the GAI is included as a non-academic stakeholder in practical research, which has led to the emergence of further interesting research areas during the interviews. The latter is a valuable aspect of sustainability science, wherein the different values potentially influencing the two interview groups in their statements were considered. Delivering suggestions for the industry on how to improve leadership development in order to facilitate ST, this thesis makes an important contribution to what sustainability science is all about: knowledge to action.

2. Theory

To achieve knowledge to action by providing recommendations, the practice-oriented *Causal Model of Organizational Performance and Change* was chosen, combined with the TL framework, as the focus of this work primarily lies on the pillar of leadership for organizational change.

2.1. A Causal Model of Organizational Performance and Change

The model establishes links between different factors that can influence a company's performance and drive change based on an understanding of how organizations function (Burke & Litwin, 1992). Due to its practice-oriented outline and the simplification of complexity of organizational change within organizational models (Burke & Litwin, 1992), it is nowadays well known for diagnosing, structuring and managing change in organizations (Robinson, 2019). It does not only incorporate the 7 S's of the McKinsey & Company (2008) Framework – namely Style, Skills, Systems, Structure, Staff, Strategy and Shared values – but is one of the top management tools and supported by management consultancies like McKinsey, Boston Consulting Group and Deloitte (Domont Consulting, n.d.). An overview of studies supporting the validity of the model can be found in Appendix A.

Figure 1 provides an overview of the model. All influencing factors will be described briefly whereas the focus is on the three pillars namely *Leadership*, *Mission and Strategy*, and *Organizational Culture*. Due to the scope of this work and the complexity of the model, only the factors relevant for further analysis are explained in more detail. The description starts from the outer circle and thus follows the initial explanation of the authors.

Starting from outside, the *External Environment* (e.g., climate policies) refers to general input, whereas the *Individual and Organizational Performance* (e.g. products and services) represents the output – both influencing each other within a positive *feedback loop*. The whole model is a causal model and all interactions between pillars are essential for change. However, “in large scale or total organizational change, mission, strategy, leadership, and culture have more ‘weight’ than structure, management practices, and systems: that is, having organizational leaders communicate the new strategy is not sufficient for effective change. Culture must be planned as well and aligned with strategy and leader behavior” (Burke & Litwin, 1992, p. 529). The fact that this model ascribes such relevance for organizational change to the three pillars mentioned above is unique and of great importance for this research, particularly the high impact assigned to leaders. Derived from

leadership theories, this model applies a transformational-transactional approach where leadership is directly associated with transformational change.

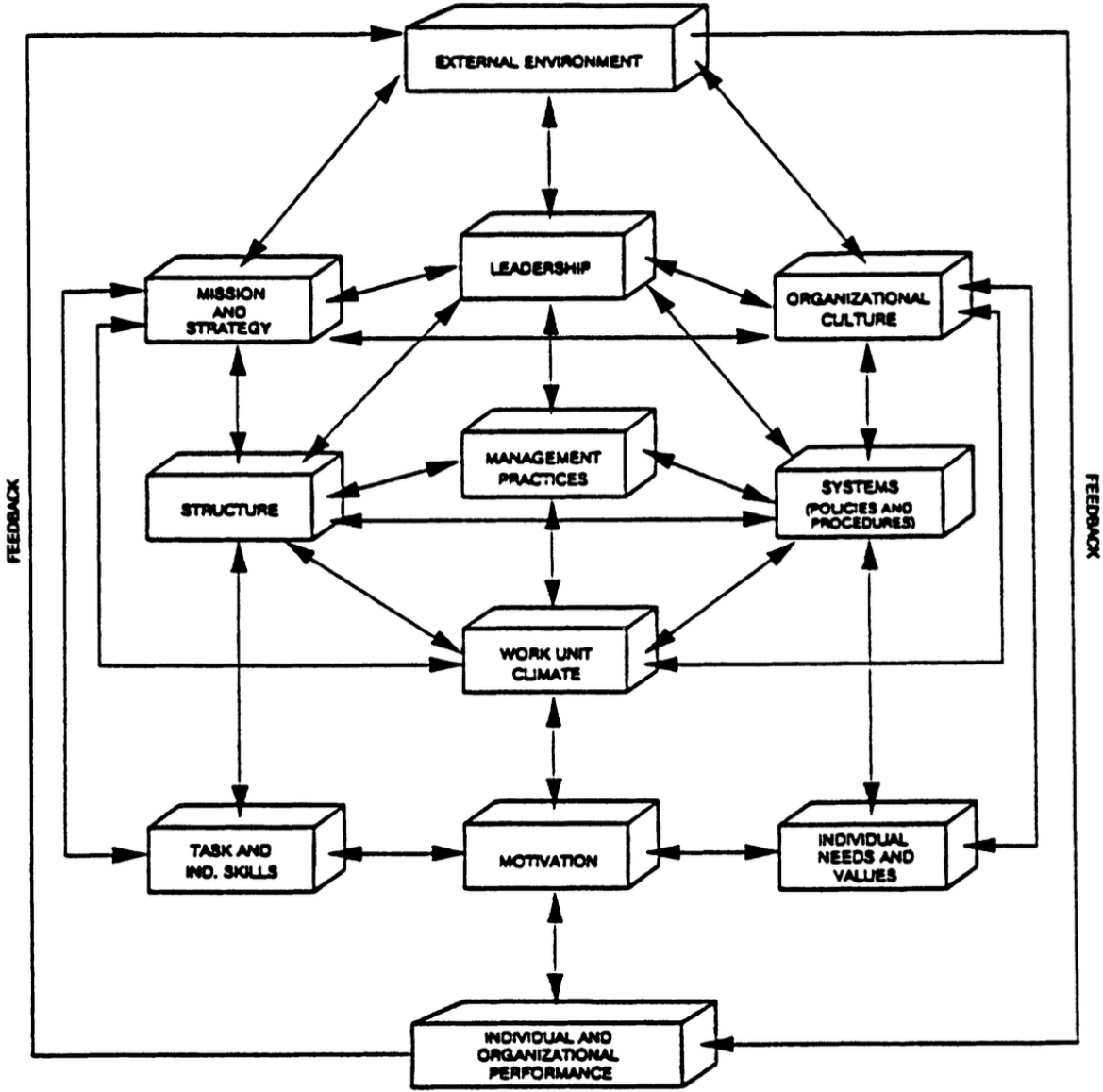


Figure 1. A Model of Organizational Performance and Change (Burke & Litwin, 1992, p. 528)

All inner pillars named in the model are summarized in Table 1 in a brief but essential manner, based on Burke & Litwin (1992).

Table 1. Inner pillars explanation of the Model of Organizational Performance and Change (Own creation, based on Burke & Litwin 1992).

Term	Explanation
Mission and Strategy	Represents the upper management beliefs of the organization in precise statements and thus what employees find as the organizations' purpose.
Leadership	Describes managers who steer organizational development and act as role models for followers.
Organizational Culture	Includes principles, values, and rules – official as well as unofficial – which guide the organization.
Structure	Refers to the way employees and functions are arranged in certain areas and dedicated to responsibilities, authority, relationships as well as communication with the overarching aim of implementing the strategy and mission.
Management practices	Describes the actions of managers to support the organization's strategy through the allocation of material and human resources.
Systems (Policies and Procedures)	Summarize mechanisms and policies which support sufficient work of the organization, specifically in forms of reward systems like performance appraisal or budget planning.
Work Unit Climate	Is a collective term for feelings, expectations, and recent impressions of employees, affecting leader relationships and among each other.
Task and Individual Skills	Refer to the necessary traits for being effective and accomplishing the assigned work.
Individual Needs and Values	Are categorized as psychological factors, featuring individual appreciation for thoughts or actions.
Motivation	Is what pushes people to take action, strive for goals and persevere until sense of achievement.

The importance of leadership is further displayed in the authors explanation of how the organizations climate is constituted: a clear mission provides employees with a sense of orientation; the clarity of structure and thus responsibility and role is affirmed by managers; further the commitment is shaped by managerial practices which in turn is corroborated by the company culture; reverse company culture forms standard of excellence and focus; and lastly, the effectiveness of systems, thus equal rewards are operated by managers as well (Burke & Litwin, 1992). In addition, the three most transforming factors “can be thought of more realistically being in

the mind of organization leaders and as part of their behavior, not in organizational categories” (Burke & Litwin, 1992, p. 536).

Coruzzi (2020), in their study on the U.S. Navy, stated that the model crystallizes the strengths and weaknesses of an organization and highlights the importance of good leadership – focusing on what followers need while encouraging courageous and decisive leadership. Similar findings were reported in the study by Martins & Coetzee (2009) in an international hotel group, which described that the model provides a clear overview of the effectiveness factors of an organization.

Other theories dealing with organizational change have been used to explore change in the GAI as well: Wissuwa & Durach (2023) examined how more sustainable supply chains can be implemented in the GAI and developed a framework based on Lewin's model of change. While Lewin's original model consists of the three steps Unfreeze, Change, and Refreeze – with leadership playing a crucial role – the authors adapted it to Planning, Executing, and Stabilizing. Filkorn (2020) deals with change management and global leadership in the GAI as well, referring to the fundamental three dimensions of change management – Individuals, Structure, Culture – as defined by Lauer (2014). He discusses Kotter's 8-step model, where Kotter emphasizes the relevance of leadership in change, aligning with Burke & Litwin.

As this model comprehensively explains and justifies how important leadership, as well as mission, strategy, and organizational culture are for transformational change, leadership will be discussed in more detail below. Since no recommendations for specific leadership styles were made in the model, TL was selected as the most suitable form of leadership approach, being justified in the next paragraph.

2.2. Transformational Leadership

Leadership being important for change and company's success, has not only been argued by Burke & Litwin, but is generally receiving increased attention in the business sector within the last years, with special emphasis on TL (Boogaard, 2024; EY Belgium, 2022; Newton et al., n.d.). This type of leadership is not just about enabling transformation, but, in the first step, setting clear goals by visionary thinking, practicing mindfulness and reflection, and allocating complementary individual skills (Lancefield & Rangen, 2021) – thus positively influencing followers evaluation of corporate goals as well as supporting them in proactive behavior to aim for those (Steinmann et al., 2018).

