CHALMERS
UNIVERSITY OF TECHNOLOGY

Building Success in Change Across Diverse Stakeholders

Understanding the Human Side of Digital Tool Implementation in Construction Projects

Master's thesis in Product Development

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DEPARTMENT OF TECHNOLOGY MANAGEMENT AND ECONOMICS
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Abstract

Digitalization is reshaping industries, yet the construction sector continues to face challenges due to fragmented workflows, rigid systems, and a culture of slow adoption. To realize the full potential of digitalization, organizations must understand individual motivation and offer trust-based support throughout the change process to ensure successful implementation.

This study presents a case at Skanska, a leading construction company, focusing on the implementation of two digital tools: ACC and SAI. These tools were selected for their contrasting outcomes; ACC was perceived as a successful implementation, while SAI was seen as less successful, offering valuable insights when analyzed alongside change management theory and an individual perspective.

Data was collected through semi-structured interviews with both implementers and recipients, complemented by on-site observations. The results show that well-prepared implementations fostered alignment between stakeholders and increased user motivation, while rushed rollouts led to confusion, resistance, and lower adoption.

This thesis emphasizes that digital transformation is not merely a technical challenge, but a human and organizational one. Our findings highlight the importance of early user involvement, emotional acknowledgment, and the relationship between implementers and recipients. By focusing on the emotional and strategic aspects of the preparatory phase, we offer new insights into how genuine engagement can drive successful digital implementation.

Keywords: Change Management, Implementation, Digital Transformation, Construction Industry, Leadership, Bottom-up Approach, Employee Empowerment, Involvement, Diverse Stakeholders

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Moa Brusbo
Elin Gryte

List of Acronyms

ACC Autodesk Construction Cloud, digital tool for centralizing project data. 20, 21, 25, 26, 28, 29, 31–33, 36, 46, 47, 50–54, 56–58

AL Supervisor (Arbetsledare). 25, 26, 32–34, 38, 40, 41, 47

DL Digital Leader. 25, 26, 32–34, 50, 56

HSL Health and Safety leader. 25, 26, 40–42, 44, 45, 56

PC Production Manager (Produktionschef). 25, 26, 32–34, 38, 40–42, 44, 45

SFP Strategic Fitness Process. 9, 50

TTT Train-The-Trainer. 9, 30, 50, 56

YMA Tradesperson (Yrkesmedarbetare). 25, 26, 35, 40, 47, 48

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1
Introduction

This chapter provides the foundation for the thesis by first outlining the context in which the study takes place, including the background of digitalization in the construction industry and its associated challenges. It then presents the purpose, followed by research questions, and limitations of the thesis.

1.1 Background

Digitalization is transforming industries across the world, offering new possibilities for efficiency, innovation, and collaboration. However, the construction industry continues to face significant challenges in fully leveraging digital technologies (Lundberg et al., 2022). Despite substantial investments and a growing portfolio of available digital tools, the sector remains known for its slow adoption rate and a prevailing culture of resistance to change (Jacobsson & Linderoth, 2021).

Several structural characteristics contribute to this struggle. The industry is known for its fragmented value chains, project-based workflows, and rigid IT systems, all of which present substantial obstacles to seamless digital integration (Lundberg et al., 2022). Unlike many other sectors, construction projects often involve temporary collaborations between numerous actors, each with their own systems, goals, and routines. This makes long-term coordination and standardization of digital practices particularly difficult. The need for cross-organizational integration is therefore a distinguishing feature of digitalization in construction (Betts et al., 1991).

These challenges become particularly evident on construction sites, where a wide range of stakeholders, including contractors, subcontractors, consultants, and on-site operatives, must interact with digital systems under varying conditions (Lundberg et al., 2022). Each group brings different levels of digital competence, varying incentives, and contrasting views on the value of change. Navigating this complexity requires not only technological solutions but also a deep understanding of human behavior and organizational dynamics. Previous research in the construction industry has predominantly focused on the technological aspects of digitalization, often overlooking human behavioral factors such as user adoption, motivation, and leadership in achieving successful implementation (Rehan et al., 2024). Furthermore, much of the existing literature on Building Information Modelling (BIM) emphasizes information exchange and collaborative practices, while not addressing the broader

perspective of individual experiences and emotional responses (Gao et al., 2022; Succar, 2009).

Understanding human behavior barriers and identifying key enablers are crucial steps toward unlocking the full potential of digital transformation in the construction sector. Figure 1.1 below provides a visual representation of how digitalization is visualized within the construction industry.

Figure 1.1: AI-generated picture of "digitalization in the construction industry'" (OpenAI, 2025).

A central factor in successful digital implementation is how employees perceive and engage with new technologies. These perceptions are shaped by mental models, which are individuals' internal representations of how things work (Jacobsson & Linderoth, 2021). These are influenced by their experiences, beliefs, and expectations. Mental models affect how people interpret new tools, approach technological change, and apply systems in their everyday work. For example, employees with limited digital experience may experience anxiety, feel disconnected from the change process, or doubt the value of the tools, making them less likely to engage (Lakomý et al., 2025).

To achieve an even more successful and effective digital implementation, organizations must take these human aspects seriously. This involves more than just deploying tools, it requires fostering motivation, building trust, and ensuring that users are equipped and willing to adapt. A well-executed implementation process should therefore be rooted in a thorough understanding of individual motivation, supported by structured organizational strategies that guide employees through change. Only then can the construction industry move from isolated technology deployments toward truly integrated digital work environments.

1.2 Purpose and Research questions

This master's thesis explores how improvements in implementing new digital tools can better meet the needs of the diverse stakeholders involved in production, ranging from carpenters to managers. This thesis investigates the influence of change activities on the broader implementation process, with particular attention to individual behavior during change and the support structures that facilitate successful adaptation. Furthermore, it seeks to identify obstacles and challenges that arise from poor implementation and their consequences for organizations. This purpose is the foundation for the research questions:

- What success factors are needed for a successful implementation in the construction industry?
- How can diverse stakeholders be encouraged in project operations to adopt new digital tools?

1.3 Limitations

The project will focus on two specific digital tools to provide a broad perspective. These tools were selected based on their track record, which includes both successful and unsuccessful implementations, offering valuable insights into successful strategies and potential obstacles. Worth noting is that one of the tools worked poorly at the time of its implementation and can therefore effected peoples view on the implementation process.

This thesis is limited to focusing solely on the implementation process of digital tools from an individual perspective, overlooking the tools intended functionality. It will not address technical solutions or involve the development of digital tools.

We will focus mainly on production phases (see Figure 1.2), as the digital tools examined are primarily used in these stages of a project. The production phases involve a wide range of stakeholders, offering a broad and multifaceted perspective. Even though our focus is limited to production, we still gain a wide understanding of the individuals involved. These selected phases are also part of most projects undertaken by Skanska, regardless of whether they are design-build or execution contracts.

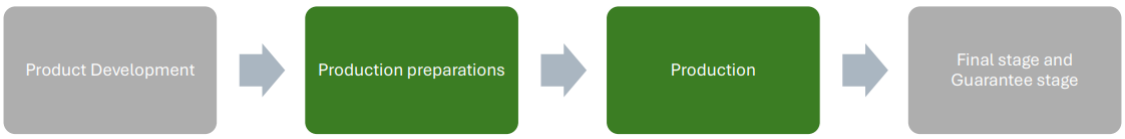

Figure 1.2: Timeline over the different phases within a project (illustrated by the authors).

The thesis focuses on roles within Skanska's standard organizational structure. The thesis is based in Gothenburg, meaning that the majority of the interviewees are

affiliated with this office. However, since one of the digital tools examined, ACC, is only used in production within the South region of Sweden at the time when this thesis is carried out, the second stage of the study, focusing on recipients, was conducted exclusively in Malmö.

The project is worth 30 credits and has a defined timeframe, starting in mid-January and ending in early June, with a duration of approximately five months.

2
Theoretical framework

This chapter presents theoretical perspectives on individual behavior and motivation, as well as the role of leadership in supporting individuals through organizational change, in line with change management structures. Given the complexity, variability, and duration of construction projects, which involve a diverse range of stakeholders, understanding these stakeholders is crucial for the project's success (Cheng Wu & Olson, 2023). Engaging employees in decision-making processes fosters commitment, accelerates acceptance, and reduces resistance (Wagner, 2024). When these participatory efforts are deliberately structured to enhance information exchange, their effectiveness and impact are significantly increased.

2.1 Strategies for Preparing Users

To succeed with implementation, it's important to prepare the users to make them more receptive and accepting of the transition (Kotter, 2012). To do so, it's essential to understand what happens within individuals when facing the initial change and, based on that understanding, develop an appropriate approach (White, 2008).

The Satir Change model, as explained by Sayles (2002), describes the transformational process and how it's experienced (see Figure 2.1). Before a change is introduced, a system often operates in a state of balance, referred to as the *Status Quo*. The need for change typically becomes apparent when the existing way of doing things no longer works, highlighting the tension between familiarity and the necessity for transformation.

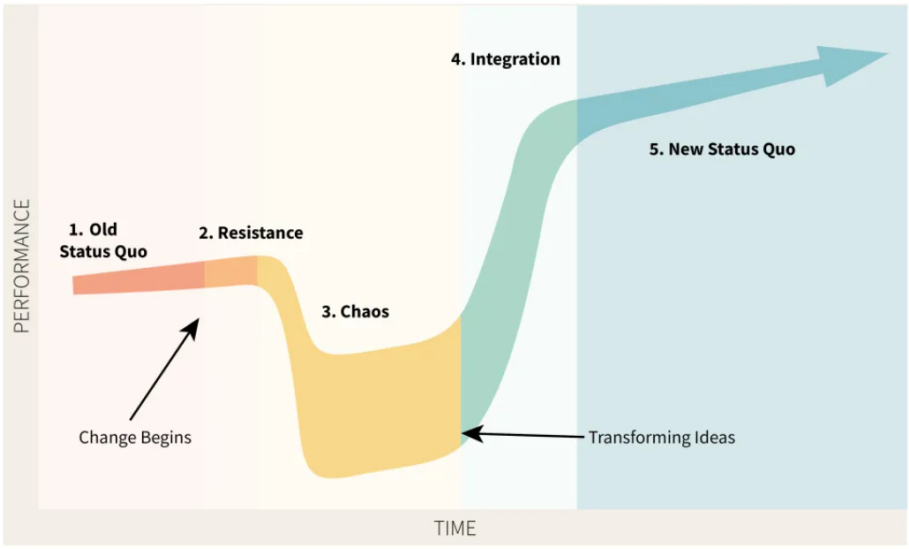

Figure 2.1: Illustration of the Satir Change Model (Freeman-Gray, 2025).

Another model explaining psychological stages is Carnall's coping cycle. White (2008) emphasizes that the introduction of change often makes people aware of their comfort with the current system, triggering resistance and anxiety as they are pushed beyond their comfort zones. This resistance may initially manifest as *denial* of the need for change, as individuals struggle with the discomfort of stepping into the unknown (see Figure 2.2). Sayles (2002) supports this view by explaining that change begins when the status quo is disrupted, breaking established patterns and reactivating coping strategies such as blame and denial. This disruption may result in instability, characterized by limited options and diminished hope.

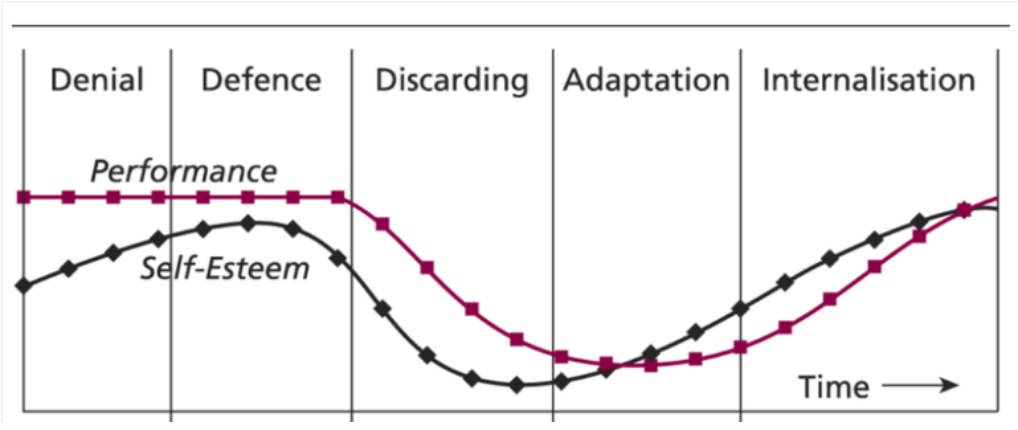

Figure 2.2: Illustration of Carnall's Coping Cycle with performance and self-esteem changes (Burnes, 2017).

Hubbart (2023) agrees with this by explaining that some individuals resist change because it disrupts their comfort zone, introduces uncertainty, and challenges established routines. Expectations also play a role, as people often assume that new

situations should function similarly to previous ones. Fear of failure and cognitive dissonance further reinforce this reluctance, leading to hesitation and avoidance. In some cases, this resistance and uncertainty may result in seemingly illogical actions (Sunding & Ekholm, 2015).

This highlights the importance of providing structure during the implementation. Today, there are several frameworks that can support successful transformation efforts. One of them is Kotter's 8-step model, which is based on observations of leaders and organizations undergoing strategic changes (Kotter, 2012). He identified common success factors for leading change effectively. The model begins with creating a *sense of urgency* or "burning platform" by convincing people that change is necessary, highlighting problems with the current way of working or opportunities with the change (Fredberg & Pregmark, 2020; Kotter, 2012).

Another change framework is Lewin's three-step model, which also highlights the importance of recognizing problems in existing work processes to identify inefficiencies and discomfort (Burnes, 2017). This is reflected in the *unfreeze* stage, where the current state is questioned and the need for change becomes apparent. Such recognition helps demonstrate to employees why change is necessary and how it can improve work processes.

Furthermore, Gleicher's Change Formula is another well-known change management model which, similarly to the frameworks proposed by Kotter and Lewin, emphasizes *discomfort* as a crucial factor for successful change (Pregmark, 2022). According to this model, dissatisfaction with the current state, combined with a compelling *vision* and a clear *process* for the future, must outweigh the *perceived costs* of change for it to be successful.

However, a strong focus on problems or a sense of urgency can lead to increased pressure, especially when individuals have limited autonomy (Fredberg & Pregmark, 2020). When pressured, individuals tend to act, something that change models like Kotter aim to achieve. However, Pregmark (2022) emphasizes that pressure does not guarantee appropriate action. In pressured situations, individuals often focus on their core tasks rather than exploring innovative solutions to emerging challenges (Fredberg & Pregmark, 2020). As a result, organizations may unintentionally reinforce existing routines instead of enabling transformative change. Instead, leaders need to create an environment that thrives on trust and psychological safety rather than stress and fear (Pregmark, 2022). This allows organizations to tap into people's creativity and full potential.

Additionally, emphasizing the perceived costs of change can trigger a sense of loss among employees. Instead, Pregmark (2022) highlights that organizations should create environments that enable creativity and innovation through positive emotions. By fostering positive emotional associations with the change, the perceived cost can be mitigated, thereby increasing the likelihood of acceptance, even in the presence of a less clear vision or process.

2.2 Strategic Communication and Leadership for Successful Change

Beyond identifying problems and future opportunities related to change, organizations must ensure clear and consistent communication to guarantee that all stakeholders receive timely and accurate information (Hubbart, 2023). Furthermore, clear and open communication sets expectations, addresses challenges, and can provide constructive feedback (Ladyshewsky, 2010). Tengblad (2006) emphasizes the importance of conveying clear goals while empowering employees to make decisions within their areas of responsibility.

