

# Exploring Lean Team Development from the Tuckman's Model Perspective

## Abstract

This study explores lean teams through the developmental stages of the Tuckman model. Twenty-seven interviewees commented on the teamwork of a lean programme deployed in their organisations. The results reveal that forming lean teams involves excitement, anticipation, and a desire for acceptance. However, frustration, competition, and a need for individual recognition follow in the storming phase. Training programmes that foster cooperation, compromise, and unity sometimes inadvertently create a 'them vs. us' divide in an organisation's workforce in the norming phase. Additionally, work commitments hinder the development of shared mental models among team members. Lean teams achieve synergy, support, and goal focus in the performing phase, delivering six functions. However, challenges like prioritisation disagreements due to project overload still exist. The adjourning phase evokes mixed emotions: satisfaction with transitioning to a permanent team and sadness when the team disbands. The findings extend the Tuckman model to explain a lean team development lifecycle.

**Keywords:** Lean teams; Improvement action teams; Tuckman model; Group development; Temporal dynamics

## 1. Introduction

Lean teams facilitate lean programmes by promoting new working methods, practices, and behavioural patterns for a lean programme (Sakthi Nagaraj & Jeyapaul, 2021; Zanon et al., 2021). Lean team members can train workers while ensuring that lean programmes are tracked and progressed across their organisation (Netland et al., 2015). The team members' performance and career prospects are generally associated with effective lean adoption (Amrani & Ducq, 2020; Netland et al., 2015). A lean team is a task force with the necessary training in lean tools and techniques to lead and coordinate a lean programme (Boppel et al., 2013; Netland et al., 2015; Zirar et al., 2020).

Therefore, the 'success' of lean programmes depends on soft lean practices, and one such practice is forming 'small group problem-solving' circles (Bortolotti et al., 2015; Netland et al., 2015; Zirar et al., 2020). However, developing such circles (lean teams) from formation through adjournment has not sufficiently been studied.

The literature emphasises teamwork in a lean environment (Parker, 2001, 2003; Steijn, 2001; Zirar et al., 2020), refers to the role of management in selecting members of a lean team (Alukal, 2006; Potter, 2021), is not in agreement about the membership nature in a lean team between temporary vs permanent (Anand et al., 2009; Boppel et al., 2013), does not explain how highly independent individuals collaborate in a lean team (Parker, 2001, 2003), and finds a statistically significant link between creating a dedicated team and implementing a lean programme (Netland et al., 2015).

Having dedicated teams to support a lean programme leads to the widespread adoption of lean in an organisation (Anand et al., 2009; Boppel et al., 2013; Netland et al., 2015). However, such dedicated teams are only effective in lean programmes if they perform. The existing literature (e.g., Demeter & Losonci, 2019; Netland et al., 2015) generally draws statistically significant relationships between lean teams and lean programmes, overlooking the lifecycle of lean teams. Also, the existing literature (Guttenberg, 2020) has compared teams that progressed through Tuckman's model to those that did not in a lean programme. This literature, however, overlooks how group dynamics change over time and how this may impact the

effectiveness of lean teams as they progress through the phases of the Tuckman model. Furthermore, when organisations create lean teams to support lean programmes, grouping skilled specialists (Boppel et al., 2013), lean enthusiasts and functional experts do not necessarily translate to effective lean teams. Such teams can become dysfunctional (Procter & Radnor, 2014, 2016) unless teams develop through the critical stages of team development and the team dynamics for lean teams are understood (King & Lawley, 2022).

Furthermore, teams must form and perform quickly in today's business environment (Carboni et al., 2021). Effective lean teams are critical for organisational success (Netland et al., 2015), yet many teams struggle to work together effectively (Procter & Radnor, 2014, 2016). This study is also motivated by the need to support organisations to build lean teams to support lean programmes. Tuckman's model outlines key stages of team development and provides a framework for understanding lean team dynamics (King & Lawley, 2022).

Therefore, there is a lack of information about the forming and dissolving of "lean teams" and the temporal dynamics of team development throughout a team's lifecycle. We are yet to explore how lean teams are formed and dissolved and how organisations use such teams to help the team members and their workforce reach their full potential in a lean programme.

To address this gap, we explored the research question: How do lean teams develop from formation to adjournment using Tuckman's model as a lens and from the perspective of lean team members? Accordingly, this study discusses the 'lean team' construct, defined in the literature as "dedicated teams to lead the lean program" (Netland et al., 2015, p. 90). As the definition suggests, organisations form these teams to lead their lean programmes. The word 'team' from the construct and the definition denote that lean teams start and adjourn, i.e., follow the team development lifecycle (Holmes, 2010). The study employs the Tuckman model of small-group development to structure the analysis of lean team development (Tuckman & Jensen, 1977). This model facilitates exploring lean team development through the five phases of Tuckman's small group development (Holmes, 2010; Tuckman & Jensen, 1977).

Tuckman model has five phases: forming, storming, norming, performing and adjourning (Tuckman & Jensen, 1977). The forming phase starts when the group members meet for the first time for a programme/project and come together to know each other. The storming phase starts as the team works together; conflicts and disagreements arise. In the norming phase, a team begins to resolve conflicts and establish norms and expectations for working together. In the performing phase, a team functions effectively and achieves its goals. The adjourning phase indicates a team disbanding after completing a programme. These phases succinctly and practically explain group development (Guttenberg, 2020; Van de Ven, 1989).

Each phase is aptly named and plays a significant role in building a highly functional business team. Additionally, empirical research (e.g., Garcia-Palao et al., 2019; Riebe et al., 2010; Runkel et al., 1971) conducted frequently after the publication of Tuckman's group development model revealed that the model and the practical developments of work teams were a good fit.

Therefore, the empirically driven analysis in this study uses Tuckman's model as a lens to explore lean team development from forming to adjourning. This model can play a significant role in the efficiency and effectiveness of lean programmes by promoting ownership and team spirit among individuals to fulfil the requirements of a lean programme (Leyer et al., 2020). It means groups of two or more people, who interact and influence each other, are mutually accountable for achieving common goals associated with organizational objectives and perceive themselves as a social entity within an organization (Katzenbach & Smith, 2005; Zirar et al., 2020).

The findings add an empirically induced extension to Tuckman's model to explain the lean team development lifecycle. The contribution of the paper to theory is threefold. First, research about lean teams and lean programmes (Demeter & Losonci, 2019; Netland et al.,

2015) has focused on drawing statistical relationships between lean teams and lean programmes, thus overlooking the development lifecycle of lean teams. This paper adds knowledge to this line of literature by exploring the lifecycle of dedicated teams to support lean programmes in organisations. Second, the existing literature (Guttenberg, 2020) has investigated teams that progressed through Tuckman's model vs. those that did not in lean project completion, thus overlooking the temporal dynamics of lean development throughout the five phases of the Tuckman model. This paper extends this line of research by identifying the dynamics of lean team development in each phase of the Tuckman model. Third, while the existing literature (Garcia-Palao et al., 2019; Mcgrew et al., 1999) acknowledges the practicality and effectiveness of Tuckman's model to explain the phases of team development, it also argues that the model needs extending to explain the dynamics of different teams other than what the Tuckman model was developed for. Therefore, this paper takes this line of research on board and extends Tuckman's model to lean teams by adding the dynamics of lean development in the five phases. This extension will guide further studies to refine the model to explain lean team lifecycle in service contexts or industries other than the service sector.

