MASTER THESIS

MSc Business Administration – International Management & Consultancy

"No plan B because there is no planet B"

Exploring the drivers of employees' lean and

pro-environmental behaviours in Dutch

municipalities

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19-10-2022

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Abstract

The world is facing ever growing global challenges such as surging energy prices, floodings, heatwaves, and more. For governments all over the world, the urgency to act is growing. From big institutions like the United Nations to local governments, leaders are trying to implement policies and initiatives regarding sustainability. But how aware of these policies are their employees and how do they act in a pro-environmental way? How do leaders drive their pro-environmental behaviour, and what organizational methods are needed to implement this? Lean could be of use in this context. Lean has been used in the past to make processes more efficient and reduce wasteful activities to help organizations become 'greener'. But can this be of use in the service context of local governments? The aim of this study is to explore how leaders drive employees' lean and pro-environmental behaviours in Dutch municipalities. Following a qualitative inductive approach, we sought to answer this research question by conducting 12 semi-structured interviews with middle-level leaders and employees of four Dutch municipalities. First, we found that instead of green transformational leadership as highlighted in the literature, instrumental leadership has been identified as a more suitable leadership style to drive the lean and pro-environmental behaviour of employees. Second, we found that lean did not directly contribute to the pro-environmental behaviour of employees, but it could help drive the awareness of environmental issues due to its focus on eliminating waste and continuous improvement. We add these themes as antecedents to the Theory of Planned Behaviour, to contribute to existing literature. The practical contributions indicate that managers should implement a more all-encompassing leadership style and therefore focus more on clear goal orientation, long term strategy and guiding the employees through the change to pro-environmental behaviour.

Keywords: Lean, pro-environmental behaviour, pro-environmental awareness, instrumental leadership, sustainability, Sustainable Development Goals, Public Service Sector

Content

1 Introduction

"No plan B because there is no planet B" are the often-quoted words from former United Nations Secretary-General Ban Ki-Moon. When visiting the People's Climate March in September of 2014, Ban Ki-Moon said that the world needs to "galvanize our action" and harness the people's "power to change" [1]. This was just before the climate summit of the United Nations where the Sustainable Development Goals (SDGs) were proposed (George et al., 2016). "Climate change is a defining issue of our time" Ban Ki-moon said. "There is no time to lose. If we do not act now, we will have to pay much more"[1]. A year later the 2030 agenda for sustainable development, with it the 17 goals, was adopted by all member states. But almost 7 years later, did humankind make any progress?

The past decade was full of challenges for humankind, including war in Syria and Ukraine, subsequent migrant crises, climate-induced disasters, poverty, or famine. Global challenges remain despite technological, economic and social progress (George et al., 2016). For organisations, public or private, it becomes more important to take responsibility to tackle these challenges. The SDGs are meant to find a balance between economical, social, and ecological goals and in 2030, most of the SDGs must be achieved. How realistic is this? For example, with an estimated 1% of the worldwide revenue, the CO_2 Crisis could be solved[2]. With another 0,5% poverty in de world can be abolished as per the estimates of the UN. But this is not so simple. There is collective global leadership in forms of treaties or international organizations, but to achieve these goals on a national level is not always easy. This involves multiple stakeholders like private companies, regional government, and the taxpaying citizen. And driving these stakeholders into more pro-environmental approaches is still a difficult challenge. Previous studies have sought to understand this through a range of theoretical lenses that are (in)effective or (in)appropriate to tackle grand challenges that we face today (e.g., Berrone et al., 2016; Cobb et al., 2016; J. Mair et al., 2016; Vakili & McGahan, 2016; Zhao & Wry, 2016) while other studies have focussed on how organizations have been effected by and react to global challenges (e.g., Kim & Davis, 2016; Kulik et al., 2016; Luo et al., 2016; S. R. Martin et al., 2016). However, these studies do not go into through which management approaches organizations can tackle these global challenges. But there is a methodology that

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[1] https://news.un.org/en/story/2014/09/477962-feature-no-plan-b-climate-action-there-no-planet-b-says-un-chief

[2] De SDG paradox - bijdrage Nederlandse gemeentes aan de SDGs juli 2021.pdf

has already made an impact on organizations to tackle challenges such as waste of resources: lean.

Since the inception of the concept, lean has been popularized in academic research and in organizations alike and has been one of the most significant developments in the history of Operations Management (OM) (e.g., Åhlström et al., 2021; Hines et al., 2004; Holweg, 2007). Lean originally is an alternative to the method of mass production and focusses on optimal efficiency, quality, speed and cost (Holweg, 2007). These principles have also been applied to a so-called green context, where lean is implemented to reduce wasteful activities in order to innovate their operations for environmental improvement value (Kumar & Rodrigues, 2020; Ng et al., 2015; Piercy & Rich, 2015). While lean has its roots in an production context, it can also be used in a pure service environment (Radnor & Johnston, 2013), where it is used to streamline the service process for the customer. For stakeholders such as local government, lean could offer a way to organize internal processes to tackle the global challenges such as environmental change. However, little research has been done into how lean is implemented by leaders in government organizations and how it can drive pro-environmental behaviours (Dhingra et al., 2014; Lukrafka et al., 2020). Therefore, this study focusses on how lean is implemented in local government and how action can be taken to tackle global challenges

More specifically, we pay attention to the regional government: the Dutch municipalities, as clear example of public sector organizations. Some Dutch municipalities have already adopted a lean approach to working for the sake of efficiency, while other municipalities focus on being more sustainable. In the Netherlands the municipalities can give substance to their own plan regarding SDGs, but from national research in 2021[3], drive is lacking to work on the SDGs. In the literature, the connection with lean in the public sector and the need for more sustainable and greener processes is lacking. Therefore, we seek to identify key concepts in the public sector context to integrate lean with green practices. In this research, we want to focus on how that drive can implemented in Dutch municipalities, through how leaders drive employees while looking through the lens of lean management. With this study, we aim to answer the following research question:

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[3] National SDG-research for the Foundation for Global Goals, done by Van Hall Larenstein, University of Applied Sciences Saxion Arnhem & Nijmegen.

How can leaders in Dutch municipalities drive lean and pro-environmental employees' behaviours?

To address this research question, this study adopts a qualitative inductive research and uses semi-structured interviews with both middle-level leaders and employees in both lean and pro-environmental municipalities. The interviews were conducted throughout the summer of 2022 and considered a sample of 12 leaders/employees. The data was analysed using thematic analysis (Braun & Clarke, 2006) and was subsequently visualized by constructing a data structure (Gioia et al., 2013).

This study contributes to existing literature in five ways. First, the study identified instrumental leadership as a key leadership style, instead of green transformational leadership as stated in previous literature (Chen et al., 2014; Chen & Chang, 2013; Kumar Singh et al., 2020; Kura, 2016; Robertson & Barling, 2013, 2017; Wang et al., 2018). This noted a key difference in how leaders could drive employees' pro-environmental behaviour in the public service sector.

Secondly, we saw a lack of evidence of pro-environmental behaviour, as described by Darvishmotevali and Altinay (2022), in both lean and pro-environmental municipalities. Instead, organizational initiatives were used to drive pro-environmental awareness, which is indicated to be a first step towards pro-environmental behaviour.

The third theme is the influence of lean on pro-environmental behaviour. Although lean has a small influence on behaviour through usage of resource and waste reduction, lean experts point out that lean can be applied in the public service context (Cole, 2011; De Almeida et al., 2017; Snyder & Peters, 2004; Sreedharan et al., 2018).

The fourth addition to the literature is how inhibitors limit the process of pro-environmental behaviour. For example the differences between the private and public sector show the difference between the organizational structure (Radnor & O'Mahoney, 2013), while the lack of pro-environmental behaviours in employees show that the current leadership style is not fitting enough (Wang et al., 2018).

Lastly, we add these findings as antecedents to the Theory of Planned Behaviour (Ajzen, 1991, 2011, 2012) to give a complete oversight how these themes have an affect on the employees' pro-environmental awareness, and subsequently the pro-environmental behaviour. By identifying these underlying factors, this study deepens our understanding of human behaviour and how leaders in the Dutch municipalities can drive pro-environmental behaviour.

We also give practical relevance towards managers. By identifying how leaders can drive employees' lean and pro-environmental behaviours, leaders could be stimulated to use lean as a way to drive pro-environmental behaviours by looking towards waste and resource reduction. This study could also provide insights to third parties (i.e., consulting firms) that can be used to stimulate public sector clients to implement organizational structures that drive pro-environmental behaviour of its employees.

2 Literature review

In this chapter, key concepts and underlying theory that are relevant to the research are discussed. Key concepts identified following the main research question and sub-questions are lean in the public sector, lean and green, Social Development Goals (SDGs) leadership styles and the theory that bridges the gap between the concepts.

2.1 Sustainable Development Goals of the United Nations

In 2015 the United Nations (UN) member states unanimously adopted the 2030 agenda for Sustainable Development[4]. This agenda wants to stimulate action of the members that the UN deems critical: people, planet, prosperity, peace, and partnership[5]. At the heart of this agenda are the 17 SDGs, as seen in appendix 1. The SDGs are the successors of the Millennium Development Goals (MDGs) which were in place from 2000 to 2015. The MDGs focussed on improving the well-being in the world, whereas the SDGs try to reconcile the economic and social with ecological goals (Eisenmenger et al., 2020). The member states are not bound by the SDGs, instead the countries are expected to create their plans on a national or local level (Swain, 2018). In the central UN platform of the High-level Political Forum on Sustainable Development there is an annual follow-up and review of the SDGs. The Division for Sustainable Development Goals (DSDG) provides support and capacity-building for the SDGs and the related thematic issues[1].

The success of the SDGs are rooted in its implementation where 230 indicator are at its heart (Mair et al., 2018). Indicators in general have been strongly critiqued, as is the case in the context of the SDGs. Mair et al. (2018) argue that the use of quantified indicators in this case is problematic because the SDGs are collection of highly contested concepts. The reductive nature of indicators can create problems when trying to simplify and codify complex and subjective issues like the SDGs. Further the process of transformation towards a more sustainable world has also been criticised. Sustainable transformation of our societies has to acknowledge the boundaries of the planet and has to consider the mutual dependence between socio-economic activities. Eisenmenger et al. (2020) identified based on the analysis of targets and indicator that there is still a prioritization of the economic growth over ecological integrity. They asses critically that reaching all the targets of the SDGs will not suffice achieving

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[4] https://sdgs.un.org/goals

[5] https://sdgs.un.org/2030agenda

reduction of resources to levels that are below the boundary of the planet. Although the critical assessments of the use of indicators and the contradiction inside the SDGs, there is still a positive effect. The SDGs strategic potentials still prevail over the weaker points, as they can be used to support the social-ecological transformation (Eisenmenger et al., 2020).