To foster engagement, leaders should communicate the created vision for the change clearly and compellingly, while also helping employees understand why it's necessary and how it can benefit them and the organization. This approach is supported by both Hubbart (2023) and the other named change models, all of which stress the need for a clear vision and process in successful change initiatives (Burnes, 2017; Kotter, 2012; Pregmark, 2022). The vision should outline the future state, differentiate it from the past, and specify the steps to achieve it through specific initiatives. However, Pregmark (2022) highlights the challenge of delivering a strong vision during organizational transitions. Rather than solely on the vision or end state, focusing on the purpose behind the implementation can have more impact. Pregmark further argues that defining a clear vision in a constantly changing environment can be difficult, and an overly rigid process may hinder flexibility. Instead, leaders are encouraged to highlight progress by celebrating collective achievements and fostering a culture of continuous learning.

To ensure a shared understanding of the direction and intended outcomes, the vision or purpose must be communicated in a simple and accessible manner (Kotter, 2012). When the organization doesn't have a shared understanding, it can lead to unclear strategy and conflicting priorities (Beer & Eisenstat, 2000). When everything is treated as a top priority, employees may feel overwhelmed, leading to poor coordination and a decrease in efficiency. To mitigate this, a clear strategic plan could be developed and agreed upon by top management. Priorities must be well-defined and communicated in a way that employees can understand, align with, and commit to. Additionally, coordination can be improved by establishing a business network for the new organizational roles and responsibilities, ensuring that the right people are assigned the right tasks.

Furthermore, broad engagement is also essential for large-scale change to succeed. Individuals must align around a common opportunity and work collaboratively toward shared goals (Laig & Abocejo, 2021). However, these shared goals often focus too heavily on productivity gains and industry alignment, neglecting individual motivations and identities (Billett & Somerville, 2004). For employees to easily adopt new methods, they must find the change personally meaningful. When individuals feel personally connected to a purpose, they are more likely to engage fully and perform at a high level.

Effective communication within an organization is not only about clarity and consistency, but also involves enabling dialogue and feedback across all levels (Beer & Eisenstat, 2000). Two key enablers of such open conversations are transparency and trust (Hubbart, 2023). Transparency means that leaders communicate openly and honestly, setting the tone for a culture of openness. Trust, on the other hand, is built through actions, by listening actively, responding to feedback, and following through on promises. It's further strengthened when managers show honesty, build genuine relationships, and foster a culture of openness (Ladyshewsky, 2010). Additionally, delegating responsibilities and relinquishing control helps employees feel empowered and valued, reinforcing a sense of trust throughout the organization

Fredberg and Pregmark (2020) also emphasizes the importance of open communication and feedback, noting that management often receives inaccurate information due to organizational filtering. This makes it difficult for leaders to fully grasp the systems they are trying to change and hinders open, honest discussions. To address this, Strategic Fitness Process (SFP) has been developed to facilitate feedback from employees to management. According to Beer (2013), SFP is a structured method that helps organizations evaluate and improve their strategy, structure, and processes, engaging stakeholders at all levels. This approach includes understanding what is happening within the organization and applying action learning, which means learning through doing. This method can help management better understand stakeholder needs and adapt the implementation to better align with actual work practices.

Furthermore, the dynamic and complex nature of the construction environment puts pressure on leaders to be adaptable in navigating shifting conditions effectively (Holmberg & Tyrstrup, 2010). Ladyshewsky (2010) emphasizes that effective leaders can adopt a coaching approach to support and empower employees. To foster this coaching mindset throughout the organization, companies should invest in training managers to enhance their communication skills and ability to engage employees (Hubbart, 2023). According to Beer and Eisenstat (2000), it's common for lower-level leaders to not receive enough support and guidance from senior leaders. This lack of development makes it difficult for them to create new opportunities and drive change. To address this, lower-level managers should be supported with coaching, training, and targeted recruitment. Those with leadership potential should be assigned clear responsibilities and authority, while those who cannot perform at the required level should be replaced.

To educate and train both lower-level leaders and employees within an organization, the Train-The-Trainer (TTT) approach is a well-known concept (Wetzel & Wallace, 2015). This model involves experts in the relevant field who educate selected trainers, who then train others, and so on. Wetzel and Wallace describes this as a participatory, non-hierarchical group-dynamic training approach. Trainers also receive training on how to teach, monitor, and supervise others within this framework (Pearce et al., 2012). According to Pearce et al., this is an effective and cost-efficient way to spread and implement knowledge, information, and guidelines. However, when verbal information is passed from one person to another, it can easily

become distorted (Jun et al., 2023). This distortion may occur as the information is altered to be more effective, through exaggeration or minimization of certain aspects of the message. Additionally, the users may misunderstand or misinterpret the content, which can lead to the unintentional spread of incorrect information when it is later shared with others. This phenomenon is commonly referred to as word-of-mouth communication.

As the implementation progresses, individuals may realize that the change cannot be stopped (Burnes, 2017). According to Carnall's coping cycle, a common reaction is to *defend* the old model by trying to fit the new reality into the old ways of working, staying within their comfort zone for as long as possible (White, 2008). This resistance drains energy that could otherwise go toward work performance, ultimately reducing productivity. As described earlier, resistance is closely tied to fear and anxiety, which often arises from knowledge that undermines one's self-image, leading to feelings of weakness, worthlessness, or shame (Sunding & Ekholm, 2015). To preserve their self-perception, individuals may resort to defense mechanisms to avoid confronting uncomfortable truths.

To overcome the defense stage, White (2008) suggests that organizations need clear goals and methods for achieving them. This creates pressure on leadership, yet it's crucial for leaders to remain calm, foster active participation, and address employees' concerns. However, certain leadership styles have been identified as ineffective, failing to support employees during periods of change (Beer & Eisenstat, 2000). *Laissez-faire leaders* take a hands-off approach, offering little guidance, which can result in confusion, misalignment, and stalled progress. In *top-down management*, managers don't take inputs from their employees and give direct orders to lower-level employees, preventing effective teamwork or avoiding conflicts. This can be addressed by creating a partnership between top management and lower-level teams, where the CEO or general manager fosters a shared understanding of the organizational context and delegates authority to individuals and teams responsible for the execution.

Additionally, Fredberg and Pregmark (2020) notes that leaders often misinterpret uncertainty signals from the organization as strong resistance or signs that the change is wrong. This misinterpretation can lead to prematurely starting new change initiatives before the previous ones are completed. Fredberg and Pregmark emphasizes that change transformation often requires 1.5 to 2 years of intensive effort, so organizations must have patience.

2.3 Driving the Implementation Forward

Once the implementation has been introduced, it's crucial that the change continues to progress in the intended direction toward the ultimate goal. At this stage, Carnall's coping cycle suggests that individuals begin to accept the change as inevitable and recognize that it will affect them, regardless of their preferences (Burnes, 2017). They recognize that they must adjust to the new situation by *discarding* and aban-

doning old behaviors (White, 2008). In this stage, the performance and self-esteem decrease since energy is put on understanding the change (see Figure 2.2).

In the Satir model, this stage is called *chaos*, which emerges when the old, predictable system no longer functions (Sayles, 2002). The new possibilities within the new system are not immediately apparent to those in an unbalanced system, who may feel a loss of control and become overwhelmed by fear and the unknown. Sayles (2002) suggests acknowledging and normalizing the chaos, providing people something to hold on to while experiencing new emotions.

During this turbulent period, Kotter (2012) highlights the importance of establishing a *guiding coalition* to drive the change forward. This coalition, made up of committed and influential individuals, can support the implementation and lead others in the right direction. They also plays a critical role in adopting and disseminating the "shared language" and information across the organization. Ben-Arieh and Pollatscheck (2002) also emphasizes that individuals are more likely to listen and share information when they feel a shared language or common understanding exists. Ben-Arieh and Pollatscheck further underscores the importance of tailoring communication to the audience's level, as people across different organizational levels have diverse needs. By adapting the message accordingly, communication becomes more effective, reducing errors and enhancing productivity.

To spread the message of change, Cohen et al. (1994) argues that the coalition's representation should be broad. By ensuring a diverse range of voices in the coalition, its credibility is enhanced, which helps reduce suspicions of self-interest and fosters collaboration. Furthermore, members of the coalition, by engaging with the implementation process, not only contribute to its success but also strengthen their own understanding of how the change aligns with the organization's overall goals. This deeper connection to the implementation can enhance personal investment and increase motivation to support the initiative.

Selecting individuals for the guiding coalition can be based on their readiness to adopt new technologies. Individuals within a social environment adopt innovations at different rates (Rogers, 1983). To better understand their willingness to embrace the implementation, they can be categorized based on adoption behavior. This classification facilitates the analysis of adoption patterns and enables change managers to identify distinct groups within their target audience, allowing them to use strategies that align with each category.

Rogers (1983) presents five adopter categories: Innovators, Early Adopters, Early Majority, Late Majority, and Laggards (see Figure 2.3). The categories from Early Adopters to Laggards are influenced by social dynamics, which determine when individuals within a social system will adopt new innovations (Bass, 1969).

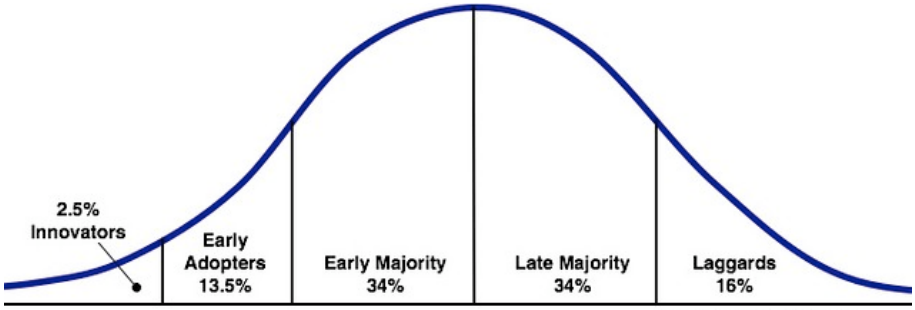

Figure 2.3: Early adopters curve (Rogers, 1983)

Innovators are highly eager to adopt new ideas, and a key characteristic is their willingness to take risks (Rogers, 1983). Innovators adopt innovations independently, without being influenced by the decisions of others in their social system (Bass, 1969). Innovators play a crucial role in the diffusion process by acting as gatekeepers, introducing new concepts into the social system.

According to Rogers (1983), Early Adopters are more integrated into the social system compared to Innovators. They have the most influence and leadership among the adopter categories, and other adopters look up to them for guidance. Change managers often rely on Early Adopters to help accelerate the adoption process because of their credibility and influence. Their role is to reduce uncertainty about new innovations by evaluating them and sharing their experiences with their peers.

Rogers (1983) describes the Early Majority as those who adopt new ideas just before the average individual. The Early Majority occupies a unique position between the very early adopters and late majority, making them a critical link in the diffusion process. They willingly adopt new innovations, but they are not the first to do so. Instead, they wait until others have tested and proven the innovation before committing.

The Late Majority adopts new innovations just after the average person (Rogers, 1983). They tend to be skeptical and cautious about innovations, requiring strong social validation before they commit. The social system must widely support the innovation for the Late Majority to adopt it. According to Rogers (1983), Laggards are the last group to adopt an innovation. They have very little influence on others, and their decisions are based on tradition and past experiences. Since they are highly skeptical of change, it takes them a long time to adopt new ideas.

By combining the theories, the members of the guiding coalition should be early adopters, as they are well integrated within the social system and have a strong influence on others due to the trust placed in their judgment. The coalition could also include the early majority, as this group is also socially integrated and serves as a critical link between early adopters and the late majority. This approach fosters a sense of representation among a broader group of individuals and increases the likelihood of establishing a shared language.

2.4 Empowering Employees and Motivating Change

Ensuring that employees feel involved and capable of contributing is essential for the effective implementation of change. A key component of this is *employee empowerment*, which Kotter's model highlights, including encouraging innovation and providing the necessary resources to support participation (Pregmark, 2022). This is also emphasized by Quinn and Spreitzer (1997), who state that empowering employees fosters an environment where they feel supported and trusted, which in turn enhances their confidence and proactive work approach.

For leaders to empower their employees, they need to understand what drives and motivates them. To achieve this, Sunding and Ekholm (2015) highlights that leaders need to understand an individual's mental model. According to Jones et al. (2011), mental models are representations of external reality that people use to anticipate events, reason, and form expectations. A mental model is a simplified representation of reality that allows people to interact with their environment. The model is based on a person's goals and motives, as well as their background and knowledge. When individuals don't have all the information, they need to fill in the gaps using different strategies to create a comprehensive picture (Sunding & Ekholm, 2015). In these situations, they often accept easily available information without questioning it, which can be problematic in a social environment since information can be distorted. By understanding people's mental models, managers can gain insight into why individuals act the way they do and thereby develop appropriate strategies tailored to different individuals (Jacobsson & Linderoth, 2021).

To understand what motivates people, there are several motivational theories. One of them is Self-Determination Theory, SDT, which highlights that motivation is strongest when people experience control over actions (Autonomy), feeling capable (Competence), and connection with others (Relatedness) (Deci et al., 2017) (see Figure 2.4). According to Deci et al., SDT researchers have found that when workplaces support these basic needs, it leads to higher motivation, better mental and physical well-being, and improved performance.

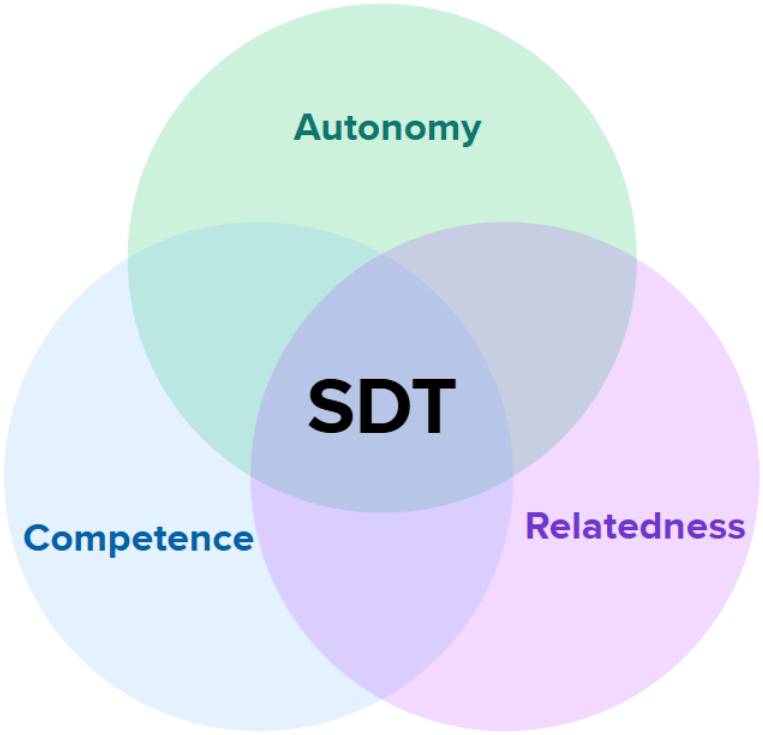

Figure 2.4: Self-determination theory (illustrated by the authors)

Another theory explaining motivation is Expectancy Theory, which proposes that people act based on how much they expect their actions to lead to a desired outcome (Sunding & Ekholm, 2015). A well-known researcher within Expectancy Theory is Vroom, who developed the Theory of Work and Motivation (see Figure 2.5) (Vroom et al., 2005). Vroom states that motivation for action depends on expectancy, instrumentality, and valence (Zhang et al., 2025). Expectancy is related to how strongly a person believes that putting in effort will lead to successful performance. Instrumentality is related to how much a person believes that good performance will lead to a desired reward or outcome, and valence is related to how much a person values the outcome.