Furthermore, this paper contributes to practice. Organisations must assign individuals to lean teams who are enthusiastic team members and believe that a lean programme results in meaningful changes. Organisations also require resources to help lean team members cultivate the necessary spirit of cooperation to support a lean team in implementing lean changes. Further, line managers must have agreements that span their organisation to allow members of a lean team to meet regularly and develop a sense of belonging to a team. Also, for lean teams to prioritise lean-related projects, there needs to be a framework that guides each team member throughout the lifecycle of a lean team. Additionally, if a lean team is dissolved after a lean programme is deemed complete, an organisation must carefully consider how to maintain the achievements of a lean programme.

The remainder of this article is organised as follows. A synthesis of the literature on lean teams, the Tuckman model, and the lean teams and the Tuckman model is provided in the second section. In section three, the research design is explained. The study's analysis is presented in section four. The findings are discussed in section five. The study's contribution, limitations and conclusion are presented in section six.

## **2. Literature review**

### **2.1 Lean teams**

A 'lean team' is a small team of middle management and workers (i.e., lean experts) who assist in implementing a lean programme in an organisation (Boppel et al., 2013; Netland et al., 2015; Potter, 2021). In the literature, lean teams are referred to as 'small group problem solving' (Bortolotti et al., 2015, p. 182), 'dedicated teams to lead the lean program' (Netland et al., 2015, p. 90), 'Self-directed work teams' (Shah & Ward, 2003, p. 131), and 'lean team' (van Dun & Wilderom, 2021, p. 65). The advantages of 'lean teams' to lean programmes have widely been acknowledged in the literature in various industries, such as manufacturing (Belhadi et al., 2018), service industry (Shamsuzzaman et al., 2018; Zirar et al., 2020), civil infrastructure sector (Tezel et al., 2023), and aerospace industry (Amrani & Ducq, 2020).

Shah and Ward (2003) suggest that teamworking in a lean programme means 'self-directed work teams'. The critical element is 'self-directed'. Therefore, lean teams are instrumental in driving a lean programme. The existing literature suggests that individuals with enthusiasm for lean improvement constitute such teams (O'Reilly et al., 2018). As a dedicated team to support lean programmes, they play the role of specialists and their work is aligned with the lean implementation strategies of their organisation (O'Reilly et al., 2018). The rationale for teamworking is that it generates a rich pool of ideas, encourages team members to exchange ideas, and enables team members to develop their ideas (Gutierrez-Gutierrez et al.,

2018; Van Den Adel et al., 2023). Accordingly, teamworking improves communication among workers and breaks down silos and communication barriers so information is exchanged more smoothly (Gutierrez-Gutierrez et al., 2018). The 'success' of lean programmes depends on 'small group problem solving' (Bortolotti et al., 2015; Netland et al., 2015; Zirar et al., 2020).

However, it is unclear from the literature how such 'small group problem solving' circles progress through the lifecycle of the teams. The literature on lean teams focuses on lean team working (Parker, 2001, 2003; Steijn, 2001; Zirar et al., 2020), the management role in selecting lean team members (Alukal, 2006; Boppel et al., 2013), the nature of membership in lean teams (Anand et al., 2009; Boppel et al., 2013), and a statistically significant link between creating a dedicated team and lean programmes (Netland et al., 2015).

While this literature does not provide a contextual account of the formation and dissolving of 'lean teams', it reports that 'the creation of dedicated teams to implement the lean program is favourably related to the extent of implementation.' (Netland et al., 2015, p. 98) Therefore, a contextual account of the formation and dissolving of 'lean teams' remains lacking. Accordingly, this empirically induced analysis explores the research question: *How do lean teams develop from formation through adjournment using Tuckman's model as a lens and from the perspective of lean team members?*

## 2.2 Tuckman's model

Tuckman's model (Table 1) is employed as a lens because it offers five phases that simply, succinctly, and practically explain group development (Van de Ven, 1989). Furthermore, empirical research (e.g., Garcia-Palao et al., 2019; Riebe et al., 2010; Runkel et al., 1971) conducted after Tuckman's group development revealed that the model and the practical developments of work teams were a good fit.

Tuckman's model describes phases of development for small groups (Bonebright, 2010; Tuckman & Jensen, 2010). The model defines the phases as 'forming,' 'storming,' 'norming,' 'performing,' and 'adjourning' (Bonebright, 2010; Tuckman & Jensen, 2010). Initially, the model was generally used by human resource developers to understand group development as part of development interventions (Bonebright, 2010). The model now attracts wide applications, such as using the model as a lens to explain group formation in various contexts (Pugalis & Bentley, 2013; Rickards & Moger, 2000).

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**Table 1**

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Members of a new team must adjust to a new teamwork culture (Gilley et al., 2010). However, this 'adjustment' is generally assumed and remains challenging when teams form (Boppel et al., 2013). There are indications in the literature that teams are stuck in the forming phase without effective facilitation (Ramserran & Haddud, 2018).

Tuckman's model helps view group development (Tuckman & Jensen, 2010). This model implies that team members have a sense of belonging and a moral commitment to work together to make their team successful (Lee-Kelley et al., 2004). In addition, Tuckman's model describes how conventional groups develop (Lee-Kelley et al., 2004).

## 2.3 Lean teams and Tuckman model

Several studies have associated the Tuckman model with groups in different settings. Such associations have been prevalent in the education sector. Jones (2019), for example, found that the Tuckman model can be employed in a class setting with all the phases except the last phase, adjourning, which might not be applicable in a negotiation role-play setting when conducted in

class. Tuckman's model has also been studied in the software industry, and it was found that the model can have a significant contribution to building a purpose-oriented digital team in the IT industry, and by so doing, enhancing precision, innovation, and aptitude while adding upon the quality of the product (Solomon, 2020).

The association of Tuckman's group development model with the teams working on lean adoption has also gained recent attention (Guttenberg, 2020). This recent attention attempts to understand how dedicated teams to support lean programmes can perform and deliver lean-related deliverables efficiently and effectively, thus; as a result, enhancing organisational performance through lean programmes. A recent study by Guttenberg (2020) compared team performances regarding the number of timely completed lean projects, how long projects took, and total cost savings made. Lean teams that progressed through Tuckman's model outperformed those that did not (Guttenberg, 2020). This study, however, is the first attempt to make an explicit link between team working in the context of lean adoption and Tuckman's model. However, other than hypothesis testing, the study does not explore the development of lean teams that progress through Tuckman's model.

In this literature, there are two conclusions to draw. First, the association of Tuckman's model with groups in various settings indicate the significance of Tuckman's model in explaining small-group development. Vaida and Serban's (2021, p. 96) analysis indicated that Tuckman's model "has stood the test of time and remains relevant to the modern literature." Nevertheless, the second conclusion is that there is a lack of research to explore the nuances of the association of lean teams with Tuckman's model, particularly in the service industry where lean teams are prevalent to support a lean programme, which this research is trying to unfold. Vaida and Serban (2021) outlined the limitations of the model, and one of the most important limitations is related to the rigidity of the model – while the phases might depend on group size, these phases might not be as rigid as the sequence stated by the model (Fyhn et al., 2022).