As previously mentioned, the SDGs are implemented by the governments of the member states at a local or regional level. The SDGs are evaluated at a country-level, but a large part of the SDGs are relevant to corporate strategies and behaviours. Therefore implications of previous research has suggested that policymakers involve business and management scholars in strategic groups, where there contribution might help identify strategies that are useful towards the understanding the impact that main factor have on the contribution of the firms' sustainable development (Pizzi et al., 2020). Many of the SDGs are also directly relevant to management scholars, chief among them "decent work and economic growth" (SDG 8), "industry, innovation and infrastructure" (SDG 9) and "responsible consumption and production" (SDG 12) (George et al., 2016, p. 1881). Other SDGs that management scholars already conduct research include "no poverty" (SDG 1), "good health and well-being" (SDG 3), "gender equality" (SDG 5), and "reduced inequalities" (SDG 10) (George et al., 2016, p. 1881). But how can these strategies be implemented by managers to drive the awareness of employees of these global goals? For this we look towards lean.

2.2 Lean and the public sector context

2.2.1 History of lean

Lean is a principle that has been discussed far and wide in the academic world. Lean has been described as a theory, scientific method, concept, business phenomenon or more as a context (Åhlström et al., 2021). Lean has its roots in Japan when the motor company Toyota needed to find a way to maximize production with the least resources available in a defeated post-World War II Japan (Womack et al., 1990). This method, called the Toyota Production System (TPS), followed the 5 principles that must be followed. These are the determination of the value for the end user, identification of a specific value flow for products, continuous flow, pulled production and continuous improvement to perfection (De Almeida et al., 2017).

Lean has been used most often in the context of manufacturing, where it can be used as a counter to mass production. Mass production advantages come from the enormous scale of products produced at a lower price and quality, while lean manufacturing aims to optimize the production process to achieve superior customer value (Hu et al., 2015). TPS was not formally

documented until 1965, when Kanban systems were rolled out to suppliers (Holweg, 2007). Before this, there was not a need to do so. The instructions for TPS were done implicitly, since even the Japanese could not tell in words what they were doing (Holweg, 2007). Therefore, the development of TPS was unnoticed and only gained traction in the United States during the first oil crisis in 1973. The growing Japanese import in the U.S. caused concern for the western producers such as Ford. At the same time, the International Motor Vehicle Program (IMVP), based at MIT, set out to research the role automobile in future. Their conclusions did not specifically allude to the 'Japanese phenomenon' (Holweg, 2007), but it did set out the groundwork for 'The Machine that Changed the World' from Womack et al. (1990). In their book, the term 'lean production' was used to contrast with the more western term 'mass production'. But the term was first used in 1988 (Krafick, 1988). Terminology used by IMVP researchers used to classify companies on a spectrum from 'fragile' to 'robust' or 'buffered.' Fragile sounded too negative, so lean was chosen as a word with a more positive connotation (Holweg, 2007).

Further research was conducted by the IMVP to see if the Japanese manufacturing techniques were transferable towards the U.S. marketplace. When it was shown that this was the case, it became more apparent that the concept was not bound to only the Japanese culture. As Womack et al. (1990, p. 9) argued: 'We believe that the fundamental ideas of lean production are universal – applicable anywhere by anyone – and that many non-Japanese have already learnt this'.

2.2.2   Lean in the public sector

The five principles mentioned above can also be applied in an administrative setting i.e., the lean office. By improving the workflow and reducing administrative waste, this method can be used to improve flexibility in the office and allows for a quicker response to market changes (De Almeida et al., 2017). This method can be implemented not only in the private sector, but also in the public sector. There are differences in between those sectors in the context of lean. In the private sector the customer and commissioner are the same, which is critical in determining the customer value (Womack & Jones, 1996). The public sector however, defined as services provided by the government (Syvertsen, 1999), are serving the tax-paying and service receiving citizen (Gębczyńska & Brajer-Marczak, 2020) as their end customer. Therefore, there is already a fundamental difference between the two sectors. Research shows that the public sector is slow, more risk adverse, has a low understanding of operational management (OM), a low level of motivation, staff is less willing to change and leadership is

unclear (Radnor & O'Mahoney, 2013). The goals of implementing lean in the public sector are to contain expenditures and increase the efficiency in the governing body. The implementation of lean was mainly focused as a method for reducing costs and improving the overall quality in the public sector (Andersson et al., 2020). It also became visible on the political agenda, due to the financial austerity at the time of the post-2008 crash (Martin, 2018). Decentralization became the answer to improve efficiency, where it challenged the existing infrastructure as well as the people working in the public sector. This decentralization provided management to use new approaches, such as lean, to administer public services (Andersson et al., 2020).

Although it seems as easy to adapt processes, questions can be raised if this is the case. As mentioned, the case for implementing lean is reducing waste in the bureaucratic context and improving value for the end user, as defined by Gębczyńska and Brajer-Marczak (2020). Research by Radnor and Johnston (2013) has suggested that the main agenda for the public sector is creating efficiency rather than thinking from a customer focus place (Radnor & Johnston, 2013). Lukrafka et al. (2020) also recognized that the contribution of lean lies in the perceived value and that this is also little explored by researchers. It seems that a major challenge adopting lean is understanding the concept as a whole and that the implementation seems to be piecemeal instead of system-wide (Burgess & Radnor, 2013; Drotz, 2014). The same challenges can also be seen in the general organization change context, where the differences in the public sector and private sector affect the impact of operations management implementation. To address the tensions that these challenges bring, Radnor and O'Mahoney (2013) argue that there needs to be a greater understanding of factors around readiness and success for implementing OM in the public sector. Organisations should therefore play close attention to the behaviour of their leaders, change agents and supervisors at all levels (Cinite et al., 2009), highlighting the importance of leaders within the public sector.

2.3 Lean and sustainability

Lean can also play an important role in the changing demand for a more sustainable world. The growing cost pressures from stakeholders, changes in market conditions, and changes in environmental regulations and laws have forced organisations to rethink their strategies, look beyond economic performance and change their approaches to managing processes and operations that comply with environmental regulations (Cherrafi et al., 2017; Garza-Reyes, 2015; Kumar & Rodrigues, 2020; Mollenkopf et al., 2010). This concept can be described as 'lean and green.' Through lean thinking, organisations aim to reduce the so called TIMWOOD

wastes (7 types of waste linked to transportation, inventory, motion, wating, overproduction, over processing, and defects) across their operations and supply chain processes to achieve high-level of quality, low costs and short delivery times (Abdulmalek & Rajgopal, 2007; Dora et al., 2016; Hines et al., 2004; Kumar et al., 2006; Kumar & Rodrigues, 2020; Shah & Ward, 2007; Womack & Jones, 1996). All these changes drive organizations to innovate their operations and supply chain processes for environmental improvement rather than creation of environmental values *through* economic value (Kumar & Rodrigues, 2020; Ng et al., 2015; Piercy & Rich, 2015).

Lean and green in the setting above is applied in the manufacturing setting, but it can be also applied in the public sector. The public sector is also sensitive to the public concern about the environment, so public sector organisations must adapt their processes to be more greener (Cole, 2011; Snyder & Peters, 2004; Sreedharan et al., 2018). But much more cannot be found in the literature in connection with the public sector, besides the need for more sustainable and greener processes. Therefore, a framework for public sector organisations to integrate lean with green practices is missing.

To understand how organisations implement strategies to be more pro-environmental and sustainable, the focus must lie on the leadership of the manager inside the organisation because leadership is the mechanism for embedding those values and norms in the company (Schein, 1983).

2.4 Leadership: lean and green?

2.4.1 Leadership styles in the public sector

An integrative definition of a leader can be described as a person who selects, equips, trains and influences one ore more followers that have diverse gifts, abilities and skills and focuses the followers to willingly and enthusiastically expend spiritual, emotional and physical energy in a concerted coordinated effort too achieve the organisational mission and objectives (Winston & Patterson, 2006). This definition is very general, so further clarification needs to be given in the context of this research. Therefore, we look towards leadership styles.

Two main styles leaderships styles have been discussed in previous research: transactional and transformational leadership (Burns, 1978). Transactional leadership focusses on the transactions between the leader and follower, whereas transformational leadership focusses on the pursuit of higher goals that are obtained by the collective interests of both the leader and the follower. The leadership style cannot be simply treated as two separates, since

transactional leadership is the foundation on which transformational leadership stands (Bass, 1997). Four factors can be described that differentiate the two styles from each other; idealized influence, inspirational motivation, intellectual stimulation and individualized consideration (Bass, 1997). Personal traits attributed to transformational leaders are communication, empowerment, teaching, motivation, and persuasion (Stone et al., 2004). Dimensions associated with transactional leadership are contingent reward, active management-by-exception, and passive management-by-exception (Jensen et al., 2019).

The choice of leadership style has an impact on the strategy implementation of organisations (O'Reilly et al., 2010). In public sector organisations leaders are essential for the performance improvement and strategy change (Sun & Henderson, 2016). To drive employees towards pro-environmental behaviours through lean management, strategy change is important. Transformational leadership in particular has been positively related towards organisational performance, change, and strategy implementation (e.g., Ateş & Porck, 2020; Groysberg & Slind, 2012; Judge & Piccolo, 2004). While the public sector works different than private sector due to its bureaucratic nature in regards to transformational leadership (e.g., Bass & Riggio, 2005; Pawar & Eastman, 1997; Rainey & Watson, 1996), transformational leadership also has shown its effectiveness in the public sector (e.g., Dumdum et al., 2013; Lowe et al., 1996; Trottier et al., 2008; Wofford et al., 2001; Wright & Pandey, 2010). Transformational leadership has not only been of note in the public sector, but it is been connected to key concepts as lean or green behaviour (Chen et al., 2014; Chen & Chang, 2013; Robertson & Barling, 2013; Seidel et al., 2019). For lean authentic leadership has been mentioned alongside transformational leadership. Authentic leadership theory states that the work engagement of the follower arise from the empowerment and identification with the leader, who should show consistency in their words, actions and values (Uhl-bien, 2006; Yukl, 2010). This leadership style can be used to understand how lean leadership behaviours influence the engagement of employees as well as the characteristics of the organisation context that support it (Seidel et al., 2019). The transformational leadership style is also mentioned in context of understanding how lean leadership influences followers to support continuous improvement activities, in a consistent manner with organisational goals (Seidel et al., 2019). The personal attributes of transformational leadership are all linked to lean leadership. Continuous improvement in lean systems for example is supported by teaching workers how to identify and solve problems. Empowering them to implement their ideas, and delegating responsibility to achieve a higher performance level (Liker, 2004). It is not to say that either one of these styles have to be chosen

in order to be a lean leader. Seidel et al. (2019) state that every general leadership style can have a different contribution towards lean leadership, and previous research has shown that authentic and transformational leadership are more similar than dissimilar (Green, 2013; Rodriguez et al., 2017). The only area of contrast that Green (2013) identified is that transformational leadership focusses more on organisational activity, which is of more value in this research.