The concept of TL cannot be clearly attributed to one author, but its beginnings can be traced back to the American sociologist Downton (1973) and his book *Rebel leadership: commitment and charisma in the revolutionary process*, where he analyses leader-follower relations with special emphasis on being inspirational, charismatic, and transactional. His work was further elaborated by the American political and historian scientist Burns (1979), who argued that transformational leaders focus on their engagement with followers, as well as more intrinsic needs and different paths to achieve significant outcomes (Barnett, McCormick & Conners, 2001; Cox, 2001; Gellis, 2001; Griffin, 2003; Judge & Piccolo, 2004, as cited in Hay, 2006). Building upon the work of Burns, professor of organizational behavior Bass (1998) further developed the framework, investigating the effects of TL not only in the army, but on various industries and how it inspires followers to foster innovation (Kelly, 1999). Since then, TL has been further analyzed by experts and researchers but can basically be divided into 4 main characteristics – the 4 I's – which are illustrated for simplification in Figure 2.



Figure 2. Overview of the 4 I's in Transformational Leadership (own creation based on Bass, 1985; Boerner et al., 2007; National University, n.d.)

The aforementioned Bass (1985) conducted a study about how 70 senior executives would describe transformational leaders and the results were congruent with today's expectations: transformational leaders support innovation by enabling higher performance due to fostering individual development. Consequently, increased self-confidence of followers leads to increased belief in the leader and thus the overall organization. In his study, Bass refers to the leader as a generic masculine – which is problematic today, but was still common at that time, especially for job titles – and respondents further described the person as follows: “The leader provided a model of integrity and fairness and also set clear and high standards of performance. He encouraged followers with advice, help, support, recognition, and openness. He gave followers a sense of confidence in his intellect, yet was

a good listener. He gave followers autonomy and encouraged their self-development. He was willing to share his greater knowledge and expertise with them” (Bass, 1985, p. 33).

In order for leaders to have a more positive effect on the performance of their followers by TL than with other leadership styles (Dvir et al., 2002), some personal characteristics are conducive. These vary slightly between expert opinions, but mostly consist of similar personality traits. Starting with being *self-aware*, leaders need to be reflective on themselves, knowing their strengths and weaknesses (National University, n.d.) to support follower satisfaction (Tekleab et al., 2008). Being *open-minded* and *empathetic* is crucial for leaders to be active listeners while striving for creativity and innovation (National University, n.d.) and thus connecting great team work (Solares Menegazzo et al., 2015). In doing so, acting *ethically* as well as *adaptable* refers to keeping high ethical and moral standards, further having enough flexibility for experimenting and growth. To inspire followers, leaders need to be *proactive* and take initiative while questioning existing structures (Lancefield & Rangen, 2021). Transforming an organizations requires being *creative* and *humble* since feedback incorporation and acknowledgement of followers work is essential. Last, transformational leaders need to be *accountable* for their *risk-taking* personality traits as well as *encouraging*, for followers reaching top goals by motivating them (National University, n.d.) and clearly focusing on overall shared purpose as a key leveraging power for inspiration (Wilson, 2017). Especially in dynamic environments – which includes ST – TL “may be evidenced by halting motivational, moral, or empowerment decline among followers” (Dvir et al., 2002, p. 742).

2.3. Differentiation between Transformational Leadership and Transactional Leadership

In public discourse and academic debates, a distinction is made between the transactional and the TL style. To deepen the understanding of the TL style, the differences between both styles will be briefly explained in this section.

Starting off, one difference between both leadership styles is the purpose of work and form of exchange. Pillai et al., (1999) mostly differentiate between economic and social exchange when it comes to leadership behavior – even though the exchange is mostly not purely only in one form. They attribute economic exchange and thus short-term orientation as the primary basis of Transactional Leadership. This is further supported by Bass who describes transactional leaders as material-based who clearly communicate tasks and rewards to expect when reaching the goals (Pillai et al., 1999). This might form an environment where economic exchange defines the followers relationship to the company (Pillai et al., 1999). By contrast, transformational leader’s attitude is

based on social exchange. "The concept of social exchange directs attention to the emergent properties in interpersonal relations and social interaction. A person for whom another has done a service is expected to express his gratitude and return a service when the occasion arises. Failure to express his appreciation and to reciprocate tends to stamp him as an ungrateful man who does not deserve to be helped. If he properly reciprocates, the social rewards the other receives serve as inducements to extend further assistance, and the resulting mutual exchange of services creates a social bond between the two" (Blau, 1964, p. 4). Den Hartog et al., (1997, p. 20) put it in other words: "The general notion is that, when the job and the environment of the follower fail to provide the necessary motivation, direction and satisfaction, the leader, through his or her behaviour, will be effective by compensating for the deficiencies". Summing up, these main two contrasting directions of both leadership styles can be enhanced by the following disparities: Whereas transactional leaders are more reactive, transformational leaders motivate by enthusiasm and charisma, being proactive in their thinking (Bass, 1985).

3. Methodological approach

This chapter describes the methodological approach employed in this study. The theoretical model of Burke & Litwin (1992) and the TL concept in practice informed the interviews conducted with experts from the GAI and leadership coaches outside of the OEMs – but still with industry expertise – to incorporate independent outsider-perspectives as a control group. To achieve the research aim, the methodology of key informant interviews was chosen, as the research focuses on a specific and limited target group – the best-known OEMs in Germany – and therefore expert opinions were relevant rather than the general public. This study specifically aims to provide qualitative insights into the industry and thus practical recommendations, for which a small but detailed research was necessary and sufficient. The objective was not to conduct a comparative analysis, but rather to present the results as benchmarking to capture status quo and gain valuable insights.

3.1. Semi-structured interviews

Semi-structured interviews was the data collection method used in this study. This interview type is a common way to conduct qualitative research in social sciences by following a prepared structure while giving space for topic discourse to unfold the conversation (Magaldi & Berler, 2020). This enables conversation to flow naturally, allowing for additional questions to be posed and the sequence of questions to be adjusted during the conversation and timeframe of the interview.

The interview questions were formulated relatively broad, providing room for the interviewees to respond and thematically focused on three overarching areas, which differed only slightly between industry professionals and coaches: For German OEM interviewees, the main areas were 1) the overall concept of training within the company and its structure; 2) the role of personal and collective characteristics, mission, and corporate culture in LDPs; and 3) the orientation towards sustainability in LDPs, as well as TL. For coaches interviews, the focus was on 1) their expertise and specific (automotive) industry experience; 2) their offered LDPs and connection to client's corporate culture; and 3) the alignment of their LDPs with sustainability and TL. Similarly, the questions were designed to be sorted by depth, starting with general introductory questions, and progressing to deeper, more specific questions throughout the interview, see Appendix B for both complete interview guidelines. Due to the nature of the semi-structured interviews and the desired flexibility, supplementary questions were omitted depending on the course of the interview.

To represent a comprehensive sample for the GAI, the best-known and largest German OEMs were selected as the target group. This choice was made according to company size and significant market influence, making them primarily relevant and representative for the GAI. Due to the competitive nature of the thesis topic and need for anonymity, interviewees as well as manufacturer names are not mentioned. Interview partners from four out of the five most well-known German OEMs have been interviewed, thus being a representative sample size. The industry interviewees were OEM employees working in personnel development, specifically focusing on leadership development, some even up to the top management level. The interviewees were identified through LinkedIn, using searches related to leadership development and personnel development, or through general inquiries made internally within the corporations, and contacted via LinkedIn, phone, or email. In total, 38 industry employees were approached – often multiple individuals within each respective corporation simultaneously – in order to ultimately secure at least one interviewee per OEM. The coaches outside the OEMs were found through Google searches, either through management- and human resource consulting firms or through their own websites and contacted either by phone or email. Special emphasis was put on their experience in leadership development, transformation, and the relation to the GAI. To reach these contacts, 10 coaches were personally contacted, in addition to 4 reputable management and strategy consulting firms with a multitude of potentially relevant consultants.

Addressing ethical considerations, I informed all interviewees before the interview about the confidentiality of the study, their right to withdraw, and provided background information on the study. The letter of consent for both interview groups is attached in Appendix C. All interviewees signed the consent form, with all but one granting permission to record the interview. The interviews were conducted from March 4th to 3rd April. Due to spatial distance all interviews were conducted online via Microsoft Teams and all interviews with permission were conducted with video – to establish a sense of interpersonal connection online and give me the opportunity to observe the interviewees' behavior during the interview. To maintain a virtual personal atmosphere, a conscious decision was made to refrain from using a PowerPoint presentation during the interview, in order to focus solely on seeing the interviewee online at all times. Almost all interviews lasted for one hour and were conducted in German – except for one only 45 minutes due to the interviewee's schedule and one in English – because it is not only my native language, but also the native language of the interview partners, which simplified the conversation and minimized limitations due to language barriers (Welch & Piekkari, 2006).

3.2. Interview transcription and analysis

The interviews were transcribed in an editorial manner, eliminating filler words and repetitions, but maintaining the general conversation without alteration, and preserving all statements – and translated using the online translation tool DeepL. As a native German speaker with great proficiency in English, I checked the translations to correct any inconsistencies. To answer the research questions, the interview transcripts were coded using the latest NVivo software. This allowed for better organization, grouping, and summarization of the interviewees' statements. The codes were created using a deductive approach, themes were derived from the interview questions, with attention to relevant key words and topics. Thus, codes were grouped in the same way as the interview questions, to keep structure and clarity. Subsequently, the codes were reviewed in relation to the research aim and research questions, ensuring that the research questions can be answered through the codes. The relationship between research questions, interview questions for OEM interviewees, and the derived codes is illustrated in Figure 3, while Figure 4 is representing the same for the coaches. In order to get a general idea of approach to training at the OEMs, the first part of the interview focused on the training concept, followed by gaining deeper insights into OEM's work, with special emphasis on personal characteristics strengthened in the LDPs. Lastly, the ecological sustainability aspect of leadership development was addressed. During the coding process, the codes for OEMs and coaches had to be adjusted, resulting in more differentiated codes to better illustrate the different statements of these two groups. For clarification, Table 2 provides a more detailed description of all the codes definitions.