While Guttenberg (2020) indicated that lean teams that progressed through the Tuckman model outperformed lean teams that did not, this prior research does not explain the challenges that lean teams face during the different phases of the Tuckman model. In the forming phase, these challenges might include that team members may be unfamiliar with each other and need a clearer understanding of the team's goals and objectives. This can lead to confusion and a lack of direction. In the storming phase, team members may have conflicts and disagreements as they establish their roles and responsibilities. This can lead to tension and a lack of trust among team members. In the norming phase, team members resolve their differences and work together towards a common goal. However, there may still be some resistance to change and a lack of commitment to the team's objectives. In the performing phase, the team is fully functional and working together effectively to achieve their objectives. However, complacency and a lack of innovation may still exist. While statistical links and hypothesis testing (Guttenberg, 2020; Netland et al., 2015; Tezel et al., 2023) are significant for drawing causal relationships, they are limited and do not explain such nuances. Also, despite the wide employment of lean teams in lean programmes, research on lean teams remains scarce (Tezel et al., 2023). This study explores lean group development through Tuckman's model in a real-life context to highlight some of these nuances.

The literature review highlights that there needs to be a greater understanding of how lean teams develop to support lean programmes. The guiding question requires exploring 'How, in practice, do dedicated teams support lean programmes progress from forming to adjourning.' This question requires contextual and real-world data, compiling multiple perspectives of relevant social actors (lean team members). Case study research is prescribed to be highly effective for this kind of research endeavour (Voss et al., 2002).

Understanding the phases of lean team development is significant for several reasons. First, a lean programme aims to reduce waste and create value (Zirar et al., 2020). Exploring

the phases of lean team development and the group dynamics of each phase helps create effective teams to identify improvement opportunities and create value (Netland et al., 2015; King & Lawley, 2022; Van Geffen, 2020). Second, team leaders can ensure everyone works by reducing conflicts and miscommunication among team members (Van Den Adel et al., 2023). Third, by determining where a team is in the development process, team leaders can tailor their management style to match the team's needs (Boppel et al., 2013). Fourth, when lean teams are created to support a lean programme, understanding the phases of lean team development allows for identifying and addressing challenges, such as conflicts, miscommunication, and resistance to change (Franke et al., 2022; Reyes et al., 2023). Fifth, the stages of team development can also help teams develop a shared sense of identity and purpose, leading to team cohesion (Glover & Kim, 2021).

### **3. Research method**

The research question that guides this study is: How do lean teams develop from formation through adjournment using Tuckman's model as a lens and from the perspective of lean team members? This research question is exploratory, and it attempts to explore the evolution of lean teams from their formation to their eventual adjournment, as viewed through the lens of Tuckman's model, focusing on the experiences and perspectives of lean team members. A case study is an appropriate research strategy for this research inquiry as it incorporates similar and dissimilar viewpoints to answer the research question in its context (Voss et al., 2002).

Also, the choice of case study research follows prior published research, such as Tezel et al. (2023) to explore Continuous Improvement Cells, Fournier et al. (2021) to explore resistance to lean, and Leyer et al. (2020) to explore job satisfaction in the context of lean.

We approached organisations our academic network recommended to us who had embarked on a lean programme. The organisations were classified under the service sector according to the UK Standard Industrial Classification of Economic Activities (SIC) 2007 (Companies House, 2015). We contacted key contacts within these organisations, inviting them to participate in our study. When a contact expressed willingness to participate, we employed purposive sampling. During our initial interviews, we inquired whether the organisation had adopted lean practices. Our questions included: "What motivated your organisation to implement lean principles? How long has lean been in practice? How effective has it been for your organisation, and have you encountered any challenges during its implementation?" We aimed to establish whether an organisation had a lean programme before proceeding with participant recruitment. This approach aligns with the guidance in the literature, purposive case selection, which enables the analytical generalisation of findings (Eisenhardt, 1989). Our approach also observes existing literature, such as Erthal et al.'s (2020) selection of a case study organisation that embarked on a lean programme because they found the case study interesting and persuasive to investigate their research question.

Initially, 30 service organisations in the UK were contacted—only ten expressed willingness. After conducting the initial interviews with participants from the list of ten, only five had an active ongoing lean programme and dedicated teams to support lean programmes. Therefore, these case studies (see Appendix C: Case profiles) were purposefully selected to help explore lean team development.

We categorised the case studies under the service sector. We refer to the 'service sector' as an umbrella term for numerous service industries such as medical services, legal services, education, restaurants, and banks (National Statistics Office, 2009). The UK Standard Industrial Classification of Economic Activities (SIC) 2007 (Companies House, 2015) categorises service industries in the UK. Since our case studies produce services and they are in the UK, we

reasoned, following the categorisation of the National Statistics Office and Companies House, that they fall under the service sector.

Semi-structured interviews were the main data collection technique to collect the primary data. We conducted semi-structured interviews across the five case studies (Table 2). However, the researchers also employed direct observation (during site visits) and documental evidence (Eisenhardt & Graebner, 2007). These other data sources were to corroborate the data from the semi-structured interviews. However, as noted in previous studies (e.g., Tezel et al., 2023), this was challenging due to the developmental nature of lean teams and the case studies' selective approach to data recording about a lean programme. The interviews helped explore the participants' opinions, attitudes, experiences, practical accounts, and recommendations regarding team working in a lean programme and lean teams.

Purposive and snowball sampling were used to select the participants. The rationale was to select knowledgeable participants. Eisenhardt and Graebner (2007) suggest that knowledgeable informants should be interviewed who can offer multi-perspective on a phenomenon of a study. The initial interviewees from each case study were purposefully selected (Saunders & Townsend, 2016). Once interviewed, they were invited to recommend other members of their organisation whom they thought were knowledgeable participants. Therefore, snowball sampling allowed the first cohort of participants to recommend candidates familiar with the phenomenon of the study for the next round of interviews. The participants were from several levels, functions and departments, and they were informed that participation was voluntary. The number of interviews in each case study depended on the level and adequacy of information collected to answer the research question (Saunders & Townsend, 2016).

We conducted 27 interviews and concluded that the collected data were of adequate quality and quantity to proceed to analysis after conducting 27 interviews, as shown in Table 2. The interviews were conducted across the case study organisations in the UK, with interviewees being approached (purposefully) based on their involvement in lean adoption (Saunders & Townsend, 2016). Qualitative research does not require a specific number of interviews (Saunders & Townsend, 2016). The existing literature suggests that interview numbers vary from 1 – 330 (Saunders & Townsend, 2016). A small number of interviews is justified in prior literature when the expertise and experience of a targeted group is the focus of the analysis (Lindsay & Aitken, 2022) and/or when the researchers deemed the level of data collected as sufficient to answer their research question (Robson et al., 2022).