Given the theory above, transformational leadership has been identified to be of interest in this study. Lean seeks out attain more customer value by continuously improving work processes (Shah & Ward, 2007). Lean enables the work floor teams to "routinely realize peak performance" over time (Edgeman, 2017; Sadun et al., 2017), not only via lean practices but also through leadership and work floor employees' behaviours (Camuffo & Gerli, 2018; Netland et al., 2020; Onofrei et al., 2019; Tortorella et al., 2017; Van Dun & Wilderom, 2021). However if the employees do not display lean behaviour, the employer will be negatively affected (Beale, 2007; Emiliani, 1998; Puvanasvaran et al., 2015) and therefore will not contribute well to environmental management or sustainability (Norton et al., 2017).

2.4.2 Leadership and lean

Leadership plays an important role to implement lean in a sustainable and integrated way, since lean is socio-technical in nature (Mann, 2009; Seidel et al., 2019; Shah & Ward, 2003; Yadav et al., 2017). Seidel et al. (2019) noted that lean leaders have a responsibility to eliminate wastes, train and develop team members for problem solving and other lean practices, guide the team towards the strategical objectives for the team (Liker & Convis, 2011). Lean leadership is therefore defined as a social process, carried out by leaders with personal attributes aligned with lean principles (Seidel et al., 2019). Although lean is popular to adapt it is hard to routinely maintain the same peak performance since team performance reverts over time to a more lower-performing lean state (Jasti & Kodali, 2015; Netland et al., 2015; Taylor et al., 2013). In order to research this phenomena, Van Dun & Wilderom (2021) looked at organisational theories that also are of importance in this present research. In their research, the activity pattern of 'coactive vicarious learning-by-doing' was identified in the lean teams studied. This pattern is defined as a relational process of co-constructed, interpersonal learning that occurs through discursive interactions between individuals at work (Myers, 2018). 'Vicarious' in this context means that people can learn from simply observing and interpreting others' behaviours and the consequences (Myers, 2018). The coactive vicarious learning-by-doing provided a foundation for lean teams to flourish. In this activity pattern, three stakeholders were identified: high-level

leaders, team leaders and the teams themselves. It was found that when higher-level leaders did not invest in making lean work, even physically, it would impact the team negatively. The frequent face-to-face work floor presence of high-level leaders enables them to role model and learn from the behaviours and values of their lean teams and leaders, which then moderates the relationship with teams and their team leaders in improving the performance (Van Dun & Wilderom, 2021). In this process middle management is the linking pin between the employees and higher management and therefore takes a central role in connecting higher-level goals with employee execution (Nonaka, 1988; Nonaka et al., 2016; Van Dun & Wilderom, 2021). Here leaders can effect lean teams' performance by taking an active and stable role inside the meso-level created by coactive vicarious learning-by-doing (Van Dun & Wilderom, 2021). All-in-all, leaders in lean teams need to inspire their followers and lead by example in order to make the lean team efficient. Therefore, the focus is on transformational leadership as it has show it contributes to lean leadership and the focus on organisational activity, which can contribute to a greener and more sustainable organisation. We focus on the middle management layer, since they take the central role of implementing greater goals of higher-level management in the lower-level teams.

2.4.3 Green leadership

Transformational leadership is also used in order to stimulate pro-environmental behaviours in employees. The term used for transformational leaders that are pro-environmental can be best described as green leadership (Chen et al., 2014; Chen & Chang, 2013; Kumar Singh et al., 2020; Kura, 2016; Robertson & Barling, 2013, 2017; Wang et al., 2018). Several studies have looked at the influence of green leadership on multiple variables: employee green identity/concern and employee green behaviour (Kura, 2016; Robertson & Barling, 2013, 2017), value congruence between leader and follower and green behaviour (Wang et al., 2018), green mindfulness, self-efficacy and green performance (Chen et al., 2014).

It has been found that environmentally-specific transformational leadership can predict the environmental behaviours of employees. It was also indirectly associated with subordinates' workplace pro-environmental behaviours (Robertson & Barling, 2013). Thus, he importance of the transformational leadership style in this studies context is highlighted. However, the research of Wang et al. (2018) has shown that there are limitations of green transformational leadership. Employees that are 'far from green' are less sensitive to drivers that are supposed to help them become 'greener' in their behaviour. Extra attention must than be given so that also those employees will work within a greener context.

3 Methodology

In this chapter the proposed research design will be elaborated on. How data sampling will be done will be explained in the second part and lastly, data analysis will be discussed.

3.1 Research design

This research aimed to explore how leaders in municipalities can drive employees' lean and pro-environmental behaviours. Therefore, field research was chosen to capture data. The three archetypes of methodological fit in field research are nascent, intermediate and mature (Edmondson & McManus, 2007). Nascent research focuses on open-ended inquiries about a phenomenon, intermediate focuses on proposed relationships between new and established constructs and mature focuses on focussed questions/or hypotheses (Edmondson & McManus, 2007). Because the topic has attracted little research or formal theorizing (Edmondson & McManus, 2007), the nascent archetype has been determined to be a bitter fit in this research, since we hoped to understand how the process of driving employees' lean and pro-environmental behaviours the public-sector works.

This means that a qualitative research design has been chosen, since the aim is to capture and explore ideas used in ongoing processes in Dutch municipalities regarding the concepts mentioned earlier. Qualitative research can uncover new information that can reach the potential to uncover new insights about organisational phenomena (Gioia et al., 2013). And with in-depth and thick descriptions of the leaders' and employees' values and believes that come from the interviews, the research question can be answered. Thus qualitative research has been chosen above of quantitative research, where the focus is more towards a particularistic nature than the holistic nature of qualitative research (Ahmad et al., 2019). This approach also gets more in-depth information from the objects of analysis then what quantitative research can give, since quantitative research focusses more on testing pre-defined hypotheses and examining cause and effect relationships between two or more variables (Ahmad et al., 2019). As a result of choosing a qualitative approach to this research, an inductive approach has been opted for to address the research question. There are multiple approaches to that can be used in research. Three types of reasoning can be used: deductive, inductive, and abductive. Deductive reasoning is used to demonstrate situational validity of a generalizable rule or claim, inductive is used to generate a knowledge claim where it is improbable that the conclusion is false if the premises are true (Hurley, 2000) and abductive reasoning, that is used to generate plausible, conjecturable explanations (Bamberger, 2018). When looking to the context of this research,

inductive and abductive reasoning fit better, since deductive research is used to test hypotheses which this research does not have.

Abductive reasoning is used to elaborate upon general theories (Ketokivi & Choi, 2014), allowing researchers to develop plausible conjecture and some insights into what this conjecture might mean for the development of new or alternative conceptual frameworks (Shapira, 2011). Since we did not find an existing theoretical framework to built our arguments but rather sought to build a theory that is adequately grounded in the data (Saunders et al., 2009) from the interviews. An inductive approach was therefore preferred. Therefore the data is used to confirm a generalizable outcome when premises are met (Bamberger, 2018).

3.2   Sampling strategy

The focus of this study was on Dutch municipalities, so therefore municipalities in the Netherlands were chosen that were in line with criteria established beforehand. Municipalities that implemented lean in their organizations and municipalities that were actively working with the concept of 'pro-environmental way of working' were selected. Lean municipalities were approached through desk research or referrals from lean consultants/experts. Pro-environmental municipalities were chosen through desk research or also through referrals. Inside the municipalities, we tried to select employees and middle-level leaders. Middle-level leaders were chosen for their centre role between higher level management and the interaction they have with lower-level employees as described by Nonaka (1988) and Nonaka et al. (2016). The purposed plan was that 16 participants, across two different municipalities, would be approached. During this process however, it became clear that it was difficult to find municipalities that met the previously mentioned criteria. Either municipalities did not have enough time, did not have an extensive policy regarding sustainability, or did not have enough relevant people to speak to. Therefore, the criteria were changed. The focus shifted towards getting multiple different municipalities that either practiced lean or had a clear policy regarding sustainability. In total, 4 different municipalities were chosen. One lean municipality, two 'pro-environmental' municipality and one municipality which implemented lean and pro-environmental policies. In these municipalities, 12 people were selected. The characteristics of these people are described in Table 1. The interviewees were chosen due the availability of employees in the municipality and, their role in lean teams or their role in the implementation of sustainability policies. The interviews were supposed to be between followers and leaders in the same teams. However, it was difficult to achieve this. Therefore, we looked to leaders in

managing or advising context or employees. The names of the participants shown in Table 1 were pseudonymized and given at random, in order to conceal the identities of the participants.

Table 1. *Personal and Organizational Information of Participants*

Name	Gender (M/F)	Age (range)	Education	Role	Size* (Inhabitants)[6]	Type**
"Simon"	M	46-55	University	Manager	883,000	L
"Kevin"	M	56-67	University	Council member	43,000	P
"Maria"	F	46-45	HBO	Advisor	43,000	P
"Jacob"	M	<35	HBO	Advisor	131,000	P
"Theo"	M	56-67	HBO	Manager	655,000	L
"Jan"	M	36-45	University	Advisor	655,000	P
"Luke"	M	46-55	University	Employee	883,000	L
"Linda"	F	56-67	University	Advisor	43,000	P
"James"	M	46-55	HBO	Employee	883,000	L
"Emma"	F	36-45	University	Advisor	43,000	P
"Daan"	M	36-45	University	Manager	883,000	L
"Lucas"	M	36-45	HBO	Team lead	655,000	L

* Rounded
** L= lean, P= Pro-environmental

3.3 Research instrument

To answer the research question, semi-structured and in-depth interviews were held with the participants. Since we are dealing with an study aimed to explore rather than explain (Saunders et al., 2009), semi-structured interviews were chosen as a research instrument. In these interviews the researcher had a list of themes and questions to be covered, to consistently ask different interviewees questions that correspond to the same theme (i.e. lean or sustainability) The opportunity that arises from these interviews is that the researcher can probe for answers, where you want your interviewees to explain, or build on, their responses (Saunders et al., 2009). Two sets of questions were made: one used to explore how the leaders aims to drive the employees' pro-environmental behaviour through lean management and one to explore if the employees' behaviour is effected by lean management. Questions will therefore focus on for example how lean is implemented in the office, what problems came with implementing, what goals relevant to pro-environmentalism are set for the employees, how are employees made aware of goals concerning sustainable development and how lean could contribute to pro-environmental behaviour. The protocol can be seen in Appendix 1. Ethical approval of the University of Twente was obtained in order to conduct the interviews. The interviews were

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[6] https://www.cbs.nl/nl-nl/visualisaties/dashboard-bevolking/regionaal/inwoners

conducted in Dutch and were conducted through Microsoft Teams, since all the participants preferred this option. This allowed the easy recording and transcribing via the Teams software. After the initial transcribing from the Teams software, another round of manual transcribing was done via the ATLAS.ti. The interviews were all transcribed verbatim. Participants' identity and personal information were concealed in the final transcriptions. Personal information that will be used in quotes in this thesis will also be concealed as not to allude to the identity of the participant.