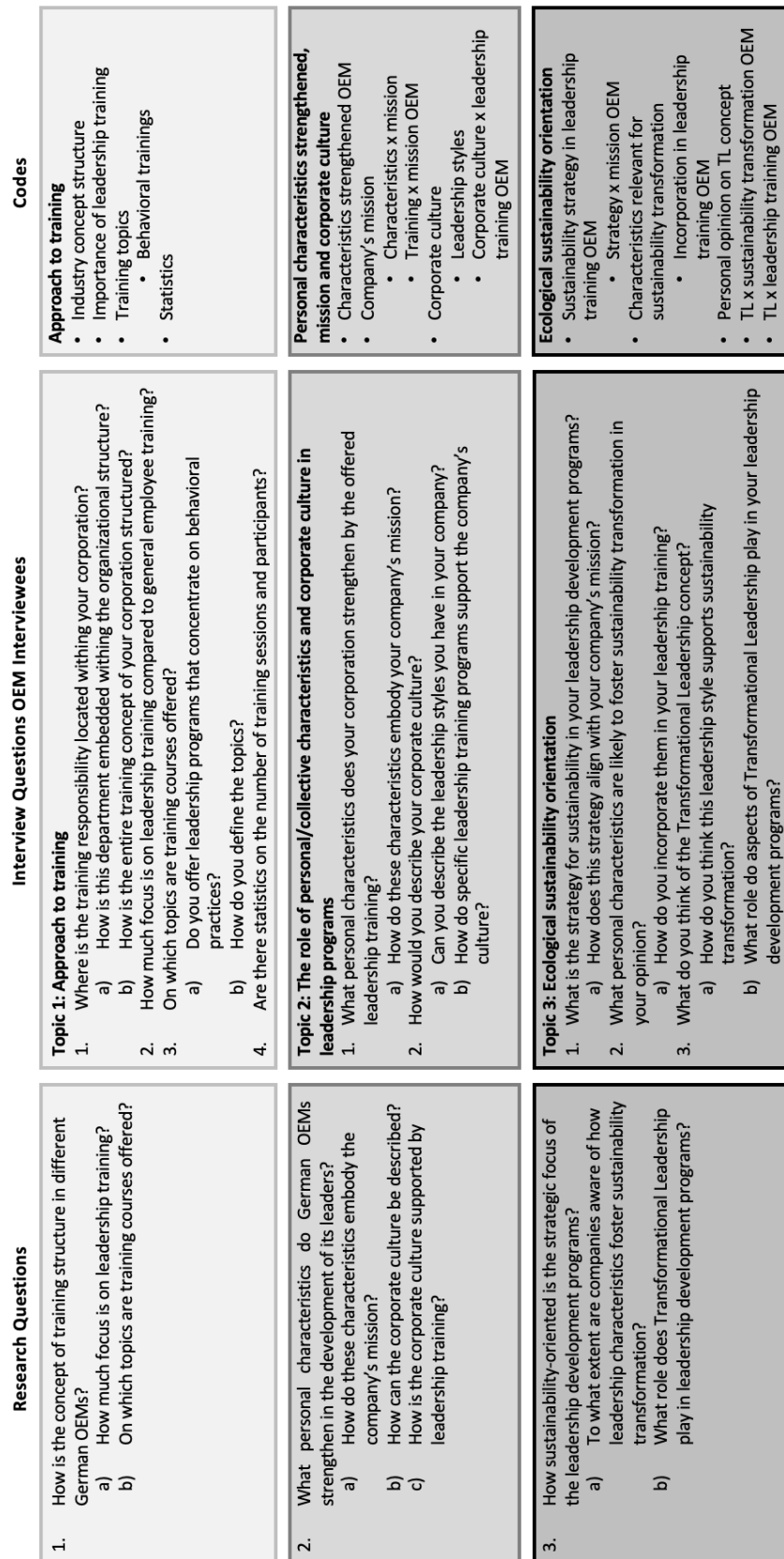


Figure 3. Relation between research questions, interviewee questions for OEM interviewees and codes (Own creation).

Research Questions	Interview Questions Coaches Interviewees	Codes
<p>1. How is the concept of training structure in different German OEMs?</p> <ol style="list-style-type: none"> How much focus is on leadership training? On which topics are training courses offered? 	<p>Topic 1: Approach to training</p> <ol style="list-style-type: none"> Where should the training department ideally be located within the corporation? How important is leadership training compared to general employee training? <ol style="list-style-type: none"> Did you experience any increase of interest in leadership training over the last years? <ol style="list-style-type: none"> If so, what do you think is the reason for that? 	<p>Approach to training</p> <ul style="list-style-type: none"> Ideal concept structure Importance of leadership training
<p>2. What personal characteristics do German OEMs strengthen in the development of its leaders?</p> <ol style="list-style-type: none"> How do these characteristics embody the company's mission? How can the corporate culture be described? How is the corporate culture supported by leadership training? 	<p>Topic 2: The role of personal/collective characteristics and corporate culture in leadership programs</p> <ol style="list-style-type: none"> Do you offer coaching in leadership training that focuses on behavioral practices? <ol style="list-style-type: none"> What does it look like? <ol style="list-style-type: none"> What personal characteristics do you strengthen by the offered training? Why especially these characteristics? Do you incorporate the company's mission statement in the training? Are you mostly booked by leaders themselves or the employer? How do you think of the importance of company culture for the company's success for sustainability transformation? <ol style="list-style-type: none"> How do you think corporate culture is related to the size of the company? How do you connect the training with the company's culture? 	<p>Personal and corporate culture</p> <ul style="list-style-type: none"> Training on behavioral practices Characteristics strengthened Coach Company's mission <ul style="list-style-type: none"> Training x mission Coach Interest requests Corporate culture importance Corporate culture x company size Corporate culture x leadership training Coach
<p>3. How sustainability-oriented is the strategic focus of the leadership development programs?</p> <ol style="list-style-type: none"> To what extent are companies aware of how leadership characteristics foster sustainability transformation? What role does Transformational Leadership play in leadership development programs? 	<p>Topic 3: Ecological sustainability Orientation</p> <ol style="list-style-type: none"> What role does sustainability play in your training? <ol style="list-style-type: none"> What is the strategy for sustainability in your training? How do you align this strategy with the mission statement? What personal leadership characteristics are likely to foster sustainability transformation in your opinion? <ol style="list-style-type: none"> How do you incorporate them in your training? What do you think of the Transformational Leadership concept? <ol style="list-style-type: none"> How do you think this leadership style supports sustainability transformation? What role do aspects of Transformational Leadership play in your training? 	<p>Ecological sustainability orientation</p> <ul style="list-style-type: none"> Sustainability strategy in leadership training Coach <ul style="list-style-type: none"> Strategy x mission Coach Characteristics relevant for sustainability transformation <ul style="list-style-type: none"> Incorporation in leadership training Coach Personal opinion on TL concept TL x sustainability transformation Coach TL x leadership training Coach

Figure 4. Relation between research questions, interviewee questions for coaches interviewees and codes (Own creation).

Table 2. Detailed description of all the code definitions (Own creation).

Code	Description
Approach to training	Higher level code for all training concept related statements
<i>OEMs</i>	
Industry concept structure	How OEM interviewees described their overall training concept: where the training responsibility is located in the corporation; how this department is embedded in the organizational structure; and how the entire training concept of the corporation is structured.
Training topics	On which topics OEMs offer trainings; excluding leadership programs that concentrate on behavioral practices; and how topics are defined.
Behavioral trainings	Which behavioral trainings OEMs offer.
Statistics	Numbers and statistics that OEMs provided on the number of training sessions and participants.
<i>OEM and coaches</i>	
Importance of leadership training	How important, according to both – OEM interviewees and coaches – leadership training is compared to employee training; and for coaches, if there was an increase in interest in trainings over the last years.
<i>Coaches</i>	
Ideal concept structure	How the coaches would ideally describe the training department location within a corporation.
Personal characteristics strengthened, mission and corporate culture	Higher level code for all practical insights from OEM interviewees and coaches.
<i>OEMs</i>	
Characteristics strengthened OEM	What personal characteristics are strengthened by the leadership training of OEMs.
Company's mission	What the company's mission is according to OEM interviewees.
Characteristics x mission	How the personal characteristics strengthened embody the mission of the OEMs.
Training x mission OEM	If OEMs incorporate the company's mission statement in the training.

Corporate culture	How OEMs describe their corporate culture.
Leadership styles	How OEMs describe their leadership styles in the corporation.
Corporate culture x leadership training OEM	How leadership trainings are connected to the company's culture in OEMs.
<i>Coaches</i>	
Interest requests	If coaches are mostly booked by leaders themselves or the employer.
Characteristics strengthened Coach	What personal characteristics are strengthened by the leadership training of coaches.
Training on behavioral practices	What leadership trainings coaches offer regarding behavioral practices of leaders.
Training x mission Coach	If coaches incorporate the company's mission statement in the training.
Corporate culture importance	How important coaches think the company culture is for the company's success for sustainability transformation.
Corporate culture x company size	If coaches think that the corporate culture is related to the size of the company.
Corporate culture x leadership training Coach	How leadership trainings are connected to the company's culture by coaches.
Ecological sustainability orientation	Higher level code for all statements regarding ecological sustainability (transformation).
<i>OEMs</i>	
Sustainability strategy in leadership training OEM	What the strategy is for sustainability in leadership development programs in OEMs.
Strategy x mission OEM	How the (sustainability) strategy in leadership development programs is aligned with the company's mission in OEMs.
Incorporation in leadership training OEM	How OEMs incorporate these relevant personal characteristics in their leadership training.
TL x sustainability transformation OEM	How OEMs think that transformational leadership can support sustainability transition.