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### Table 2

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The interviewees signed consent forms. We pseudonymised interviewees' identities. The quotes are linked to position information.

We asked the interviewees overarching, follow-up, and probing questions on teams and teamworking (see Appendix A). We developed the overarching question from the existing literature to explore team working as part of a lean programme (see Appendix B).

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### Table 3

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The analysis adopted 'Reflexive Thematic Analysis' (Braun & Clarke, 2019, 2022). This analysis method (Table 3) relies on the researchers' interpretation and active engagement with the data considering the research question (Braun & Clarke, 2022; Byrne, 2022; Terry &

Hayfield, 2020). In reflexive thematic analysis, themes are patterns of meaning anchored by a shared idea or concept (Terry & Hayfield, 2020). They are generated, explored, and refined throughout iterative rounds rather than simply emerging from the data (Braun & Clarke, 2022; Byrne, 2022; Terry & Hayfield, 2020). They are meaningful entities from codes that capture the essence of meanings from data rather than clusters of data, classifications, or summaries (Braun & Clarke, 2022; Terry & Hayfield, 2020).

We employed several strategies to ensure the reliability and validity of the findings in line with the previous research, such as Amrani & Ducq (2020), Erthal et al. (2020) and Tezel et al. (2023). We used data triangulation, gathering information from diverse interviewees across different roles, departments, hierarchy levels, and lean expertise (Amrani & Ducq, 2020; Erthal et al., 2020). This process was consistent across the five case studies to ensure data reliability. Our primary data came from semi-structured interviews with lean team members, which we complemented with on-site observations and documentary evidence (Amrani & Ducq, 2020; Tezel et al., 2023). We applied replication logic to validate consistent themes across case studies (Voss et al., 2002). Also, we engaged multiple researchers in the analysis and manuscript development (Amrani & Ducq, 2020).

#### **4. Findings**

Members of a newly formed lean team took time to adjust to the teamwork culture to support the lean programme. This section uses evidential quotes from the interviews to discuss lean team development through ‘forming,’ ‘storming,’ ‘norming,’ ‘performing,’ and ‘adjourning.’

##### **4.1 The forming phase**

The members of a newly formed team meet for the first time to explore the opportunities and challenges of embarking on a lean programme. This phase is characterised by excitement, anticipation, and a desire to be accepted by the team members (Bonebright, 2010). For example, Mike (Design and Transformation Lead at CS2) reflected on such excitement when he referred to his membership in the newly formed lean team in his organisation:

*I'm part of a central group function, and we, the team, I'm working with, and we'll undertake lean-related projects across the bank [...]*

Mike (Design and Transformation Lead at CS2) conveys a sense of excitement by mentioning his affiliation with the lean team in his organisation, his participation in collaborative projects and the focus of such projects on lean-related tasks, the expansive scope of these projects across the organisation, and the proactive and enthusiastic language he used. These elements collectively reflect Mike's enthusiasm about his role within the lean team and the projects he is involved in.

In the forming phase, however, team leaders facilitated the introductions among the team members and highlighted each person's skills and background, as well as providing lean programme details and the opportunity for team members to clarify their tasks:

*... they'll [team leaders] talk to the team and decide who would take that action forward and it may be the person who, you know, brought that particular thing out. (Michael, Site Manager, CS3)*

*... they [team leaders] get people talking ... who wouldn't normally work together, so, it certainly brings operations and maintenance together to work on a project, so, you get the buy-in from both sides of the plant ... (Peter, Maintenance Manager, CS4)*

The data, however, suggest that assistant team leaders and work coaches aided team leaders in the forming phase:

*... majority of teams will have a team manager, an assistant team manager and a workplace coach ... after that will be our processing team. The team manager is ... people manager. The assistance team manager is the flow lead and the workplace coaches ... ensure that people are performing in the right direction. (Natalie, Operations Manager, CS1)*

As the previous quote implies, assistant team leaders and work coaches played a crucial role in the performing rather than forming phase. However, they were part of the forming phase to ensure teams were progressing through the phases, which the quote referred to as 'in the right direction'.

Therefore, it is reasonable to suggest that a significant amount of effort was invested in the forming phase through three roles: team leaders, assistant team leaders, and workplace coaches. Team leaders were usually in charge of the team's human resources and promoted the lean principle of 'respect for people.' The assistant team managers acted as flow leaders, resolving bottlenecks and ensuring a smooth flow of work (i.e., another principle of lean, flow). Workplace coaches were quality gurus who inspected the output of teamwork and encouraged team members to work toward their objectives.

For team leaders to ensure teams were progressing through the phases, they needed a smaller span of control. The interviewees indicated ten individuals to form a lean team:

*... we looked at our entire organisation to get better spread because that was also to allow us to do the one-to-ones that we wanted to do to make them meaningful ... we've been trying to balance that out. (Michael, Site Manager, CS3)*

*... they ended up with one team manager for a group of 10 staff ... obviously, that was a much more manageable approach, but it was a lean focus that forced them to rethink it ... (Steve, Programme Support Manager, CS2)*

*... it's one of the things we look to do when we go to a new area. We say: Okay, so, don't send one manager 40 staff. (Jenny, Head of Operational Services, CS1)*

The nature of lean programmes is that the end goal of creating value and reducing waste is clear to team members. However, team members will want to reach such an end goal in various ways. The interview data suggest that team members were champions or enthusiastic individuals about lean improvements. A smaller number of individuals in a lean team was thought to assist lean teams in progressing and performing. Also, indications exist in the data that team members desired to be accepted by the team. This might also explain why smaller numbers of individuals in a lean team helped with such desires in the forming phase.

*You know, we ['lean teams'] could do work with a team, really, really good team manager, who is really good with people and they coached their people, they're fair where they need to be fair, you know, they're engaging, and that's, you know, often, if not a 100% of the time, that runs really, really well. It's an excellent intervention, all the figures are improved: Quality, customer focus, all that kind of stuff. Whereas we've done work with other teams where the team leader is not where he needs to be and a lot of our role has been in the past trying to coach and develop that team leader to be doing what they should be doing. We end up actually bord- bordering on coaching them to be an effective manager rather than implementing lean in its pure sense. (David, Lead Lean Consultant, CS1)*

Along with the sense of excitement (such as “We have built...”), lean team members, during the interviews, also indicated a desire to be accepted by the team members and a sense of belonging. For example, Robert (Depot Operations Manager, CS5) kept using the pronoun ‘we’ and the word ‘colleagues’ when he referred to the lean team he was part of:

*We have built a, a CI council which is, which is colleagues of the shop floor.*

However, it was unclear why there was such a desire. The interview data suggest that membership in 'lean teams' was voluntary. The case studies' rationale for allowing employees to join 'lean teams' voluntarily was to explicitly target and encourage people who bought into lean to join lean teams:

*It's just kind of informal, I think, you know, you need to get people in these positions that you wanna be there, so, the terms that people want to volunteer, and, I think, if you are trying and coop people into those positions, they will just detract and, then, pull your process down a little bit. (Philip, Plant Manager, CS4)*

The case studies were not selective regarding who was appointed to 'lean teams':