3.4   Data analysis

The data was analysed using thematic analysis (Braun & Clarke, 2006). The thematic analysis is a method for identifying, analysing and reporting patterns (themes) within data (Braun & Clarke, 2006). To organize the collected data in a structured way, this study used Gioia's method (2013). In this method, first order concepts, second order themes and aggregate dimensions will be found in the transcribed interviews. The thematic analysis describes six steps. The first step is getting familiar with the data through transcribing and re-reading the data (Braun & Clarke, 2006). The second step is systematically generating codes corresponding to first order concepts of Gioia et al. (2013). The third step revolves around finding the second themes and aggregated dimension by collating codes on similarity (Braun & Clarke, 2006; Gioia et al., 2013). The fourth step consists of reviewing the themes by checking the relation to the individual codes and data set (Braun & Clarke, 2006). The second-to-last step is giving definitions to the themes, and the final step consists of building the data structure and analysing the data. Through selecting compelling examples that support the codes and themes, we aim to answer the research question. Coding was done by using the software ATLAS.ti. During this thematic analysis, inductive coding was used as described in 3.1. Thematic analysis can be both associated with both inductive and deductive coding. The deductive approach is used in thematic analysis to when the general aim of the analysis is to test a previous theory in a different situation or to compare categories at different periods (Elo & Kyngäs, 2007; Hsieh & Shannon, 2005; Vaismoradi et al., 2013). In thematic analysis the inductive approach however is used in cases where the phenomenon, and therefore the coded categories were directly derived from the text data (Hsieh & Shannon, 2005; Vaismoradi et al., 2013). Quotes were selected in ATLAS.ti that were relevant to the research and were quoted in line with the inductive approach for thematic analysis. This meant that the codes were derived from the quotes, without keeping previous literature in mind.

4 Results

From the data gathered in the interviews, key themes were identified in how employees' lean and pro-environmental behaviour is driven. With the interviews conducted a data structure based on Gioia et al. (2013) was constructed, as can be seen in the Table 2. In the paragraphs following this table we will explain the how the aggregated dimensions came to be, in order to give clearly describe the data. The data structure consists of 44 first order themes, 12 second order themes and 5 aggregate dimensions. These aggregate dimensions are pro-environmental actions, lean applications, Influence of lean on pro-environmental actions, leadership style and inhibitors.

Table 2. *Data structure of driving forces and inhibitors of employees' lean and pro-environmental behaviours.*

First order codes	Second order themes	Aggregate dimensions
Reusing cups Competitive games Working from home Using solar panels Donating the money from PET bottles to cleaners Introductory talks to create awareness	Environmental awareness incentives	**Pro-environmental actions of employees**
Using models based on data to work less on location Awareness of resources Looking for wasteful processes	Pro-environmental effects of lean	
Awareness of the client Improving client experience	Client orientated	**Lean applications**
Looking for improvement Looking for efficiency Looking for effectiveness	Continuous improvement	
Strong foundation of lean leaders Having a 'lean sponsor' as top management	Lean leadership	
Prioritising sustainable lean initiatives Making the permit application process more efficient Recycling lean initiatives Using data to drive lean initiatives	Ideas of connecting lean with sustainability	**Influence of lean on pro-environmental actions**
Manage goal orientation Manager steering employees Personal attention	Leadership role	**Leadership style**
Wanting evaluation from management Setting clear responsibilities Looking at the long term	Leadership needs from employees	

Being a 'Global Goal municipality' Connecting SDGs to KPIs Giving workshops about SDGs Drawing up the budget on basis of SDGs	Integration of SDGs in policy	
Difficulty defining sustainability No clear team goals regarding sustainability Unawareness of sustainability in the organization Difficult to measure KPIs	Unclear sustainability policy	**Inhibitors**
Employees unable/not wanting to focus on sustainability Employees opposing change Negative opinions about SDGs	Employee resistance	
Influence of politics Influence of legislation Bureaucratic practices Lack of competitiveness	Characteristics public sector	

4.1 Pro-environmental actions of employees

To look into how leaders drive pro-environmental behaviours in employees, first we look into how the interviewees describe their awareness of current initiatives by the organization. The interviewees shared multiple ways how the municipality implemented multiple pro-environmental initiatives to get them to act in certain ways. The aggregate dimension is therefore called 'environmental actions. This dimension is divided in two second order themes named; 'environmental awareness stimulation' that shows organizational efforts to control environmental awareness, and 'sustainable side effects of lean' which covers how lean effects the pro-environmental actions of employees.

'Environmental awareness incentives' indicates how the organization tries to affect the awareness of the employees in the municipality. The following quotes from James and Jacob capture how organizations try to influence the employees:

> *"We also have real solar panels on our roof, and you also just notice all kinds of tricks being invented to get awareness actually among the employees. Like games, sometimes competitive, of who uses the least amount of paper and things like that." (James, L)*

> *"Well, and then they saw "hey that's interesting, we can do fun activities from this". (...) Well, they thought that was a good idea, so now we are also going to put an active bin there, where you actually make a donation to the employee who provides*

clean facilities for you. (...) Yes, that is how we are trying to add that motivational incentive" (Jacob, P)

Here we see how the first organization initiate the use of solar panels but also uses other tactics to create awareness among employees, like competitive games linked to use of resources like paper. Jacob mentioned an initiative that is used to incentivize recycling. The PET bottles are donated to the cleaning staff as a sign of appreciation. These examples show how organizations try to create awareness by low-level initiatives. Other examples given were working more from home or using less municipality buildings which means less energy usage. Another strategy that was used by a so called 'sustainability advisor' was initiating an introductory talk with new employees, so that they were aware of environmental challenges of the municipality and what the link is with their specific area of expertise. Emma highlighted this:

> *"My underground strategy is just as soon as someone is new, I schedule an introductory meeting and then I dump all the sustainability on them so that I can get them straight away.... When everyone is still a bit of: "Oh I'm just new" then I just try to flood them with sustainability right away so they at least know (...) where they can find me, but also what links there are to their profession." (Emma, P)*

These initiatives showed how in municipalities pro-environmental awareness is driven by the organization or individuals. Other indicators of pro-environmental awareness in the organization are shown in the connection with lean. Although the effect of lean on the pro-environmental behaviours of employees was minimal, some employees could elaborate on how lean could affect pro-environmental actions. Daan gave a concrete example on how optimizing the WOZ valuation process, may affect the pro-environmental behaviours of the employees:

> *"We'll take a very simple example. We do the property tax valuation. We value all the real estate of [municipality X]. Whether that's corporate, offices, stores, hotels or whether it is residential properties. It does not matter. In the past we did that on the spot, so appraisers would structurally go out in their cars to go to properties. Now we do it all through models. (...) So we develop our own models. (...) That comes from the data science team and in it we set ratios from a kind of market analysis and those ensure that those appraisers no longer go out." (Daan, L)*

This shows how the lean 'philosophy' could help make the process of the municipality greener since their appraisers are no longer required to go out by car to go the real estate locations, which cuts down on emissions. This concrete example shows that that lean can stimulate the

pro-environmental behaviours of the employees. As Luke also shared, is that the continuous process of improving and securing the work processes in the municipality in itself can be sustainable. But how is lean applied in these municipalities and what common themes occurred in the interviews? The next aggregate dimension dives deeper in the lean aspect of the interviews.

4.2   Lean applications

Multiple interviews were conducted with employees and managers that work in lean teams. The aggregate dimension of 'lean applications' is distilled from three second order themes of 'client orientated,' 'continuous improvement,' and 'lean leadership,' which were key themes found in the interview of the respondents. Being client orientated was shown of importance in the lean processes. For example, James and Luke mentioned that in their process they have a document named 'client view,' which gives an image of the client needs and wants in regards of a benefit application process. James also states, that in his views there are two clients:

> *"If you look from lean perspective, which is the person receiving the service. Those are people who are receiving benefits, but those are also people who are not receiving benefits but are with us for other reasons. (…) and the second customer, I think, is society, people who want to help very much. But they want the money to be well spent and so that people only use the right to assistance when they really need it." (James, L)*

Lucas, Jan and Theo also noted their motivation for their work, namely doing the right thing for their customers. This shows that being aware of the customers that you serve and implementing it in your work process is especially important for the interviews working with lean.

> *"People are fairly intrinsically motivated, I notice, to do the right thing for the people of Rotterdam. That is the reason they came to work for the municipality" (Lucas, L)*

> *"Yeah, I think just a very powerful method to motivate people as well. (...) And serve your customer better and the customer aspects, so what I said, I have actually been on the customer side my whole career. (…) So from day one I have just been interacting with customers, and I just super enjoy that as well" (Theo, L)*

But apart from being aware of the client and being intrinsically motivated to work for the employee, improving the client experience is also shared as a key aspect in applying lean. As

Simon and James point out improving the experience for the clients is important for their work. Lean is signified as a crucial tool too achieve that improvement.

> *"In my experience, which is the method that can move our organization forward. And not only already in our organization, but especially for our customers actually."* *(James, L)*

> *"(…) because I also thought it was important that they really start designing more from the customer's point of view. I thought they were quite far removed from the customer at the time." (Simon, L)*

Improving the customer experience brings us to the next theme mentioned by interviewees, namely 'continuous improvement.' This second order theme highlights how employees continuously looked towards improvement in their processes, while keeping in mind the need for efficiency and effectiveness. James describes this in the following quote:

> *"Actually, the reason I started with lean and actually also this position is actually also a little bit from that I had the idea that it is going too slow. We are not efficient enough. We are not effective enough. (…) The aim is for us to work more efficiently and effectively as an organization. So that we can better achieve our goals." (James, L)*

On the same line, Theo, Lucas, and Daan also elaborated on the same principle, which signifies that in municipalities the need for continuous improvement is still especially important. Sometimes this comes from a personal belief in the lean management style, sometimes budget cuts which drive the need to spend the municipalities money more effective, or a leader that drives the process in the organization. The last second order theme describes the theme of leadership in lean application. Leadership was identified by people as an important aspect to keep doing lean projects, as Theo describes:

> *"Well leadership, which is the most important thing. (…) We now have a director who is completely behind lean who asked us. He comes from customs where he worked with lean, so he is a fan of it. (…) I do not know what would happen if he would quit, and then someone comes in to succeed him without lean knowledge and focus." (Theo, L)*

This showed that leaders that have knowledge of lean are needed in the organization. Since this is not always the case, interviewees shared that it is needed to strengthen the foundation of lean leadership in order to effectively apply this. So, the idea of an informal 'lean sponsor' in the

organization, especially higher up, is important to employees. Lucas and Theo both shared one 'sponsor' was needed to drive lean throughout an organization. While Daan and Theo also expressed concern that without this leadership they would think that foundation will start to break. There Daan shared the idea of enthusing people to be a lean sponsor in the organization is needed to keep that lean foundation in place.

These themes together form the dimension of 'lean applications. Lean can have effects on the pro-environmental behaviour of employees, but interviewees found it hard to connect the lean with the sustainability. In the next paragraph, interviewees that worked with lean explain some of their ideas to connect the two.

