Impact of leadership styles on employees' commitment towards the twin transition

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ABSTRACT,

The twin transition leverages digital technologies to enhance environmental sustainability and guides digital progress by incorporating sustainable practices. Leadership plays a crucial role in this transition and is one of the major drivers to improve the performance of the organization. Yet, it is unknown how different leadership styles influence the employees' commitment during periods of organizational change, specifically the twin transition. Thus, this research investigates how transformational, transactional, and instrumental, influence employees' commitment during this organizational change. A total of 8 semi-structured were conducted within different organizations and were analyzed based on an inductive approach to thematic analysis. The findings showed that transformational and instrumental leadership positively affect the commitment of employees towards change. Effective leaders empower employees, involve them in decision-making, and communicate a clear vision to enhance commitment. Additionally, recognition and acknowledgment of employees' contributions are crucial factors for maintaining motivation. The findings of the research are summarized in a conceptual model. The model consists of 5 propositions on how leadership styles impact employees' commitment towards the twin transition.

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1. INRODUCTION

Currently, digital technologies are impacting the way in which environmental sustainability is dealt with in companies (Feroz et al., 2021). An opportunity is created to deal with environmental issues by utilizing the new digital technology to adapt their business practices more sustainably (Feroz et al., 2021). This green transformation in more practical terms refers to meeting the European Geen Deal (EGD) goals (Paiho et al., 2023). The transformation focuses on improving the circular economy and creating clean environments and energy (Paiho et al., 2023). The digital transformation focuses on the digital innovations and technologies that are used in the companies (Paiho et al., 2023). This means that this transition involves improvements for more effective data management and the use of artificial intelligence (Paiho et al., 2023). To integrate the digital transformation and green transformation as one approach it is merged into the so-called 'Twin Transition' (Balta et al., 2022).

This twin transition can be defined as "a value-adding reinforcing interplay between digital transformation and sustainability transformation efforts that improve an organization by leveraging digital technologies to enable sustainability and to guide digital progress by leveraging sustainability." (Christmann et al., 2024, p.23). The two transformations can similarly increase the performance of each other and thereby contribute to the overall performance of the organization (Christmann et al., 2024). On the other hand, research shows that the digital transformation can succeed without the green transformation (Guandalini, 2022). However, the combination of these transformations has become more relevant for management and governments due to advancing technologies that can contribute to the more needed sustainability measures (Guandalini, 2022).

The research that is currently conducted in relation to this twin transition focuses on, the positive relationship between technological innovation and sustainability, the implementation of the twin transition in different sectors, and how the twin transition creates a competitive advantage (Balta et al., 2022; Rehman et al., 2023). The twin transition is due to the combination of these factors of digital and sustainable transformations, which is a complex phenomenon. Therefore, management plays a crucial role in steering and facilitating this process. Especially, because research has shown the positive effects of the implementation of the twin transition it is necessary to research the influence of management on this process (Rehman et al., 2023). There should be a focus on management because leaders have an important role in enhancing the overall performance of an organization (Khajeh, 2018). The different leadership styles that they apply can influence the vision and strategy of the company and thus impact organizational performance (Khajeh, 2018). The social learning theory shows that employees observe their leaders closely and learn from their actions. So, when leaders demonstrate commitment, behavior, and dedication employees are likely to also follow this in their work (Bandura, 1977). On the other way around, also highly performing teams can have an impact on the behaviors of their leaders (Van Dun & Wilderom, 2021). The study by Akinda (2020) contributes to this as it shows that leadership styles impact the commitment of employees towards the organization. The environmental behavior and commitment of the leaders in an organization can impact the employees' commitment towards the sustainable practices of the organization (Raineri & Paillé, 2016). This is thus crucial for management, as the commitment of employees influences the combination of innovation and green performance of the organization (Sharma et al., 2021). The current literature thus discusses the influence of leadership styles on the commitment towards the organization in general (Aboramadan & Dahleez, 2020; Shaikh et al., 2023). However,

there is a lack of current research investigating how different leadership styles impact employees' commitment during periods of organizational change or transition (Cao & Le, 2022). This is crucial to investigate, as commitment to change has been identified as a crucial factor that influences any successful change outcomes (Ouédraogo et al., 2021). The twin transition stands out from other types of change due to its dual focus and therewith is crucial in the modern day (Guandalini, 2022).

Based on this the following research question can be established:

How do leadership styles impact the employees' commitment towards the twin transition in organizations?

This research question creates an understanding on how managerial decisions, strategies, and behaviors affect the successful adaptation of the twin transition. In this way, valuable insights are created into the effective management of this transition. It also contributes to a successful integration of the transition for business. Based on this, businesses can develop strategic guidelines for leadership and create policies that encourage effective management practices. The research contributes to academic knowledge, by creating an understanding of the relationship between leadership and employees' commitment towards the twin transition. The research contributes to the current literature by providing factors of leadership that can create commitment towards change in organizations.

2. LITERATURE REVIEW

2.1 Twin transition

The green transition is influenced by the capabilities of digitalization which leads to them being depended on each other (Dæhlen, 2023). Therewith the effectiveness of the green transition depends on the digital transition in an organization (Dæhlen, 2023). On the other hand, it is also necessary that the digital transition becomes more sustainable in the future. Therewith the two transitions are influencing each other which can have an impact on the organizational performance. Therefore it is crucial to combine these transitions in the twin transition so that both opportunities get elevated (Veldhuis, 2023).

2.1.1 Digital Transformation

The digital transformation of an organization involves the implementation of innovations and technologies (Paiho et al., 2023). The digital technology of the organization is impacted by its digital transformation activities (Wessel et al., 2021). By influencing digital technologies, the transformation thus can impact the benefits that a company can deliver to its customers (Wessel et al., 2021). To successfully integrate a digital transformation, employees require new knowledge and skills to deal with digital programs and data (Verhoef et al., 2021). This is important as companies need to adapt and improve these digital innovations to become attractive to customers and prevent replacement by firms that do successfully integrate the digital transformation (Verhoef et al., 2021). The digital transformation thus requires the continual development of digital technologies in an organization to keep the value creation (Parida et al., 2019). Leadership plays a crucial role in creating this continuous development of digital technologies (Braojos et al., 2024). The leaders establish the vision and strategy of the company and therewith decide how much their interest lies in focusing on digital transformation (Imran et al., 2021). Besides that, the leaders' capabilities to also communicate and implement digital transformation are crucial to successfully integrate the transformation (Imran et al., 2021). These digital technologies should then also support environmental sustainability and therefore, the green transformation (Dæhlen, 2023).