*“We [senior management] have not, we have not, we have not asked them to do it, they have, we have said that we want to create a CI council, and they [members of 'lean teams'] have said they wanted to join. So, we've only got the people who wanted to be, make a difference.” (Robert, Depot Operations Manager, CS5)*

Individuals who join 'lean teams' voluntarily may be more likely to buy into lean. They will be at satisfactory behaviour and may begin to model appropriate behaviour at this phase. However, such a voluntary element indicates that individuals who joined lean teams were random individuals across departments in the organisations. Therefore, it makes sense to suggest that lean team members had a desire to be accepted by team members in the forming phase:

*Put your name forward for the CI Council, have an interview, if you're successful, we put you on this program [lean-related training courses] which took six months. (Ian, Distribution General Manager, CS5)*

While membership was voluntary, workers in functional departments were expected to volunteer to be part of a lean team. Therefore, the approach to membership in lean teams, while limiting the formation of lean teams, still presented the challenge of having individuals on lean teams who did not buy into a lean programme. Lean teams could have had members with a negative view of lean at this phase, which affected how long it took to form a lean team (or potentially re-form).

Regardless, reflecting on the forming phase, the interview data suggest high anticipation from members of the lean team. Such anticipation arises from eagerly looking forward to changes and improvements from a lean programme by lean teams. For example, the quote below implies a feeling of expectation and hope accompanied by a sense of curiosity about what the future holds in a lean programme that was driven by lean teams:

*I think they [lean teams] are actually people just looking at Lean Six Sigma and continuous improvement. I think we've got teams in the business who are solely dedicated to that. (Dayle, Senior Operations Technician, CS4)*

One interesting observation during the site visits was the display boards with detailed information about lean teams at CS4. Figure 1 provides a photograph taken during the site visit of CS4, which displays information about the lean team. This detailed information included the teamworking framework, team strategy and objectives, current and past activities, and detailed profile of each team member. Several sections of the photograph are redacted to protect the identity of CS4. The researchers reasoned that such display boards existed to assist in forming, storming and norming phases of lean team development.

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**Figure 1**  
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This section discussed lean teams in the forming phase. The following section will discuss lean teams in the storming phase.

#### **4.2 The storming phase**

This phase is characterised by frustration, competition, and a need for individual recognition (Bonebright, 2010). In the storming phase, membership of a lean team adds to team members' expressions of excitement, eagerness, and positivity, as well as scepticism, worry, and anxiety.

Certain members might see being a member of a lean team as an opportunity to push their agendas of continuous improvement. They might see being a lean team member as exploring their interpretation of lean opportunities. They are often unaware of the lean team's issues and objectives at this phase. Those individuals who join lean teams based on expressing an interest may be uninformed about a lean team's concerns and objectives and unmotivated. As a result, as these quotes suggest, there exists a sense of frustration, competition, and a need for individual recognition in the storming phase.

*I have to say that we've probably spent 80% of the time with a minority of the people who don't buy into it. (Philip, Plant Manager, CS4)*

*It [lean team] has got some of the guys and, you know, you need to be sort of careful who you put on the team, and it's the people who will promote lean activities. (Philip, Plant Manager, CS4)*

*We've got the other guys, the sort of detractors, who say, you know, well, we've always done it like this. It's always worked okay. Why do we need to change? I have to say that we've probably spent 80% of the time with a minority of the people that don't buy-in to it. (Philip, Plant Manager, CS4)*

Members of the 'lean teams' who do not have the same objectives and attitude as the rest of the team members slow down the entire team effort. The expressions of scepticism, worry, and anxiety highlight this issue. Even if these team members do not gradually slow the pace of lean teams, they will cause lean teams to adjourn prematurely or re-form at this phase.

Therefore, if an organisation does not choose lean team members carefully, some may be unfavourable to lean team objectives. However, the case studies generally formed lean teams from lean champions or recruited people to promote change to ensure that lean teams did not adjourn prematurely or re-form at this phase.

*You know, you do need your folks, you need to understand your folks and make sure you told them, and, also, understand who are you bandits within these teams [lean teams] as well. (Michael, Site Manager, CS3)*

*We also, if we've got, got quite influential people within the team and they're on board, these slowly came over as well. So, it's kind of working on your stronger, stronger people that you've got, the more influential people than the others because the rest will follow because they're just not sure and, that, yeah.” (Tatiana, Fraud Team Leader, CS3)*

*We have them [lean teams] over three shifts. So, we've got a 'nights', a 'days' and a 'backs'. We've got them from each department. So, we've got warehouse, transport and, then, we've got representation in the admin and inventory teams. So, it's comprehensive and it touches each part of the depot. (Bill, Head of Communication and Services, CS5)*

It is logical to suggest that influential individuals can shape a lean team's orientation and agenda. These influential players, however, may advocate against a lean programme, which the data refer to as 'detractors.' The quotes suggest a balancing act. Words such as 'influential people', 'stronger people', 'on board', and 'comprehensive' denote excitement, eagerness and positivity. While influential members of a functional department might make influential team members of a lean team at this phase, the ideal is for them to buy into the lean programme. The excitement, eagerness and positivity depend on influential people in a lean team to buy into lean team objectives.

Individuals who championed the lean programme in their units tend to act independently in the storming phase leading to frustration, competition, and a need for individual recognition. These individuals assumed that their interpretation of lean opportunities and challenges in their unit should drive a lean programme forward in their unit.

Each member must set aside conflicts and disagreements to advance from this phase to the next. Lean team members must determine how to work together and resolve disagreements and personality clashes at this phase. The case studies invested substantially in training the lean team members in lean-related knowledge and skills to encourage them to work together. The training programmes aimed to give the team members a common language and understanding concerning a lean programme.

This section discussed lean teams in the storming phase. The following section will discuss how the case studies aided the norming stage through training.

### **4.3 The norming phase**

In this phase, lean team members begin to resolve conflicts and establish norms and expectations for working together (Bonebright, 2010). While the team members are aware of the competition, they work together to achieve the objectives of the lean team.

On the other hand, team members are less likely to do so spontaneously (Garcia-Palao et al., 2019; Salas et al., 2007). With lean-related training programmes, the case studies aided this phase. The case studies invested substantially in training the lean team members in lean-related knowledge and skills to encourage the development of a common communication language.

*All of the shift managers and the operations have now gone through Yellow Belt Lean Six Sigma, and the CI council members that we have got, that volunteered. (Robert, Depot Operations Manager, CS5)*

*And, it's the people who promote lean activities. So, those guys sit down once a week, look at the results from 5s audits and, and any other continuous improvement ideas that, that brought forward by the guys, as it [continuous improvement ideas] tunnels through the change team. And, then, we will end our discussion among*

*ourselves and we give the change team some, some stop to make decisions themselves, and spend a little bit of money. (Philip, Plant Manager, CS4)*

The second quote suggests that lean team members frequently meet to resolve disagreements. The team members used those meetings to test limits, establish ground rules, and set performance targets.

While lean training aided norming, it may inadvertently encourage lean team members to become stand-alone entities, disconnected from the rest of the team members. This dichotomy did not help the norming phase. The lean training courses had to empower functional experts and champion lean team members to aid the norming phase.