4.3   Influence of lean on pro-environmental actions

With both the lean applications and pro-environmental actions identified, we move to the theme of 'influences of lean on pro-environmental actions. As mentioned, some interviewees could identify some aspects as to how lean effect pro-environmental actions of the employees. However, since few lean initiatives were connected with sustainability processes, it was hard to identify definite links. To still identify how lean could play a role, the interviewees were asked how they would connect the two aspects. These examples were put in the first order codes to form the second order theme 'ideas of connecting lean with sustainability.'

Multiple ideas were brought up from the interviewees. For example, Lucas mentioned to prioritise lean projects that touch upon certain sustainability aspects. Lucas also mentioned a concrete example of streamlining the permit application process, so that network operators can work faster in making the city less dependent on environmental unfriendly energy sources. Theo gave other examples of initiatives that can benefit from lean management while stimulating pro-environmental practices. Examples were recycling initiatives and collaboration with social housing corporations. While these examples give some insight into how lean an effect on pro-environmental factors can have, the remain not well defined. However, these lean experts did think the use of lean could contribute to further pro-environmental action:

> *"Well, in principle, lean can contribute to any objective of course, and so also with sustainability." (Theo, L)*

> *"And in any case, we can of course also help with lean thinking, to look at how sustainable we are now, right? And also make that part of the business operations." (Lucas, L)*

"That as an organisation you can move in that direction and deploy lean from that philosophy that you can contribute to that: Definitely. (...) We are travelling less. Less paper goes out. We can work with fewer people. In turn, fewer people means fewer movements. Yes definitely, because you want to do things more efficiently and that is not just process-wise when it comes to automation design, or it is. That of course always ensures that you need less and less is of course in whatever form you look at it, sustainable." (Daan, L)

These quotes show that although it is hard to define how exactly lean can help, these lean experts do concur that lean can be an enabler in pro-environmental behaviour.

4.4   Leadership style

With all the previous themes identified which are important in the organization, participants underlined how leaders drive them in their work environments. We do this by looking at the 'leadership style.' The second order theme of 'leadership role' describes how leadership is now orientated in the municipalities. One of the first codes is that managers facilitate a 'clear goal orientation' for the employees in the teams. Interviewees mentioned how management takes charge in this organizations. Employees in lean teams explained how important the leadership of their managers were. They noted how leaders are important in driving lean in their organization, but these leaders are also important in managing goal orientation and steering employees in the right direction. James and Luke explained how their manager managed to translate goals from higher management to their team:

"She even encouraged us to translate the goals of the organisation into our own goals for the team." (Luke, L)

"She has only been here since April. She is really the architect basically of let us take that target tree serious" (James, L)

But steering employees toward the organizations goals is also important. This can be seen in how Jan described how he views the role of setting goals regarding sustainability inside his municipality:

"Well, for the time being, that is to make it clear that this is the policy so to speak. The moment you work at the municipality, this is just the policy, you have to implement it. That sounds a bit top-down, but that is what it actually comes down to.

> *So actually, making it clear that these frameworks simply fit the work that this colleague does." (Jan, P)*

Here Jan describes that the policy from the municipality is leading in the organization. The goals that the sustainability advisor set, stem from the policy of the board. Jan motivates the employees by saying that this is the framework that is given inside the municipality, and that the employee should simply follow. Emma described a different approach how in their municipality they want to steer employees.

> *"(...) So before that we also had the citizens' council, because the citizens' council was actually a participation method to get input from the residents and involve the organisation in that to also take them on board for the coming time what we are going to do." (Emma, P)*

Here a more participative method was used to involve the employees in the goals of the organization. Here we see that there are many different ways to motivate and steer employees towards achieving certain goals. However, Emma also noted that this method failed since very few employees showed up. However, one thing is clear: people in leadership positions try to steer on strategic decisions, whether it is though a participative method or through collaboration towards a shared goal direction.

Other first order codes regarding 'leadership role' are 'personal attention' and 'managers guiding employees'. For example, Simon as manager said that he finds it important to occasionally check up on his employees and to make sure to include their opinions about the ongoing process. Luke also offers in how his manager offers time and space so that he can continue following the black belt course. He states that this is something that really helps him.

> *"So certainly, if it is private or if they need something they know where to find me. Yes, so those are actually the most important ones I think: that conversation cycle, just checking in from time to time, how is it going, how are we doing with this improvement process?" (Simon, L)*

> *'So far, I have really enjoyed it and I would really like to continue on to become a Black Belt, so that support and we really do have the time and space for it from work. So, from our manager, who really says you have to do that, and you get so many hours for it, so it is great that it is supported that way." (Luke, L)*

The last quote also hints to the last first order code related to 'leadership role', namely that managers are steering their employees to also act a certain way. Luke said he feels supported

by his manager, but for a lean team it is also important to have as many experienced lean members in the team. Simon and Theo also shared how management drive employees in certain ways. For example, in Theo's municipality there was a definite push for the implementation of lean management.

But the employees of the organization also had expectations from managers to behave in a certain way. This was seen as wanting that managers would evaluate with each other how certain processes were going and look to the long term. Interviewees like Emma, Maria, and Linda state the need for management to set clear responsibilities and goals:

> *"You also have to be accountable at the end of the year. How was it incorporated into your plans? What did you do with it? Why did it work out, why didn't it work out? Only if you make people, including managers, accountable and hold them to it, (…), only then will it land." (Maria, P)*

> *"But it is the responsibility of the top of the civil service, and I really also think the directors and to the managers to be able to say, 'You know, if you want this, it means that (…) and then we can no longer do this and that and that.' So, making those very clear choices and also indicating what it takes." (Linda, P)*

> *"(…) I would say, DT (directors' team) and management and the managers should sit down with each other "okay nationwide there are all kinds of task, they are coming up. (…) They should just make agreements about this with each other when that arrives." (Emma, P)*

This shows that employees of the organization expect management to set clear goals and to set clear boundaries in regard to responsibilities. Without these aspects, the interviewees above have noticed that is very hard to integrate goals in regard to sustainability in the municipality

The last second order theme is 'integration of SDGs.' This is identified as theme connected to 'instrumental leadership' because of its use of guiding the employees in the organization. Ways to do this for example is being a so called 'Global Goal municipality' which is connected to the VNG, which drives the employees, as Jacob mentions to integrate the goals in their work. Another way of guiding employees in the process is giving workshops related to the SDGs, so that employees can further make the people aware of the SDGs:

> *"For instance, we launched a workshop early this year. What exactly are these SDGs? Just low-key introductions. (…) And there were a number of colleagues who*

were prepared in 3/4 hours to take this further within the organisation. On how to use which methodology to motivate people to do the same?" (Jacob, P)

Another way to steer employees is by connecting the SDGs to KPIs. For example, in the to criteria related to purchasing contract or as a check to mark in reports. Kevin also mentioned using the SDGs to draft budget plans in the municipality, and therefore making people work towards certain important goals where more money is allocated.

4.5 Inhibitors

In the previous paragraphs we identified multiple themes that could be of use to determine how pro-environmental and lean behaviour could be driven by leaders. We did this by looking at the pro-environmental actions, lean applications, influences of lean on pro-environmental actions, personal stimulation, and leadership style. However, there were also themes identified that were identified as obstacles or hindrance in this process. First order codes were identified following quotes that indicated these obstacles. During the first interview it became apparent that lean team members lacked goals regarding sustainability, had trouble defining difficulty or were unaware of sustainability goals in the organizations. The defining of sustainability in the context of lean proved to be difficult in the interviews of James, Simon, and Lucas:

> *"Yes, I find it very difficult that I... I am having trouble (...) with that word sustainability of yours" (James, L)*

> *"Sustainable engagement you mean, because it can also mean corporate social responsibility and things like that?" (Simon, L)*

> *"(...) lean and sustainability are anyway linked, because if you as soon as you reduce 'waist', that is sustainable in any way. But then whether you are talking sustainability as something is resistant or you are talking sustainability in terms of, we all want to treat the world better. That might then be a definition thing huh?" (Lucas, L)*

In the case of Simon and James it was difficult to connect the definition to their lean practices and would first explain sustainability in different ways. For example, as making processes stay in the long term or making sure that Simons' clients would be sustainable in their career paths. But when asked to elaborate on the definition of sustainability in terms of a pro-environmental way of working, most interviewees that practiced lean answered that there were no clear goals regarding sustainability in their teams as Daan briefly notices:

"Yes, how are we on sustainability.... And then sustainability when it comes to the environment and things like that? (…) Well not at all." (Daan, L)

Daan mentioned that there are no goals in regard to sustainability in this way. Although some pro-environmental effects through lean were noted, Daan said that this is done not in the name of pro-environmental practices but in the name of efficiency. This echoed through other interviewees that practice lean. For example, Luke, Theo, and Lucas mentioned that attention is not necessarily given towards pro-environmental practices. They explain that sustainability is not incorporated in their processes and terms such as 'lean & green' are not used. Again, Daan explained the difficulty of how service based organizations deal with sustainability:

"Look, a manufacturing company is obviously already much more confronted with that through exhaust fumes from the factory itself, through polluted water being discharged, right? That is very directly visible. In a service organization, it is much less so, because we do not produce anything." (Daan, L)

Therefore, it is difficult to combine the two aspects in a service based organization. This leads into that interviewees themselves are not really aware of the drafted plans in regard to sustainability. Theo and Lucas mentioned that they are not really aware of how sustainability policy is implemented, while Daan also mentioned that he thinks that the concept of sustainability is not really alive in the municipality. This hints to greater unawareness of sustainability in the organizations. This is not only apparent in the 'lean' municipalities, but also in the other municipalities. As Maria mentioned in her interview, she doubts that goals such as CO_2 reduction are top of mind in employees and doubts that relevant documents were shared.

Interviewees also shared that it was difficult to measure KPIs so that they could see how they were progressing towards goals. This was true in the case of both types of municipalities. For example, James mentions that their data are not in place to accurately measure KPIs. Simon also mentioned that his team is not at the right place in the lean process to effectively measure their progress. In 'sustainable' municipalities there also seem to be problems in how to accurately define their KPIs. This can be seen in the quotes from Jacob and Maria:

"So only thing we are now stuck with is, how are we ever going to monitor that? Because we have not established anything. And usually in resource monitoring you can establish some, but which resources do you want to include as a municipality? And that is a very tricky one." (Jacob, P)

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> *"Yes, because monitoring data is incredibly difficult, because collecting the data...Is terribly difficult, so we outsource that and that is again terribly expensive. Once every two years a report is made. (...) But intermediate testing is very, very tricky. (Maria, P)*

These first order codes are used to define the second order theme of 'unclear sustainability policy.' Other limitations are in regard to 'employee resistance.' An example can be found in how the SDGs are perceived. Although SDGs could be used as a tool by leaders, the employees do not always reflect this themselves. When asked about how the SDGs were received within the municipality, Kevin stated the following:

> *"Yes, positive, I think. Yes, I do have that feeling that everyone realises that we have embraced that and are acting and working within that framework. Yes." (Kevin, P)*

However, this contradicts some statements of sustainability advisors in his organization. Maria and Linda bother offered a different view on the use of SDGs and how they are perceived within the organization:

> *"It is something, it is standard in the documents attached to the council papers. So, you always have to [keep track of it], but otherwise.... I have to confess to you very honestly around me I do not hear anybody who is actively [working on it] and everybody just thinks it is a troublesome, annoying thing." (Maria, P)*

> *"And that's just a little bit different from how, on the whole, the municipality of [anonymized] also translates it, because I can't do much with those goals that are described there."(Linda, P)*

Maria even stated that she sees it as a 'marketing tool' rather than something that contributes something to the goals of the municipality. Emma, while milder in opinion, said that the SDGs do not add more to their organization than a 'common language' to speak in.