TL x leadership training OEM	What role transformational leadership plays in the leadership trainings of OEMs.
<i>OEM and coaches</i>	
Characteristics relevant for sustainability transformation	What OEMs and coaches think which personal characteristics are likely to foster sustainability transformation.
Personal opinion on TL concept	What both – OEMs and coaches – think of the concept of transformational leadership.
<i>Coaches</i>	
Sustainability strategy in leadership training Coach	What the strategy is for sustainability in leadership development programs by coaches.
Strategy x mission Coach	How coaches align the (sustainability) strategy in leadership development programs with the company's mission.
Incorporation in leadership training Coach	How coaches incorporate these relevant personal characteristics in their leadership training.
TL x sustainability transformation Coach	How coaches think that transformational leadership can support sustainability transition.
TL x leadership training Coach	What role transformational leadership plays in the leadership trainings of coaches.

4. Results

This chapter presents the interview results. In most paragraphs, the statements of the OEMs are named first while the statements of coaches are treated as a control group, focusing on differences and consensus. The outline of this chapter is aligned with the interview structure in order to maintain a stringent logic. Throughout the results, interviewees from OEMs are numbered and labelled 'I' (Industry) and coaches are numbered and labelled 'C'.

4.1. Approach to training

4.1.1. Training structure

At all OEMs, the leadership development responsibility lies with the Human Resources (HR) department (1I, 2I, 3I, 4I), while training responsibilities are organized differently: Either there can be a strong decentralized responsibility – oriented towards departments like R&D (1I, 2I) – or there are centralized training departments which deal with all managers, regardless of their department (2I, 3I, 4I). Furthermore, training for managers is sometimes differentiated according to hierarchical level (2I, 3I). In half of the OEMs, training for managers is partly mandatory, either to be able to fulfil the role of manager at all (4I) or to remain in it (3I). Apart from training for managers, all OEMs interviewed offer training for all employees, including those without personnel responsibility (1I, 2I, 3I, 4I). Exact numbers and statistics regarding the quantity of trainings and participants could not be provided (1I, 3I).

Regarding the training style and whether OEMs focus on traditional training or modern coaching, the inclusion of coaching in contrast to traditional seminars was mentioned, with a particular focus on the individual support of leaders through online and face-to-face sessions (4I). Otherwise, more traditional seminars are offered, where groups of 8-12 people participate (4I), and these last for several days (3I). In this context, 4I indicated that the short-term perspective is more dominant than the long-term one, as the long-term perspective only takes precedence in extensive promotion programs. Complementary, collaborations with international business schools on leadership topics are offered where executives get sent there for training (4I).

The coaches are generally of the same opinion that the responsibility for leadership development should lie with the HR department (1C, 3C, 4C). However, they differ in whether the department should be responsible for overall personnel development (1C) or exclusively for management

development (3C, 4C). Ideally, this department should not only develop middle – but also senior management, ensuring that the same values are imparted in the training sessions (3C) while managers are accompanied on their journey in the long term (1C). Furthermore, it has been argued that while the respective HR department should organize the training, the initiative for development should come from the managers themselves, since more responsibility should be attributed to them (4C). Coaches speak of coaching rather than training – not only because of their job as coaches – but also because they are convinced that the concept of traditional seminars is outdated and coaching is necessary to individually and effectively develop leaders (1C, 3C, 4C). This is further reflected in the increased demand for coaches in recent years (3C, 4C).

For most of the interviewees, leadership development is more relevant than the development of non-managerial employees, even though this was a challenging question (3I, 4C), and two OEMs couldn't provide a clear answer (2I, 3I). Otherwise, there were two different statements: 1) Leadership development has a much higher priority – either generally or within the company (1I, 1C, 3C) – since the work of leaders has a much greater influence on a company (2I, 1C), while it has always been important and is only being exaggerated now (2C), or that it is super important and therefore mandatory (4I); 2) that leadership development is not more important than the development of non-managerial employees (4C) and thus, both are equally relevant (2I).

4.1.2. Training courses topics

The training topics and their selection in OEMs are generally similar but differ in detail. Initially, both external (3I) and internal analyses are conducted to determine the topics (1I, 3I), which either relate to the current concerns of the company (1I) or are based on the skills the company wants to support (3I). The training for executives mainly focuses on behavioral training (1I, 2I, 4I), where the manager is supposed to learn to act as a coach (1I), and the emphasis is on enhancing cooperation and discussion attitude (1I). Additionally, topics like inner constitution and self-awareness (1I), as well as innovation and self-leadership (2I), are relevant. Generally, there is an attempt to develop transformational competence (2I), while still discussing, examining, and evaluating various other leadership styles (4I). Half of the OEMs have indicated offering company-wide trainings on general topics such as the code of conduct (2I, 4I), with company values playing a role (4I). Aside from behavioral trainings, trainings for executives that focus on the technical expertise of their respective departments are offered as well (2I, 4I).

The focus of some coaches has shifted from a seminar-based approach to more individualized coaching (1C), since executives may know theoretically how to conduct a conversation, but, individual issues and skills are hindering success (1C), thus requiring work on mindset and attitude (4C). Additionally, leaders need to understand that followers are individuals and require an individualized leadership approach (1C) to empower them (4C). It is about making leaders aware that they themselves must make decisions (2C), putting them in a position of responsibility (4C), but also showing them where they should make decisions together with their team (4C). In contrast to 1C, there are coaches who still value to teach communication rules and questioning techniques (3C), with individual attention given to time and self-management (3C).

4.2. Personal characteristics strengthened, mission and corporate culture

4.2.1. Relevant personality traits

Personal characteristics which are strengthened by OEMs are generally described as relevant for innovation and transformation (3I), focusing firstly on empathy (3I) – that is, understanding where each team member stands and how to lead them individually (4I) – and secondly on self-reflection (1I, 3I, 4I), also referred to as self-leadership (2I). Other personality traits to be strengthened include social intelligence, building trust, creating psychological safety, and fostering team spirit (1I, 3I) which means focusing on achieving the best results rather than claiming oneself as a hero (1I). However, “trustworthy interaction is lacking to some extent nowadays, as we are so focused on completing our work and everyone is striving to achieve their own goals” (2I). Furthermore, training is about understanding one's own privilege (3I) and remaining open and curious, which can often be lost for an individual employee in such a large organization as OEMs (1I). Additionally, leaders should be encouraged to better understand the company strategy and translate it into concrete actions for various departments (4I).

The personality traits promoted by OEMs and coaches showed only small differences. Among the coaches, two major differences regarding empathy emerged: While 1C believes that there are personal qualities – including empathy – which cannot be changed, another coach focuses on empathy, emphasizing the importance of not losing oneself in it (3C). Apart from that, personality traits to be strengthened by the coaches are similar to those among the OEMs: it is about inner change management (4C) and being mindful on one's own role (1C) to make decisions (2C, 3C) and further to realize that, as a leader, you do not need to know everything (3C). This enables leaders not only to take responsibility but also to act as role models for their employees (2C), radiating reliability and trust, which is further strengthened by good self- and time management (3C). In addition, it

includes questioning one's own limitations, maintaining openness to new ideas – although being difficult for expert leaders, as they might have a hard time trusting the knowledge of their employees (4C). Another coaching approach is not to define personality traits in general, but to focus on individual needs (3C). However, it is important not to excessively reflect on one's leadership behavior, as it must be noted that leaders still have a number of other tasks to fulfill in their day-to-day operations (3C).

4.2.2. How fostered characteristics embody the mission and its training incorporation

The OEMs did not provide details on how these promoted characteristics in leaders embody the mission. However, these characteristics deal with one's own sense, one's own values, and those of the company, thereby encompassing the mission (3I). It was argued that the company's strategy is always connected to one's own work in some way due to pursuing the same goal, but company-wide statements are sometimes difficult to grasp (3I). For this reason, employees need a visionary mind to be able to connect with the mission statement (4I).

Regarding the question of incorporating the mission statement into LDPs, answers were clearer, but still different: While the mission is not integrated at all (1I), in other cases, attempts are made to integrate it (2I), or it is deliberately integrated in various ways (4I). If the mission is not (anymore) integrated into leadership training, it is mainly because the claims are not tangible enough (1I). According to interviewee 1I, the strategy is adjusted every 3-5 years due to manager turnover, and the company has forgotten how to handle these statements properly. While they acknowledge and work on the three pillars of Burke & Litwin's model and consider them as relevant, there is no consciously controlled interaction between them. Nevertheless, interviewee 1I was interested in whether and how the connection could be strengthened and whether this would be an interesting impulse to increase the company's success. On the other hand, there are OEMs trying to incorporate the mission within their own limitations while not losing themselves in it (2I), meaning no general mission teaching programs, but still contributing to the mission, since in the end, the same values are pursued towards common goals (2I). Interviewee 2I understands the logic of keeping the mission statement broad for each department making its own contribution to it. Finally, some OEMs consciously include the mission in their training, not only because the entire company management are aligned with the overall strategy, but also through a wide range of and contact opportunities between managers and people responsible for strategy development, such as through keynotes and panels (4I). They are currently working on breaking down the strategy even further for leaders and

making it more tangible because they see the transfer of information on strategic topics as a generator for consistent effectiveness (4I).

On the other hand, the majority of coaches include the company's mission statement in coaching (1C, 3C, 4C). While it varies from job to job (1C), if the company has an available and well-known mission, it directly influences leadership (3C). Part of the work is to deal with clients who do not act in accordance with company values, and in such cases, the mission is definitely included (1C) – sometimes indirectly (4C) – just as it is when it comes to strategic development or organizational transformation (4C). It was emphasized that a company workshop focusing only on values associated with the mission is insufficient (1C), reflecting the experience that 80% of managers are unaware of the mission statement and its related management culture (3C) – with this specifically contrasting the statement of 3I that the company's mission is always connected to one's own work. To address this, coaches ask questions specifically related to these topics (3C) and explore the motivation behind the job (4C). However, the challenge lies in operationalizing the mission in such a way that it becomes tangible (2C). It was further argued that the value of mission statements is overrated because even without such statements, employees would know how to behave well (2C). It can even lead to managers being judged by their team based on whether they fully adhere to the mission, which intimidates managers (2C).