2.1.2 Green Transformation

The green transformation can be defined as: "combining economic growth with caring about the environment in order to guarantee a high quality of life for present and future generations at the level which is attainable due to civilizational development, as well as to an effective and rational use of the available resources." (Cheba et al., 2022, p.2). This green transformation is a globally acknowledged crucial element due to increasing environmental awareness and government laws linked to it (Cheba et al., 2022). This environmental awareness is also necessary for companies due to the environmental damage that is caused by conducting business-related activities (Lema & Perez, 2024). Therefore the creation of new technologies now also needs to involve measures of the green transformation to deal with the laws and customer expectations (Lema & Perez, 2024). Leaders play a crucial role in this green transformation as their behaviors can influence the employees' vision towards sustainability (Ding et al., 2023). The leaders' vision on sustainability can motivate the employees to also involve these in their individual activities which they conduct in the company (Ding et al., 2023). Therefore there should be looked at leaders behaviors and practices as they are crucial for integrating the green transformation into the organization.

2.2 Leadership styles

Leadership can be defined as: "the ability to inspire, motivate, and empower individuals or groups to work collaboratively and effectively." (Bwalya, 2023, p.183). In order to express their leadership, leaders use a style of leadership that influences the way in which they influence and guide employees in the organization (Bwalya, 2023). These leadership styles involve how they communicate the company's vision, involve employees, and make their decisions (Northouse, 2018). Therefore, the leadership style that is used by leaders influences how organizations' activities are integrated (Bwalya. 2023). Besides that, it is also necessary to keep the context in which the company operates in mind. Due to the reason that this also has an influence on the effectiveness of these leadership styles (Higgs & Rowland, 2005). The Transactional and Transformational leadership styles are the most commonly used theories when expressing the effect of leadership on organizations (Odumeru & Ifeanyi, 2013).

2.2.1 Transactional leadership

Transactional leadership can be defined as "leaders that focus on assigning specific tasks to their employees and using the reward and punishment system to motivate employees towards achieving their individual and organizational goals." (Ecler et al., 2021, p.399). These types of leaders focus on the role of the organizations in how to deal with procedures and rules without focusing on long-term change (Ecler et al., 2021). To involve employees in this process they use rewards for employees based on their performance and achievements for the company (Ecler et al., 2021). These rewards are one of the management factors that are positively impacting the success of projects in a company (Aga, 2016). The leaders' ability to create a well-defined and clear goal for the project positively impacts the effects of these rewards on the success of the project (Aga, 2016). Therewith some characteristics of transactional leadership can contribute to improving factors in twin transition projects within an organization.

2.2.2 Transformational leadership

Transformational leadership is different as leaders inspire and motivate followers in ways that go beyond exchanges and rewards (Aarons, 2006). Transformational leadership can be defined as: "Leaders that guide and encourage employee mindfulness by enunciating a vision that escalates employees'

consciousness and consideration for the significance of organizational values, goals, and performances." (Khan et al., 2020, p.3). These transformational leaders share their knowledge and experience with employees through clear communication (Demir et al., 2021). Through this communication with employees and the involvement of the employees, they tend to be more motivated and inspired (Hiwa et al., 2021). These types of leaders get the employees involved, to create a collaborative environment in which the employees feel valued (Hiwa et al., 2021). This collaborative environment leads to employees becoming more invested in their jobs which will impact the overall performance of the company (Hiwa et al., 2021). Therefore, looking at the different approaches of transformational leadership and transactional leadership is crucial to understanding the impact on the effectiveness of the twin transition.

2.2.3 Instrumental leadership

Instrumental leadership can be defined as: "the application of leader expert knowledge on monitoring of the environment and of performance, and the implementation of strategic and tactical solutions" (Antonakis & House, 2014, p.752). Instrumental leadership therewith complements transformational and transactional leadership to create a full-range leadership theory. Due to the reason that effective leadership involves a blend of these leadership styles (Antonakis & House, 2014). Then there is also the fuller full-range of leadership theory that extends the full-range leadership theory by incorporating instrumental leadership. Therewith a pragmatic dimension is added to the traditional transformational and transactional elements (Antonakis & House, 2014). Instrumental leadership involves the following four dimensions: "(1) environmental monitoring, (2) strategy formulation and implementation and follower work facilitation, (3) path-goal facilitation, and (4) outcome monitoring." (Rowold, 2014, p.367). These dimensions of instrumental leadership all regard to the capabilities of the leader to create job satisfaction and commitment for employees (Rowold, 2014). The leaders should base their decision-making on these four dimensions so that they can effectively reach their goals (Pizzolitto, 2022).

2.3 Employees commitment to change

Current research shows that transformational leadership is positively related to the individuals' commitment to a change in an organization (Herold et al., 2008). The study implicates to further research on the link between leadership theories and their influence on the individual commitment (Herold et al., 2008). This is essential, as the employees' commitment to a change in the organization can have an impact on the success of the change initiatives (Abrell-Vogel & Rowold, 2014). This commitment towards change is impacted by the support of leaders towards their employees in the process (Abrell-Vogel & Rowold, 2014). The same research also showed that it is important for leaders to provide a clear vision and strategy for the organization (Abrell-Vogel & Rowold, 2014). This only affected the employees' commitment to change when the leaders' commitment itself to the change was high (Abrell-Vogel & Rowold, 2014). Another study by Kim et al. (2021) contributes to that by showing that transformational leadership impacts the feeling of employees towards every dimension of their work. This is created indirectly through the leaders' capability to foster employees commitment to change during a crisis (Kim et al., 2021). The study by Millhoff & Rowold (2020) shows that instrumental leadership influences the success of change in a team. The individual support, as part of instrumental leadership, gets the employees to feel valued and motivated (Millhoff & Rowold, 2020). These individuals in their turn increase the change commitment in the

team they operate in (Millhoff & Rowold, 2020). This research can contribute to these theories by investigating other leadership theories and examining the leadership behaviors that influence this commitment relationship.

Commitment is seen as a crucial factor that creates employees' support for initiatives regarding change (Herscovitch & Meyer, 2002). The employee's commitment should be viewed as a multidimensional construct (Robinson, 2003). There are three types of organizational commitment: normative, affective and continuous commitment (Hassan et al., 2021; Megawati et al., 2022; Robinson, 2003). Each of these level shows a level of how much an employee is committed to the organization (Hassan et al., 2021). The levels can be defined as followed: "Normative commitment relates to the feeling of obligation to remain in the organization. Affective commitment is related to the employees' emotional attachment, employee identification and employee involvement in the organization. Continuous commitment is associated with the desire to continue working or leaving the organization." (Getnet & Fujie, 2024, p.1312). Therewith leaders need to take all these factors into consideration when trying to improve the commitment of their employees towards change like the twin transition (Getnet & Fujie, 2024). The combination of effective leaders and employees who are committed to the organization enhances the company's ability to reach its goals (Biza et al., 2020).