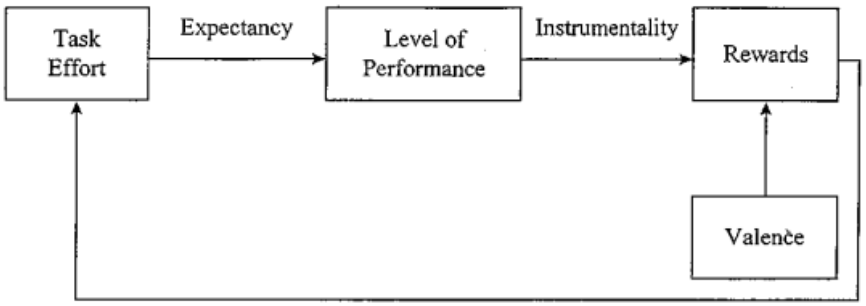

Figure 2.5: Expectancy theory developed by Vroom (Fudge & Schlacter, 1999)

Vroom et al. (2005) explains that these together determine motivational force, meaning that the stronger the belief in success and the more desirable the outcome, the

greater a person's motivation to act. For job performance, motivation increases when employees see high valence in their work and believe their actions will lead to success. Employees tend to work harder when they see a clear link between their effort and valuable rewards. Clear and inspiring communication about the vision helps build these positive expectations (Zhang et al., 2025). However, if the message does not instill confidence in a successful outcome, it will be less effective in motivating employees to embrace the change. Furthermore, organizations can encourage greater employee effort by strengthening their belief that hard work leads to better performance, reinforcing the connection between performance and rewards, and ensuring that the rewards for high performance are meaningful to employees (Fudge & Schlacter, 1999).

SDT and Expectancy Theory offer different perspectives on motivation. SDT emphasizes internal psychological needs, such as autonomy, competence, and relatedness, and focuses on how individuals feel and what drives them from within. It highlights how motivation can be fostered by creating supportive environments that make people feel valued and self-directed. In contrast, Expectancy Theory takes a more outcome-oriented approach, suggesting that motivation is driven by the belief that one's effort will lead to performance and that this performance will result in a desired reward. While STD focuses on internal feelings and needs, Expectancy Theory centers on the relationship between effort, performance, and external rewards.

Rewards can be in the form of *short-term wins* and *milestones* to track progress, providing concrete evidence that the transformation is moving in the right direction (Kotter, 2012). This approach motivates participants by celebrating achievements and maintaining momentum. These small wins must be measurable, recognized, and communicated to ensure transparency, keeping the focus on achieving the larger vision. Similarly, Sunmola (2020) emphasizes how milestones enhance clarity in project progress and serve as motivational support for internal stakeholders, creating opportunities for celebration when goals are met. When a behavior is followed by a reward, the likelihood of its repetition increases, reinforcing adaptive behaviors through conditioning.

2.5 Sustaining and Internalizing Change

When a change has been sustained over time and individuals have gradually *adapted* to it, it starts to become the new reality (Burnes, 2017). During this phase of Carnall's coping cycle, individuals invest considerable energy in figuring out how to make the new system work by aligning and adjusting to the new requirements (White, 2008). As a result, they regain confidence, their self-esteem improves, and their performance increases (Burnes, 2017). This aligns with the Satir model, which explains that the transformation is the core of the change process, where emotions are acknowledged and processed on a deeper level (Sayles, 2002). According to the model, transformation occurs when individuals take control of their emotions, expectations, and perceptions. As changes are integrated, they impact individuals on a deeper level, boosting their self-esteem. As people practice the new ways of working and

apply what they've learned in their daily tasks, their self-esteem and sense of value continue to grow.

At this stage, the organization must *sustain momentum* by continuing to drive further change and improvements following the initial successes from short-term wins (Laig & Abocejo, 2021). This involves planning for additional progress and engaging more people to support the changes. Leaders must reflect on what they have accomplished to plan for future steps. A key trait of successful leaders is self-awareness. Without self-awareness, leaders may justify their decisions, become defensive, and fail to learn from their mistakes (Hogan et al., 2010). Effective leaders are those who recognize their strengths and weaknesses, remain open to learning from their mistakes, and are thus able to continue driving successful change.

Additionally, the organization must focus on solidifying the new changes by communicating the new behaviors and linking them to the organization's success (Kotter, 2012). This can be achieved by demonstrating results and explaining the reasons for success, comparing the past with the present (Laig & Abocejo, 2021). It's also crucial to ensure that the new habits are strong enough to replace the old ones, making them a permanent part of the organization's culture and processes. This aligns with Lewin's three-step model, which includes *refreezing*, emphasizing the need to make the new changes the standard way of working (Burnes, 2017). The model stresses that people must feel comfortable with the new changes, or they may revert to old habits. To ensure the changes stick, they need to be well-aligned with the organization's culture and routines. Companies must adapt their routines, traditions, and work habits to support the long-term success of the implementation.

When the change becomes fully operational, it's *internalized* and becomes the *new status quo* (Figure 2.1 and 2.2) (Burnes, 2017; Sayles, 2002). At this point, people view the new way of working as the norm and incorporate it into their daily tasks (White, 2008). The intense stress and effort from the initial change process gradually subside, leading to a stabilization of performance. Eventually, individuals reach a stable and comfortable performance level, forming a new comfort zone.

2.6 Change Frameworks and Success

The theoretical framework of this thesis is grounded in well-established change models, which are illustrated in Figure 2.6. The figure outlines the key steps presented in the selected models, alongside the critical perspective introduced by Pregmark (2022). These traditional models primarily take a top-down approach, focusing on structured, step-by-step processes of change, emphasizing formal strategies and organizational directives. Since an implementation represents a significant change for an organization, this thesis also incorporates theories that emphasize how individuals experience and emotionally respond to change. By including the individual perspective, the theoretical framework complements the traditional top-down ap-

proach with a bottom-up dimension. Integrating these individual perceptions and feelings at each stage allows leaders to better tailor their support and empower employees, ultimately increasing the likelihood of successful outcomes.

According to Shenhar et al. (2001), common success indicators are numerical values such as time and money. However, this is not the whole picture, as it overlooks softer values, such as understanding the needs of employees (Karrbom Gustavsson & Hallin, 2014). All the frameworks used in this thesis aim to guide change processes toward success, which is achieved when the new way of working becomes the new normal (White, 2008). When combining the theories, it's evident that while financial and time-related metrics are not always the main indicators of success, they can still help show progress. Numerical differences observed before and after implementation are often easier to measure than softer values, and may serve to motivate and unify the organization by providing a concrete basis for celebrating progress.

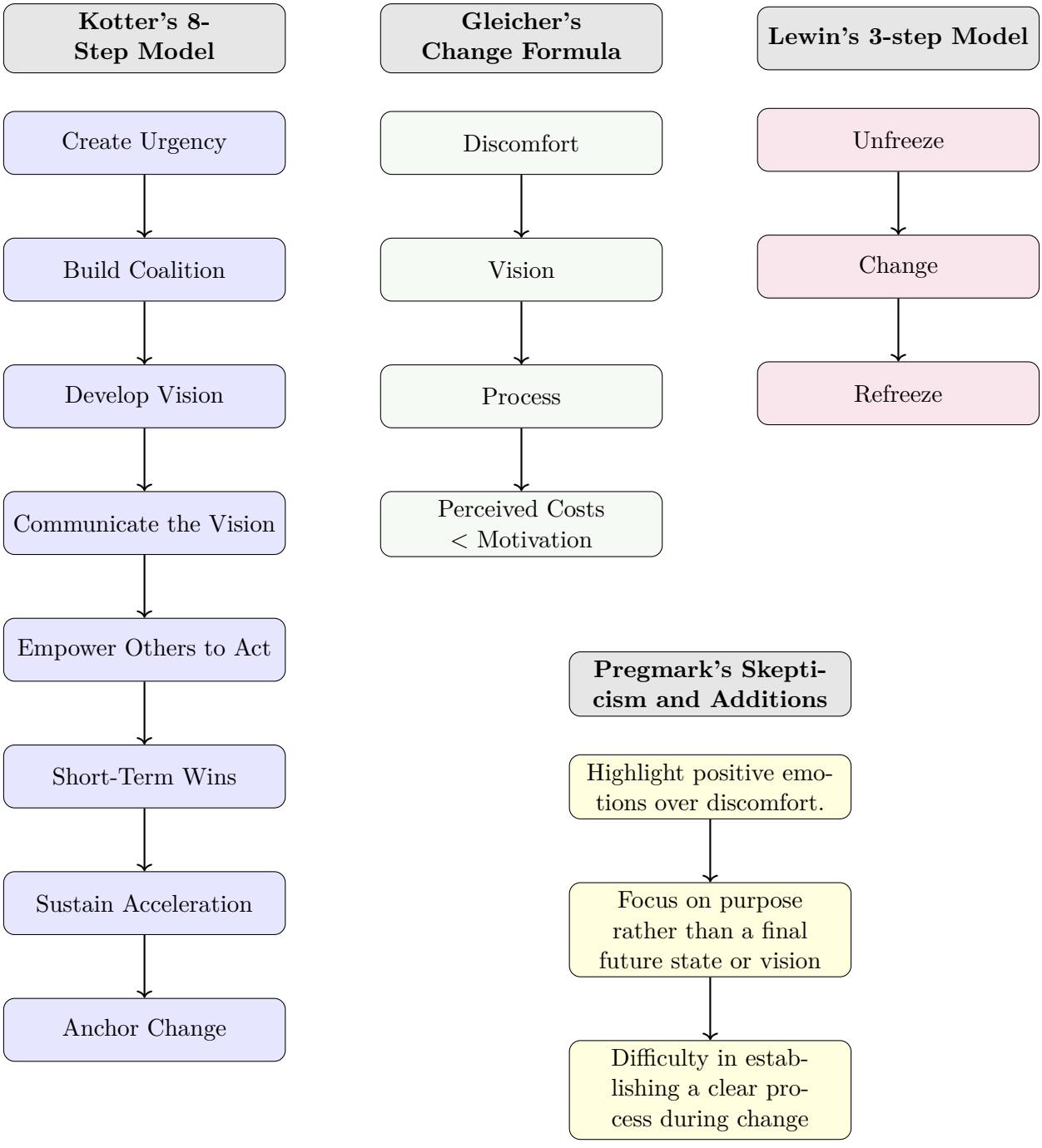

Figure 2.6: Visualization of change models: Kotter, Gleicher, Lewin, and Pregmark's perspective (illustrated by the authors)

3
Research approach

This master's thesis is conducted as a qualitative study with an exploratory nature, incorporating a theoretical framework and a case study that includes interviews with diverse stakeholders as well as observations.

3.1 Research approach and design

This thesis is a qualitative study, which is associated with researcher involvement, meaning that the researcher plays an active and influential role in both the collection and interpretation of data (Bryman & Bell, 2017). This approach is suitable when the aim is to deeply understand the meaning behind what people say or do (Denscombe, 2017). It relies more on words than numbers, and the data is personally read, interpreted, and analyzed by the researchers. Since it deals with complex, word-based data and emphasizes understanding over measurement, qualitative research is better suited for small-scale studies, such as this thesis.

This thesis is also of an exploratory nature, meaning that we aim to go beyond predefined theories and seek new insights (Olawale et al., 2023). The purpose is not to test existing theories but to explore patterns, behaviors, and perceptions that may inform future research and theory development. This approach allows for flexibility and adaptability as new data emerge and new insights arise. As a result, the direction of the thesis may shift depending on the findings.

When deciding which research approach to use, Denscombe (2017) emphasizes the importance of considering whether the chosen method is suitable for the research purpose, practically feasible to carry out, and ethically sound. After defining the scope and purpose of the study, we began exploring different approaches to identify the most appropriate one. Since we aimed to gain insight into how people, their actions, and digital tools interact, a case study approach was deemed suitable. The strength of using a case study lies in its flexibility, as it allows for the use of various methods depending on the circumstances and the specific needs of the situation.

3.1.1 Theoretical frame

To explore the topics within the scope, narrative and exploratory searches were primarily conducted (Gusenbauer & Gauster, 2025). Gusenbauer and Gauster explains

that using multiple search portals ensures broad coverage of the literature. Therefore, portals such as Google Scholar, ScienceDirect, Construction Management and Economics, and Google were used in this thesis. For more detailed insights, systematic keyword searches were performed. Once relevant articles had been identified, their citations were also examined to gather additional information. According to University of Oregon Libraries (n.d.), once these steps had been carried out thoroughly, the literature review could be considered complete.

This literature review served as the foundation for the theoretical framework. This, in turn, guided the development of interview questions in stage 2 and supported the analysis of the interviews and observations. It consisted of various theories and concepts relevant to the thesis.

3.1.2 Case description - Skanska

A case study is a thorough analysis of a specific unit, such as an organization, individuals, or events, where qualitative or quantitative data is gathered through surveys, interviews, and observations (Goodman, 2011). Case study was chosen to gain a deeper understanding of how the implementations were carried out in practice and how it was perceived by the employees, in order to identify factors and patterns that have influenced the outcome. By relating this to our theoretical framework, it became possible to analyze the extent to which the findings differ or align.

We conducted a case study at Skanska, a leading company in construction and project management, operating in the Nordics, Europe, and the USA (Skanska Sverige, 2024). Skanska was selected as the case company because the organization comprises everything from blue-collar employees on construction sites to white-collar employees in office environments. This means that an implementation affects various types of stakeholders with differing working conditions and needs. The combination of diverse professional roles makes Skanska an interesting case for this study, which aims to explore implementation from an individual perspective. Today, Skanska doesn't have a clear structure for when new tools are to be implemented.

Furthermore, Skanska represents a typical instance of a large construction company adapting to digital tools (Denscombe, 2017). The organization's structure and challenges are characteristic of the broader industry, and in relation to implementing digital tools across diverse stakeholders. This enhances the study's relevance and provides the opportunity to draw conclusions that may be applicable to similar organizations navigating comparable change efforts.

At Skanska, we examined how they have implemented two digital tools in their daily operations. Autodesk Construction Cloud (ACC) and SAI were introduced at Skanska as part of ongoing efforts to enhance efficiency and facilitate daily work. ACC is a cloud-based platform that centralizes all the information about a project, from planning to quality control (Skanska Sverige, 2025a). On this platform, all the stakeholders involved in the project can collaborate and operate together. ACC contains modules that represent each phase of the project: tendering, design, plan-

ning, production, and maintenance. All the modules are connected to reduce the risk of duplicating work. Since it's cloud-based, everyone receives the latest and most relevant information.

ACC represents the next generation of Autodesk's digital construction platforms, succeeding BIM 360 NextGen, which in turn followed BIM 360 Classic Field. The tool was launched within the company on May 1, 2024, and from November 1, 2024, all new projects are expected to adopt ACC. However, ongoing projects that are using other digital tools can continue using them until they are finished or if an alternative tool is required by the customer.

SAI, together with its app, is a tool for reporting work environment and environmental incidents (Skanska Sverige, 2025b). In SAI, events of various types are reported, including incidents, accidents, and environmental incidents. It's also used for reporting observations, both positive and risk-related, and planning and conducting safety rounds and environmental rounds. The company has been using SAI since 2021. Before SAI, the digital tool BIA was used to report incidents and accidents, and the program Buildsafe was used to conduct safety rounds.

The data were qualitatively collected through interviews and observations. The digital tools were treated as two separate sub-case studies. This allowed us to compare and identify similarities and differences between the two tools (Denscombe, 2017). Through this comparison, we were able to define success factors in implementation, which was one of our research questions.

The case study approach provides a more holistic perspective by considering the entire social context, in this case, Skanska (Denscombe, 2017). It also encourages the use of various methods, which enabled us to combine interviews, observations, and theoretical analysis, leading to a richer and more nuanced understanding. The use of multiple methods allowed us to cross-check findings, enhancing the trustworthiness of the data when results from interviews and observations aligned. According to Denscombe (2017), case studies are well-suited for small-scale research and are therefore particularly suitable for our thesis project. The method also supports both exploratory and confirmatory research, allowing us to not only test existing theories in practice but also identify patterns that may contribute to the development of new theoretical insights.

One disadvantage highlighted by Denscombe (2017) is that generalizability is often questioned, since the focus is on one specific case. This has been addressed by focusing more on the individual experiences with digital tools rather than on the specific tool itself. However, further research may be needed to examine whether the findings of this study are truly generalizable. Therefore, additional studies in industries outside of construction are recommended to explore whether the key success factors identified here are consistent or if new ones emerge.