*We found that it became a very 'those who know' and 'those who don't' initiative to start with, and that was the biggest thing. (Andy, Head of Asset Management, CS4)*

Attending meetings of other lean teams across an organisation encouraged lean team members to interact and work together on various lean projects. This practice helped resolve conflicts and establish norms and expectations for working together.

*What we sometimes do, is to encourage people to visit the other teams to give them better practice, showing them problem-solving across the teams as well. (Sue, Design and Delivery Agent, CS2)*

Therefore, members of a lean team were encouraged to visit other teams across an organisation. Observing other lean teams within an organisation may have benefited lean team members in figuring out how to work together and resolving issues and personality clashes at this phase. Such visits increased cooperation, compromise, and a sense of unity.

This section discussed lean teams in the norming stage. The following section will discuss what 'effective' lean teams do in the performing phase.

#### **4.4 The performing phase**

In this phase, lean teams function effectively and achieve the objectives of lean programmes in their organisations (Bonebright, 2010). In the performing phase, a lean team generally performs six functions to aid in the rollout of a lean programme. The interview quotes suggest that lean teams enjoy synergy, mutual support, and a focus on achieving the team's goals in the performing phase.

Lean teams assist managers in embedding lean by scoping areas of work and making initial recommendations for lean implementation, providing them with facts and figures to free up staffing, and assisting them with resource planning, modelling, forecasting, and performance management.

*They [lean teams] will go in. They will scope the area. They will come out with initial recommendations and, then, they will work with the managers, with the teams to influence any change that needs to happen [...] they've worked in my area, historically, every member of staff was engaged with, so, they knew what was expected, what was going to be coming, how it was going to impact them, but the benefits, so they, so they are brought into that, to the mindset of what's going, to be going on, right at the very beginning. (Natalie, Operations Manager, CS1)*

Lean teams promote cross-departmental and team communication. They use social media platforms such as Facebook groups and Twitter platforms in addition to traditional communication routes within an organisation.

*You know, we [lean teams], we started with this broad spectrum of communication channels and [pause] I think what the CI and the, the councils have brought about is an opportunity to communicate via different channels, may be. I think, before, they've [the channels] always been there but not necessarily highlighted. For example, the guys in the warehouse didn't have emails. So, they were [sic] finding it difficult to communicate about the [lean] projects and things. So, I set up the email channel, so, that was directly due to the lean. If the CI council hadn't been there, these guys wouldn't have gotten an email acc- address. (Bill, Head of Communication and Services, CS5)*

Lean teams provide consultancy services such as quality assessment, streamlining processes, standardisation, role profiling, increasing staff utilisation, culture change and workplace design.

*We [team managers] are working with the lean management, so, the tasks in the warehouse are going to be changed. (Bill, Head of Communication and Services, CS5)*

Lean teams coach workers and provide lean training sessions to the wider community in an organisation.

*"The lean team run the 1a, 1b and they have got people working towards their 1c accreditations. [...] They are almost giving you the skills, the guidance on what needs to happen next. So, they are coaching you to be able to make the changes with your staff rather than them ['lean teams'] coming in and doing a load of stuff and then walking away and, then, you are left there, oh! So, it is, it is very different than that. They engage with all the people right at the beginning". (Natalie, Operations Manager, CS1)*

Ideas for continuous improvement are referred to as CI ideas, and they are suggested by shop floor workers and forwarded to lean teams for consideration. Lean teams evaluate each idea regarding feasibility, resource requirements, financial implications, and tangible and intangible profitability.

*"Those guys ['lean teams'] sit down once a week, look at the results from 5s audits and, and any other continuous improvement ideas that, that brought forward by the guys [team managers and employees on the shop-floor]. (Philip, Plant Manager, CS4)*

Lean teams extend lean principles to all aspects of an organisation. Lean teams start small with lean implementation and work at all company levels.

*"They would undertake a lean wave within a particular area of the business [...] they would run different lean transformations in parallel. So, they might have a lean transformation happening in [various pockets of business]". (Steve, Programme Support Manager, CS2)*

However, complacency and a lack of innovation may still exist. The data suggests that such challenges might likely result from 'Too much to do' and 'not being released'. They are likely to push lean teams back to the storming or re-forming phase. When time resources are limited compared to the scope of lean implementation, lean teams are under significant pressure to deliver. As a result, lean teams are overworked in a short time:

*I would have got a council and it's hard to get the time, for the council members to be able to do anything and it's the operation that comes first. (James, CI Lead, CS5)*

Furthermore, when lean team members are not released from their day-to-day tasks, lean teams may re-form or re-enter the storming phase:

*The biggest challenge is for the business [team manager of an area] to decide to release this to a small team [his/her employee], leave them the responsibility and,*

*also, the opportunity of doing this pilot [working on the initial recommendations of 'lean teams'] and go back into the business with the new approach. (Beth, Lean Change Agent, CS2)*

It is likely that overworked lean teams in this phase result from poor task allocation in the forming phase, trying to accommodate all team members' priorities in the storming phase, or agreeing to an unreasonable workload to avoid conflicts in the norming phase.

Therefore, while lean teams undertake six core activities at this phase, performing is contingent on lean team members being released from their day-to-day tasks and given sufficient time and resources comparable to the scale of lean implementation:

*I think the biggest thing for me is time. So, in order to implement lean, the people ['lean teams] that have got to implement it need the time [...] I don't think you can define that but what I mean is, that you need people to be able to go away and identify improvement but in order to implement that improvement, the people, so, these people need time to be trained, these people need time to, to, to be able to manage it, and these people need time to be able to engage with their teams in order to be able to, to get that buy-in. (Robert, Depot Operations Manager, CS5)*

This section discussed the core activities of a lean team in the performing phase. Since a lean programme is generally viewed as a project, the following section will explore how a lean team will likely adjourn in a lean programme.

#### **4.5 The adjourning phase**

The adjourning phase indicates a team disbanding after a lean programme is deemed complete. It is characterised by a mix of emotions, such as satisfaction, sadness, or loss (Bonebright, 2010). Adjourning involves finishing the tasks outlined in a lean programme and disbanding a lean team. Lean teams complete their projects at this phase and reflect on what went well and what to improve in future initiatives.

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#### **Figure 2**

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Figure 2 synthesises the analysis in the adjourning phase of a lean team. The figure suggests that while lean teams are expected to adjourn in this phase after completing lean-related tasks, this was unlikely to be the case. In some cases, rather than adjourning, lean teams became permanent teams to maintain lean service delivery.