4.2.3. Corporate culture

Describing the corporate culture was perceived as not easy (3I, 4I) since it differs in departments (3I, 4I) or locations (2I). OEMs are currently experiencing a cultural shift away from very hierarchical leaders towards younger, diverse leaders with high maturity, currently leading to a clash of leadership styles and reaching a tipping point (3I). Additionally, there is neither a good nor bad corporate culture, but it is an ambivalent phenomenon (1I), and culture in the end is the sum of all behaviors (4I). However, when attempts were made to describe it, it was described as a non-startup vibe, where reliability and long-term perspective are highly valued (1I) with strong attachment to the brand (1I, 4I). However, the desire for security is exaggerated, as employees are entrusted with too little competence (1I). Otherwise, the culture was described with the shining eyes of the employees who enjoy working for the company (1I), where open communication is encouraged while still being aligned with clear goals (2I).

To be able to independently evaluate the statements of the OEMs, coaches were asked about their assessments regarding the relevance of corporate culture and its relation to the size of a company. Accordingly, corporate culture is 100% important, as it can either enable or hinder change (4C).

Similarly, a sustainable corporate culture will be a major factor in attracting employees in the future, keeping in mind that “there’s one official version and then there's the other, which is what really happens” (1C).

When it comes to the extent to which a uniform corporate culture is related to the size of a company, most coaches agreed, although the question was perceived as difficult (3C): The larger the company, the more difficult it is to establish a uniform culture (2C, 3C, 4C). With a number of up to 200 employees, one can still define and describe a culture from a sociological perspective (2C), while the larger the companies, the more informally it is implemented (3C). Thus, corporate culture is directly related to company size, and there can be different cultures within a group (4C). It further depends on the willingness and ability of managers (4C), since the higher the position, the more focus on things like shareholder value (3C). On the other hand, this correlation cannot be generalized because corporate culture depends on how much the employer and its employees support the culture – the culture must be lived (1C, 3C). “Culture is determined by leadership, so without it there is no change, no transformation. Or it simply prevents it” (4C), requiring an incredible amount of work, effort, and energy to drive (cultural) change forward (1C).

4.2.4. Prevalent leadership styles

The prevailing leadership style is part of the corporate culture; however, all OEMs could not agree on one leadership style (1I, 2I, 3I, 4I). On one hand, the leadership style is sometimes more traditional, characterized by security, and *more transactional than transformational*, mainly because mechanical engineers, who often become managers in the automotive sector, have mostly been confronted with experienced transaction during their studies (1I) but still deserve a lot of respect for their skills, careers, and contribution to the OEM’s success (2I). “Who has the say is very strongly determined by the hierarchy and not by the expertise or competence of the employee” (1I), while in HR departments, the leadership culture is more flexible compared to other departments with more control management (2I) as the ultimate task of a leader is to achieve results at the end of the day (4I).

4.2.5. Corporate culture supported by leadership training

The specific ways in which culture is supported through leadership training were difficult to answer but described by 3I in such a way that unity and empathy are promoted, as well as a sense of passion for the company which is done in collaboration with the employer branding department (3I).

The coaches agreed (2C, 3C, 4C), stating that managers are definitely culturally relevant and act as role models (2C), so if managers are not well-trained, neither are the employees (3C). Therefore, leadership styles should be adapted to the company's philosophy, as the communication of the company's values and goals is relevant for the implementation of sustainability change (3C).

4.3. Ecological sustainability orientation

4.3.1. Ecological sustainability orientation in leadership development

When asked about ecological sustainability in LDPs, two directions got uncovered: Either ecological sustainability was seen as the responsibility of the sustainability departments in terms of training (2I, 3I, 4I), rather than being within the scope of personnel development; or it was not considered at all (1I). However, a distinction must be made between training focusing on specific sustainability skills – such as the company's emission reduction goals – and the characteristics that support a ST since the latter is the focus of the thesis. Here, interviewee 3I stated that for strategic issues, responsible employees from the sustainability department are involved, and sustainability plays a role in every training session. Interviewee 2I emphasized that sustainability topics should not dominate personnel development too much, as the sustainability department offers its own trainings. One reason for this is that more overarching competencies should be taught, which contribute to long-term transformation (2I). Additionally, interviewee 4I explained that while they have practical knowledge formats with internal specialists from the respective departments, the goals – whether it's a new CO2 reduction target or a new sales target – are equally weighted. Interviewee 1I indicated that ecological sustainability does not play a role in the department for leadership development. In traditional leadership seminars, the focus is on collaboration, which is considered the right approach, while in new programs, a sustainability strategist might come by (1I). Although the interviewee mentioned that leaders should be familiar with these topics and understand the strategy, it is very specialized and not the task of a personnel developer (1I). "I wouldn't clear an afternoon for an ecological sustainability strategist in that context because my participants might enjoy it, and the strategist might enjoy it, but we would lose time for what is still much more fundamental, namely how do we listen to each other, how do we allow opinions?" (1I).

When interviewing the coaches, similar statements emerged as those from interviewee 1I: all coaches do not pursue a specific sustainability strategy in their coaching sessions (1C, 2C, 3C, 4C). While interviewee 2C mentioned that sustainability as a management task is still relatively uncommon in German companies, the question should be raised whether managers are overwhelmed by it: they are not only responsible for achieving good results, acting professionally,

and leading people, but now further responsible for driving change (2C). By contrast, interviewee 3C claimed that leadership itself has no major influence on ecological sustainability, but rather, it is at most about leading by example. Furthermore, requests to coaches mostly relate to other personal topics and not to sustainability (4C). Overall, while sustainability is relevant for one's own mindset, it does not have any relevance for coaching sessions (4C).

4.3.2. Characteristics relevant for sustainability transformation

After requiring time for consideration (3I), personal qualities relevant for ST all pointed in the same direction, with only small differences: characteristics as having an open, expansive mental model (3I), reflecting on oneself and one's role in this world (2I, 3I), as well as on ethics, power, and privileges (3I) were mentioned. Mindfulness is becoming increasingly important and accepted, thereby further promoting self-awareness (2I). Additionally, it involves the ability to deal with complexity while preserving strategic thinking and considering various perspectives and competencies fundamentally (2I). Intuition plays a role as well, trusting one's gut feeling and acting courageous on it – since this is better than not acting at all (2I). A sense of visioning should be present (4I), inspiring one's own team through passion and gaining the trust of employees (2I) – summarized as maintaining a good mix of strategic and interpersonal competencies as well as soft skills (2I). Even though it is common that people with the greatest knowledge are leaders as well, “at some point it became clear that it's not just about technical leadership, but also about people management” (2C).

However, the “interpersonal aspect is often missing and that's a huge issue, especially for engineers and especially in the automotive industry, because we have a lot of engineers who always lead professionally, but never humanly”, as Interviewee 1C argued. Moreover, the coaches indicated that managers should lead by example through their perseverance and their ability to create clarity, enable competencies, and demonstrate consistency in implementation – with most of them failing at consistency and pursuing things in the long term (1C). Responsibility as role models is the foundation for leading reflective team discussions and guiding decisions (2C). Work changes should be allowed, even if they seem difficult at first, because a company only moves forward when it allows for change, which relates to the communication of the company's goals, values, and mission (3C). This is facilitated by enabling and empowering others, knowing whom to involve in processes through good networking structures, and maintaining enthusiasm for the new (4C). The latter is particularly important since “Germany is extremely undynamic” (1C), conservative, and does not want to transform immediately (1C) even though “it should be clear to all of us that we can't continue as we

have“ (2I) and “what has brought us here and shaped us is no longer necessarily what fits, and we have to rethink and learn new things again to move to the next level” (2I).

4.3.3. Opinion on Transformational Leadership

After being introduced to the concept, opinions of all industry experts and coaches except for one were clear: TL is a very good and absolutely relevant concept (1I, 2I, 3I, 4I, 1C, 3C, 4C). It is the basis for all leadership, not least because of its focus on intuition, as well as its importance for team inspiration (3I). The company needs rational expertise, but something else is needed (2I) to drive transformation forward – and that is exactly what TL offers (1C). “If I only lead transactionally, then I hinder the flexibility, ideas, and willingness to change of my employees more“ (3C), which means that a purely bonus system has its limits in terms of employee motivation – even if it is perceived as easier and more convenient for managers (3C). However, in the end, regardless of the concept, it is important to fully live the leadership style in practice (4I, 1C). Finally, interviewee 2C questioned again whether assigning so much responsibility to leaders is appropriate or it should be the task of everyone.

4.3.4. Incorporation of Transformational Leadership in leadership training

All OEMs agreed to promote TL aspects into their training (1I, 2I, 3I, 4I). For interviewee 3I, the designation for the leadership style as such is not mentioned in the training, but it exactly reflects the company's understanding of leadership based on an internal study. Another OEM offers a seminar called 'Leadership as a coach', which teaches what is necessary to be open and curious, to question oneself, and thus to reach a higher level of significance (1I). Dealing with rational-driven leaders is indisputable in the automotive industry, which is why exactly the kind of TL is promoted (2I). One way to approach is an assessment of individual leadership qualifications (2I). Strengths and potentials are identified, with self-reflection being the focal point (2I). Technical expertise is left out, as nobody would question it anyway, but it is often disproportionately strong (2I). Another OEM derived an internal leadership compass from TL, although it is translated into various leadership styles, where TL is just one of them (4I).

Similar to the OEMs, coaches apply aspects of TL in their coaching sessions, even if they do not consciously name it as such (3C, 4C). Overall, an individual approach is pursued, checking what the leader already knows about their leadership (1C) and encouraging the manager to see their employees as individuals (4C). In summary, the interviewed coaches work with the TL concept, embody it, or show how it can be embodied (3C).