3. METHODOLOGY

3.1 Research Design
The aim of this research is to gain insight into how different leadership styles can impact the employees' commitment towards the twin transition. These subjects are obligated to subjective meaning that requires non-standardized data and analyzing of text. The subject is obligated to subjective meaning due to the fact that the perception of leadership and leadership styles can be experienced in different manners by the participants (Cheung et al., 2017). Especially, because the twin transition is material that is relatively new and developing, inductive qualitative research is used. Therewith new data needs to be generated, analyzed and reflected upon what theoretical themes the data are suggesting (Saunders et al., 2019). In order to investigate this a semi-structured interview is used. The semi-structured interviews provide a clear set of instructions and can provide reliable and comparable qualitative data for this research (Stuckey, 2013). Therewith it can be analyzed in a proper way. This research includes primary data collection of which ethical approval was requested at the ethics committee BMS of the University of Twente

3.2 Sampling
For the sampling method, a nonprobability sampling technique was used. This means that the likelihood of each member of the population being selected for the sample in this research is not known (Makwana et al., 2023). The focus of this research is to investigate the impact of leadership styles on employees' commitment towards the twin transition. Therefore the interviewees in the sample need to fulfill certain criteria to be relevant to the research. This means that the data could not be collected from everyone in the population and a clear focus needs to be used in selecting the sample. Therefore, purposive sampling was used as individuals were chosen for this sample based on their relevance to this research (Makwana et al., 2023).

Participants in the sample were selected based on several criteria. (1) The interviewees should work in a company in which the twin transition is utilized. (2) The interviewees should be of a working age ranging from 18 until 65 years. The sample involves both employees as leaders which can be seen in Appendix 8.4. Therewith leaders' perspectives towards their intentions, strategies and decision-making process can be examined. The employees can contribute to this by creating a full range of understanding by providing the practical experiences that are created by different leadership styles. Therewith all perspectives towards the impact of leadership styles on employees' commitment can be investigated. Following these criteria a sample was selected to conduct the interviews with. These participants were recruited through social media and online platforms like LinkedIn. To make sure that the participants are working in a twin transition environment, the company's reports and websites were examined. Therewith it can be concluded if the companies focus on sustainability and digital innovation.

Saturation was used to assess the adequacy of purposive samples in this qualitative research (Hennink et al., 2022). In this research a sample size of eight was used as research showed that saturation of the interviews can be achieved in a narrow range of eight till seventeen (Hennink et al., 2022).

Table 1. Participants characteristics

Participant/Role	Gender/Age	Industry	Firm Size	Function Title
P1	Male	Aviation sector	>2000	Sustainability Lead IT & Data
P2	Male	Building sector	<50	Transformation leader
P3	Male	Energy sector	5000 - 10000	Projectmanager
P4	Male	Housing sector	<50	Partner
P5	Female	Real Estate sector	<200	Partner
P6	Male	Consulting engineering	5000 - 10000	Strategy Director Industry & Buildings
P7	Female	Consultancy	<50	Culture & Transformation manager
P8	Male	IT-services and consultancy	<50	Accountmanager

3.3 Data Collection

Within qualitative research, there are the following three main types of interviews: structured interviews, semi-structured interviews and unstructured interviews (Jamshed, 2014). In a structured interview the set of questions are predetermined, and are not changed depending on the interviews. This provides uniformity in the answers, which enable the comparison of data (Nor Rashidi et al., 2014). Semi-structured interviews can be defined as "interviews that consist of a dialogue between the researcher and interviewee, guided by a flexible interview protocol and supplemented by follow up questions, probes and comments" (DeJonckheere et al., 2019, p.1). This method allows the researcher to gain deeper insight into a topic and to ask for additional questions during the interview (Saunders et al., 2019). Unstructured interviews usually involve open-ended conversations between the researcher and the participant. The researcher will be able to gain in-depth information although this could lead to difficulties with time taken and the analysis of the information (Herbert et al., 2014). To gain a deeper understanding of the reason behind the impact of leadership styles on employee commitment and considering time and analysis of information, semi-structured interviews were conducted. Semi-structured interviews can create possible bias by the interviewer influencing the interviewee through non-verbal communication. To reduce the risk of participants understanding the questions differently, open-ended questions will be used (Saunders et al., 2019). The interview questions that were used for the leaders can be found in Appendix 8.2 and the question regarding the employees can be found in Appendix 8.3.

3.4 Data Analysis

The research used an inductive approach to thematic analysis to analyze the data gathered during the semi-structured interviews. This inductive approach tries to analyze and code the data without fitting it into a predetermined frame (Braun & Clark, 2006). Therewith thematic analysis can be used to analyze and find patterns of leadership behaviors that influence the employees' commitment towards the twin transition. The interviews were conducted with both employees and leaders, although the sample of leaders was bigger than the sample of employees. The leaders and employees reflected similarly on the topics and therewith were not distinguished in the results of the data analysis.

The interviews were recorded with written consent so that the analysis could be based on correct and reliable data. The recordings were transcribed into a written form in order to analyze it. In a written form it was uploaded to Atlas.ti tool to conduct thematic analysis. Firstly, this tool was used to familiarize the data by reading and immersing in it. Then the data was identified and labeled based on the relevant sectors. These segments were then coded into themes, based on patterns and similarities that represent the data. These themes were clearly defined and labeled so that the analysis process and findings could be documented in a coherent manner (Lochmiller, 2021).

4. RESULTS

In this part, the 1st order codes and 2nd order themes are discussed. These were identified through the qualitative data analysis of the semi-structured interviews. The 1st order codes and 2nd order themes are organized and structured into 3rd order aggregate dimensions which can be found in Appendix 8.1.