3.1.2.1 Interviews

To understand the people within Skanska and the implementation of digital tools, interviews were conducted. According to Denscombe (2017), interviews are appropriate when researchers want to gain insights into opinions, feelings, and experiences. A questionnaire would be more appropriate if we had wanted to collect simpler, less controversial facts. However, since we aimed to build a deeper understanding, interviews were more suited to our purpose. The interviews also provided us with in-depth knowledge and helped guide us in navigating the research further. One of our research questions relates to how different stakeholders can be encouraged. By gaining in-depth knowledge about their emotions and experiences, we were able to better understand this question.

The interviews followed a semi-structured format, meaning that they were based on main open-ended questions that led to follow-up questions and deeper exploration depending on the interviewee's responses (Adeoye-Olatunde & Olenik, 2021). This is an appropriate approach for addressing complex social-behavioral research questions, which correspond to the scope of this thesis. Another strategy is unstructured interviews, where the interviewee is free to speak their mind within a given topic (Bryman & Bell, 2017; Denscombe, 2017). However, to be able to compare interviews and maintain some consistency in structure, semi-structured interviews were better suited for this thesis.

To be a good interviewer, Denscombe (2017) highlights several important skills and tips. Both students kept in mind the importance of staying silent and avoiding judgment during the interviews. The student acting as the interviewer followed the outlined questions, while the other focused on applying the interviewing strategies described by Denscombe (2017), such as asking for examples and clarification. We also made sure to confirm our understanding by asking, "So if I understand you correctly...".

The interviews were preferably conducted physically, but when that was not possible, they were carried out via video call. Each interview was allocated 45–60 minutes. The interviews were held in Swedish since it was the interviewees' native language. A total of 19 interviews were conducted. During the last interviews, the new data that emerged tended to confirm previous findings rather than provide new insights. According to Denscombe (2017), this is referred to as saturation, which can be seen as an indication that the data collection is sufficient.

At the start of each interview, we gave a brief introduction about ourselves as students and provided some background on the thesis. Additionally, the interviews were recorded with the interviewees' consent, and the audio files were deleted after the thesis was submitted, by July 2025 at the latest. All personal information of the respondents was handled in accordance with GDPR and was also deleted upon completion of the report. To conclude the interviews, we asked the interviewees if they had anything else they wanted to add or any questions of their own. We also made sure to thank them and ask if it would be okay to follow up with additional questions if needed.

Our sampling strategy employed a combination of purposive and snowball sampling. According to Campbell et al. (2020), purposive sampling is a targeted method where individuals are chosen based on their likelihood to provide valuable and relevant information (see Figure 3.1). These individuals are selected due to their specific expertise or experience relevant to the case study.

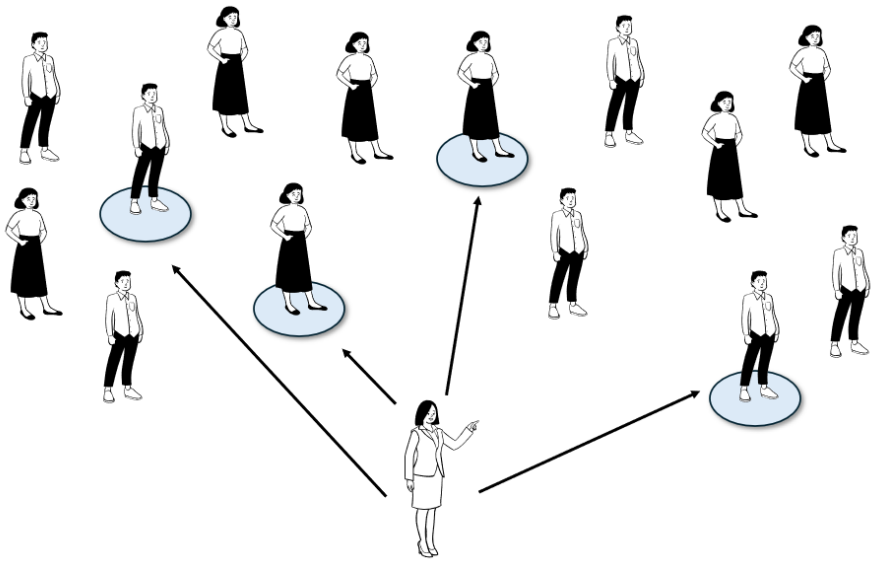

Figure 3.1: Purposive sampling (illustrated by the authors).

The interviews were divided into two distinct stages. This approach was chosen to provide two different perspectives on the implementation: how it was intended to be carried out by those responsible (referred to as implementers), and how it was perceived by the end-users (referred to as recipients). By separating these groups, we were able to compare the two perspectives, aiming to identify both alignments and gaps between intention and experience that could inform more effective implementation strategies.

For stage 1 of the interviews, together with the implementers, the objective was to gain insight into the implementation processes. Given the narrow scope of the topic and the fact that only a limited number of individuals possessed this knowledge, purposive sampling proved to be an effective approach. Our supervisor at Skanska provided us with a list of potential interviewees from which we selected individuals whose roles and experience aligned closely with the focus of our research.

As the interviews progressed, the participants recommended additional individuals who were knowledgeable and involved in the topic, allowing us to expand the sample further. This is called snowball sampling (Parker et al., 2019) (see Figure 3.2). This approach ensured that we gathered insights from individuals with expertise in the subject matter. This method gave us the advantages of starting with a small number of participants, which led to a rapid growth of the recommendations (Denscombe, 2017). We could also approach new individuals with a reference from the person who recommended them, which may have made them more willing to participate.

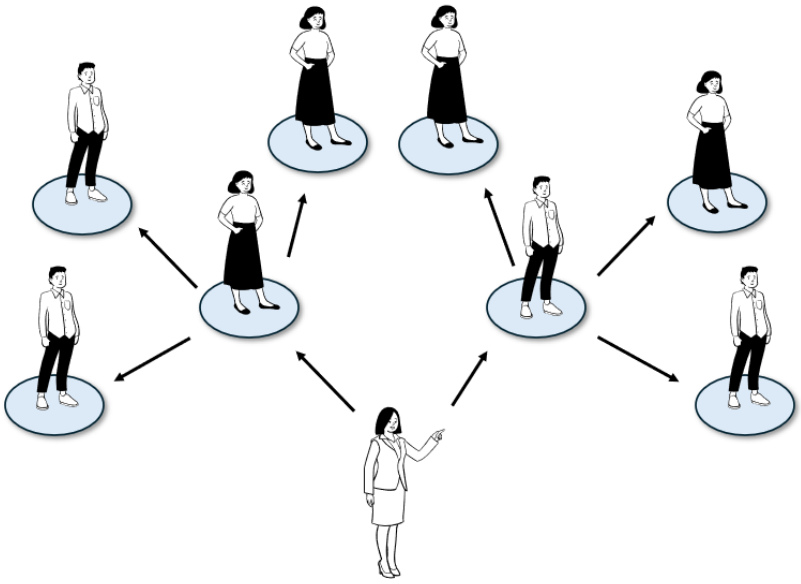

Figure 3.2: Snowball sampling (illustrated by the authors).

A disadvantage of this method is that the sample can be narrow, as participants tend to recommend people similar to themselves. A similar disadvantage can be seen in the purposive sampling in stage 1, as the participants were selected from a list provided by the supervisor. This can result in potential bias and a lack of diversity, meaning the sample may not represent the entire population. However, we aimed to interview people with different roles to minimize the risk of bias and gain a variety of perspectives.

Stage 1 - The implementers
The first stage consisted of seven informative interviews aimed at providing more knowledge about the digital tools and their implementation processes. The interviews were based on questions designed to explore and provide an overview of the implementation process from a managerial perspective. An exploratory approach was used, as the students had some prior knowledge of key aspects to consider during change and implementation processes. The questions were therefore divided into five categories. The interview began with an introduction of the interviewee, followed by general questions about the implementation, including when the tool was introduced and experiences related to it. Next, the focus shifted to preparation and communication of the implementation, followed by support and training. Finally, the interview concluded with questions about how the interviewee perceived the outcome and their reflections on the implementation. The questions for stage 1 can be found in Appendix A.

Two of these interviews were conducted by only one student due to illness. The other student listened to the recordings afterwards and took notes. These interviews were conducted with individuals who were experts in the subject, responsible for the digital tools within the organization, or had significant experience with the implementation of the digital tools selected for the study (see Table 3.1).

Position	Tool	Interview
Steering Committee, GBG	ACC	In person
Steering Committee, GBG	ACC	In person
Business Developer, Malmö	ACC	In person
Contact person at Autodesk in STHLM	ACC	Via teams
Health & Safety Manager, GBG	SAI	In person
Health & Safety Manager, STHLM	SAI	Via teams
Work Environment & Seriousness, STHLM	SAI	Via teams

Table 3.1: List of participants in stage 1 and their roles

Stage 2 - The recipients
In the second stage, a set of 12 interviews was conducted to gain a deeper understanding of how the implementation process was perceived on the construction sites. Here, we also wanted to examine whether what the implementers had said about the implementation aligned with how the recipients perceived and experienced it. A set of interview questions was created and used, based on the theoretical framework developed by the students. From the theory, we had gained an understanding of various step models for managing change and identifying key success factors. The questions were primarily based on Kotter's and Lewin's step models, as well as Gleicher's change formula. Furthermore, we included questions inspired by Carnall's coping cycle to explore emotional responses during the change process, along with questions aimed at understanding how individuals adapt to new tools in relation to the adoption curve. The questions for stage 2 can be found in Appendix B.

The interviewees hold the roles Production Manager (PC), Supervisor (AL), Tradesperson (YMA), Health and Safety leader (HSL), and Digital Leader (DL) and use the digital tools in their work routines, both on construction sites and in production office settings (see Table 3.2). These acronyms are commonly used within Skanska and are based on the Swedish original terms. Two of the 12 interviews were conducted by only one student, as they had to take place simultaneously. After these interviews, the other student listened to the recordings and took notes.

Position	Tool	Interview
PC, Malmö	ACC	In person
Purchaser, Malmö	ACC	In person
AL and DL, Malmö	ACC	Via teams
AL and DL, Malmö	ACC	Via teams
PC, Malmö	ACC	In person
Trainer, Malmö	ACC	Via teams
YMA, GBG	SAI	Via teams
PC, GBG	SAI	In person
AL, GBG	SAI	In person
PC, GBG	SAI	Via teams
HSL, Malmö	SAI	Via teams
PC, GBG	SAI	In person

Table 3.2: List of participants in stage 2 and their roles

3.1.2.2 Observations

As part of the case study, observations were conducted to gain deeper insights that methods relying solely on self-reports could not provide, as well as to understand the full context (Morgan et al., 2017). This allowed us to *see* what employees do instead of only rely on what they *say*. The observations took place at construction sites where Skanska was operating, as well as in the offices in Malmö and Gothenburg. The focus was on observing people in their natural settings, which provided insights into their typical behaviors and routines (Denscombe, 2017). During the observations, both students were involved. According to Denscombe, it's beneficial to have more than one observer, as individuals tend to recall and perceive situations differently. This is due to factors such as selective recall, selective perception, and accentuated perception, which are influenced by a person's familiarity, past experiences, and current state. By involving both students in the observations, we were able to gain a deeper and more nuanced understanding of the situation.

Three construction site visits were carried out, which lasted for about 60 minutes each. Two of these observations yielded relevant results and are included in the thesis. During one of them, we observed a safety round at a construction site in Gothenburg that used SAI. In this setting, we took on a passive role, acting more like flies on the wall and not actively participating. Instead, we remained quiet and observed how the safety round was conducted. After the round, we entered the site office, where we took a more active role and conducted brief interviews. The other observation took place at a construction site in Malmö that used ACC. Brief interviews were also conducted during this observation, allowing us to observe both the environment and the interviewees simultaneously.

Two other observations were conducted at the offices in Gothenburg and Malmö, where we were given a tour of the buildings and an overview of how things are done there, as well as their thoughts on how the implementation went. The atmosphere was very informal and relaxed. As we were stationed in Gothenburg, the observa-

tions took place throughout the entire project period from January to May. Most of the time, we were actively involved in conversations that took place in the office, but in some cases, we took a more passive role and observed quietly.

3.2 Analysis of gathered data

A qualitative study is often associated with analysis that takes place alongside data collection (Denscombe, 2017). There are several ways to approach this, and no single method is considered the only correct one. In our thesis, the qualitative data has been analyzed using an abductive approach (Dubois & Gadde, 2002). This means that we also searched for relevant theories in parallel with the data collection. During stage 1, we analyzed the interviews with the implementers and used the insights to refine our focus and determine which theories were applicable. This led us to adjust and update the interview questions for the next stage. In stage 2, we started with the new interview data, identified patterns and themes, and from there developed broader conclusions in dialogue with theory.

To analyze our data, we chose content analysis. Content analysis is used to quantify the data from interviews and observations (Denscombe, 2017). It follows a straightforward approach by starting to break down the text into smaller components, such as quotes and key findings. Next is to develop categories for the analyzed data. The findings were organized and structured using Affinity Diagram, also known as the KJ-method (see Figure 3.3). Affinity Diagram is a tool that systematically helps analyze, organize, and recognize common themes and issues within qualitative data (Holtzblatt & Beyer, 2017). It clarifies large amounts of complex information by identifying patterns and connections. One diagram was created for each interview stage and each digital tool, resulting in four diagrams in total.

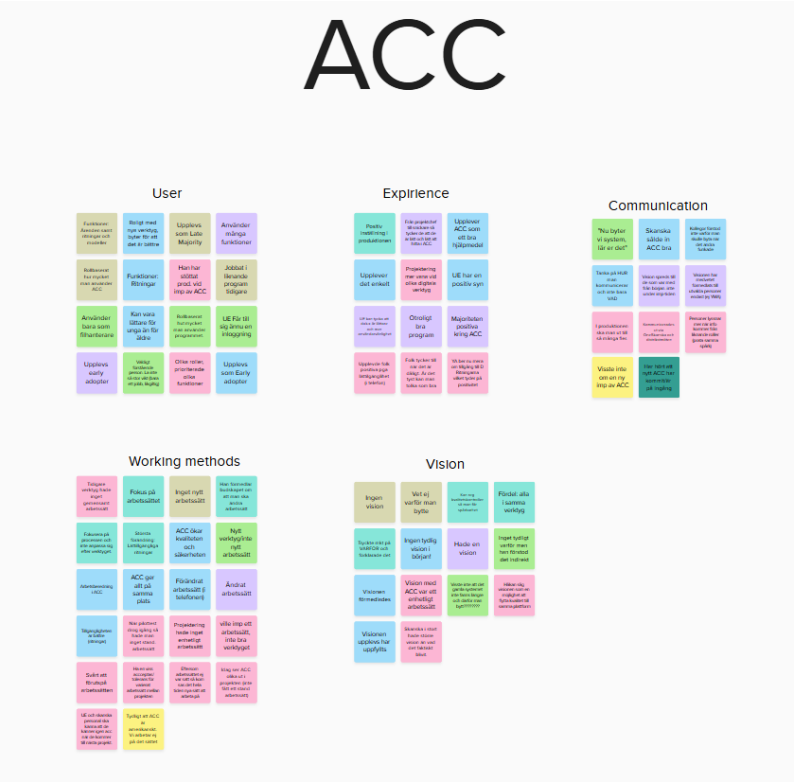

Figure 3.3: Excerpt from the Affinity diagram used during our content analysis of ACC.

When analyzing stage 1, we extracted findings from each interview and organized them according to each digital tool. The findings were then categorized into different themes that were relevant to the data. Both digital tools, ACC and SAI, were assigned the same themes and categories to facilitate easy analysis and comparison between the two tools. The findings were organized without associating them with any specific name or respondent, as this was an exploratory interview.