4.3.5. Transformational Leadership and sustainability transformation

Almost all OEMs agreed that TL promotes ST (1I, 2I, 3I) which can be summarized by the following quote: *"I believe these are the values and competencies that will take us to the next level"* (2I). However, it depends on the implementation of theory into practice (4I). In the end, it's the perseverance that truly makes the difference – can the leader overcome resistance and deal with setbacks? (1C) Perseverance ensures that transformation happens, and although time constraints are often used as an excuse for negligent perseverance, the main reason is that it feels exhausting (1C). However, TL can foster change by working with people rather than machines (3C), emphasizing individuality (3C, 4C). It could even be called “leading with humanity” (3C). Nevertheless, it works only if the leader operates within a guiding framework – guiding principles and company goals (3C). Lastly, receiving feedback and being able to handle it is crucial for adopting change and thus ST (4C).

5. Discussion

This chapter deals with discussing the interview results by summarizing the leadership training situation in the GAI and its potential for sustainability transformation, as well as coming back to the mentioned disconnection between the three pillars for organizational change. In the next step, implications for transdisciplinary research will be elaborated – including recommendations for OEMs – followed by a discussion of the limitations of the study.

5.1. Current situation of leadership development and its potential for sustainability transformation in the German automotive industry

Bringing the interview results into the context of the previously mentioned theory confirms the following: Overall, all OEMs agreed that leadership behavior is very relevant for the success of the company – and thus its ability to transform – which aligns with the presented model. Since leadership is crucial, its development must not be neglected. The connection between leadership, corporate culture, and the relevance for conveying the company's strategy and mission statement resonated with the interviewees and was indeed considered in their training – another confirmation of the model. Lastly, interviewees agreed that TL characteristics are very important, even though they promoted TL traits without explicitly naming the concept. Additionally, while the positive influence of TL is mostly recognized, there is still room for improvement identified by the coaches which will be amplified later. This is particularly interesting in view of GAI's significant potential for change and its great responsibility in the area of climate protection on various scales: not only because of its market *power* relations and thus decisive role in future development, but also the *temporal* scale is relevant since what the industry has achieved up to this point is great, but – as they themselves have stated – they now need something else to get ahead.

On the one hand, opportunities emerge, as OEMs are on the right track when it comes to leadership development and promoting relevant personal characteristics for ST. On the other hand, two clear challenges are evident: 1) The connection between leadership, mission, strategy, and corporate culture is not entirely clear and is not sufficiently focused on, which limits the potential for organizational change. 2) While interviewees talked about not having a clear ecological sustainability strategy in their training, they do not realize that it is not about conveying fact-based content but rather about fostering certain personal characteristics, which have a significant impact on the transformation potential of a company, hence the need to create an understanding of this.

5.1.1. Conservative versus modern leadership development approach

Two types of leadership development approaches emerged during the interviews, which are relevant to distinguish and summarized in Table 3: the conservative and the modern approach. While the conservative approach is mainly represented by OEMs – but is certainly undergoing change –the modern approach is mostly pursued by coaches. In the conservative leadership development context, the focus is on training leaders through group seminars, as opposed to the coach's approach, which involves advising the leader on a very individual level. In conservative environments, hierarchy plays a crucial role, although OEMs are acknowledging the need for change and are evolving towards young, diverse, and dynamic leaders. The non-startup mindset and the difficulty of embracing change contrasts with the necessary innovation and flexibility for change which is crucial for ST. It is particularly important to create incentives for work not through monetary, transactional rewards, but by reaching employees on an emotional, transformational level. When considering the tasks of a personnel developer, the conservative side sees people management as the main task, while from a modern perspective, sustainability – through the promotion of certain personality traits – can be considered as a field of action.

Table 3. Comparison of the conservative and modern leadership development approach (Own creation).

Conservative	Modern
Training	Coaching
Group Seminars	Individual Setting
Hierarchical setting	Young and diverse leaders
Non-startup mindset	Innovation
Inertia regarding change	Flexibility allowing for change
Transactional Leadership	Transformational Leadership
People management as main task	Sustainability as management task

5.1.2. Disconnection between leadership, culture, and mission

Regardless of a conservative or modern approach, interviews revealed a disconnection between the three pillars relevant for organizational change. Particularly the connection between leadership and the company's mission is often not consciously controlled, and the way in which the two are linked and how leaders incorporate the mission into their work is rather vague. The same applies to corporate culture, which none of the OEMs could describe as uniform. This is because both the mission and the corporate culture are not tangible enough to break down into concrete areas of

action. In the context of the theoretical model, the interviewees agree that corporate culture can either enable or hinder change within the company and that it is indeed determined by the leaders. That is exactly why it is questionable that these three pillars are individually considered relevant, but as a group, they do not find sufficient coherence in practice, even though being crucial for ST.

5.1.3. Progressing Transformational Leadership

Taking a closer look at the comparison of TL characteristics mentioned in theory and fostered in practice, several similarities and differences were observed, which are summarized in Table 4. While areas in which the TL characteristics mentioned and promoted are matching can be rated as positive, the inconsistencies should be examined more closely. Starting with the topic of empathy and whether this characteristic can be trained, it is being discussed not only in the present study: While Davis (1990) argues that empathy itself cannot be trained, Teding Van Berkhout & Malouff (2016) tested that empathy training can be effective. The fact that flexibility, creativity, and a low willingness to take risks were not mentioned by the OEMs is consistent with the previously mentioned findings regarding the conservative and modern approach, as rigid structures are classified on the conservative side. Moreover, it is particularly interesting to note that perseverance is emphasized in practice, while it is not ascribed any significant importance in the TL framework. The question here is whether this is a gap in the theory because perseverance is essential for successful leadership, or is it deliberately not in the theory because it does not necessarily promote ST? The answer to this cannot be clearly defined, as perseverance is about consistently pursuing the right things, but also knowing when things should no longer be held on to (Merriman, 2017) – and this is ultimately what ST is all about: letting go of old patterns, adapting new ones, and constantly evaluating whether new ones need to be evaluated. This is probably why it is difficult to include perseverance as an essential pillar in the theory, since it could also be associated with adherence to old, conservative structures.

When it comes to TL and how this style of leadership can promote ST, there are several academic articles. Nasir et al. (2022) focused on organizational sustainability in the textile industry and found in their study that there is a positive relationship between organizational sustainability and TL, which the interviewees of the thesis confirmed. In another study by Shahzad et al. (2022), which examines the relationship between TL and firm performance, the conclusions were that TL has a positive influence on the success of the company, with the sustainability of the firm acting as a mediator between company performance and TL.

Table 4. Comparison of TL characteristics in theory and practice (Own creation).

TL characteristics in theory	TL characteristics fostered in practice	TL characteristics agreements
Self-aware, reflective, conscious about strengths and weaknesses	Self-reflection, self-leadership, inner change management, being mindful of own role and limitations	X
Open-minded, encouraging	Characteristics relevant for innovation, psychological safety	X
Empathetic	Empathy, individual focus, social intelligence	Empathy disagreements
Ethically aware	-	Not specifically mentioned
Adaptable, flexible for growth	Being open & curious, open for new ideas	Flexibility missing
Creative	-	Not specifically mentioned
Humble	Not claiming oneself as a hero	X
Accountable	Building trust, making decisions, reliability, trust	X
Risk-taking	-	Not specifically mentioned
Purpose-driven	Team spirit	Disagreements
Role model	Acting as role model, self- and time management	Only mentioned by coaches
-	Perseverance	X

5.2. Implications for transdisciplinary research

After the results of the present study have been evaluated, implications for transdisciplinary research will be explained, with a focus on both the identified gap between academia and industry, and the recommendations for OEMs.

5.2.1. Gap between academia and research

Firstly, it is important to mention that there is no research on the topic of the present study, making the results inherently significant for gaining more insights. Additionally, all interviewees spoke about the topic being interesting and increasingly relevant, further confirming its importance.

Returning to the result that some interviewees are promoting aspects of TL in their training and coaching sessions without explicitly recognizing the concept of TL: Consequently, a gap between academia and industry has been identified. It can be viewed from two perspectives: On one hand, scientists are engaged in researching TL, applying it in different industries, and describing it highly relevant for the future (Boerner et al., 2007; Nasir et al., 2022; Steinmann et al., 2018). Through the development of the leadership concept, scientists aim to advance new insights and methods for industry. On the other hand, characteristics that define TL are already recognized as relevant for the future within the industry and are being promoted, however, these are not consciously associated with the concept of TL. The fact that researchers do not have a precise understanding of what is currently relevant in the practical world, and vice versa, is not a new phenomenon – even though these two actors are inherently interconnected: universities educate a large portion of the workforce for the industry and support the emergence of new business ideas through their innovation (Ahmed et al., 2022). Ahmed et al. (2022) address this by focusing on engineering student education, but the conclusions are relevant to various fields of study: the authors summarize that it is fundamentally important for academia to understand the needs of the industry since often topics are researched that are not currently of interest to the industry. Furthermore, it is about explaining research to the industry in an understandable manner, allowing the industry to identify potential research gaps. In relation to the themes of this research, it means concretely that both parties – OEMs and academia – are mostly in agreement on how leadership development, but there is still room for improvement and a lack of knowledge exchange.

And this is where the coaches come into play: Because all of them have undergone coaching education in some way, where a connection to scientific insights in the field of personnel development was provided, they can take on an intermediary role between academia and industry. In the industry, it is not uncommon for personnel developers to have originally received education in a different field and to have worked their way up internally within the company to their current position. This blend of experiences – on one hand, through academically-based education, and on the other hand, practical experience – is precisely where the co-creation of knowledge can occur, as both complement each other. In line with this and the bridging of organizations, the research by Tether & Tajar (2008) describes that specialist knowledge providers – who can be identified as coaches in the present research – are generally more utilized by innovation-seeking companies, which in turn means that only through this innovation and transformation can take place.

Particularly with the results of this study, the significant and indispensable role that economic relations play in climate action becomes clear, just as values influence science as well, precisely what

sociologists explore (Longo et al., 2021). In the subject of this work, the differing values of the three parties – OEMs, coaches, and researchers – are particularly evident. Scientists primarily focus on sustainability ideals when it comes to TL and ST, while OEMs operate within their capitalist-influenced system, and coaches mediate a role in between. Thus, what is needed is sustainability science with its aim for collaboration between academia and society – the industry.