4.1 Twin transition implementation actions

4.1.1 Employee involvement and empowerment
The primary category of actions identified by the participants concerns the **employee involvement and empowerment**. In this regard, the conducted interviews provide clear evidence supporting the idea of giving **employees freedom in decision-making**. "*So within those projects, which all work towards the common goal, the employees have their own freedom to work on it somewhat creatively. They actually get a kind of framework, this is the goal we want to achieve here and then give their own input and ideas to reach that goal.*" (P1). Furthermore, the interview findings suggested that it is crucial to **involve employees' needs in decision making** in order to successfully implement processes in a changing environment. "*In the context of this transition, I think it's very important to involve employees in decision making early on. Not when the plan is already done. Thus you need to talk a lot throughout the organization, not only with directors, to complete that picture. This process is skipped too often, but having that internal conversation is essential for successful implementation of a transition and should not be outsourced to third parties.*" (P2). Simultaneously, the participants perceived **the involvement of employees in sustainability projects** as an additional means to foster engagement and commitment to organizational goals. "*For example, we hold a demo session for all IT and data departments where we discuss the progress. We have people involved, as there are people from departments who are asked to work on sustainability projects. We also have them present to show their contributions and what they have achieved. In this way, they engage in the conversation with their ideas and perceptions.*" (P1). In addition, the interviews made it clear that having **conversations with employees** is essential to align the organization's goals with employee expectations. "*So it can be cybersecurity, for example, or something else. And then I simply ask them if they have a vision for this. Do you have plans? Therewith the conversation starts and in the I want to extend a helping hand because I would like to help them.*" (P1)

4.1.2 Acknowledgement and vision
In addition to actions that promote employees' involvement and empowerment, the organizations focus on **acknowledgement and vision**. The participants expressed that a **consistent and clear vision of leaders** is necessary to get employees engaged. "*And that is, if you want this transition to succeed, it's absolutely essential that the leadership of the organization stands behind it. And when the leadership stands behind it, as our former CIO would say, emphasizing its importance, you also see a shift in the company's culture to actually move towards it. And if that's not the case, you're a voice in the wilderness.*" (P1). This also creates motivation for employees to get involved. "*Also the employees can see very well from the top leadership what is important to them, what they consider important and what they don't. And when you have top leadership that clearly shows they want results in the Twin Transition, then people will move. And it remains that people are very motivated by, well, do I get a good position from higher management for this?*" (P8). Besides that, a **clear management vision on sustainability goals** is essential to drive the green transformation in the organization. This leadership can foster a collaborative environment where digitalization support sustainable practices. "*Yes, that vision is set by the management And there is also a whole program management that is working on that. What is that sustainability? How do we want to deal with that in our projects? And on our stations? This comprehensive approach shows in different visions or requirements. For example, are we going to make a helipad, or are we going to implement grass or pebbles? And why do we do that? There is a whole philosophy behind it. This is why we have serious daily meetings to align on these sustainability goals, ensuring everyone is on the same page and working towards the same objectives.*" (P3). Adding to this, the interviews also indicated that **the sustainability goals must be set for the**

company to create a cohesive and effective strategy for the long-term. "*And there is also a certain obligation that people must follow. And lastly, from higher up in the company, there are also certain targets for sustainability. We must be net zero by 2030. This means that the departments must also comply with this. Their own processes and installations must comply by 2030. So you need to have a plan and key performance indicators to see how you can achieve this. And what plan can help you do that?"* (P1). The interview findings also suggested that the **alignment of the departments' vision** contributes to employee engagement and successful implementation. "*The challenge with this transition is that it really crosses departments. If I give an example of those cameras sending weather data, you deal with the security department, the networks department, possibly the systems department on how those systems communicate with each other, and the sustainability department, which sits outside IT and data. They all have a very different perspective and opinion. So, therefore it is important to get all these people on the same page*." (P1).

Finally, when examining acknowledgement and vision, participants express the importance of recognition and of employees in the process. To let employees recognize the importance of the transition to the organization and themselves, there should be a focus on **awareness creation for employees by leaders**. "*And the CIO says, "Guys, we have a commitment towards this transition, so this must happen." Then, reluctantly, people come together, for example. And then a solution is sought, and eventually things do get done.* " (P1).This awareness is also raised by keeping the employees informed and engaged. "*Another way is that I often give presentations. So I talk about what we are doing with sustainability, what we are currently working on, and what the plans are. This way, people are always kept informed. We try to spar with each other about these initiatives. We try to help each other to move things forward.*" (P1). This awareness should also be established for the leaders, so that they can be a model of desired behaviors and attitudes. "But it is also only credible if it is not just, say, one drop, or once a year, you know, we are going to present the annual figures, oh yes, there is a paragraph with sustainability in it. Yes, that doesn't work.So you really have to work on that on a continuous basis. And also offering manual training to staff, but in terms of, well, you can do this training, which could be an awareness training, which could be a certification as a Green Project Manager." (P7). At the same time, the participants considered the **acknowledgement for the employees achievements** a crucial factor to keep their motivation. "*Well okay, I think it's... Part of any changing process, which is what this simply is, is sharing successes, appreciating and disclosing good examples and encourage people who dare to share their personal journeys. That is of course easy to say. What I have done myself is that I reward, so to speak, in the formal HR process of assessment.*" (P2). This acknowledgement also involves **the recognition for employees' needs** so that a supportive environment is created for their continued engagement and motivation. "*So we have corporate core values. But they are not for everyone equally important. But they all have to do a part of the core values. So by aligning the corporate values with individual needs, employees tempt to feel included in the organizations objectives. This keeps them more motivated and makes sure that they contribute effectively.*" (P4).

4.1.3 Digital transformation implementation
The interview findings showed the relevance of the **digital transformation implementation** when considering a successful twin transition. In this regard, the interview findings showed that the organization needs to consider a **structured digital implementation**. Based on policy vision, this structured

approach will ensure alignment with the overall goals of the organization. "*My greatest wish for my organization is to see this alignment. Yes, we have a policy and a vision. From that vision, a strategy emerges, and from that strategy, we derive actionable plans for implementation. However, during this process, we do encounter some hiccups. It's important to recognize these issues and address them to ensure a smooth transition.*" (P3). The participants perceived that the **implementation of digitalization through clear communication** is crucial. The effective communication ensures that the employees in the organization understand the vision, strategy and their roles in the process. "*How is that implemented, so that it is reachable and usable for everyone? It involves a lot communication with people. Talk about it, showing people what that means and what happens. This approach helps to ensure that everyone is on the same page, which is essential for a successful digital transformation.*" (P2). According to the participants, it is also necessary for employees to drive **digitalization through own initiatives.** In this way, employees are encouraged to take ownership and contribute with their ideas regarding innovation. This ensures that digital transformation is deeply integrated into the organization. "*What does this circularity mean? What is that? I said, go and see where you want to go. He said, I see something in the back. There are a number of businesses, and then they are isolating housing. Can I go there? I said, yes. Come back with it. Then he goes there for three days, and then he brings that information back to the organization. Then we consider shall we try this once? Or shall we not do that? That was not worth it. But that is worth it. So I always try to give people a certain freedom of development, to do it from their own initiatives.*" (P4).