Rather than the feeling of loss, this continuance of lean teams reflected in the data as satisfaction. This was the case when lean teams were built to be an integral part of a business (Figure 2), likely an attempt to eliminate the need for adjournment and the feeling of sadness and loss:

*I think they've [lean team] got a team together which included some, some maintenance supervisor and a couple of the technicians, and, again technicians from the operations, as well. So, they pulled the team together and came out with the ideas themselves. They went around the site and identified the areas where they could make improvements and they had all the people that, that, within that team that could make that happen and they just rammed it. Simply, they rammed it. (Peter, Maintenance Manager, CS4)*

However, this was not a typical configuration in the data, and it appears to be a less typical one in the case studies for lean teams. Therefore, lean teams in the adjourning phase either adjourn or transition into another team:

*[Lean becomes] a way of life to the point where we don't have CI Council meetings anymore because we do that day to day, people have got that mechanism, they've got that that way of being able to put their ideas forward, the managers and the leaders are listening, so, therefore, you don't have to have a meeting to discuss it because if it is a way of life (Ian, Distribution General Manager, CS5)*

*Those roles [roles in 'lean teams'] are dropped away as we go forward for a couple of reasons: 1) The lean work should become BAU [business as usual] and that's why you don't need someone to facilitate. 2) When we've done deployment, we also framed the team managers against the lean competency system. So that they have an understanding of what a value stream might be or a customer journey what the eight wastes are or how they influence. So, we do a certain level of training for the team manager and then we assess the team manager against that standard at the end as well. (Mike, Design and Transformation Lead, CS2)*

Statements such as “away of life”, “people have got the mechanism”, “put their ideas forward”, and “managers and leaders are listening” indicate a tone of satisfaction. However, other statements such as “we don’t have CI council meetings anymore”, “the lean work should become”, and “don’t have someone to facilitate” give feelings of loss and sadness. These quotes suggest a mix of feelings.

Regardless, the work of lean teams, even if it appears as 'business as usual', requires sustaining by the team or an alternative one:

*Beyond the end of a project [lean implementation], again, you know, I really would recommend that sustainability is thought about very carefully if set up in the right way. And, that could be in conjunction- it could be a combination of central sustainability support where regular assessment takes place to provide independent feedback on how things are going as well as somebody internal within the business area. It might be two people depending on the size of the business area but people who can continue to drive the plans beyond the end of the project, continue to be the voice of consciousness, and have that ultimate accountability for making sure that lean is being adapted as business as usual and not like a bolt-on. (Steve, Programme Support Manager, CS2)*

Therefore, it is reasonable to suggest that the work of lean teams must have long-term viability. Until lean becomes 'business as usual,' the sustainability of lean teams' work is critical to generate a feeling of satisfaction in the adjourning phase. CS1 established a lean team as a permanent group:

*Of the back of that program [lean program], the business recognised that there, there was value in establishing a permanent team. (Natalie, Operations Manager, CS1)*

Accordingly, while the plurality of the case studies treated a lean programme as a project with a start and end date, CS2 moved lean teams to sustainability teams to continue their work. Therefore, a need for adjournment was unnecessary, and this might likely have led to a feeling of satisfaction:

*... they have created the lean group [sustainability team] within the business where they are checking that there is still sustainability within the business. (Beth, Lean Change Agent, CS2)*

*At this moment in time, you have pockets of lean which still operate very well and pockets where it doesn't. (Steve, Programme Support Manager, CS2)*

## 5. Discussion

The case studies formed teams to focus on lean projects, i.e., 'self-directed work teams' (Shah & Ward, 2003). This confirms prior observations (O'Reilly et al., 2018; Sakthi Nagaraj & Jeyapaul, 2021) that workers collaborate on projects that benefit lean initiatives. Some scholars (e.g., Anand et al., 2009; Sakthi Nagaraj & Jeyapaul, 2021) go so far as to say that for lean to work, workers must collaborate to improve the operational aspects of their organisation.

In line with the previous research (Guttenberg, 2020), a lean team's progression through Tuckman's group development model influences the team's performance regarding the projects completed on time, the length of time it takes to complete tasks, and the cost savings. This line of research (Guttenberg, 2020) also implies that how a lean team progresses through Tuckman's group development model may explain why a lean team chooses to take on a lean project or avoids it – something referred to as 'cherry picking' and 'pet projects' (Darlington et al., 2016, p. 117). This study adds to this previous attempt to understand the formation through adjourning of lean teams using Tuckman's model. Such understanding will enhance future studies that compare lean teams' performance using Tuckman's model as a lens (Tuckman & Jensen, 1977, 2010).

The study explored the development of lean teams over their life cycle, focusing on the forming, storming, norming, performing, and adjourning phases. It referred to developing lean teams at different phases to achieve the organisational objectives of lean programmes (Boppel et al., 2013; Tezel et al., 2023). It highlighted the crucial role of team managers and workers in lean programmes (Bamber & Dale, 2000; Zirar et al., 2020). However, using Tuckman's model as a lens, the study explored different challenges of lean teams at different phases (Bonebright, 2010).

The analysis suggested that a lean programme's success depends on an effective lean team dedicated to achieving its objectives. However, a lean team is effective when it reaches the performing phase of the Tuckman model. During this phase, lean teams accomplish the objectives of a lean programme. On the other hand, the effectiveness of a lean team depends on the individuals comprising the team. This observation is consistent with existing literature, which argues that the effectiveness of a cross-functional team in supporting an organisational programme depends on its members (Van Den Adel et al., 2023). Members of an effective team share information and align with group decisions (Van Den Adel et al., 2023), accept feedback, give feedback and share insights and potential improvement ideas (Reyes et al., 2023), i.e., members work towards increasing the effectiveness of a team (Van Geffen, 2020). Therefore, as the analysis suggested, team members must resolve differences and personality clashes while lean teams go through forming, storming and norming phases.

However, as recent literature by Reyes et al. (2023) suggests, unless lean teams are comprised of individuals who are able and willing to resolve conflicts, it is unlikely for teams of enthusiastic individuals to reach the performing phase. Organisations have enrolled members of lean teams in lean-related training programs to aid teams in reaching the performing phase. This approach is supported by existing literature (e.g., Dinis-Carvalho, 2020; Zirar et al., 2020) highlighting the importance of lean-related training. Lean training enables team members to apply lean tools and techniques and develop a common language. However, lean training alone may not provide individuals with the emotional intelligence competencies that Reyes et al. (2023) identify as critical for effective team formation. While lean training can help teams progress through Tuckman's model stages, selecting individuals with emotional intelligence competencies is likely more critical in enabling lean teams to reach the performing phase (Boppel et al., 2013; Franke et al., 2022; Reyes et al., 2023).

This study adds to previous literature by discussing that team leaders determine the relevant skills of each team member in the forming phase to assign related tasks (Anand et al.,

2009; Zitar et al., 2020). These findings build on the existing literature where team members develop different skills and leadership qualities at different stages by sharing knowledge (Gutierrez-Gutierrez et al., 2018; Sakthi Nagaraj & Jeyapaul, 2021; Seidel et al., 2019). Therefore, one implication is that a supportive teamwork atmosphere may alleviate the tension experienced by workers in a lean programme throughout the team lifecycle (Neirotti, 2018; Zitar et al., 2020).