Other types of employee resistance apart from the SDGs comes from being unable or unwilling to focus on sustainability. Interviewees shared that employees either saw the subject of sustainability as more work, that they are not willing to take responsibility, or lack the capacity to work on it. Everyone in one of the pro-environmental municipalities shared the view that employees did not want or are unable to focus on sustainability:

> *"But nobody actually really delves into it and few people also feel they are contributing anything." (Linda, P)*

> *"So instead of being involved with the content and delivering good things, actually largely, not only, but largely time has been consumed by pulling capacity out of that organisation"* (Maria, P)

> *"Then you do see that the organisation development taking that responsibility to a lower level, which hasn't quite come off."* (Kevin, P)

> *"So, in that sense, the programme has also contributed to it, because there are just tasks that are not going away. I mean, heat transition is not going away, gas-free is not going away, that is something we are going to be working on for the next ten years, so you just need permanent capacity there as well. That is not something someone can do on top of that."* (Emma, P)

Lacking capacity is not only a problem in the pro-environmental municipality, but also in lean municipalities, where Lucas and Jan also noted there is not always capacity to do even more work. And sometimes it has to do with that employees opposing change, whether it is in a lean or a sustainability context. James, Linda, Kevin, Daan, Lucas and Theo noted that there are always people who oppose to change:

> *"When it comes to the way employees in that organisation look at working. Yes, you always just have to squeeze a balloon, don't you? The law of physics wants something to always come back to its old shape and you see that in this kind of business."* (Daan, L)

The last second order theme pertains to the 'characteristics of the public sector'. Government organizations differ from private businesses, as interviewees noted. This difference stems from a few aspects. James highlighted there is no competitive edge to perform better, since as municipalities you do not have any competition. Linda mentioned that different laws are in effect for governmental organizations than there is for private business. She mentioned that legislation also affects how things our done within the organization:

> *"Governments just make it so hard on themselves with all kinds of control and all kinds of administration and fuss and hassle just to eliminate all risk."* (Linda, P)

Another difficult part that municipalities have to deal with is how spend funds. Funds are difficult to receive, and it is mentioned that you get it only once. Therefore, there is a necessity to spend it correctly:

> *"You are dealing with public funds in this case. You can only spend it once." (Jacob, P)*

> *"So, we do have the way we are putting it into place now. Even though we do not yet have the guarantee that we will be allowed to do this for longer, we have tackled it as a long-term thing because we actually already know that this will not go away. And we have indeed received another one-half million from the state. But yes, That is of course not workable at all. It is just ridiculous that you get a morsel of money every time, because so you cannot do anything with that." (Emma, P)*

The last theme that is uncovered is that methods used in the pro-environmental municipalities are slow, due to bureaucratic processes. People in these municipalities have difficulty to effectively streamline processes, whether it be permit application processes or internal decision making. Maria and Linda both indicate that these practices make it very hard to sometimes get things done:

> *"Yes, but that is a bit paralysing in this kind of organisation. That is also why it is so difficult with this whole climate approach, because you are constantly stuck with: "But we also have that rule and also that and also that and also that...".'' (Linda, P)*

> *"I once saw a letter; it is really crazy. To receive a really crazy letter and that you think, "I don't know. I am doing something good aren't I? From sustainability they say go ahead and do it and from permits they are just trying to do everything they can to make it as difficult as possible for me"." (Maria, P)*

Therefore, we have identified the last second order theme of 'difference between the private and public sector,' which leads us to the aggregate dimension of 'inhibitors.'

5 Discussion

5.1 Theoretical contributions

With all the aggregate dimensions identified, we can move on to how these themes can help in answering the research question: How can leaders in Dutch municipalities drive lean and pro-environmental behaviours? To answer this question, we looked to multiple relevant papers and sought to interview leaders as well as employees. In the literature review, we examined concepts such as lean and its connection to sustainability, and various leadership styles that could be suited in the context of this study. Based on the interviews however, we found themes that contribute to literature in different ways than previously thought. We have identified driving forces such as instrumental leadership, pro-environmental actions, and lean drivers. We theorize that these themes add to the awareness and behaviours of the employees in the Dutch municipalities. But other themes have also been identified that seem to slow dan the process. With these themes known, we look to contribute to current literature that the describe how people come to perform behaviour: the theory of planned behaviour.

5.1.1 Theory of planned behaviour.

We now seek to contribute the findings to existing literature. We do this by adding our findings as antecedents to the Theory of Planned Behaviour (TPB) (Ajzen, 1991, 2011, 2012). TPB assumes three independent factors that affect a person's intention and subsequent behaviour. The intentions are assumed to capture the motivational factors that influence behaviour, as they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to preform the behaviour (Ajzen, 1991). The general rule mechanisms as stated by Ajzen (1991) is that the stronger the intention to engage in certain behaviours, the more likely its performance. In TPB, the three independent factors are attitude toward the behaviour are: Attitude towards behaviour refers to the degree to which a person has a (un)favourable evaluation of the behaviour. Subjective norm, which refers to the perceived social pressure to or to not perform certain behaviour. Perceived behavioural control refers to perceived ease or difficulty of performing the behaviour and it is assumed to reflect past experience as well as anticipated impediments and obstacles (Ajzen, 1991). How does this effect our research? Previous research has shown how TPB explains the pro-environmental behaviour in workplace environments. (Blok et al., 2015; Greaves et al., 2013; Nye & Hargreaves, 2010). The studies have shown the importance of the intention to act in regards to pro-environmental and how certain antecedents affect the three independent factors, such as influence of leadership, environmental awareness, and certain environmental initiatives (Blok et al., 2015; Greaves et

al., 2013). Since our research have discovered similar themes in regard to the pro-environmental behaviour in the context of Dutch municipalities, we add our findings in the form of enablers and inhibitors of TPB.

5.1.2 *Enablers*

Green transformational leadership (Chen et al., 2014; Chen & Chang, 2013; Kumar Singh et al., 2020; Kura, 2016; Robertson & Barling, 2013, 2017; Wang et al., 2018) was identified as a style that is of importance to this thesis. However, these themes were not shown in the interviews. Instead, there is a disconnect between the higher sustainable goals that leaders such as Kevin want to implement and the employees in the organization. Inspirational motivation, intellectual stimulation and individualized consideration as indicated by Bass (1997) have not been identified. As Wang et al. (2018) noted, employees that are far from green are less sensitive to drivers to help them become greener. Multiple interviewees shared that employees within their organization had little desire to incorporate pro-environmental behaviour in their work. Therefore, a different type of leadership has been identified to be of importance. Instrumental leadership has been identified to be in line with the themes uncovered in the interviews. Effective organizational leadership is not just about exercising influence on an interpersonal level; effective leadership depends also on the expertise of the leader and the formulation and implementation of solutions to complex social and task oriented problems (Connelly et al., 2000; Mumford et al., 2000). Instrumental leadership is described as identifying strategic and tactical goals while monitoring team outcomes and the environment (Morgeson et al., 2010), which means that leaders are 'instrumental' for the organizational effectiveness (Antonakis & House, 2014). This style of leadership is distinct from other styles such as transformational (i.e., ideals, inspirationally based etc.) and transactional (i.e. exchange based) leadership and encompasses the two subclasses of leadership styles (Antonakis & House, 2004). In the interviews it was difficult to connect the aforementioned themes to the green transformational leadership style. However, given the themes that indicate clear goal orientation, e.g., setting clear responsibilities, looking to the long term, and personal support, it looks to fit more the definition of instrumental leadership than either of the other leadership style. These themes were not only highlighted by interviewees working on sustainability, but also by those who were working in lean teams, highlighting that this leadership style could not only enable pro-environmental behaviour, but also the application of lean. We therefore theorize that instrumental leadership influences the subjective norm, since it pertains to the social pressure the leaders puts on the employees through goals orientation and long term strategy. This would

be in line with Blok et al. (2015) who have indicated the relationship between pro-environmental behaviour and leadership, in which we contribute that instrumental leadership would be the appropriate leadership style.

The second notable theme that came from the interviewees, was the lack of evidence indicating employee pro-environmental behaviours in both lean and pro-environmental focussed municipalities. The interviews pointed more towards organizational level-initiatives that were used to drive the awareness of pro-environmentalism, but not actual behaviour. The policies were implemented, however interviewees shared that it was difficult for employees to integrate it into their daily work. Pro-environmental behaviours seek to consciously minimize the negative impact of an individual's actions on the natural and constructed world, through for example recycling, reducing waste, saving water, and reducing energy consumption (Darvishmotevali & Altinay, 2022; Greaves et al., 2013; Stern, 2000). Although some of these examples came forward within the interviews, these seem to stem from organization-levels initiatives instead of the choice of the employees. The organizations themselves try to influence the employees through workshops, setting sustainability goals (SDGs or more general goals), and certain organizational-level initiatives to create environmental awareness. Environmental awareness is the concept of understanding the fragility of the environment and the importance of maintaining that environment (Darvishmotevali & Altinay, 2022). The interviews indicate that the focus is on creating this environmental awareness, before getting the employees to behave in a pro-environmental way. The push for this awareness is the first step that needs to be taken, and therefore organizations need to implement structures and initiatives to drive this awareness. Lean management could function as a way to push this awareness. This push towards awareness ties back to TPB, where pro-environmental actions could influence attitude towards of behaviour as described by Greaves at al. (2013). The pro-environmental actions, driven by organizational incentives, are therefore categorized as an enabling factor and as antecedent towards attitude of behaviour.

Lastly the connection with lean and pro-environmental behaviour came forward as a third important theme. There are some influences of lean management on pro-environmental practices, for example in looking for waste, using less resources and stimulating that employees to travel less. Lean experts also indicated that lean could be applied in the public sector and service context, as Cole (2011), Snyder and Peter (2004), and Sreedharan et al. (2018) have noted. This could be done by practical methods or implementing the lean philosophy to teach employees of the importance of being more efficient, effective, and less wasteful. Besides the

impact of lean on sustainability, lean is applied in the relevant Dutch municipalities to drive more effectiveness and efficiency, and to improve the experience for the client. This is in line with previous theory regarding lean in a service context (De Almeida et al., 2017). We therefore connect the application of lean towards the pro-environmental actions inside the municipalities, as well as the perceived behavioural control. Lean could offer employees a system to more easily control their behaviour in efficient processes. However, as the interviews have shown, the connection with lean and pro-environmental behaviour is slim. This means we cannot say for certain if lean applications indeed fit TPB.