After completing stage 1, we recognized the need to track which findings were associated with specific interviewees in order to identify patterns between roles and personality traits, and trace them back effectively. For stage 2, we organized the findings according to each interviewee and assigned a distinct color to each set. Subsequently, we categorized the findings into relevant themes. This process was first applied to ACC, followed by SAI. Similar to stage 1, the same thematic structure was used for both tools to facilitate a more straightforward comparison.

Afterward, an analysis was conducted between the different stages of interviews to identify any differences. The theoretical framework helped us understand the empirical reality in a deeper way.

4

Result: Voices from the organization

This chapter presents the results of the analysis of all interviews and is structured according to the two digital tools, ACC and SAI. The perspective of the implementers (those responsible for the implementation) is presented first, followed by the perspective of the recipients (the users). Thereafter, a summary table is included for each digital tool to visually illustrate where the perspectives align or diverge. Lastly, the results from the observations are presented.

4.1 The implementation of ACC

This section explores the implementation process of ACC based on interviews with key implementers and recipients at Skanska. The aim is to highlight the strategies, experiences, and perceptions surrounding the implementation process, and to identify patterns in attitudes based on roles, involvement, and communication.

4.1.1 The implementers of ACC

From the interviews with the implementers of ACC, it became clear that considerable planning, effort, and thought had gone into making this a successful implementation. This was something that, according to the respondents, had not been done to the same extent in previous digital tool rollouts at Skanska. Before the implementation of ACC, earlier experiences were carefully analyzed to identify what had worked well and what needed improvement. Looking back, all interviewees agreed that the initial implementation was successful, indicating that the thorough preparations were worth the effort. One key strategy to success that they highlighted was the use of "first movers", which were selected users with strong communication skills and a genuine interest in digitalization, to drive the change process.

> " They (the first movers) were selected because they were already digital coaches or users who were familiar with this type of work and had an overall understanding of the organization." - Steering Committee
>
> " By finding interested individuals who could spread the message further

> ... it became easier to digitalize. We tried to identify engaged people, so-called 'first movers', out in the organization who were willing to test and get started." - Business Developer

There was a clear vision for ACC, and all implementers shared the same overall goal. The aim was to collect all project-related data on a single platform, primarily for use during the design and production phases, but also for quality control after project completion. However, the implementers expressed different views on whether this vision and its purpose had been effectively communicated to all employees.

> "A platform intended to tie together as much of the project as possible in order to capture the largest possible part of the project flow." - Steering Committee
>
> "We wanted to improve quality and had a clear method for driving our quality work." - Steering Committee

One of the interviewees was Skanska's contact person at Autodesk. Both Autodesk's representative and the implementers emphasized that they worked closely together during the preparation and execution phases to adapt and improve ACC, to the extent that both were reasonably satisfied. However, it was also acknowledged that while Autodesk made efforts to accommodate Skanska's needs, the solution could not be entirely tailored to one single client. As a result, the implementers chose to delay the launch until the system met Skanska's internal requirements, to release software that was sufficiently useful and user-friendly for their operations.

All implementers stressed that a significant part of the implementation focused on training, which they saw as a worthwhile investment. The selected first movers received 4 full days of training, following by two online meetings, who then trained their colleagues using a TTT model. Other managers and employees participated in a three-hour online training session, which was offered on three different occasions to enable participation.

The operational support team continuously collected feedback from internal users and evaluated the system during the implementation. Two respondents described this as follows:

> "We had the team (responsible for ACC) involved, who are our main contact with Autodesk, and there was a lot of dedicated work driving the process based on incoming feedback." - Steering Committee
>
> "We still maintain a dialogue with Autodesk. We tell them: 'This is what we need. This is important to us. This would make our projects more efficient.' " - Business Developer

To facilitate the transition, the implementers emphasized that this was more than just a new digital tool, it was a shift in working methods:

> "We wanted to launch this more as a working method for executing this function, and for that working method, we use ACC as a tool. The focus was on how we work, not the tool itself." - Steering Committee
>
> "We want to talk about a way of working." - Business Developer

The implementers also aimed to create a sense of excitement and a positive atmosphere to motivate employees, rather than forcing the change. They explained that this was done by letting the first movers try out ACC and grow to like it, so that positive word-of-mouth about the digital tool would spread. This led to employees wanting to use ACC even before it was officially launched within the organization. One of the implementers stated that he strongly believed this approach was a key factor behind the successful implementation, emphasizing that they worked with enthusiasm rather than pressure. To make the transition feel easy, one respondent compared it to upgrading from Windows 10 to Windows 11.

> "(I) work with creating enthusiasm and attracting interest, showing that it works, and making it a natural part of how things are done " - Business Developer
>
> "We communicated it like it was an upgrade from Windows 10 to Windows 11, but in the background, it was actually a completely different platform being introduced." - Steering Committee

Despite these efforts, some resistance, what one respondent referred to as "sluggishness", remained, which he stated is natural in any change process:

> "There was sluggishness. It was hard to get some people to accept it—'Okay, fine, I guess I'll do it.' " - Business Developer

One respondent mentioned that different personalities adopt new technologies at different paces and referred to the adoption curve model. He emphasized that the focus should be on winning over the majority of users. Early adopters would embrace the tool regardless, while laggards were unlikely to accept it, no matter how well it was introduced. Several interviewees emphasized the importance of empathy and understanding, noting that this change was not only about a new tool or workflow but also about a cultural shift that could affect professional identity and pride.

Some respondents also emphasized the need for the three factors: people, process, and technology, within an organization. They highlighted the importance of balancing these three elements. One metaphor used was multiplication:

> "If one element is zero, the whole system fails." - Business Developer

Following the implementation, many viewed it as a success, in part because they allowed the process to take time. The implementers believe that the new way of working has simplified and streamlined workflows, making them more cohesive and better aligned with real-life project conditions.

A common theme across all interviews was that ACC is a secure system that enables efficient information flow, thereby improving the quality of Skanska's projects. The implementers also perceived that ACC has helped standardize work methods and terminology within the company. However, one mentioned challenge is that ACC was developed by an American company with a more hierarchical organizational culture. This structure is reflected in the system design and has complicated certain work methods, especially within Sweden's typically flatter organizational culture.

4.1.2 The recipients of ACC

From stage 2 of the interviews, a clear pattern emerged. The respondents who had been involved in the development process of the implementation were also those who had been deliberately selected to drive the development and dissemination of ACC, which the implementers referred to as first movers. These individuals held roles as DL in combination with AL or PC, or they worked as trainers at Skanska. They were generally positive toward technology and adopted ACC easily, thus they were perceived as early in the adoption curve.

These individuals were introduced to the implementation before the digital tool was rolled out across the organization, thus they had the opportunity to influence both the process and the tool at an early stage. This may have contributed to their positive attitude, as they were given the chance to provide input and felt trusted by the organization. It was clear that thorough groundwork had been done for the implementation, and one of the respondents highlighted this by saying:

> "You have one chance to implement it! Therefore, it must be done right from the start." - PC

Since these individuals were involved in the implementation process, they were also well-informed about the purpose of the implementation. However, the respondents described several different visions, which suggests that there was no unified overall goal. One vision was to change the working methods to be more standardized, accessible, and unified across all Skanska projects, so that employees would recognize them regardless of which project they are in. Another vision was to centralize everything and everyone involved in the project onto a single platform, and a third was to increase quality control in the project. Despite these varying visions, they were still able to confirm to what extent the intended goals had been achieved. Many of the positive respondents believed that their perceived vision had been realized, particularly through increased accessibility, as ACC can now be used directly on mobile phones, making work more efficient and convenient.

> "We now have a folder structure that is the same, so that one will recognize it. ... When they (workers) come to the next project; it will look the same." - Trainer
> "The vision is to bring everything together into one (platform)." - AL and DL
> "The vision, or what they tried to implement, was more of a way of

working or a process." - AL and DL

The interviews revealed that they were working with an old version, called BIM 360 Classic Field, which they believed was outdated. The ALs and the PCs mentioned that they clearly saw the need for a change.

> "Here down in (region) south, we have worked with BIM 360 Classic Field and it has been outdated for quite some time now, so that is also the reason why we really wanted to move forward here (to ACC, in the south)." - PC

Respondents who were more hesitant and skeptical about new technology in general, falling into the late majority category in the adoption curve, often had roles where they did not use the digital tool to the same extent as the more positive respondents. They were also not designated as DL. A common factor among this group was that they had not received a clear vision of the implementation or understood its purpose and goals. They had also not been involved in the earlier stages of the implementation and therefore had less opportunity to influence the process.

> "We were told: 'Now we're changing systems — learn it.' " - PC
> "Vision? No, I don't really think so. Just seems to be a better system." - Purchaser

This can be explained by what a DL said:

> "The big vision (for ACC) is probably something only we who were at the production management meeting know..." - AL and DL

One interviewee explained that it's all about simplicity, timing, and interest from the lower levels, meaning that these individuals are not as interested in the background of the implementation. As a result, they don't seem to care about the vision and, therefore, did not receive it.

One respondent who stood out was a PC working on a project where a different digital tool had been chosen to facilitate the work. This person was interested in technology and was perceived as early in the adoption curve, but was unaware that ACC had been implemented within Skanska. The interviewee believed that the software chosen for their specific project was significantly more user-friendly and more appropriate for their way of working than both ACC and its predecessor, in that particular context.

> "ACC is an American program. There are differences in how we work, how we think, and how our workflows look... in ACC, it's the opposite." – referring to how we work in the Nordics. - PC

Table 4.1 below provides a simple overview of how the roles' perception relate to

their previous experiences.

Role	Opinion	Pattern
PC	Positive	Got to be involved from the beginning and influence the tool
AL and DL	Positive	Got to be involved from the beginning and influence the tool
AL and DL	Positive	Got to be involved from the beginning and influence the tool
Trainer	Positive	Got to be involved from the beginning and influence the tool
PC	Negative	Didn't know a new tool was being implemented
PC	Neutral	Didn't get a chance to influence the tool
Purchaser	Neutral	Didn't get a chance to influence the tool

Table 4.1: Overview of Roles, Opinions, and Patterns between the recipients of ACC

In general, the majority of the respondents were positive about the implementation process. They agreed that there was a committed group driving the work forward, and some of those interviewed were part of this engaged group (the DLs). These individuals provided significant support throughout the process, offering training and being available for questions and guidance. One of the DLs pointed out the importance of being accessible and easy to reach in this context.

> "Just give me a call and ask." - AL and DL

The respondents felt that the implementation had been given time and was not forced upon them, but rather encouraged. They also believed that there were sufficient resources for the implementation, though some argued that additional time and resources could have been allocated for further information dissemination and training.

Most of the interviewees felt that they had been able to provide feedback and share requests regarding both the software and the training. They felt heard, and their feedback was well received. Those who had received a clear vision of the implementation could confirm that it had largely been achieved, although some pointed out that there is always room for improvement. However, those who had not received a clear vision of the implementation were unable to determine whether its objectives had been met. Additionally, one thing that everyone who used the program agreed on was that it was now integrated and a natural part of their daily work. This may be due to a well-executed implementation, as well as the fact that the new software is similar to the previous one.

One notable insight from the interviews was that no clear milestones or intermediate goals had been defined for the implementation, resulting in no celebrations or

recognitions of success taking place during the initial process. This was something the respondents had not reflected on before the question was raised, but once they did, they realized that it was an unusual deviation from how things are typically done in production. They expressed surprise that this aspect had been overlooked in the digital development process, and some interviewees mentioned that they wished this had been considered.

4.1.3 Implementers' intentions & recipients' experiences

Below, we have created a table to clarify where the perceptions between the two groups, implementers and recipients, differ. It is important to note that the alignment is not always positive from an implementation perspective. The purpose of this comparison is primarily to identify potential gaps in communication between the groups.

Aspect	**(Mis)Alignment**	**Comment**
Vision	Partial Alignment	There were several shared visions, which caused a lack of direction among participants. The implementers aimed for ambitious outcomes with this change, which led to varying goals for the implementation. As a result, the recipients received different versions of the vision.
Communication	Partial Alignment	The implementers and some recipients felt that the communication was clear. However, other recipients were unsure whether it reached the lower levels, such as YMA, which led to confusion in some cases.
Training & Support	Alignment	Both implementers and recipients reported receiving extensive training and support, helping them better understand the tool and how to use it effectively.
Pace	Alignment	Both implementers and recipients agreed that there was no rush during the implementation process, and sufficient time was given for adapting to the new system.
Forcefulness	Partial Alignment	Some implementers stated that there was a requirement to use ACC, while others indicated that it was not mandatory. The majority of recipients did not perceive it as a required tool.

Aspect	(Mis)Alignment	Comment
Guiding coalition	Alignment	Both implementers and recipients agreed on the composition and role of the driving group, which was responsible for guiding the implementation process.
Feedback Opportunities	Alignment	Both implementers and recipients agreed that there were sufficient opportunities for feedback, which helped improve the implementation process and tool usability.
Perceived Readiness	Alignment	Both implementers and recipients agreed on that the program was finished before starting to use it.
Perceived Usefulness	Alignment	The majority of both implementers and recipients agreed that ACC significantly helped improve their daily work by streamlining tasks and improving coordination.
Perceived Results	Alignment	Both implementers and recipients agreed that the implementation had been largely successful, with positive outcomes for the project and its stakeholders.

Table 4.2: Overview of Alignment and Misalignment in the implementation process of ACC.

4.2 The implementation of SAI

The following section explores the implementation process of SAI based on insights from the individuals responsible for introducing the tool within the organization. It highlights the motivations behind replacing the previous system, the challenges faced during implementation, and how decisions made during this period affected user perceptions, tool adoption, and the achievement of the intended vision.

4.2.1 The implementers of SAI

Before SAI, the implementers explained that separate tools were used for safety rounds and for reporting incidents and accidents. They also described how, during safety rounds, individuals were somewhat free to "use the working method they thought was best," which led to variations in how safety rounds were conducted across different projects, using various tools. The implementers had different understandings of the vision behind SAI's implementation. One vision was to have a unified platform for both safety rounds and incident/accident reporting, while an-

other was to enable a more proactive approach to safety. All respondents mentioned that the main tool previously used for safety rounds had become very costly and that its contract was about to expire.

> "They wanted one system (for accidents and safety rounds)." - Health & Safety Manager
>
> "Management team realized that the external system was too expensive... we (the organization) couldn't keep it... Eventually, management gave us (the implementers) a deadline at the end of the year to find a new one." - Health & Safety Manager

Additionally, one interviewee said the EU introduced many laws and regulations that required a change in tools for reporting accidents, as reporting had to be done according to a specific standard. However, she also said that this reason nor any of the visions was not communicated to users, which led to a lack of understanding regarding the switch.

> "Additional legal requirements on how to report accidents and incidents... Europe has come together... this is how reporting should be done..." - Work Environment & Seriousness
>
> "On the construction site, it might feel unnecessary to submit this data, but it's needed higher up." - Work Environment & Seriousness

Before selecting a new tool, one respondent said that several systems were compared, and a list of requirements from managers was created. However, the implementers stated that these many different requirements made the tool very complex and possibly not so user-friendly. This complexity and lack of user-friendliness led to people not using it as intended, which hindered proactive work and the generation of statistics.

> "They looked at different systems... did an evaluation of them... in the end, SAI remained." - Health & Safety Manager
>
> "A long list of different requirements." - Health & Safety Manager
>
> "There were strong requests from various management roles about what should be done... it should have started at a simpler level, but became too complex... As a result, users ended up filling in 'other' instead..." - Health & Safety Manager

The urgent need for a new tool led to an accelerated and stressful implementation process. One interviewee mentioned that it would have been better to wait six months before the launch in order to allow for a more thorough implementation.