5.2.2. Recommendations for German OEMs

Since the coaches not only fulfilled the function of a control group but could be seen as a mediator between academia and industry, recommendations for the OEMs have been identified when comparing the statements of both groups. Starting with the suggestion that the leadership development department may only be responsible for management development – and not for general employee development as well (3C, 4C). This can better ensure that the same values and strategies are conveyed to the middle and top management and thus, very importantly, align (3C). Furthermore, leadership development should generally focus more on the type of coaching and less on traditional seminars in larger groups since the focus on the individuality of each manager is indispensable (1C, 3C, 4C). When it comes to the mission statement, it is clear that it should be included in the LDPs (1C, 3C, 4C), as leaders must be informed about it (3C, 4C) so they actually get influenced by it (3C). However, it is recommended to formulate mission statements which are easier to operationalize (2C). The relevance of corporate culture should not be underestimated either, as it can bring great future potential for change to the company (1C, 4C), but ultimately must be lived by the executives – and thus all employees (1C, 3C). Furthermore, it should be emphasized that the perseverance of managers in everything – pursuing an appropriate leadership style and living the culture – is key to ST (1C). It should be noted again that TL can only function well and be lived within a set framework – a strategy and mission (3C). In summary, although both – OEMs and coaches – stated in the interviews that they do not pursue a concrete strategy for incorporating strategic ecological sustainability into their training, interviewees are mostly aware of the relevant personal characteristics for ST – and that is exactly what matters in the present work: not the fact-based knowledge about sustainability in the company, but the soft, personal qualities needed to pursue sustainability goals which need to be consciously fostered to achieve ST.

5.2.3. Recommendations for future research

Since in this study all interviewees confirmed that it is an interesting and highly relevant topic for the future, and potential for transformation towards sustainability got uncovered, it would be interesting to apply the same or similar research methodology in other major environmentally impactful

industries. Recommendations could include the fossil fuel industry, the agricultural sector, food production, as well as the fashion industry, as these are among the most polluting industries worldwide (ClimateTrade, 2023; Kruti, 2024). Furthermore, research needs to be done assessing whether TL actually achieves ST – since the present study focused only on the importance of TL – and which other interests need to be undone to enable ST.

Another interesting topic for future research, which emerged during the interviews, is the relationship between establishing a unified corporate culture and company size. The reason for this is that executives influence corporate culture, which in turn influences the organizational potential for change (Burke & Litwin, 1992). However, all OEMs indicated that due to the size of their corporation, they do not have a unified corporate culture. What are the consequences of this on the success of the company, and is it possible to establish a unified culture regardless of the company size?

5.3. Limitations of the study

The present study has some limitations. One potential limitation of the methodology is that initially, a larger number of German OEMs should have been interviewed to present a more comprehensive picture. Although a total of 37 individuals from various OEMs were contacted through different channels, no more than the existing 4 agreed to participate in an interview. However, this limitation can be mitigated for two reasons: 1) the statements of the OEMs did not significantly differ from each other overall, making it highly unlikely that the results of the study would have changed significantly if more OEMs had been interviewed, thereby rendering the present study representative; 2) to examine the potential biased statements of the OEMs – with their differing values – the second interview group of coaches was used as a control group, allowing the statements of the OEMs to be contextualized. Another potential limitation is the language and thus the translation: Since I am a native German speaker and fluent in English, communication with the interviewees – mainly in German – posed no problem; however, in translations, some statements in English may not be precisely mirrored, although this did not significantly affect the results of the study.

6. Conclusion

The GAI is in the midst of the greatest transformation in its history – due to climate change and the preservation of the planet for future generations, alternatives to the traditional combustion engine model are needed. This requires organizational change, for which the alignment of corporate culture, mission & strategy, and leadership is essential.

The results of the interviews revealed that the OEMs are generally moving in the right direction when it comes to leadership development, but none of them have a conscious strategy for ecological sustainability in their training programs. However, most of the interviewees are aware of the personal characteristics relevant to ST – the qualities central to the TL concept. All OEMs evaluated the TL concept as highly relevant for the future and already incorporate many of its aspects into their LT without consciously associating it with the TL concept. At this point, a gap between academia and industry was identified. Asking the coaches' views on these topics was not only relevant for their role as a control group but also allowed recommendations to be made to the OEMs on how they can extract even more potential from their LDPs. The topic of leadership and how it can foster transformation with certain personal characteristics will become increasingly relevant in the future, as the success of the GAI will depend on its ability to transform. Leaders with appropriate personal qualities – and professional skill – are in demand for ST. Even though the topic is overall more soft, and its success is difficult to measure in numbers, it deserves full attention due to its significant influence.

This thesis is an example of work in sustainability science, where science is connected with the outside-academia world to achieve effective benefits for society and derive concrete actionable possibilities. In doing so, this work contributed to promoting collaboration between academia and industry by communicating the current state of science to the industry – and vice versa. Now, this initial reality check can be considered as a cornerstone for further, OEM-specific research to be conducted, promoting the transformation capability of the GAI, and thereby delivering a significant contribution to climate action.

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Appendix

Appendix A. Overview of studies supporting the validity of the Model of Organizational Performance and Change

Table 1 Summary of Studies in Support of Model's Validity		
<i>Dimensions of Model</i>		<i>Studies</i>
External Environment	<ul style="list-style-type: none"> —> Mission & Strategy —> Leadership —> Culture 	Prescott (1978) Miles & Snow (1978) Gordon (1985)
Mission and Strategy	<ul style="list-style-type: none"> —> Structure —> Leadership/Culture 	Chandler (1962); Miles et al. (1978) Tregoe & Zimmerman (1980)
Leadership	<ul style="list-style-type: none"> —> Management Practices —> Performance 	Fleishman (1953) Weiner & Mahoney (1981); Smith et al. (1984)
Culture	<ul style="list-style-type: none"> —> Reward System —> Management Practices —> Performance 	Kerr & Slocum (1987) Bernstein & Burke (1989) Wilkins & Ouchi (1983)
Structure	<ul style="list-style-type: none"> —> Climate —> Management Practices —> Systems —> Task Requirements 	Joyce & Slocum (1984); Schneider & Snyder (1975) Lawrence & Lorsch (1967) Ouchi (1977) Galbraith (1977; 1973)
Management Practices	<ul style="list-style-type: none"> —> Climate 	Schneider (1980); Schneider & Bowen (1985)
Systems	<ul style="list-style-type: none"> —> Climate Management Practices —> Individual Needs and Values 	{ Bullock & Lawler (1984); Cummings (1982) Cummings & Schwab (1973); Hammer (1988); Zuboff (1988) Deutsch (1985); Jordan (1986)
Climate	<ul style="list-style-type: none"> —> Motivation-Performance 	Rosenberg & Rosenstein (1980)
Task-Person	<ul style="list-style-type: none"> —> Motivation-Performance 	M.J. Burke & Pearlman (1988); Hunter & Schmidt (1982)
Individual Needs and Values		Hackman & Oldham (1980); Guzzo et al. (1988)

Note. Source: Burke & Litwin (1992, p. 539).

Appendix B. Interview guidelines

1) Interview Guideline OEMs

Part 1 Introduction

Thank you very much for taking the time for the interview today.

[Brief introduction of myself]

As already discussed, I am working on my master's thesis on the topic of leadership development in relation to sustainable change in the German automotive industry. I would like to investigate the extent to which leadership development programs in the German automotive industry are structured to support and develop sustainability-oriented qualities in managers.

Now I have a few questions that I would like to ask you. They are divided into 3 main topics.

1. The general training concepts at your corporation
2. The role of personal characteristics and corporate culture in training
3. The sustainability orientation and strategic alignment of the concepts, as well as transformative leadership

As already discussed, the study is completely confidential and personal information, results and statements will not be identifiable in the final report. The information provided is for academic purposes only, and I will be happy to provide you with a copy once I have completed my Master's thesis.

I would start the (video) recording now if you agree and have no further questions.

Part 2 Actual Interview

Topic 1

General Training Concept

1. Where is the training responsibility located within your corporation?
 - a. How is this 'department' embedded within the organizational structure?
 - b. How is the entire training concept of your corporation structured?
2. How much focus is on leadership training compared to general employee training?
3. On which topics are training courses offered?
 - a. Do you offer leadership programs that concentrate on behavioral practices?
 - b. How do you define the topics?
 - i. Do you ask leaders about their interest areas for training as well?
4. Are there statistics on the number of training sessions and participants?
 - a. What informs the selection of participants?
 - b. How do you incorporate feedback on the training from participants?

Topic 2

The role of personal/collective characteristics and corporate culture in leadership programs

[You said before that your company does (not) offer leadership programs that concentrate on behavioral practices]

1. What personal characteristics does your corporation strengthen by the offered leadership training?
 - a. How do these characteristics embody your company's mission?
2. How would you describe your corporate culture?
 - a. Can you describe the styles of leadership that you have in your company?
 - b. What company-wide reward system do you have for your employees?
 - c. How do specific leadership training programs support the company's culture?

Topic 3

Sustainability orientation

1. What is the strategy for sustainability in your leadership development programs?
 - a. How does this strategy align with your company's mission?
2. What personal leadership characteristics are likely to foster sustainability transformation in your opinion?
 - a. How do you incorporate them in your leadership training?

*[You told me you have XY style of leadership in your company...
Explain here Transformational Leadership]*

3. What do you think of the Transformational Leadership concept?
 - a. How do you think this leadership style supports sustainability transformation?
 - b. What role do aspects of Transformational Leadership play in your leadership development programs?

Part 3 Ending

Is there anything else you would like to say before we end the interview?
Or do you have any questions for me?

Thank you for your support!

2) Interview Guideline coaches outside of OEMs

Part 1 Introduction

Thank you very much for taking the time for the interview today.

[Brief introduction of myself]

As already discussed, I am working on my master's thesis on the topic of leadership development in relation to sustainable change in the German automotive industry. I would like to investigate the extent to which leadership development programs in the German automotive industry are structured to support and develop sustainability-oriented qualities in managers. Since I already interviewed representatives for the industry, I would like to get an independent outsider-perspective as well – and that's why we are here today.