5.1.3 Inhibitors

Our research has also defined inhibiting factors of the process. The second order themes of themes indicate a general unawareness of the sustainability policies, employee resistance to integrate sustainable or lean practices, and the characteristics of the public sector. These themes show the difficulty of driving the pro-environmental behaviour in the context of the Dutch municipalities. In terms of employee resistance and unawareness of policies, this further acknowledges that employees with how employees with low green identity are less sensitive to green cognition concerning their surroundings (Wang et al., 2018; Werff & Steg, 2014). It seemed that municipalities employees lack that green identity and therefore are not able to properly be aware of pro-environmental policies.

The characteristics of the public sector also exhibits limitations to the process. One of these characteristics is the nature of politics in the organization. Public organizations do not have the same strategic freedom that private sector companies have, since some strategic goals are decided by politicians. This puts constrain on the public organisations' ability to operate and may sometimes lead to decisions that are not for the good of society at large (Eskildsen et al., 2004; Lane, 2000). Public sector organisations also do not always have the resources or capacity that is needed to implement certain processes (Eskildsen et al., 2004), therefore hindering change in the long term. Another theme that came from the interviews is how the municipalities are bound by legislation. Public administrations are not primarily guided by their customers' wishes as they are bound to follow procedures stipulated by laws and guidelines (Jurisch et al., 2013). This makes the business process change slower, due to the distributed control and accountability in the organization that makes these kind of changes more difficult compared to the private sector (Jurisch et al., 2013; Scholl, 2004). Our findings show the same characteristics, and it seems that it affects the behaviour of employees.

5.1.4 Contribution to TPB

With the enablers and inhibitors identified, we contribute to TPB and adapt the theory to lean and pro-environmental behaviour in Dutch municipalities. Figure 1 shows how the enablers are the antecedents of attitude towards behaviour, subjective norm, and perceived behavioural control. It also exhibits how the inhibitors relate to the employees' environmental behaviour and pro-environmental awareness.

We therefore propose that instrumental leadership takes a central role in driving the antecedents of our TBP model. Through instrumental leadership, leaders can drive the pro-environmental actions of their employees, and the application of lean in the municipality. The pro-environmental actions in turn relate toward the attitude towards behaviour, since these actions can shape the green identity of the employees and their behaviour. Instrumental leadership is also proposed to relate to the lean application, since the interviewees have shown how important the role of leaders are in setting goals and guiding the lean process. The application of lean also relates to perceived behaviour control, since the lean experts in this study have indicated that lean can be used to drive the perceived ease in performing pro-environmental behaviour. Lean applications therefore could also drive the pro-environmental actions of employees. But since our findings cannot conclude if this theme indeed has connection to the TPB, we show this in the model as an indirect effect. Future research has to been done to see if there is a further connection.

We propose that the inhibitors of the process influence the pro-environmental awareness and pro-environmental behaviour of employees, since our findings have show that unclear sustainability policies, employee resistance, and the characteristics of the public sector have show to influence the awareness and thus indirectly the behaviour of employees.
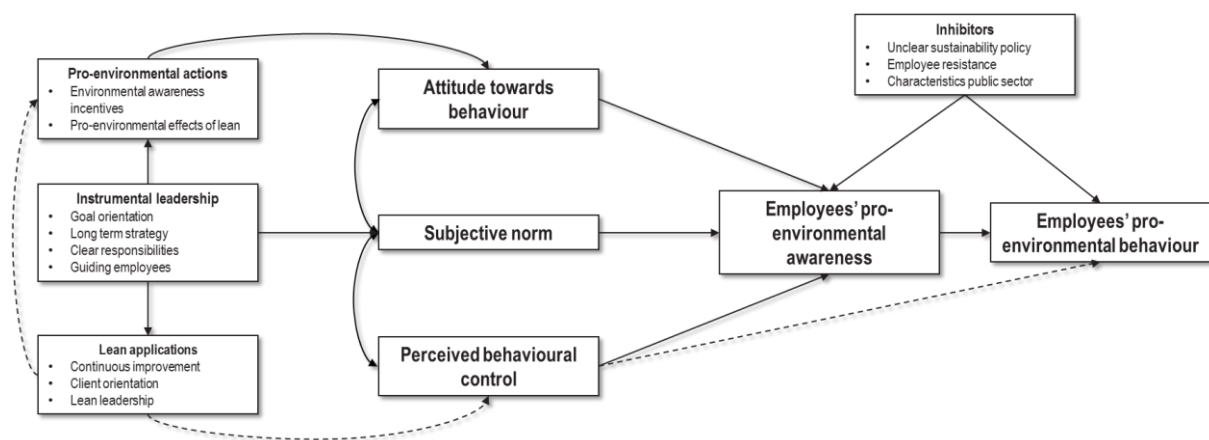

Figure 1: *Theory of Planned Behaviour adapted to lean and pro-environmental behaviour in Dutch municipalities*

5.2 Practical implications

This study also provides practical implications for the leaders within the context of Dutch municipalities. We showed that instrumental leadership emerged as common theme to drive pro-environmental awareness. This means that leaders in Dutch municipalities should offer clear goals for their employees, look to the long-term strategy, guide employees, and set clear responsibilities for the employees in the organizations. Currently, the pro-environmental awareness remains low in the Dutch municipalities, due to unclear sustainability policies, resistance of employees or because the bureaucratic work method of the public sector hinders the process. The study shows a weak link with the application of lean on pro-environmental awareness, lean offers some solutions to the problems the inhibitors form. Lean has show to streamline the processes and reduce waste in certain processes, while dealing with a lack of capacity inside the organization. The lean philosophy, in combination with instrumental leadership, could offer a way for managers to tackle the inhibitors. Lean seeks to streamline the bureaucratic process, eliminate waste, and create awareness on what the client wants. Therefore, lean could offer to be helpful in the process of making the municipalities more environmentally aware and to overcome some of the obstacles that the inhibitors show. However, the link between lean and the pro-environmental awareness has to be further researched to if this can be applied. Leaders could implement green human resource management (HRM) practices, such as trainings, to drive the pro-environmental behaviour of employees. This could help connect employees' daily work with the overarching sustainability policies of the municipalities, thus guiding them throughout the process. Another green HRM practice is that leaders focus on hiring people who have more devotion to green practices. This could help bolster the green identity of the employees and stimulate social pressure within the organization to act in a pro-environmental way.

5.3 Limitations and future research

As all research, this research is not without its limitations. The limitations concern the selection of the municipalities and the interviewees. First, the number of municipalities is slim. Not many municipalities have implemented lean and the ones that have, are still in the first stages of implementation. This means that results of this study cannot be generalized for the entire population of Dutch municipalities. The first attempt to select one lean municipality and one pro-environmental municipality to compare results, proved to be difficult in practice. Either municipalities did not have the capacity to be interviewed, or municipalities did not meet the

lean or pro-environmental criteria. In total four municipalities were chosen. In one municipality we spoke to only employees that worked with lean, another municipality we spoke to lean employees as well as one sustainability advisor, and the last two municipalities were only pro-environmental. To compare these municipalities with each other was difficult. Therefore, it is hard to determine if the municipalities in this study reflect the population and if the comparisons between the groups is true. The same can be said for the selection of participants Due to the low level of availability in the municipalities, it is hard to confirm whether selection biases were avoided. For future research, it is therefore recommended to select more municipalities to offer better insight for the population. Therefore, it is recommended to do a multiple case study, where multiple contrasting instances of a phenomenon are brought together in order to be investigated. Through this method, future researchers is not only able to test the propositions of this thesis, but also use inductive methods to investigate the relative effectiveness of particular management approaches (Stewart, 2012).

Secondly, the combination of leaders and their followers proved equally difficult to achieve in practice. This meant that employees and leaders were chosen that sometimes did not have any relationship. Selecting middle-level managers therefore was therefore also not always possible. It is debatable if themes such as long term strategy, or goal orientation can be specified to middle-level management or high-level management. Therefore, it is difficult to determine if the relationship between leaders and their followers as presented in this study, is there. Sometimes we had to rely on the word of interviewees in leading positions without other employees to verify those claims. Therefore, it is recommended to dive deeper in the actual dynamic between leaders and followers when it comes to the driving forces of lean and pro-environmental behaviour. This could give a clearer picture of how employees perceive the organizational level initiatives and leadership style, and how improvements can be made from their perspective. This could be done through surveys, to test the proposition of congruency between leader and follower (Zhang et al., 2012). Surveys could be a less time consuming alternative for leaders and followers, and could give clearer insight through statistical analysis if the dynamic between leader and follower is really there. Future research should also focus on the management layer, and how leaders in different layers have an effect on the pro-environmental behaviour of employees.

And lastly, it was hard to determine from the data whether pro-environmental behaviour came from organization level initiatives or own actions of individuals. The data did not give a clear enough picture on this matter. The context of this study, namely the public service sector,

could have something to do with the lack of pro-environmental behaviour. As the service sector does not produce goods, it is hard for employees to think how their behaviours have any impact on their organization. Future research could further investigate if the employees' pro-environmental behaviours influence the green performance of organizations in the public service sector.

6 Conclusion

This study aimed to explore how leaders drive employees' lean and pro-environmental behaviour in the context of Dutch municipalities. Previous literature indicated the green transformational leadership style (Chen et al., 2014; Chen & Chang, 2013; Kumar Singh et al., 2020; Kura, 2016; Robertson & Barling, 2013, 2017; Wang et al., 2018) was best suited to drive employees pro-environmental behaviour, but our study shows that instrumental leadership (Antonakis & House, 2014, 2004) is better suited in the context of the Dutch municipalities. The interviews currently show that pro-environmental behaviour is not present in either lean or pro-environmental municipalities. Instrumental leadership could help leaders focus on the long term, set strategic goals, and guide employees through the change that employees need to make. Lean could also offer assistance in this regard. Although it is hard to conclude that lean directly affects the pro-environmental behaviours of employees, lean could help with its philosophy. The mindset of reducing wasteful activities, and being more efficient and effective could help drive the pro-environmental behaviours of employees. Although this change takes time to implement, the results show that lean already effects some of the pro-environmental actions withing the organizations. With these themes found we contribute to current literature in the form of new antecedents of the theory of planned behaviour of Ajzen (1991, 2011, 2012). The antecedents of instrumental leadership, lean applications, and pro-environmental actions of employees drive the environmental awareness and employees' pro-environmental behaviour. This study also indicated inhibitors of the process in the form of employee resistance, unclear sustainability policies, and the characteristics of the public sector. Leaders in the municipality should be aware of these inhibitors, and put in place green HRM strategies to further strengthen the pro-environmental awareness and behaviour in employees.