> "It's important to be patient, not rush too fast, and understand that it takes time... It takes a really long time to implement a new system." - Health & Safety Manager

> "It costs just as much to force something too quickly, or perhaps even more, if you can't manage a thorough implementation." - Health & Safety Manager

In 2021, when the program was rolled out within the organization, it was not fully developed. One interviewee mentioned that the program was fixed relatively quickly and has worked for a few years. She stated that users' negative perceptions have led them to not use it, and that this is the real problem. Several implementers noted that end users had not been consulted prior to the launch of SAI. Due to the rushed timeline, one person stated that no test group was involved, while another said that there was some testing, but not in a clearly structured way.

> "The system took too long... and it did during the first two months... but by then the perception was already that it didn't work." - Health & Safety Manager
>
> "I don't think testing was even included in the project plan, and that's one of the most important things you need to do." - Health & Safety Manager
>
> "A few projects in each region got to test it, but it wasn't a clearly defined group since it had to be rolled out quickly." - Health & Safety Manager

After SAI was implemented, training sessions were held, and open forums were provided for support. However, several interviewees mentioned that the training was not prioritized, so no dedicated time was allocated for it. In addition to in-person training, recorded training sessions were available. The open forums also allowed users to provide feedback, and follow-ups on SAI were conducted.

> "The health and safety organization was supposed to take this further and educate their projects, but no time was allocated for this." - Health & Safety Manager
>
> "Training videos were also recorded... there are lots of guides." - Health & Safety Manager

When SAI was implemented, it became a requirement to use when starting a new project. SAI is primarily used in production by PCs and ALs. The goal was for external users to adopt the system (with some security limitations), but no real effort was made to encourage their participation.

At the time of SAI's implementation, it did not function as expected. Several implementers stated that the program had many "teething problems" (the program faced several initial technical and operational challenges) and was not adapted to the construction industry's dynamic production environment. One interviewee mentioned that a major issue was logging into the app during safety rounds, which eventually led users to revert to pen and paper. Another interviewee explained that this was due to an 'IT attack,' which required the organization to start using MFA (multi-

factor authentication), but this information was never communicated to the users.

> "There were too many teething problems." - Health & Safety Manager
>
> "SAI didn't work and kept crashing, and the work people had done could disappear... Projects got tired of it, gave up on SAI, and started doing safety rounds using other programs or on paper." - Health & Safety Manager
>
> "People said: I couldn't access the app... It wasn't actually the app's fault but due to the MFA... But then a rumor started that it was hard to get into the app." - Work Environment & Seriousness

The rushed and stressful implementation, combined with the program's initial malfunctions, gave users a very poor impression of SAI. Interviewees acknowledged that users felt that the previous system was better and that SAI was too complex due to the number of data fields required. This led to rumors and a game of "broken telephone" (miscommunication and misinformation spread within the organization), reinforcing the perception that the program was ineffective.

> "So bad that even managers who don't use it know that it's bad." - Health & Safety Manager

Today, although the system functions better (with safety rounds still being somewhat complicated), it remains difficult to get users to use SAI correctly. As a result, statistics are inaccurate, as users do not always check off when they have corrected issues.

> "We do much more and see much more than what we register... If you see a risk, you address it. It's not necessarily something you report." - Health & Safety Manager
>
> "We're probably even worse at reporting when we've fixed an issue." - Health & Safety Manager

Some implementers argued that SAI was not significantly different from the previous system as long as it worked, while others believed it was an entirely new system. The vision of becoming more proactive has not been achieved. One interviewee even stated that they had not yet started working toward that vision. The vision of having one system is also not fully fulfilled. One interviewee mentioned that in order to analyze the data in SAI, she needs to use an additional program, as SAI does not provide the specific insights she requires. In the end, the desired behavioral change within the company has not materialized, and a key lesson is that more focus should have been placed on changing work methods (from paper to digital) rather than just the tool itself.

> "It might not actually differ that much from the previous tool." - Health & Safety Manager

> "The mistake was that we didn't give it (evaluation of SAI) another year." - Health & Safety Manager

4.2.2 The recipients of SAI

A distinct pattern emerged regarding the perspectives of different roles. The interviewed PCs expressed a highly negative view of SAI. Prior to its implementation, they had been using BuildSafe, which they found to be highly effective. While they had heard rumors about the reasons behind the company's sudden shift to SAI, they did not fully understand the reasoning. These recipients were also among the first to test the system during its initial implementation phase. They highlighted that SAI was not functioning as intended at the time, and felt that their concerns were not being acknowledged. Furthermore, they stated that SAI had not improved their approach to conducting safety rounds but had instead made the process more challenging. One interviewee also mentioned that he had tried to use another system that worked well, but he received a call from HQ saying it was not acceptable because they didn't get the data needed for the statistics.

> "Should we make it difficult to have a good work environment?" - PC

The other interviewees were more neutral towards SAI. A common pattern among them was that they began using SAI a few years after its initial implementation and had not used any previous program. This could explain their more neutral stance toward the software. One of the interviewees was a HSL, while the other two were an AL and an YMA. Since they started using SAI several years later, they did not receive a clear vision but instead heard from colleagues that SAI was ineffective and that other programs were significantly better. Table 4.3 below provides a simple overview of how the roles' perception relates to their previous experiences. Worth noting is that no recipient was positive towards SAI.

Role	Opinion	Experience
PC	Negative	Was involved from the beginning when the tool was launched and had previous experience with other programs
PC	Negative	Was involved from the beginning when the tool was launched and had previous experience with other programs
PC	Negative	Was involved from the beginning when the tool was launched and had previous experience with other programs.
YMA	Neutral	Was NOT involved from the beginning when the tool came out and had NO previous experience with any other program

Role	Opinion	Experience
AL	Neutral	Was NOT involved from the beginning when the tool came out and had NO previous experience with any other program
HSL	Neutral	Was NOT involved from the beginning when the tool came out and had NO previous experience with any other program

Table 4.3: Overview of Roles, Opinions, and Pattern between the recipients of SAI

A common sentiment among all recipients was that the software was ineffective and did not function properly. The recipients with a negative perspective stated that it made their work more difficult compared to other programs, while those without prior experience with similar software still expressed concerns about its usability.

> "3.5 years later, the program is still experiencing teething problems." - HSL
>
> "It's not user-friendly." - PC

Since none of the interviewees had received a clear vision or explanation of the "why" behind the change, they struggled to understand it.

> "What is this? Why are we being given this?" - PC
>
> "There was neither purpose nor goals here." - AL

They also expressed frustration over the company's frequent changes in tools. Just as personnel began to understand a tool and how to use it effectively, it was replaced with something else. Several recipients also mentioned that decisions about which tools to use were made without any understanding of production, which made it more difficult for those working in production to use them effectively.

> "As soon as a program starts working well and users become familiar with it, it's deemed too expensive and gets replaced." - PC
>
> "I can't understand how Skanska could do this." - PC
>
> "It works if you're sitting in a warm and cozy environment, but that's not how (our) production works." - PC
>
> "No desk jockey (kontorsnisse) in Stockholm should decide what tools to use (in production)." - PC
>
> "It was complete chaos, people didn't understand what we had done... We were removing something that worked and replacing it with crap." - PC

In general, the recipients indicated that they did not perceive any issues with the implementation process itself, but rather with the poor performance of the program. However, this could be because the software was so problematic that they didn't

focus much on how it was implemented. They did mention that they received good support from their HSL on projects and were able to provide feedback. Still, they felt that they hadn't been listened to, as no significant changes were made.

From the interviews and feedback from their colleagues, it's clear that there's a generally negative view of SAI, which has led people to use it in ways that work for them. One interviewee said he made an arrangement with someone at the office to only report accidents through SAI, while doing safety rounds in another program. Others mentioned that they couldn't put information in the right place in SAI, so it often ended up under "General," which messed up the statistics.

> "Skanska should have abandoned SAI a long time ago." - PC

During the implementation, there were no milestones or celebrations tied to SAI. Reading between the lines, it seems they felt there was nothing to celebrate since SAI made work harder and increased the workload instead of making things easier.

4.2.3 Implementers' intentions & recipients' experiences

Below, we have created a table to clarify where the perceptions between the two groups, implementers and recipients, differ. It's important to note that the alignment is not always positive from an implementation perspective. The purpose of this comparison is primarily to identify potential gaps in communication between the groups.

Aspect	**(Mis)Alignment**	**Comment**
Vision	Misalignment	The implementers had a clear vision of the tool's benefits, while the recipients were unaware of why the change was necessary. This lead to no shared vision, which caused confusion and a lack of direction among participants.
Communication	Alignment	Both implementers and recipients agreed that communication during the implementation was poor, which led to rumors and misunderstandings. Although implementers had a plan, they failed to properly convey the reasons and benefits of the new system to the recipients.

Aspect	(Mis)Alignment	Comment
Training & Support	Partial Alignment	Both implementers and recipients reported receiving training at the start. However, the implementers stated that they should have allocated more resources to this area. The recipients, on the other hand, mentioned that they received sufficient support.
Pace	Misalignment	Implementers experienced significant stress due to the rushed timeline, while recipients didn't felt the stressful implementation.
Forcefulness	Alignment	Both implementers and recipients agreed that the digital tool was mandatory to use from the start, and no pilot project was initiated.
Guiding coalition	Alignment	Both implementers and recipients agreed that there was no dedicated test group or guiding coalition to push the implementation forward. The lack of guidance created a gap in the process.
Feedback Opportunities	Partial Alignment	Both implementers and recipients agreed that feedback could be given. The implementers believed that some improvements to the tool were made based on the feedback received, while the recipients felt that it wasn't addressed or considered in meaningful ways.
Perceived Readiness	Partial Alignment	Both implementers and recipients agreed that the program was not fully completed before it was put into use. Some of the implementers believed the tool was ready after two months, while recipients are still frustrated by its unfinished state today.
Perceived Usefulness	Misalignment	Implementers stated that the program was now functioning well and bringing benefits, while recipients continued to experience issues and did not find the system to be as effective as expected.

Aspect	(Mis)Alignment	Comment
Perceived Results	Alignment	Both implementers and recipients agreed that the implementation has not yet achieved the desired results. Both parties recognized that while the system had potential, it was not meeting the expectations of all users.

Table 4.4: Overview of Alignment and Misalignment in the Implementation Process of SAI

4.3 Observations

This part of the chapter presents insights from our observations in Skanska's Southern Region and Gothenburg Region. During our thesis, we visited both office environments and construction sites to understand how the digital tools were introduced and used in practice. The following sections detail our findings from these settings.

4.3.1 Gothenburg region

In the Gothenburg area, we had the opportunity to take part in a safety round at one of the construction projects. We also conducted observations during our time at the office in Gothenburg. The following text presents the results from these observations.

Safety round
For one of our observations, we joined a safety round where SAI was used. It's worth noting that this was our first time observing a safety round; we had only heard about them before, which may have led to some preconceived expectations. During the round, there were five people involved, plus us, including roles such as the PC, Safety Representative, Client Representative, HSL, and ourselves. There was no predefined structure or checklist being followed of what we could see, and no notes were taken during the round. From our perspective, the group walked together around the site, observing the environment. When something appeared unsafe or problematic, it was pointed out by someone in the group, and the PC (which was responsible for the round) took a photo of it. It's also relevant to mention that this particular construction site was nearing completion, which likely meant there were fewer safety concerns to document compared to a project in its early stages. Overall, we perceived the safety round as unstructured and passive, which may hinder the standardization of safety rounds at Skanska more broadly. We got the impression that much can be overlooked when the round is conducted based more on intuition than on a clear structure.

After the round, we said goodbye to the rest of the group and followed the PC and HSL to the office. There, the PC started the computer, opened SAI, and uploaded

the photos taken during the round. The protocol for the safety round was written and finalized *after* the actual walk-through had taken place. The PC explained that this order of operations is due to technical issues; the SAI app does not work well on-site because of significant lag. As a result, the PC is in the habit of completing the documentation afterward.

While he was writing the protocol, we could observe that the program was slow and took time to load between actions. At one point, the PC needed assistance, and the HSL stepped in to help. The PC explained that he only performs this task every other week, so it's hard for him to get used to it. The HSL acknowledged the frustration with SAI and mentioned that he tries to support his colleagues as much as possible by providing them with the information they need to carry out their work, making it easier and less complex.

Figure 4.1: A picture of us from one of the observations.

At the office
During our time at the Gothenburg office, we have observed and taken note of various internal situations with individuals who are responsible for the implementation of ACC. They emphasized that implementing a new system takes time and that it's important to both plan for and accept that timeline. We were informed that the timeline for the implementation included clear sub-goals and milestones for the implementation team, outlining how the implementation should be prepared and presented. However, there were no corresponding milestones for the recipients of the implementation. They were not provided with any information or insight into the progress of the process. This may be explained by the fact that the milestones planned by the implementers after initiating the implementation were achieved almost overnight, leaving them both surprised and pleased with the initial success, which in turn resulted in a lack of further planning.

They also noted that some employees who have been introduced to ACC may still choose not to use it, and they acknowledged that gaining full adoption can be challenging. They expressed concerns that many users seem hesitant or skeptical toward ACC, despite the extensive efforts that have gone into tailoring and implementing the tool in a way that fits both Skanska's needs and the supplier's capabilities.

From their point of view, employees often have a strong preference for the tools they are already used to, which can make new solutions feel unfamiliar or unwelcome. They have pointed out that this resistance to change is not unique to ACC, but something that tends to arise whenever something new is introduced. They used the expression *"follow the money,"* implying that in the end, employees should follow what Skanska decides, since the company pays their salaries. We interpret this as in reality, decisions are made at higher levels within the organization, working like a top-down organization.

Interestingly, similar thoughts were reflected by some of the workers we met during our observations. Several expressed an understanding of this top-down decision-making, saying things like *"Skanska is a large company—they can't please everyone,"* or *"What does my voice matter in the bigger picture?"* and *"The decisions are made higher up without involving those of us who use the program."*

4.3.2 South region

During our visit to Malmö, we visited the office for Skanska's Southern Region. We also visited one of the construction projects in Lund, just outside Malmö. Below are the results from these observations regarding use of ACC.

At the office
In Malmö, we visited the office where we received a good introduction to how things work and the background behind the training of ACC. We were shown and told how the teaching is conducted and were invited to take part in the "Projekteringsakademin", which is the learning concept used for the processes that ACC is a tool for.

This learning setup included PowerPoint slides with images, text, and narration by the instructor. It was explained that this strategy is designed to make the training material accessible to as many people as possible by offering multiple ways of delivering the information: visually, in text, and through audio. The sessions also included discussions and workshops.

We were also given an overview of how ACC and its predecessors looked and functioned. It was clear that ACC had brought improvements in design and functionality. However, there are still certain features, such as the issue-handling function, that are not as user-friendly as in previous tools.

It was emphasized several times that the people (around 8,000) and the processes (around 1,000) are the most important components in the organization. The tools (about 20) are simply there to support these. Therefore, the focus should be placed on the way of working and the company's processes, rather than the digital tools themselves, because tools can change at any time, but the processes should remain, as one participant of the observation explained.

A recurring phrase that came up both in Gothenburg and in relation to the difficulty some people have with accepting change was: "follow the money". We interpreted this as an emphasis on the expectation that, ultimately, employees are to follow Skanska's decisions, since it's the company that pays their salaries.

One observation we made during our visit to the Malmö office was that the interior design and color scheme were similar to what we were familiar with in Gothenburg. This created an immediate sense of recognition, and we did not feel like visitors or strangers.

Construction site
We also conducted an observation in Lund, where we walked around a construction project and observed the site. During the visit, we asked an YMA what he thought about ACC. He said that having digital drawings was helpful, but using an iPad wasn't always very practical. It's large and, in his opinion, too fragile for tasks like, for example, concrete work. He believed that laminated paper drawings were the best option, since they always work.

He also mentioned that he was self-taught in the program. He hadn't received much formal training, but didn't feel he needed it either, as he could manage the functions he used. This worker was one of the younger ones we encountered and, as we understood, had no trouble learning new technologies. He found the functions he used to be intuitive, which made a formal training session unnecessary in his view.