Participants also acknowledged that efficiency and integration are relevant for the digital transformation. The appliance of **digitalization increases work efficiency** in the organization and ensures a cohesive approach to innovation. "*You notice that there is such a social pressure on our work. That we really have to look at how we can finish our project as quickly as possible. And if digitization can help with that. Then we certainly do. Then we have the doubts. And digitization is broad. An example is that we also work with digital document exchange programs. And that certainly helps us doing our work more efficient.*" (P3). In relation to that, the interview findings show that the **digital software** should be used **more efficient** to ensure seamless integration. This efficiency ensures that the digital programs contribute to the overall productivity and innovation. "*We use 20 different programs. Teams is already an improvement in that. So we can do everything. But then you have Microsoft Office. We have a region for document management. Then we have an e-mail program. Then we have a geo for pictures. We have all kinds of documentation and programs. If you are going to digitize there is still a lot more BIB programs, programs for requirements and packages added together. Then we have it all again. Yes. And I would like to have more unity in that.*" (P3).

Finally, the conducted interviews provided that employee capabilities and training are essential for maximizing the benefits of digitalization. The results showed that currently a part of the employees has **insufficient capabilities for digitalization** which can hinder the organization towards its digital transformation goals. "*To get a good working system. Because you can make a 3D model in a Revit or in a AutoCAD or whatever, but there still has to be data and which data has to be attached to it. And you have to be able to implement your requirements and does one program work with the other. And there you see that there is a lot of effort and people don't have the capabilities therefore. That it doesn't work well together. No. And you don't want to get involved in that.*" (P4). This also indicates that **training** is necessary to **improve digital capabilities** to ensure that all

employees are equipped with the needed digital skills. *"There are trainings. There are workshops through a program management. A lot is done for that. Therewith we can develop the skills that are necessary. And then we can adapt digitalization to projects."* (P3). This is also discussed during conversations with management so that they can effectively support continuous learning. "For example, someone has a coaching conversation with their manager, where everyone is looked at. "Hey, these were your goals, and you wanted to improve yourself and follow a training." So they are coached every month. " (P7).

4.1.4 Green transformation implementation

The primary category of actions identified by the participants concerns the **green transformation** implementation. In this regard, the conducted interviews provide clear evidence supporting the idea of **alignment of sustainability and digitalization**. "*What I also found challenging was the highly compartmentalized organization, where business and IT couldn't align on this topic. Yes. I've heard many people say, we've already started IT a hundred times in this area of sustainability, but they never follow through, so why would it be different now? Yes. So, we realized we had to lead a charm offensive to realign these factors within the organization, including internally. That means communication and mutual trust."* (P1). In addition, the participants highlighted that **digitalization** also **contributes to sustainability** in the organizations. "*I have built a platform and that is only based on digitalization, on data management. And with that I can do the whole sustainability of all housing corporations in the Netherlands. That is only based on data. And I have converted data into readable information and based on that through digitalization we can accelerate the whole sustainability. I can't think otherwise.*" (P4).

At the same time, the conducted interviews provided evidence that communication and guidelines are critical to enhance the green transformation implementation. The organization should have clear **communication about the sustainable vision** to create continuous engagement of the employees. "*Another way is that I often give presentations. So I talk about what we are doing with sustainability, what we are currently working on, and what the plans are. This way, people are always kept informed and involved. I organize monthly meetings for people about sustainability. We discuss initiatives happening in different departments. We try to spar with each other about these initiatives. We try to help each other to move things forward.*" (P1). The results also showed that creating **guidelines for sustainable digitalization** is another crucial aspect. By establishing clear policies and practices, the company can ensure that digital transformation efforts are sustainable. "*You then set guidelines for how to handle the various sustainability components that may arise during the project. These can include different components depending on the type of project. It can be hardware components, or how you manage the team. How you code in a certain way, programming in a sustainable manner. So there are different kinds of components that you can take as puzzle pieces and apply them when they are most relevant to what you are doing at that moment.*" (P1). "*For example, implementing energy-efficient technologies allows us to reduce our ecological footprint. And also enhancing our digital infrastructure.*" (P8). To make sustainability fully integrated into the company it is also necessary to **promote sustainable behavior**. "*For example, we hold a demo session for all IT and data departments where we discuss the progress. We have people involved, as there are people from departments who are asked to work on sustainability projects. We also have them present to show their contributions and what they have achieved and we highlight them in this way. So news reports are spread on the intranet. We have those sustainability meetings where people are*

brought together to discuss and think along. So there are various ways we keep this within the departments and promote it. This is also important to us as it keeps the people involved.*" (P1).

Finally, the conducted interviews presented that the practical implementation is a key factor in the green transformation implementation. To involve the employees in this process and make it relevant for them **sustainability** should be **made a practical thing**. "*Sustainability is a very broad term. We said. We have to give more hands and feet in our daily practice. We have to let it come back for the employees.*" (P4). Therewith there should also be a focus on **emphasizing the importance of the transition** to motivate employees to actively participate. "*And that is, if you want this transition to succeed, it's absolutely essential that the leadership of the organization stands behind it. And when the leadership stands behind it, as our former CIO would say, emphasizing its importance, you also see a shift in the company's culture to actually move towards it. And if that's not the case, you're a voice in the wilderness.*" (P1). The participants also marked that there should be focus on **how sustainability is applied** in the organization. By aligning sustainability with core business practices, employees can better understand the relevance and actively contribute to the implementation. "*Programs initiative translating it to. And what does that mean in my daily practice? Where you try very hard, a piece of that organization actually change their process. That you also focus on integration.*" (P4).

4.2 Transformational leadership

The conducted interviews provided the category of **inspirational and motivational leadership**. The participant eloborated that in order to succesfully implement the twin transition into the company that the **leaders ability to inspire and motivate** is crucial. "*I know quite a bit about that. If I know something about that I can inspire my children. If I can inspire my children. I can also inspire my employees. What I think is important in leadership is that you have to be able to inspire, motivate and sometimes instruct. What you see now, in the new generation. They need to be inspired and not instructed. You don't want to work. Where they say. You have to do this. I know that.*" (P4). This also involves **leaders** that **stimulate emloyees to think** critically and creatively. "*But it's more like, if we think about this together, how could we achieve this? It's really about a collaborative mode, together with the employees, because a lot of the expertise is with them. I am more there to get them to think than to dictate what needs to be delivered in the next two months.*" (P1). Similar to this leaders should **encourage and inspire employees**. This collaborative approach creates a sense of ownership and accountability that lead to greater job satisfaction and productivity. "*To encourage the development of the transition, because what we do a lot is training is one. But training is not always fun. So what we do a lot is to show inspirations from other branches where it has succeeded and talk to each other about that. Why has Uber emerged? That is possible and they have made a different transformation. Do you see what is happening with Coolblue? Or you look at other branches what is actually happening here. In that way we try to inspire people. To show what is happening.*" (P4). "Leaders should encourage the team members. So that they want to share their ideas and insights. And ensuring they feel valued and heard. " (P8).