Now I have a few questions that I would like to ask you. They are divided into 3 main topics.

1. Your expertise, with special emphasis on the German automotive industry
2. The role of personal characteristics and corporate culture in the coaching
3. The sustainability orientation and strategic alignment of the concepts, as well as Transformational Leadership

As already discussed, the study is completely confidential and personal information, results and statements will not be identifiable in the final report. The information provided is for academic purposes only, and I will be happy to provide you with a copy once I have completed my Master's thesis.

I would start the (video) recording now if you agree and have no further questions.

Part 2 Actual Interview

Topic 1

Job & Expertise

1. What is your job and where is your expertise?
2. In which industries or areas are you coaching people?
 - a. How much expertise do you have in the (German) automotive industry?

Topic 2

Leadership Development and Company Culture

1. Where should the training/leadership development department ideally be located within the corporation?
2. How important is leadership training compared to general employee training?
 - a. Did you experience any increase of interest in leadership coaching over the last years?
 - i. If so, what do you think is the reason for that?
3. Do you offer coaching in leadership training that focuses on behavioral practices?
 - a. What does it look like?
 - i. What personal characteristics do you strengthen by the offered coaching?

- ii. Why especially these characteristics?
- b. When you coach a corporate leader – do you incorporate the company's mission statement in the coaching?
- c. Are you mostly booked by leaders themselves or the employer/company?
- 4. How do you think of the importance of company culture for the company's success for the (sustainability) transformation?
 - a. How do you think corporate culture is related to the size of a company?
 - b. How do you connect coaching with the company's culture?

Topic 3

Sustainability orientation

1. What role does sustainability play in your coaching (especially when it comes to sustainability transformation)?
 - a. What is the strategy for sustainability in your coaching?
 - b. How do you align this strategy with the customer's mission statement?
2. What personal leadership characteristics are likely to foster sustainability transformation in your opinion?
 - a. How do you incorporate them in your coaching?

[Explain here Transformational Leadership]

3. What do you think of the Transformational Leadership concept?
 - a. How do you think this leadership style supports sustainability transformation?
 - b. What role do aspects of Transformational Leadership play in your coaching?

Part 3 Ending

Is there anything else you would like to say before we end the interview?
Or do you have any questions for me?

Thank you for your support!

Appendix C. Letters of consent

1) Letter of consent OEMs



Declaration of consent for interview participation *Master Thesis Lea Sina Schulz, Lund University*

The following consent form informs you about the study conducted by Ms. Lea Sina Schulz at Lund University and about the expectations associated with your participation. Before you agree to participate, you are asked to read the following information. If you have any questions about the study or your participation, please do not hesitate to contact Ms. Lea Sina Schulz.

Background to the research work

The research is conducted as part of Lea Sina Schulz's master's degree program *Environmental Studies and Sustainability Science* at the Lund University Centre for Sustainability Studies (LUCSUS). The study aims to highlight the relevance of leaders for sustainable change in organizations, providing valuable practical insights from the German automotive industry, based on the principles of the Burke-Litwin Change Model and the form of Transformational Leadership. The model by Burke and Litwin from 1992 deals with various driving forces for change in organizations and identifies mission and strategy, leadership behavior and organizational culture as essential factors for transformation and change - whereby leadership behavior has been proven to significantly influence the aforementioned factors. In terms of sustainable development and relevant qualities for mastering the major challenges posed by climate change, the thesis will focus on the style of transformational leadership. The concept was first mentioned in 1973 by James V. Downton and has been continuously developed ever since. It describes a leader who works together beyond their immediate self-interest, questions existing structures, recognizes necessary changes and creates a vision that inspires and motivates employees to achieve them. Since almost 90% of transport-related emissions in the European Union are generated by passenger cars and heavy goods vehicles and the German automotive industry is the most important industrial sector in Germany with around 786,000 employees, this sector was identified as highly relevant and influential for the research work.

Information about the interview

Your participation in this study consists of an individual online interview with Ms. Lea Sina Schulz, which will last a maximum of 60 minutes and will be conducted via Zoom or Microsoft Teams. The interview will focus on questions about the corporation's leadership development strategy, with particular focus on characteristics of transformational leadership. The interview can be conducted either in German or in English.

A clear advantage of participating in this study is the opportunity to share your experiences of leadership development in the automotive industry and discuss related scientific recommendations. In doing so, you can consider different perspectives and provide input for a scientific paper. Ultimately, this will provide a relevant overview of the status quo of leadership development in the German automotive industry, with a focus on the mutual learning effect of the participants.

Voluntary participation and right to withdraw

Your participation in this study is voluntary and you are free to withdraw at any time without giving reasons and without negative consequences. Due to the fact that sustainable strategy is a competitive topic and perceived as sensitive information, you are of course free to decline one or more questions at any time. If you withdraw your participation, your statements will be deleted and no comments from your answers will be published, unless you give Ms. Lea Sina Schulz your consent to use them for research purposes despite your withdrawal. All respondents will receive no financial compensation for their participation in this research.

Confidentiality

The study is completely confidential, with your personal data known only to Ms. Lea Sina Schulz. The following measures will be taken to ensure the confidentiality of the information presented by the participants:

- The recorded interviews will be transcribed and coded so that only Ms. Lea Sina Schulz has access to a list of names and codes.
- Personal information and individual results of the participants are not identifiable in the final report.
- The research material is stored on a password-protected computer to which only Ms. Lea Sina Schulz has access. The records and research material will be destroyed five years after completion of the study, i.e. in January 2029.
- The results of the research will be presented at Lund University, LUCSUS, and published in the Lund University Publications Student Papers (LUP-SP).

Confirmation of consent

Are you clear about the purpose of this study and the conditions of your participation?

- Yes
- No

Do you confirm that you agree to participate?

- Yes
- No

Do you consent to the interview being recorded?

- Yes
- No

Thank you very much!

Further information

All results of the research and a copy of the written thesis can be made available to you upon request.

If you have any further questions or comments regarding the above information or the study in general, please contact Ms. Lea Sina Schulz at the contact information below:

leasina99@gmail.com

<https://www.linkedin.com/in/lea-schulz/>

Name and signature of the person to be interviewed

Surname, First Name: _____

Place, Date: _____

Signature: _____



Declaration of consent for interview participation

Master Thesis Lea Sina Schulz, Lund University

The following consent form informs you about the study conducted by Ms. Lea Sina Schulz at Lund University and about the expectations associated with your participation. Before you agree to participate, you are asked to read the following information. If you have any questions about the study or your participation, please do not hesitate to contact Ms. Lea Sina Schulz.

Background to the research work

The research is conducted as part of Lea Sina Schulz's master's degree program *Environmental Studies and Sustainability Science* at the Lund University Centre for Sustainability Studies (LUCSUS). The study aims to highlight the relevance of leaders for sustainable change in organizations, providing valuable practical insights from the German automotive industry, based on the principles of the Burke-Litwin Change Model and the form of Transformational Leadership. The model by Burke and Litwin from 1992 deals with various driving forces for change in organizations and identifies mission and strategy, leadership behavior and organizational culture as essential factors for transformation and change - whereby leadership behavior has been proven to significantly influence the aforementioned factors. In terms of sustainable development and relevant qualities for mastering the major challenges posed by climate change, the thesis will focus on the style of transformational leadership. The concept was first mentioned in 1973 by James V. Downton and has been continuously developed ever since. It describes a leader who works together beyond their immediate self-interest, questions existing structures, recognizes necessary changes and creates a vision that inspires and motivates employees to achieve them. Since almost 90% of transport-related emissions in the European Union are generated by passenger cars and heavy goods vehicles and the German automotive industry is the most important industrial sector in Germany with around 786,000 employees, this sector was identified as highly relevant and influential for the research work.

Information about the interview

Your participation in this study consists of an individual online interview with Ms. Lea Sina Schulz, which will last a maximum of 60 minutes and will be conducted via Zoom or Microsoft Teams. The interview will focus on questions about strategic leadership development, with particular focus on characteristics of transformational leadership. The interview can be conducted either in German or in English.

A clear advantage of participating in this study is the opportunity to share your experiences of leadership development and discuss related scientific recommendations. In doing so, you can consider different perspectives and provide input for a scientific paper. Ultimately, this will provide a relevant overview of the status quo of leadership development from a professional as well as practical perspective, with a focus on the mutual learning effect of the participants.

Voluntary participation and right to withdraw

Your participation in this study is voluntary and you are free to withdraw at any time without giving reasons and without negative consequences. Due to the fact that sustainable strategy is a competitive topic and perceived as sensitive information, you are of course free to decline one or more questions at any time. If you withdraw your participation, your statements will be deleted and no comments from your answers will be published, unless you give Ms. Lea Sina Schulz your consent to use them for research purposes despite your withdrawal. All respondents will receive no financial compensation for their participation in this research.

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The study is completely confidential, with your personal data known only to Ms. Lea Sina Schulz. The following measures will be taken to ensure the confidentiality of the information presented by the participants:

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- Personal information and individual results of the participants are not identifiable in the final report.
- The research material is stored on a password-protected computer to which only Ms. Lea Sina Schulz has access. The records and research material will be destroyed five years after completion of the study, i.e. in January 2029.
- The results of the research will be presented at Lund University, LUCSUS, and published in the Lund University Publications Student Papers (LUP-SP).

Confirmation of consent

Are you clear about the purpose of this study and the conditions of your participation?

- Yes
- No

Do you confirm that you agree to participate?

- Yes
- No

Do you consent to the interview being recorded?

- Yes
- No

Thank you very much!

Further information

All results of the research and a copy of the written thesis can be made available to you upon request.

If you have any further questions or comments regarding the above information or the study in general, please contact Ms. Lea Sina Schulz at the contact information below:

leasina99@gmail.com

<https://www.linkedin.com/in/lea-schulz/>

Name and signature of the person to be interviewed

Surname, First Name: _____

Place, Date: _____

Signature: _____