Interestingly, he also pointed out that he uses the tool as little as possible. For anything beyond the drawing function, he contacts his AL, who handles it instead, since that person is more often in front of a computer. This simplifies things for the YMA. As we interpreted it, this seems to be a common approach. He explained that YMAs lose a lot of time walking back and forth between the construction site and the office where the computers are located, which takes away from the time spent

on actual building work.

One thing we noticed was that we didn't see any digital tools at the construction site. The only time we saw an YMA's digital tool was when we asked about it, and it was then brought out.

5

Discussion: Key Success Factors for Enabling Implementation

This chapter presents a discussion of the findings in relation to the theoretical framework, interview data, and observational insights. The analysis suggests that the successful implementation of change within a large organization is supported by four key factors: seeing the individual in the implementation process, establishing clarity and unity, enabling implementation through a driving force, and sustaining momentum to create a new norm. Acknowledging the individual entails a deep understanding of employee needs and ensuring that they feel recognized and supported throughout the change process. Establishing clarity and unity requires the articulation of a clear and compelling purpose that aligns employees around a shared vision. Enabling implementation through a driving force entails appointing a dedicated group to actively lead and support the change efforts. Lastly, sustaining momentum and creating a new norm involves maintaining engagement over time to ensure that change becomes embedded in everyday routines and organizational culture.

5.1 Seeing the Individual in the Implementation Process

When Skanska considers *how* to implement a new initiative, it's equally important that they first reflect on *what* should be implemented and how it aligns with organizational strategies and individual values. A problem in the SAI case was that the decision to implement the program was made far from the intended users (production teams). The decision-makers had limited understanding of the actual working conditions, particularly within production, which further deepened the sense of disconnect and reduced motivation. As many respondents expressed: "It works if you're in a warm, dry, and comfortable office, but if you're outside on a rainy day trying to do a safety round, it doesn't work." They also voiced frustration with the complexity of the system, which does not match the fast-paced and fragmented nature of production work.

All this suggests that the leadership team and the production team have not fully understood each other, which has led to a mismatch in how work is done in production. As a result, SAI is seen less as a helpful tool and more as a burden,

consuming time and energy. We have seen indications that recipients have lost trust in top management responsible for the implementation decisions, as they feel that no one has taken ownership of the outcomes. In this case, leadership has adopted a hands-off approach, which, according to Beer and Eisenstat (2000), often results in confusion, misalignment, and stalled progress. This behavior can be characterized as laissez-faire leadership, which is considered an inefficient leadership style and a significant barrier to successful implementation.

In order to better identify what the change should address, it's valuable for leaders at Skanska to involve employees early in the process and invite them to contribute with their perspectives. Wagner (2024) argues that involving people and allowing them to influence the change can lead to faster acceptance and commitment. In the ACC case, recipients who were invited to participate in the pilot expressed a very positive attitude toward ACC. In our view, this was partly due to their inputs being acknowledged and acted upon. For SAI, we understand that the tool was not tested thoroughly before being introduced to the organization, which may explain why the program was not fully functioning at the time of implementation.

At the same time, we understand that from an organizational perspective, it's not realistic to involve everyone in the implementation process. Our findings suggest that individuals do not necessarily need to be directly involved themselves, but rather need to *feel* that their opinions are acknowledged and considered. This indicates that the perception of feeling heard and represented does not always reflect actual influence or inclusion. Motivation and acceptance of change are often driven by the perception of being seen and acknowledged. In this light, leaders may deliberately create situations where employees feel included, even if their opinions are not ultimately acted upon. This can be seen as a subtle form of manipulation intended to ease the change process.

Therefore, the organization can create a sense of inclusion by ensuring that diverse roles and perspectives are heard and acted upon. In implementations, it's important to actively gather and respond to input from a broad range of stakeholders. This can be done by starting the change with structured approaches like SFP. This approach emphasizes open dialogue, active involvement from employees at all levels, and continuous learning. This can foster a deeper understanding between management in the offices and the employees in project operations, and help ensure that changes are better aligned with actual working conditions. To further foster a sense of inclusion, the organization can apply the TTT approach, as was done in the ACC case. This method may also promote greater acceptance of the change, as the training and information are delivered by someone familiar and trusted.

Once the tool or system intended for implementation aligns with organization's working conditions, employee needs, and strategy, the organization can begin preparing for the implementation. From the data collected, it became evident that before initiating the change, it's crucial to allocate the necessary resources within the organization to support the implementation. In the interviews about ACC implementation, several DLs expressed that they lacked the necessary resources, particularly

time. They reported receiving insufficient training on how to educate their employees and were not allocated time to carry out this task effectively.

Similar challenges were observed in the SAI implementation. Several implementers highlighted that they had not allocated time and resources to training and support for their employees. However, from the recipients' perspective, the training and support were experienced as helpful, even though the implementers themselves believed there was room for improvement due to limited resources allocated to these aspects. We believe that many recipients may not have noticed shortcomings in other parts of the implementation process, as the tool itself was functioning poorly, which overshadowed other potential issues. Lack of support for lower-level leaders is acknowledged in theory, where Beer and Eisenstat (2000) states that it's a common barrier during change. Furthermore, Hubbart (2023) highlights that allocating necessary resources is crucial in the change process, which aligns with our findings.

These necessary resources also include ensuring that relevant information is easily available to employees once the implementation begins. We found that individuals process information differently, making it important to present it in varied formats to meet diverse needs. Recognizing these differences can facilitate a smoother implementation process. Many implementers from both SAI and ACC emphasized that employees comprehend information in various ways, which aligns with Sunding and Ekholm (2015), who highlights the importance of delivering information in multiple formats and at different times. This was partly achieved in both implementations, as they provided comprehensive guides, videos, and other learning materials. However, it's important that these formats are not presented simultaneously, as this may overwhelm employees. Instead, the formats should be made easily accessible and organized in a way that allows individuals to select the one that best aligns with their preferred mode of learning.

Once the organization knows what to implement and has made sure that they have allocated the necessary resources, they need to make people understand and believe that the change is necessary. From the interviews, it was evident that the implementation of ACC was partly approached by creating a sense of urgency. The organization recognized that the current way of working did not unify the entire project. The predecessor to ACC was becoming outdated, and many of the quality specifications were missing. Therefore, they saw a need to change the digital platform in order to have all project information in one place, which motivated employees to transition to ACC. This is supported by theory, which states that at the beginning of an implementation, it's important to create a sense of urgency by identifying problems with the current way of working and feeling dissatisfaction with the present state before moving forward with change (Burnes, 2017; Kotter, 2012).

For the implementation of SAI, this was not done. In hindsight, we think that it would have been beneficial to create a sense of discomfort or urgency with the predecessor of SAI, since it was already functioning and a well-liked program. This could be a reason why the implementation of SAI was unsuccessful. Between the lines, it can be inferred that they did not have the time to do this due to the rushed deci-

sion to start using SAI. Alternatively, instead of creating discomfort by emphasizing dissatisfaction with the predecessor, the leaders could have fostered an environment focused on positive emotions, as emphasized by Pregmark (2022). This could have led to greater acceptance of the new program by reducing the perceived sense of "cost" associated with the change, but this was also not done. The recipients who had experience with the predecessor emphasized the feeling that they had lost something great.

This approach, described by Pregmark (2022), was however evident in the ACC case, where the implementers aimed to create a positive atmosphere to motivate employees. As a result, the pressure on users within the organization was reduced, and people were more receptive to the change from the beginning, without feeling that they were losing something in the process.

Having positive emotions associated with the beginning of the change can make the change feel less threatening, but also encourages employees to engage with the digital tool in a low-pressure environment. In the case of ACC, some leaders encouraged the use by not making it a mandatory tool from the start. Encouraging individuals to explore ACC without pressure fostered a more open and curious attitude. In contrast, during the SAI implementation, leaders explicitly stated that SAI was mandatory with limited opportunities for feedback or influence, leading to a negative spiral. According to Pregmark (2022), encouraging use rather than enforcing it can foster employee empowerment, which is essential in a change process. The lack of such empowerment in the SAI case led to decreased motivation and reduced proactivity, which aligns with what Quinn and Spreitzer (1997) suggest can occur under these conditions. Encouragement is also a key motivational factor since individuals feel a sense of control over their actions and the freedom to choose (Sunding & Ekholm, 2015; Zhang et al., 2025).

Our findings suggest that the implementation should appear as a win-win situation. Ideally, users should feel that they are making the decision themselves. Leaders can support this by fostering a sense of autonomy, even if the decision is ultimately not entirely voluntary. To achieve standardization and quality, some level of requirement is necessary, but how it is presented makes a significant difference.

The interviews have shown that the recipients who had the encouragement from the beginning and a sense of urgency have started discarding the old models and stopped defending them, attempting to adapt to ACC and SAI. This aligns with Carnall's coping cycle of organizational change (White, 2008). However, other recipients reported that they were essentially forced to use SAI and faced consequences when attempting to use an alternative. These individuals remain in the defend phase, continuing to advocate for SAI's predecessor. In the case of ACC, we did not observe this widespread resistance. Rather, most recipients quickly shifted away from the previous system and began using the new digital tool.

5.2 Establishing Clarity and Unity in Implementation

Once the individuals are recognized and the necessary resources are in place, we have seen that it's important to establish outlines for the process forward by initiating milestones, along with a defined vision or purpose for the implementation. From the interviews, it was evident that a vision was communicated in the ACC case, but it consisted of three distinct goals. This fragmentation likely led to varied interpretations among employees, resulting in a lack of shared understanding about the direction forward. This aligns with the findings in the literature, which emphasize the importance of a clear and unified vision for successful change implementation (Burnes, 2017; Kotter, 2012; Pregmark, 2022).

In the case of SAI, the driving purpose appeared to revolve around cost savings, as the decision to end the previous program's subscription was financially motivated. Other goals included enabling more proactive work through data collection and centralizing information in one platform, similar to the intentions behind ACC. These visions appear to focus primarily on enhancing organizational productivity, which, according to Billett and Somerville (2004), is a common pitfall when formulating a vision. Billett and Somerville further explains that employees need to feel a personal connection to the purpose of the change in order to be genuinely motivated.

According to the implementers of SAI, none of these visions or purposes were clearly communicated to employees. As a result, many recipients were left to rely on rumors, as this was the only information available to them. This aligns with theory suggesting that individuals often accept readily available information without questioning it (Sunding & Ekholm, 2015). This is problematic, as rumors are not based on facts and can easily become distorted. The lack of a clearly communicated vision led to frustration and contributed to a negative atmosphere.

Although the vision in both cases was to some extent clear, the roadmap and concrete steps were less defined. The absence of clear milestones for the recipients likely made it difficult to track progress, resulting in a lack of awareness about their position in the process. However, the implementers of ACC had clear milestones for themselves, which helped them recognize that the implementation was progressing well and beyond expectations. This indicates that while they considered milestones, they did not extend these to the entire organization. Instead, the milestones were only established for their own reference. Milestones not only show where in the process the organization stands, but they can also further encourage the use. From the interviews, the lack of milestones was noted as highly unusual, since construction sites typically have short-term celebrations. This lack of shared milestones highlights a missed opportunity to engage the broader organization by making progress more visible. By celebrating small wins across teams, the implementation could have fostered greater involvement, motivation, and a stronger sense of ownership.

In SAI, on the other hand, it seemed that the implementers had not considered using

milestones. From the recipients' tone, we also interpreted that there hadn't been much to celebrate, as many felt that the tool had made their work more difficult. We believe that by incorporating milestones as well as more personal achievements, the implementation, particularly for SAI, could have been strengthened. This could have been done by communicating messages such as: "You have now reported this many observations and corrective actions, and you resolved them within this amount of time." This is also supported by theory, as both Billett and Somerville (2004) and Kotter (2012) state that having milestones or celebrations can help motivate people during times of change.

Despite these theoretical challenges, our understanding is that most employees in ACC still managed to align with the implementation and move in the intended direction. However, for SAI, the lack of clear messaging meant that employees were unaware of the reasons behind the change, leading to confusion, rumors, and skepticism. Respondents described the communication structures around SAI as weak, with both the vision and plan remaining vague throughout the process. Interestingly, many implementers themselves acknowledged these shortcomings, admitting that the communication had been poorly handled. This self-awareness can be seen as a positive leadership trait, reflecting a willingness to learn from past mistakes (Hogan et al., 2010). However, this requires acknowledging past mistakes and critically reflecting on them to enable genuine learning and future success. Skanska appears to have done this by investing significant resources into the later implementation of ACC.

An important insight from the SAI case is that if recipients had understood the purpose of the change from the beginning, they might have been more tolerant of the initial issues with the program and more willing to engage with the change process. As the goal was unclear, it became more difficult for employees to engage with the change. One interviewee even noted that if the implementation had been communicated as a pilot project, employees might have responded with a more open and positive attitude.

This suggests that even when a decision about a specific program has already been made, presenting it as still open to evaluation can positively influence employee attitudes. Such framing may contribute to increased acceptance and engagement, ultimately supporting the implementation's success. However, this approach borders on manipulation and can raise ethical questions. If employees remain unaware of the strategic framing, the approach may be effective. Yet, if it becomes known that the communication was misleading, it risks damaging trust and credibility within the organization. That said, we believe that for future implementations, there should always be a genuine pilot phase to gather feedback and improve the tool as much as possible.

When the organization gathers feedback, we have found that it's important to act upon it. Recipients of SAI who were initially given the opportunity to provide input developed a negative view of the system when their feedback was not considered. Hubbart (2023) emphasizes that actively listening and being responsive to feedback

builds trust. This aspect was lacking in the SAI implementation, which likely contributed to the recipients' frustration and diminished trust in the organization.

While leaders are expected to be responsive, it's not always realistic to act on all feedback, especially when it is contradictory or misaligned with strategic goals. In such cases, leaders may acknowledge the feedback without acting on it, creating a sense of inclusion and validation. This strategy may be necessary, but can also be seen as a manipulative tool to maintain motivation and engagement.

In addition to feedback, another important factor for employees is the sense of connection and unity within the organization. Feeling connected to others is a powerful motivational driver (Zhang et al., 2025). For ACC, this emerged clearly, as several interviewees expressed that a key goal was to create a unified way of working. This was largely achieved, as many emphasized the importance of consistency across projects, fostering a shared sense of identity, meaning that, regardless of the project, employees should be able to recognize and relate to the work environment and routines. We experienced this firsthand during our visit to the Malmö office, where the color scheme and interior design closely mirrored what we were familiar with in Gothenburg. This created a sense of familiarity and belonging, which, on a personal level, positively influenced our motivation and productivity.

However, for SAI, we perceived a sense of "us vs. them" between recipients and implementers, creating a divide within the organization. This lack of cohesion likely contributed to a lower level of motivation among recipients to engage with SAI. This can also be explained by the Expectancy Theory as described by Zhang et al. (2025), which emphasizes how motivation is influenced by the belief that effort will lead to successful performance, and that this performance will, in turn, lead to a desired reward. In the case of SAI, several users struggled with performing safety rounds. In our observations, we saw that the protocol was written after the safety round had been conducted. This could hinder safety work by lacking a standardized approach or by failing to include important observations in the protocol. This also made the safety round more time-consuming. Furthermore, users were often logged out of the system. This high effort did not result in successful performance from the recipients' point of view, nor did it provide any clear reward, which likely diminished their motivation further.

Given that Skanska is a large and geographically dispersed organization with international operations, fostering a strong and consistent sense of unity across the entire company can be challenging to achieve. Nonetheless, this is an area that can be continuously improved, particularly within the national context of Skanska. We propose that this shared sense of identity could be strengthened through a unified culture. This could include consistent internal communication, shared success stories, or cross-functional training initiatives that reinforce collective ways of working. Such efforts could motivate employees by helping them feel more connected to the broader organization, reinforcing a collective "this is how we work"-mindset.

5.3 Enabling Implementation through a Driving Force

Once the implementation had been initiated in the organization, Skanska had a targeted group of people to drive the change forward in ACC, calling them first movers. This is something we and the implementers observed as helpful in the implementation of ACC, which aligns with Kotter (2012) that highlights that having a guiding coalition can help the change process.