In addition to that, the interviews provided the view that **collaborative and inclusive leadership** is essential for driving organizational change. The **collaboration between leader and**

employees creates a culture of trust and respect where employees feel valued and empowered to contribute. "*Throughout the organization you need to complete that picture. If you only talk to the director. Do you have a perspective? But you also have to deal with digital, so I started looking for that network. and having that conversation. I tried to get input. Don't chill. But also to be validated. If we did this, could you do something with it? I think that process is very important.*" (P2). To build on the collaboration, the leaders **involve employees' interest in decision-making** to ensure that their voices are heard and perspectives are considered. "*That is how it is looked at. Looked at the interests of the people themselves. Then leaders can increase the involvement and the success of this transition initiative. You have to be able to keep yourself in the mirror.*" (P4). To ensure that this collaboration is established in the organization the participants noted that a leader need to **build coalitions with key individuals**. "*And while people say it's (sustainability) very important, believing and doing are not always the same. And how do you ensure that it actually gets done within the organization and doesn't remain just an ingrained vision? Yes, I think that's the biggest challenge and that has always been difficult for me. But it really involves building coalitions.*" (P1).

4.3 Instrumental leadership

The primary category identified by the participants concerns **visionary and strategic leadership**. The participants indicated that it's crucial for leaders to have **clear communication of the vision** of the company. "*Two is, that means you also have to communicate very proactively. Dialogue must be sought about this. So it's very nice that in the boardroom and in the back rooms and the closed managers, that the income is discussed. But because of the back communication campaign in which you are in business communication. The time, the space, the place gives to bring people along in this is also very important.*" (P2). This communication should also involve the **practical implementation of the vision** so that it is also translated into actionable steps that move the organization forward. " *So, it often goes like this. You need to have frequent conversations, sit together again. Okay, are we really going to do it and how? Yes, we are going to do it. Okay, and then you move a step further.*

So, it's trial and error, and that's something I notice a lot." (P1). "*And of course that can be in small things.Look, some companies are very good at carrying this through to the end. But yes, I don't know what it is like at your university, but at many companies we now see that there are no more plastic cups, there are no more cardboard cups, everyone just has to bring their own cup, that kind of things. And waste separation, and not printing if it is not necessary.Those are practical things. These are several practical things, but it is important to make people aware of them.*" (P7). The participant also indicated that it's important to have a clear **leaders vision to create commitment** for the employees. "*So, escalations are often necessary. Escalate up to the CIO. And the CIO says, "Guys, we have a commitment here, so this must happen." Then, reluctantly, people come together, for example. And then a solution is sought, and eventually things do get done.*" (P2).

5. DISCUSSION, LIMITATIONS & FUTURE RESEARCH

5.1 Discussion

This thesis examined the relationship between leadership styles and the employees' commitment towards the twin transition.

The findings of this research can be summarized based on several factors and propositions (see Figure 1).

The first factor is employee involvement and empowerment. The participants showed the importance of employee involvement, freedom, and alignment with the organizational vision. The leaders should empower employees with decision-making freedom. Besides that, they should involve employees in sustainability projects which should align with the organizational goals. Crucial is also the effective communication of the organization's vision by leaders to enforce employee commitment to change. Recognition and acknowledgment of employee contributions also play a crucial role in maintaining the motivation and commitment of employees (Briggs et al., 2022). These actions demonstrate that twin transition implementation actions and behaviors positively affect employees' commitment to change (1).

The second factor involves digital transformation implementation. The leadership's role in digital transformation involves structured implementation, effective communication,
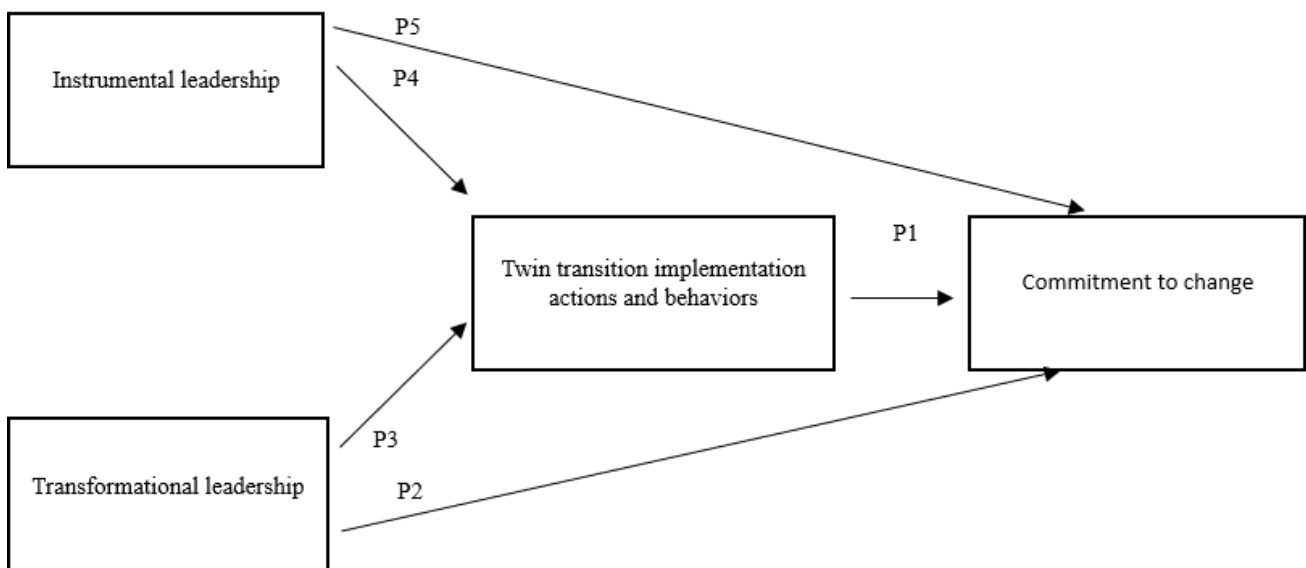

Figure 1. Proposed conceptual model of how leadership styles impact employees' commitment towards the twin transition.

and encouragement of employee-driven initiatives. The clear communication of digitalization goals by leaders and expressing the relevance to employees, creates understanding and engagement. Lastly, training programs are necessary to enhance employees' digital capabilities. This ensures that they are able to actively participate in the digital transformation process.