With this study we hope to address the significance of the subject, namely contributing to address climate change and other global problems that we as a society face. We hope that the subject of lean and pro-environmental behaviour in the public sector will receive more attention, in both literature and practice, so that we can keep on building towards a green and sustainable world. We conclude this thesis with the following quote:

> *"Climate change is the single greatest threat to a sustainable future but, at the same time, addressing the climate challenge presents a golden opportunity to promote prosperity, security and a brighter future for all." – Ban Ki-moon, former Secretary-General of the UN*

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8 Appendices

8.1 Leader and employee interview protocol

8.1.1 Leader interview protocol

1. Introduction and lean (Breaking the ice, introducing, explaining the interview purposes)

    a. Can you tell me about yourself (study, career, hobbies, how long have you been working here? What do you like the most here? Why?)

    b. How did you implement lean in your municipality?

    c. What was the reason to implement lean?

    d. Why did you implement lean and not another organizational change management methodology?

2. Implementation of SDGs (or other sustainability goals) within the municipalities

    a. Which SDGs does municipality X focus on? OR How are sustainability plans implemented?

    b. How are SDGs monitored? OR How is the sustainability plan monitored?

          i. How do you involve employees in the process?

    c. 2.3 How do you motivate your employees into working towards the relevant goals?

    d. How does lean management contribute towards achieving the goals?

3. Looking at the future

    a. What SDGs OR Goals do you want to achieve in the next 3 to 5 years?

    b. What is needed to achieve these goals (from your side and the side of the organisation, how do you plan to do this)?

    c. How do you keep those goals alive in employees working in the municipality?

4. Closing

    a. Is there anything I may not have asked you, that you find important and would like to add to our conversation?

5. Demographics

    a. Age, gender

8.1.2   Employee interview protocol

1. Introduction and lean (Breaking the ice, introducing, explaining the interview purposes)

    a.   Can you tell me about yourself (study, career, hobbies, how long have you been working here? What do you like the most here? Why?)

    b.   What is your role in the team?

    c.   How do you like working in the lean methodology

    d.   What would you change to your current lean working?

2. Sustainability within the municipalities

    a.   How sustainable would you describe your organization?

    b.   How do you contribute to sustainability inside your organisation?

    c.   How do you feel about the current sustainability plan of your municipality?

    d.   Do you think lean attributes to sustainability in your municipality?

    e.   What role does your manager take relevant to sustainability?

3. Looking at the future

    a.   Do you think the goals set can be achieved in the coming 3 to 5 years?

    b.   What is needed to achieve these goals from your organization?

4. Closing

    a.   Is there anything I may not have asked you, that you find important and would like to add to our conversation?

5. Demographics

    a.   Age, gender

8.2 Data structure with exemplary quotes

Table 3. *Data structure with quotes of driving forces of pro-environmental behaviours through lean based on Gioia et al. (2013)*

Exemplary quotes	First order codes	Second order themes	Aggregate dimensions
If I focus him for a moment just on sustainable behaviour within organisations. That's a lot of little things. Reusing your cup or something. I think that's also very important.	Reusing cups	Environmental awareness incentives	**Pro-environmental actions of employees**
We also have real solar panels on our roof, and you also just notice all kinds of tricks being invented to get awareness actually among the employees. Like games, sometimes competitive, of who uses the least amount of paper and things like that."	Competitive games Using solar panels		
We don't print anything, we're not in the office much. I think corona has really changed a lot in that sense as well and has also made people critical after that period where we said, "we just keep working from home". And well, I mean that obviously saves transport. I mean majority of people don't live in Amsterdam, so it's about exhaust emissions in the context of travelling back and forth.	Working from home		
Well, and then they saw "hey that's interesting, we can do fun activities from this". (...) Well, they thought that was a good idea, so now we're also going to put an active bin there, where you actually make a donation to the employee who provides clean facilities for you. (...) Yes, that's how we're trying to add that motivational incentive	Donating the money from PET bottles to cleaners		

My underground strategy is just as soon as someone is new, I schedule an introductory meeting and then I dump all the sustainability on them so that I can get them straight away.... When everyone is still a bit of: "Oh I'm just new" then I just try to flood them with sustainability right away so they at least know (...) where they can find me, but also what links there are to their profession.	Introductory talks to create awareness		
We'll take a very simple example. We do the property tax valuation. We value all the real estate of Amsterdam. Whether that's corporate, offices, stores, hotels or whether it's residential properties. It doesn't matter. In the past we did that on the spot, so appraisers would structurally go out in their cars to go to properties. Now we do it all through models. (...) So we develop our own models. (...) That comes from the data science team and in it we set ratios from a kind of market analysis and those ensure that those appraisers no longer go out.''	Using models based on data to work less on location	Pro-environmental side effects through lean	
Nothing gets printed anymore, so much digital.	Awareness of resources		
Apart from the fact that of course as far as the work is concerned, the support we provide to the implementation that we try to secure and improve those work processes. So that's kind of a sustainable thing, isn't it?	Looking for wasteful processes		
If you look from lean perspective, that is the person receiving the service. Those are people who are receiving benefits, but those are also people who are not receiving benefits but are with us for other reasons.(...) and the second customer, I think, is society, people who want to help very much. But they want the money to be well spent and so that people only use the right to assistance when they really need it	Awareness of the client	Client orientated	**Lean applications**
In my experience, that's the method that can move our organization forward. And not only already in our organization, but especially for our customers actually	Improving client experience		

Yes, it can always play a role, can't it? Look, It's also just a methodology to not so much flatten your processes, but mainly to look... It can always be changed, a bit better and things to change, so to stay synchronised with what's happening.	Looking for improvement	Continuous improvement	
the commitment is to work more efficiently and effectively as an organisation. So that we can better achieve ours goals	Looking for efficiency		
	Looking for effectiveness		
So yes, so actually seeking to strengthen that leadership, that there will be a broader base than just himself and a few more of his executives who also have lean experience.	Strong foundation of lean leaders	Lean leadership	
Well leadership, I think that's the most important thing. (...) We now have a director who is completely behind lean who asked us. He comes from customs where he worked with lean, so he is a fan of it. (...) I don't know what would happen if he would quit, and then someone comes in to succeed him without lean knowledge and focus.	Having a 'lean sponsor' at top management		
you can obviously look at if there is a sustainability aspect to this improvement assignment and yes, that you sort of weight that and that you factor that into your prioritisation of picking up your assignments, right?	Prioritising sustainable lean initiatives	Ideas of connecting lean with sustainability	**Influence of lean on pro-environmental actions**
A bit of sustainability comes back to it, of course. So, the better we have that permitting process in place, the faster Stedin can increase the grid, the faster we need to use less gas again etcetera so yes.⸤P SEP⸥	Making the permit application process more efficient		
Yes, recycling probably too and things like that. That comes to mind then.	Recycling lean initiatives		
That as an organisation you can move in that direction and deploy lean from that philosophy that you can contribute to that. Definitely. It is, very simply, so just what I say with data science: the moment you develop, you can put certain themes you can put in there, for example sustainability.	Using data to drive lean initiatives		

She even encouraged us to translate the goals of the organisation into our own goals for the team	Manage goal orientation	Leadership role	**Leadership style**
Well, mainly for the time being, that is to make it clear that this is the policy so to speak. The moment you work at the municipality, this is just the policy, you have to implement it. That sounds a bit top-down, but that's what it actually comes down to. So actually, making it clear that these frameworks simply fit the work that this colleague does	Manager steering employees		
So certainly, if it's private or if they need something they know where to find me. Yeah, so those are actually the most important ones I think: that conversation cycle, just checking in from time to time, how's it going, how are we doing with this improvement process?"	Personal attention		
You also have to be accountable at the end of the year. How was it incorporated into your plans? What did you do with it? Why did it work out, why didn't it work out? Only if you make people, including managers, accountable and hold them to it, (…), only then will it land	Wanting evaluation from management	Leadership needs from employees	
But it's the responsibility of the top of the civil service and I really think also the directors and to the managers to be able to say, "You know, if you want this, it means hop, hop, hop and then we can no longer do this and that and that." So, making those very clear choices and also indicating what it takes	Setting clear responsibilities		
I would say, DT (directors team) and management and the managers should sit down with each other "okay nationwide there are all kinds of task, they are coming up. (…) They should just make agreements about this with each other when that arrives	Looking to the long term		
We also signed that we are an SDG municipality.	Being a 'Global Goal municipality'	Integration of SDGs	
So, we explicitly included those (SDGs) and to relegate some back to a kpi we said of, we just want us to have so every year 4 initiatives are described of that are achievable.	Connecting SDGs to KPIs		

For instance, we launched a workshop early this year. What exactly are these SDGs? Just low-key introductions. (...) And there were a number of colleagues who were prepared in 3/4 hours to take this further within the organisation. On how to use which methodology to motivate people to do the same?	Giving workshops about SDGs		
We are now building the budget from the global goals in terms of targets.	Drawing up the budget on basis of SDGs		
Yes, I find it very difficult that I... I'm having trouble with you with that word sustainability of yours	Difficulty defining sustainability	Unclear sustainability policy	**Inhibitors**
Yes, how are we on sustainability.... And then sustainability when it comes to the environment and things like that? *Author: Yes.* *Well not at all*	No clear team goals regarding sustainability		
I'm just not sufficiently aware of what's already happening there, but from the lean initiatives I know.... Is little being done there with sustainability in my opinion, projects or initiatives[P SEP].	Unawareness of sustainability in the organization		
So only thing we are now stuck with is, how are we ever going to monitor that? Because we haven't established anything. And you can usually in commodity monitoring you can establish some, but which commodities do you want to include as a municipality? And that's a very tricky one.	Difficult to measure KPIs		
So instead of being involved with the content and putting good things down, actually largely, not only, but largely time has been taken up on capacity pulling from that organisation, yes.	Employees unable/not wanting to focus on sustainability	Employee resistance	
When it comes to the way employees in that organisation look at working. Yes, you always just have to squeeze a balloon, don't you? The law of physics wants something to always come back to its old shape and you see that in this kind of business	Employees opposing change		
You have to feel that and now it's actually yes.... I think it's a bit of a paper piece	Negative opinions about SDGs		

Governments just make it so hard on themselves with all kinds of control and all kinds of administration and fuss and hassle just to eliminate all risk	Influence of politics	Difference between private and public sector	
So, we do have the way we are putting it into place now. Even though we do not yet have the guarantee that we will be allowed to do this for longer, we have tackled it as a long-term thing because we actually already know that this will not go away. And we have indeed received another 1/2 million from the state. But yes, That is of course not workable at all. It's just ridiculous that you get a morsel of money every time, because so you can't do anything with that	Influence of legislation		
Yes, But that is a bit paralysing in this kind of organisation. That's also why it's so difficult with this whole climate approach, because you're constantly stuck with: "But we also have that rule and also that and also that and also that...".”	Bureaucratic practices		
Well look, it's a municipal organisation. And look if you are a commercial club then... Adam Smith is of course the philosopher, I think it was the 16th century right, but I'm not quite sure either. Who basically said progress, the main driver of progress is competition. And yes, that's the problem in an organisation like ours. There is no sense of competition. So, with that actually a whole piece of sense of urgency actually what it lacks.	Lack of competitiveness		