We believe that by involving first movers, primarily individuals labeled as Early adopters but also members of the Early majority, the change process could be implemented more smoothly. Early adopters are often trusted and respected by others in the social system, while the Early majority holds a unique position between the innovators and the late majority, making them a critical link in the change process. In our view, including these individuals in the guiding coalition provides broader representation across the organization, helping employees feel that their perspectives are acknowledged. We believe this contributes to greater acceptance of the change.

In contrast, SAI didn't have a clear group driving the change. In some of the interviews (both from implementers and recipients), we interpreted that the HSLs could be seen as this guiding coalition, but this wasn't very clear to either group. This may also have contributed to the lack of positive spread of SAI, as well as the absence of anyone actively driving its use within the projects.

To further build acceptance and to help recipients learn the new digital tool, the TTT approach was used in both ACC and SAI. In both cases, DLs and HSLs first learned from their supervisors and then passed on the knowledge to their colleagues. Employees described them as valuable sources of support, highlighting that they felt comfortable asking questions and receiving help when facing difficulties. This leadership support not only reduced uncertainty but also signaled that they were not expected to navigate the change process alone. The effectiveness of this approach was further confirmed by the positive feedback from employees, who felt they received good training during the implementation and felt seen by leaders.

By having information conveyed through immediate leaders, employees felt a stronger connection to the message and the messenger, which facilitated comprehension and acceptance. Leaders were also able to adapt the communication style to their teams, making the information more accessible and relevant. As Soini (2008) and Ben-Arieh and Pollatscheck (2002) argue, simplifying information and adapting it to the audience helps build a "common language," which is essential for both understanding and acceptance. Given the large amount of information that must reach many people during an implementation, it becomes crucial that the communication is clear and tailored to the extent possible.

When having this TTT approach, we have found that it's important to verify that employees who received the training actually understood and retained the correct

information, avoiding the distortion of information through word-of-mouth communication. However, this was overlooked in both examined implementations. Only the trainers were asked how the training was going, meaning there was no confirmation that the information and education had been correctly received by the end users. Verifying that accurate information is being shared is crucial to ensure the quality of the training, as information can easily be distorted in social contexts, which aligns with Sunding and Ekholm (2015). We suggest that, to verify the correctness of the information, trainers can skip levels to confirm it further down the hierarchy.

When employees have received training and start using the digital tool, some recipients in both the SAI and ACC implementations mentioned that they were afraid to navigate within the tools, worried they might accidentally delete something or make a mistake. This suggests that they did not feel the encouragement to use the tools that some of the implementers had mentioned. It may also indicate that they lacked confidence, pointing to an environment that was not empowering (Quinn & Spreitzer, 1997). An example that strengthens this is as one recipient mentioned that he didn't use ACC frequently, even though he knew how to use many of its functions. Since he only used ACC when absolutely necessary, we interpreted this behavior as avoidance. This could stem from a fear of failure, as discussed by Hubbart (2023).

This avoidance can, in the eyes of managers, be seen as resistance. In our observations, they stated that they believed employees were resistant to using ACC. We believe this perception can lead to a lack of managerial support once the implementation has been initiated, as managers interpret the behavior as unwillingness rather than a need for further guidance or clarification. As a result, employees may not receive the encouragement or resources needed to keep engaged with the change, potentially reinforcing the very avoidance that was initially misunderstood. Fredberg and Pregmark (2020) highlights that this is a common misinterpretation between avoidance and resistance.

When a new tool is introduced, it can threaten an individual's self-image (Sunding & Ekholm, 2015). This may also lead to avoidance, as people try to preserve their self-perception and maintain their performance. As presented by Burnes (2017), performance typically declines during the initial phase of change before eventually improving and surpassing previous levels. We found that it's important for leaders to clearly communicate this expected dip to their employees in order to reduce fear and protect their confidence. If individuals feel afraid, they are more likely to reject or discard the new working methods.

This is also supported by Sayles (2002), who emphasizes that when chaos emerges and fear arises, it should be acknowledged and normalized. Doing so helps foster a sense of shared experience and reinforces the feeling that "we're in this together." Our findings suggest that, in such situations, it's crucial to have strong leaders whom employees trust. When leaders share the burden of decreased performance, it reinforces the sense of collective responsibility and signals that the performance dip is organizational rather than solely attributable to the individual.

We recognize that in a large organization like Skanska, it's challenging to accommodate all needs and personality types. It's unrealistic to expect every individual to adopt and accept the implementation simultaneously. Therefore, we suggest focusing on gaining acceptance from the majority of employees. If the majority is on board, significant progress has been made, and likely, the remaining employees will eventually follow. Innovators will embrace the change regardless, while the two majority groups typically require encouragement and guidance from the Early adopters. However, laggards are unlikely to accept the change, regardless of the strategies applied. The effort needed to convince them may not be worthwhile given the limited impact they would have, and this can be accepted. Laggards often have valid reasons for resisting change, and therefore, it may be acceptable to overlook their involvement in certain implementations. We believe that an implementation can still be considered successful, even if not everyone is on board within the first few years.

5.4 Sustaining Momentum and Creating a New Norm

At the time of writing, neither of the implementations has been fully institutionalized, making it difficult to draw definitive conclusions about their long-term success. In the case of SAI, those who were neutral toward the implementation appear to have moved past the discarding stage and are now in the adoption phase. Meanwhile, employees with a negative attitude toward the implementation remain stuck in the defence stage, preventing them from adapting to the new way of working. To overcome this resistance, White (2008) emphasizes the importance of a leadership style that encourages participation, acknowledges concerns, and maintains calm throughout the transition. This type of leadership would have supported the employees in moving forward in the process.

In ACC, employees have begun adopting the new tool. However, we have not yet observed a clear plan for sustaining this phase, and even the leaders have acknowledged its challenges. To maintain momentum, we believe it is essential to address this to ensure that Skanska keeps up the pace of the transition and stays on the positive track. According to theory, it's crucial at this stage to sustain momentum through continuous planning, employee engagement, and ongoing support (Laig & Abocejo, 2021).

We believe this step is particularly difficult in the construction industry, where projects begin at varying times, resulting in uneven implementation timelines. Despite this, leaders must continue to drive the implementation forward, even if a specific project does not start for another two years. As Fredberg and Pregmark (2020) notes, an implementation process typically takes between 1.5 to 2 years. However, within Skanska, it's important to recognize that the process may take even longer due to the staggered nature of project starts.

This variation makes it all the more crucial to maintain momentum and sustain

acceleration to ensure a consistent and successful implementation across all of Skanska. To sustain acceleration, Burnes (2017) states that the new changes need to align with the organization's traditions and culture. A core value within Skanska is safety. Some of the recipients of SAI expressed confusion and frustration about why managers, or Skanska as a whole, chose to implement a program that many perceived as not fully operational. This is a view that some recipients still hold. They questioned what the company values most; "What is most important? That we report data or that we work safely on-site?". This concern arose because they felt that SAI prevented them from performing their routines to work safely. This indicates a perceived conflict between two priorities: workplace safety versus data collection for statistics and proactive efforts. When an organization has conflicting priorities, employees may feel overwhelmed, which often leads to poor coordination and decreased efficiency (Beer & Eisenstat, 2000). This is something Skanska needs to address and clarify before continuing and making SAI a core part of their operations.

Furthermore, in SAI, sustaining momentum appears to have been either overlooked or insufficiently addressed, which we believe may have contributed to a stagnation in the change initiative. Several employees expressed that they feel the implementation has come to a halt and that it is unclear who is currently responsible for either the implementation process or SAI itself. One implementer noted that the program functioned well for only two months after the initial roll-out, suggesting that she perceived the implementation as completed at that point. We believe that this highlights a gap in sustained support and ownership, which may undermine long-term success.

To sustain change and continuous improvement efforts, theory clearly establishes that when a reward follows a behavior, the likelihood of it being repeated increases (Sunding & Ekholm, 2015). Such rewards can take the form of milestones and short-term celebrations. However, by overlooking these opportunities, the organization missed a chance to reinforce the desired behaviors. We believe this may contribute to employees remaining in the defense zone, as described by White (2008), preventing them from starting to let go of old practices. For employees to begin discarding outdated ways of working, the new approach must be perceived as better.

If milestones and celebrations of achievements are incorporated into the implementation plan, they can help employees recognize the success and benefits of the new way of working. These moments also offer an opportunity for the organization to come together and celebrate something they have accomplished collectively, reinforcing a sense of unity and belonging within the company. However, rewarding desired behaviors can be seen as nudging, as it encourages repeated behavior through external validation. Praise and recognition subtly guide individuals to continue acting in line with the organization's expectations, which may not always fully align with the individual's personal needs.

Overall, Skanska may benefit from re-evaluating its approach to digital tool implementation. Several interviewees, both implementers and recipients, noted that

the organization frequently introduces new digital tools, which tends to reduce recipients' motivation to engage with them, as they expect another system to be introduced shortly thereafter. According to Fredberg and Pregmark (2020), prematurely initiating new change efforts before earlier ones have been fully embedded often stems from leaders misinterpreting signals of uncertainty within the organization as resistance to change or indications that the initiative is inherently flawed. Consequently, we propose that Skanska could enhance its leadership approach by attending more carefully to such signals and interpreting them constructively, rather than dismissing them as resistance or failure. This underscores the importance of maintaining clear, consistent, and purposeful communication throughout the change process.

For future implementation, it's important to critically evaluate and prioritize which digital solutions are most essential to pursue. The current tempo of technological change appears to weaken employees' willingness to invest in learning, as tools are often replaced before users become fully confident. This constant turnover can also cause employees to miss important messaging, such as the rationale or strategic intent behind a change, simply due to information overload. Without a clear understanding of why things are happening, it becomes difficult to foster meaningful engagement or sustained support for transformation efforts.

6
Conclusion

The purpose of this master's thesis was to identify the success factors required for effective implementation in the construction industry and to understand how different stakeholders can be encouraged to adopt digital tools in project operations. The goal was to analyze and identify key factors that enable successful digital tool implementation by engaging stakeholders and highlighting critical elements that must not be overlooked in future initiatives.

This study confirms prior research that digital transformation is not only a technical challenge but fundamentally a human and organizational one. Our findings show that while communication and collaboration remain central, they are not sufficient in themselves. A key contribution of this thesis is the emphasis on *when* and *how* users are involved, particularly during the early, preparatory phases of implementation.

We highlight the critical role of emotional acknowledgment and inclusion, suggesting that it's not enough to inform users about change; they must *feel* seen and valued. Furthermore, our results underscore the dynamic relationship between implementers and recipients, revealing that successful implementations depend on a mutual understanding between these groups. This relationship is especially complex in large organizations, where stakeholders often have divergent needs and priorities.

By focusing on the emotional and strategic aspects of preparatory work, this thesis contributes new insights to the field of digital transformation and change management. We argue that genuine user engagement early in the process is not a soft factor; it's a crucial one.

Practical Implications

Based on our findings, we recommend the following actions for organizations undergoing digital tool implementations:

- *Invest in structured preparatory work:* Before introducing new tools, organizations should conduct pilot testing, stakeholder mapping, and user research to align solutions with actual needs and workflows.

- *Create continuity:* Reduce tool and routine turnover by establishing clear decision-making frameworks for when and why new tools are introduced.

- *Prioritize emotional inclusion:* Ensure users feel seen and heard throughout the process. This does not necessarily mean that all user suggestions are adopted, but rather that implementers genuinely listen and make users feel included in the process. This builds motivation and ownership.

- *Balance diverse stakeholder needs:* Recognize the two essential groups in any implementation, implementers and recipients, and foster a culture of mutual understanding instead of division.

These actions can help reduce friction, increase user acceptance, and lead to more sustainable and cost-effective implementations over time.

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A

Stage 1 - The implementers; Questions

Introduction

- Can you briefly tell us about yourself, your background (studies and work), and your role at Skanska?
- How do you use the tool today? (Every day/week...)
- Before we dive into the tool, would you like to give us your definition of what a project at Skanska is?
- What parts are included in a project?
- What roles would you say exist in production?

How Does it Look Today?

- Who uses the tool today?
  - Internal/external
  - Who is Skanska and who is not (UE)?
  - Consultants?
  - What roles?
- What parts of a project use the tool?
- Are external users required to use it?

The Tool's Vision

- What is the vision for the tool?
- Who do you want to use the tool?
  - Internal/external
  - What roles?
  - What parts of a project do you want to use the tool?

General Information on Implementation

- When was the program introduced into the business?
- Why?
- When did you or your team start using the program?
- Why?

- What is your relationship to the program in your work, assigned or from the start?
- Can you tell us how the implementation of the digital tool went from your perspective? Both good and bad experiences? Challenges and what went best.

Information and Training

- What information or training did you/your users receive before the tool was introduced?
- Can you describe your experience of learning how to use the tool? What steps or challenges did you face before it felt natural in your workday?
- How was the tool received by others when using it?
- Was there any resistance to using the tool, and if so, why do you think that existed?

Preparations and Communication

- How clear was the communication about why this tool was introduced?
- Did you and your team/Did you give users the opportunity to be involved in the process before the tool was introduced, for example through workshops or testing?

Support and Training

- What support did you/your team receive during the implementation phase, such as training, manuals, or support?
- Was there anything you missed or would have done differently in terms of support or information during the implementation?

Results and Reflection

- How do you think the tool has affected your way of working?
- Do you feel that the tool has met the expectations communicated during implementation? Have the goals been achieved?
- If you could change anything in the implementation process, what would it be?
- Do you have anything you would like to add?

B

Stage 2 - The recipients; Questions

Introduction

- Can you briefly tell me about yourself, your background (education and work), and your role at Skanska?
- How do you use the tool today? (Every day/weekly...)

Experience of the Implementation (Linked to the beginning, creating discomfort)

- How did you experience the implementation process of the new tool?
- When you first heard about the implementation, how did you react?
- Were you positive, skeptical, or hesitant? (Identifies whether the person is an innovator, early adopter, or more cautious.)
- In what way was the change introduced?
- Did it feel like there was a sense of urgency or clear arguments for why the change was needed?
- Did it seem like there was a clear and engaged group driving the change forward? (For example, managers or other key individuals)

Support and Resources During Implementation (Linked to preparation and execution)

- What kind of support and resources did you receive during the implementation phase? (e.g., training, manuals, technical support)
- How well did the training and support offered work?
- Is there anything you would have wanted more of to feel confident during the change?

Initial Use of the New Tool

- When you started using the new tool, how did you feel?
- Did you jump in and start exploring it yourself? (Innovator/early adopter)
- Did you wait to see how others used it first? (Early/late majority)
- Were you skeptical and felt you would have preferred to keep the old system? (Late majority/laggard)

Reception of the Implementation (Linked to the vision)

- How was the new tool received by you and your colleagues?
- What were the reactions among your coworkers?
- Were some quick to adopt the change while others were more skeptical? (Identifies how the group fits into the Adopter's Curve)
- Was there any resistance to the change?
  - If yes, what caused it, and how was it handled?
- Did you and your colleagues have a clear picture of the vision behind the change?
- How was it communicated?
- Did you know why the tool was being implemented?

Impact on Ways of Working (Linked to making the change stick)

- Has the tool changed the way you work?
  - If yes, how?
  - If no, why not?
- How has the change been integrated into daily work?
- Does it feel like a natural part of the operations now, or are there still obstacles?
- What did you think about the pace of the implementation?
- How would you have preferred it to happen? More clarity or more flexibility? (People in the early majority often want clearer structure and more support, while innovators and early adopters prefer a more flexible and exploratory approach.)

Feedback and Further Development (Linked to short milestones)

- Have you had the opportunity to give feedback on the tool?
- How was your feedback received?
- Have you seen any changes based on the feedback given?
- Have there been any concrete successes celebrated during the implementation? (For example, quick wins or positive effects highlighted internally)
- If you had the chance to improve the implementation process, what would you want to change?
- Is there anything you'd like to add?

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