The third factor involves green transformation implementation. The leadership's role in green transformation requires a clear vision. Along with that, communication towards employees and practical implementation of the digitalization efforts are crucial. The alignment of the sustainability goals with digitalization creates a structured strategy towards the twin transition. The communication, guidelines, and promotion of sustainable behavior contribute to the engagement of the employees. In addition, it contributes towards the integration of sustainability into the organizations' practices.

The fourth factor considers the transformational leadership style. Transformational leaders inspire and motivate their employees. Besides that, they encourage collaboration and build coalitions to create an environment for organizational change (Antonakis & House, 2014). Thus, transformational leadership positively affect employees' commitment to change (2). This leadership focuses on creating a culture of trust and respect in which employees are empowered to contribute effectively to this change. The leaders actively involve employees in decision-making and translate the organization's vision into practical steps. Therefore transformational leadership has a positive effect on the twin transition implementation actions and behaviors (3).

The last factor considers the instrumental leadership style. Clear communication of the organization's vision is an essential factor of this leadership style. The proactive dialogue and the practical implementation are also essential components of instrumental leadership. Leaders should have a clear vision through which they can ensure the commitment of employees towards the organizations' goals. Instrumental leadership has a positive effect on the twin transition implementation actions and behaviors (4) and positively affects employees' commitment to change (5).

5.2 Theoretical contribution

This study contributes to the theoretical understanding of how leadership styles impact employees' commitment to the twin transition. It considers both digital transformation implementation and green transformation implementation. The findings provide a perspective on the actions through which leadership influences employee engagement and motivation. This is looked at in the context of organizational change.

The results indicate that empowering employees by giving them freedom in decision-making and involving them early in the planning process is crucial. Therewith they can enhance the commitment of the employees towards the twin transition. This supports the theoretical frameworks of participative and empowering leadership styles. Those theories emphasize the importance of involving employees in decision-making processes. This increased their sense of ownership and motivation (Bwalya, 2023). The evidence from the interviews contributes to that theory. It suggests that when employees have the autonomy to contribute their ideas and are included in discussions about the transition, they are more likely to be engaged and committed to the organizational goals.

The findings address the importance of a consistent and clear vision from leadership. Therewith the leaders align and motivate employees towards the twin transition. This new aspect contributes to the literature of Abrell-Vogel & Rowold (2014). The study also contributes to the research of Abrell-Vogel & Rowold (2014) by revealing that leaders should be visibly

committed to the transition and communicate its importance effectively. This leads not only to a shift in organizational culture but also motivates employees to engage more deeply with the process. This shows the role of visionary and strategic leadership in driving organizational change. It aligns with the theoretical constructs of transformational leadership. As leaders' vision and alignment with organizational goals are critical for achieving successful implementation and commitment to the transition.

The relevance of recognition and acknowledgment in maintaining employee motivation and commitment is another key finding. This research shows a theory that it is important that employees feel their contributions are recognized and valued. These employees are more likely to remain committed to the twin transition. This also contributes to the literature that shows the principles of positive organizational behavior. The organizational behavior emphasizes the importance of acknowledging and rewarding employee achievements. Therefore a supportive and motivating work environment can be created (Makwana, 2022).

The study also contributes to the existing theoretical understanding of digital transformation. The role of structured implementation, clear communication, and employee-driven initiatives plays a crucial role. The findings suggest that this structured approach to digital transformation, supported by clear communication and strategic alignment, is essential for successful implementation. Additionally, the emphasis on employee initiatives and ownership supports theories of innovative work behavior. This shows the importance of empowering employees to drive innovation and digitalization within organizations (Braojos et al., 2024).

The theoretical contribution also involves green transformation. It contributes by demonstrating the importance of aligning sustainability goals with digitalization efforts and creating a collaborative environment. The findings suggest that leadership vision and alignment, along with clear communication and practical implementation, are critical for driving the green transformation. This supports the theoretical frameworks of environmental leadership. This framework emphasizes the role of leaders in setting a clear sustainability vision and creating a collaborative culture. This in order to achieve environmental goals (Ding et al., 2023). This thus shows that leadership has an affect on the implementation of the green transformation in the twin transition.

Finally, the study shows the roles of transformational and instrumental leadership styles in driving the twin transition. Transformational leadership focuses on inspiring and motivating employees. This is crucial for creating a culture of innovation and commitment. Therewith it positively affect employees' commitment to change. This contributes to the existing literature of Abrell-Vogel & Rowold (2014) and Kim et al. (2021), suggesting the effect of transformational leadership on employees' commitment towards change.

Instrumental leadership emphasizes clear communication, strategic alignment, and practical implementation. This is equally important for translating vision into actionable steps. Therefore it contributes to the literature of Millhoff & Rowold (2020) as it shows the direct impact of instrumental leadership on the commitment to change of employees.

In summary, this study contributes to the theoretical understanding of leadership's impact on employees' commitment to the twin transition. It contributes by integrating insights from transformational, and instrumental leadership theories. The findings highlight the importance of employee involvement, clear vision and alignment, recognition, structured digital transformation, and sustainable practices. These create

commitment and drive organizational change. These insights provide a valuable foundation for future research and practical applications in leadership and organizational development.

5.3 Practical Implications

Based on the findings regarding the impact of different leadership styles on employee commitment towards the twin transition, some practical implications can be drawn.

Leaders should involve employees early in the decision-making process. In this way they provide them with autonomy and encourage participation of the employees. This increases their sense of ownership and commitment to organizational goals.

Leaders need to create a clear, consistent vision and communicate this effectively throughout the organization. Therewith they align the company goals with the employees' needs which leads to motivated employees. This helps in creating effort towards achieving organizational objectives, particularly during transformations.

Leaders should implement recognition programs to acknowledge employees' contributions. This can significantly enhance the commitment and motivation of the employees. By providing them with regular feedback and appreciation a positive work environment is shaped. This leads to more desirable behaviors of the employees.

Lastly, for initiatives like digital and green transformations, a structured approach is necessary. This involves clear steps, roles, and responsibilities. Leaders should ensure that employees understand their part in these changes and are provided with the necessary resources and support.

5.4 Limitations & Future Research

The research involved qualitative data to answer the research question. A limitation is that interviewees could have not been honest in their reflections or have felt scared to show opposite opinions. To reduce this limitation, confidentiality was ensured open ended questions were used, and a supportive environment was created. This research is also limited by the sample size that is used to in the qualitive research. This can have an effect on the generalizability of the results. A larger sample size could provide a more representative and robust findings. Besides that, the study is only conducted with participants that are working for companies in the Netherlands. Therewith the results may not be applicable to other countries with different cultural, economic or organizational concepts. Due to the reason that the research thus was conducted within a limited time in which the data could be collected.

In conducting similar research, future research could also involve other leadership styles to determine their specific impacts on employee commitment during the twin transition. This could help to identify the most effective factors of the leadership styles regarding this transition.

It is also suggested for future research to investigate the impact of leadership styles on employees' commitment across different cultural settings. This can help to understand how cultural factors influence the effectiveness of different leadership styles in promoting commitment to the twin transition.

A final suggestion for future research is to examine the effectiveness of leadership training programs in enhancing the leaders' ability to create employee commitment. This can be interesting, because effective leadership directly influences the organizational success regarding this transition.

6. CONCLUSION

This research examined the relationship between leadership styles and the employees' commitment towards the twin transition to answer the following question:

How do leadership styles impact the employees' commitment towards the twin transition in organizations?

By applying an inductive approach to thematic analysis, the researcher found that transformational and instrumental leadership positively affect the commitment of employees towards change. Effective leadership involves clear communication, fostering a collaborative environment, and giving employees freedom. This collectively drives the successful implementation of the twin transition in an organization. These leadership styles also positively twin transition implementation actions and behaviors, which has a positive affect on the employees' commitment towards the twin transition.

7. ACKNOWLEDGMENTS

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9. APPENDIX

9.1 Data Structure

1st order codes	2nd order themes	Aggregated dimensions
Acknowledgement for employee achievements	Acknowledgement and vision	Twin transition implementation actions and behaviors
Recognition for employee needs		
Awareness creation for employees by leaders		
Alignment of department's vision		
Consistent and clear vision of leaders		
Clear management vision on sustainability goals		
Set sustainability goals for the company		
Involvement of employees in sustainability projects	Employee involvement and empowerment	
Employee freedom in decision-making		
Involve employees' needs in decision-making		
Conversations with employees		
Digitalization increases work efficiency	Digital transformation implementation	
Structured digital implementation		
More efficient digital software		
Training to improve digital capabilities		
Digitalization through own initiatives		
Insufficient capabilities of employees for digitalization		
Implementation of digitalization through clear communication		
Digitalization contributes to sustainability	Green transformation implementation	
Alignment of sustainability and digitalization		
Communication about sustainable vision		
Guidelines for sustainable digitalization		
Promote sustainable behavior		

Make sustainability a practical thing		
Emphasize importance of transition		
How is sustainability applied		
Leadership ability to inspire and motivate	Inspirational and motivational leadership	Transformational leadership
Leaders stimulate employees to think		
Encourage and inspire employees		
Collaboration between leader and employees	Collaborative and inclusive leadership	
Involve employees' interest in decision-making		
Build coalitions with key individuals		
Leaders' vision to create commitment	Visionary and strategic leadership	Instrumental leadership
Practical implementation of vision		
Clear communication of the vision		

9.2 Interview guide for managers

Introduction

State the background and purpose of the research. Make sure the twin transition definition lines up.

Permission

In order to conduct my research as best as possible, I have asked you to complete the informed consent form that I sent you by email (a few days ago). This informed consent form states that it will be completely anonymous, meaning that everything you say will be confidential. I will also ask you if you mind if I record this interview, so that no valuable information is lost. Do you agree, if so, I will start recording now.

Opening questions

1. What is your name?

2. How old are you?

3. What is your position/role within the company?

4. How long have you been with the company and what attracted you to join the company?

Interview questions

5. How do you balance the importance of digital and sustainability initiatives within your team?

6. How do you create awareness among employees for the importance of the twin transition?

7. What do you think is the most effective way of communication between you as a leader and employees? (Do you prefer an open-door policy with your employees where they can discuss informally and express their opinions, or do you prefer a more structured relationship with clearly defined roles and formal meetings?)

8. How are employees involved in company decision-making? And how are the needs of employees included in the company's decision-making in the context of the transition?

9. Do you think the employees' own freedoms are important? And if so, how do you create an environment where people work towards the common goal, but can still maintain their own freedoms?

10. How do you process and apply feedback to your leadership decisions?

11. Can you share specific challenges you have experienced leading the Twin Transition, and how have you adapted to address these challenges?

12. During this transition, employees may need new skills and knowledge, how do you support employees to develop these? And how are employees given the opportunity to continue developing themselves within the organization?

13. How is recognition given to employees for the work they do, with emphasis on their personal qualities?

14. How do you create a positive working environment in which employees feel heard and valued?

Backup questions

15. As a manager, what specific actions have you taken to promote Twin Transition in your team (encourage development)?

16. How do you ensure that employees remain motivated and involved in the Twin Transition?

End

17. What do you think are the most important steps leaders (or employees) should take going forward to increase engagement and success in twin transition initiatives?

18. Reflecting on our conversation today, is there anything you think is important about your experiences with the twin transition that we haven't discussed yet?

19. Do you know people who you think would be more suitable for this interview?

9.3 Interview guide for employees

Introduction

State the background and purpose of the research. Make sure the twin transition definition lines up.

Permission

In order to conduct my research as best as possible, I have asked you to complete the informed consent form that I sent you by email (a few days ago). This informed consent form states that it will be completely anonymous, meaning that everything you say will be confidential. I will also ask you if you mind if I record this interview, so that no valuable information is lost. Do you agree, if so, I will start recording now.

Opening questions

1. What is your name?

2. How old are you?

3. What is your position/role within the company?

4. How long have you been with the company and what recommended you to join the company?

Interview questions

5. How do you balance the importance of digital and sustainability initiatives within your work?

6. How important do you think the twin transition (digital and sustainable transformation) is and how do you contribute to awareness among your colleagues?

7. What do you think is the most effective way of communicating between you and your managers? (Do you prefer an open-door policy where you can talk informally, or do you prefer more extensive and functional meetings?)

8. How are you involved in the company's decision-making? And how are your needs taken into account in the treatment regarding the transition?

9. Do you think your own freedoms at work are important? And if so, how does your manager ensure that you can work towards common goals while still improving your own freedoms?

10. How is your feedback processed and applied by your managers?

11. Can you share specific challenges you experienced during the twin transition, and how did you adapt to address these challenges?

12. During this transition, new skills and knowledge may be needed. How does the company support you in developing these skills? And how do you get the opportunity to further develop yourself within the organization?

13. How is your work recognized, especially with an emphasis on your personal qualities?

14. How does the company contribute to a positive working environment in which you feel heard and valued?

Backup Questions

15. What specific actions by your managers helped you with the twin transition?

16. How can managers ensure that you are motivated and involved in the twin transition?

End

17. What do you think are the most important steps leaders should take going forward to increase engagement and success in twin transition initiatives?

18. Reflecting on our conversation today, is there anything you think is important about your experiences with the twin transition that we haven't discussed yet?

19. Do you know people who you think are also suitable for this interview?