The forming phase is characterised by excitement, anticipation, and a strong desire for acceptance among new members (Bonebright, 2010). Members of a newly formed lean team are excited to be part of the team. This excitement couples with anticipation and a desire to be accepted by the team members (Bonebright, 2010). Previous research (Caouette & O'Connor, 2010; Guttenberg, 2020) commented on such excitement, anticipation, and desire to be accepted as characteristics of forming phases of teams. However, these emotions are accompanied by frustration, competition, and a need for individual recognition in the storming phase (Bonebright, 2010). Our findings suggest that enthusiastic lean champions or functional experts might perceive the lean team as a platform for their agenda. This pursuit can lead to frustration, especially when some team members view lean as a fad. Our findings further add to this line of research by highlighting the roles of team leaders, assistant team leaders and workplace coaches. These facilitators might explain how newly formed teams become effective dedicated teams to support lean programmes (Netland et al., 2015; Zitar et al., 2020).

The existing literature (Netland & Ferdows, 2016; Radnor, 2010) does not suggest that lean programmes influence the performance of lean teams or their maturity level (Netland & Ferdows, 2016; Radnor, 2010). This study suggests this link might exist (Moyo & Khoza, 2021). Members of a dedicated team to support a lean programme need to adjust to the lean-oriented culture of the team. Therefore, such teams can become a battleground in the storming phase for lean-related priorities between lean enthusiasts who push for reducing waste and creating value vs. functional experts who consider how lean-required changes might affect different pockets of the workplace. Therefore, how a lean team progresses through the team's lifecycle can be influenced by a lean programme and influence lean interventions in an organisation (Netland et al., 2015; Sakthi Nagaraj & Jeyapaul, 2021). The existing literature supports this interpretation (Netland et al., 2015; Procter & Radnor, 2014). These arguments are also supported by using the healthcare industry as a unit of analysis (Costa & Godinho Filho, 2016).

This research suggests that members of a new lean team take time to adjust to the culture of a lean team. Existing literature (Jones, 2019; Zitar et al., 2020) agrees that 'willing to adjust' is crucial for members of a newly formed team to progress from forming to performing. The findings, however, suggest that lean team members take time to make such adjustments. A snippet of the data suggested that CS4, for example, spent 80% of the time on a lean programme with a minority of the people who did not buy into the programme. However, the existing literature (Guttenberg, 2020; Netland et al., 2015; Zitar et al., 2020) does not mention how long this time is or could be. The case studies, for example, CS1, used three facilitators to push the lean team to progress. Using facilitators is evidenced in the literature to push teams to progress (Garcia-Palao et al., 2019; Salas et al., 2007). Having team leaders look after resources (human resources of a team), assistant team leaders to improve operational bottlenecks, and workplace coaches to check the quality of work of lean teams enriches existing understanding about facilitations to push teams to the performing phase. However, it remains unclear if this approach will reduce the time team members take to adjust to a newly formed team culture.

As indicated in other studies (Pugalish & Bentley, 2013), teams might adjourn or re-form in the storming phase; however, this study did not observe such cases for lean teams. The interviewees might have not referred to such cases. The analysis suggested that a lean team might re-form if a team member does not buy into lean thinking in the storming phase. While

this study did not observe teams adjourning or re-forming in the storming phase (Pugalis & Bentley, 2013), it adds to this understanding that lean teams with a team member who does not buy into lean thinking might re-form. Moreover, as in other research (Lee-Kelley et al., 2004), this study also suggests that the frequency of meetings in lean teams might help iron out issues and foster a sense of belonging and moral commitment.

The case studies utilised training programmes (Dinis-Carvalho, 2020; Zirar et al., 2020) to provide lean team members with a common language and facilitate their progress into the norming phase. The intention was to foster cooperation, compromise, and develop a sense of unity among team members (Bonebright, 2010). However, the study noted that line managers' reluctance to release team members due to their work commitments limited the opportunity to develop shared mental models. Further, an unintended consequence of the training was the creation of a 'them vs. us' dichotomy within the organisation, which hindered the forming of shared mental models.

The performing phase is characterised by synergy, mutual support, and a strong focus on achieving the team's goals (Bonebright, 2010). The study identified six functions that lean teams delivered during this phase. These functions are consistent with previous literature that suggests lean teams support corporate lean programmes (Boppel et al., 2013; Netland et al., 2015; Zirar et al., 2020). However, this study suggests that challenges such as complacency and a lack of innovation persisted, and prioritisation disagreements emerged due to the quantity of lean-related projects and limited completion time.

The phases of small group development involve emotionality and explicit reflections from team members (Tuckman, 1965). Team members experience and reflect on related emotional and behavioural responses in each phase of their group development (Tuckman, 1965). Tavoletti et al. (2023) suggest that individual attributes and cultural intelligence contribute to the phases of group development of virtual teams. The organisational context will also likely affect Team members' experience and reflection and, as a result, the lean team dynamics. For example, with their complex structures and processes, larger organisations provide lean teams with more challenges in adopting lean principles. They also have abundant resources to invest in lean initiatives. More resources will drive a lean team to establish formal arrangements (Pugalis & Bentley, 2013). Further, an older organisation may resist change due to established routines and processes, posing more challenges to lean team members in lean adoption. On the other hand, an older organisation can have a wealth of experience and knowledge for lean team members to reflect on to tap into pockets of waste. Also, an organisation operating across multiple locations may experience issues in communication and coordination among lean team members (Boppel et al., 2013; Zirar et al., 2020). However, the diversity of ideas and perspectives available to lean team members can enhance team dynamics. Also, technological tools can support lean team development; for example, they can help standardise lean processes across multiple locations of an organisation by feeding intelligence and data.

Additionally, the analysis substantiates the findings of Anand et al. (2009) and Boppel et al. (2013) concerning temporary vs. permanent membership in lean teams. The analysis implies that when lean teams adjourn, membership in lean teams is temporary (Anand et al., 2009). However, when lean teams transition to another team to promote lean-related achievements, membership is permanent (Boppel et al., 2013). Thus, lean teams continue to work as specialised task forces that can provide specialised know-how, technical knowledge, and standardisation to detect deviations (Boppel et al., 2013). However, the study suggests that the adjourning phase created a mix of emotions among team members. Satisfaction was experienced when lean teams transitioned into permanent teams, ensuring the continuity of their achievements from the lean programme. Sadness and loss were when the teams disbanded, marking the end of the initial excitement.

## **6. Concluding remarks**

### **6.1 Contributions**

#### **6.1.1 Contribution to theory**

This study corroborates the body of research that suggests having dedicated teams in charge of a lean programme leads to the widespread adoption of lean in an organisation (Anand et al., 2009; Boppel et al., 2013; Netland et al., 2015). However, this paper argues that such dedicated teams are only effective in lean programmes if they progress to the performing phase of Tuckman's model. Accordingly, the contribution of the research paper to theory is threefold.

First, the existing literature (Demeter & Losonci, 2019; Netland et al., 2015) on lean teams and lean programmes have drawn statistically significant relationships between lean teams and lean programmes, thus overlooking the development lifecycle of lean teams in its natural context. While such statistical links are necessary to craft causal relationships between lean teams and implementing lean programmes, they do not provide in-depth and contextual details to make sense of the relationships. Therefore, the developmental lifecycle of lean teams in lean programmes is yet to be explored in-depth and in a real-world context. This paper adds knowledge to this line of literature by exploring the lifecycle of dedicated teams to support lean programmes in organisations.

Second, the existing literature (Guttenberg, 2020) has investigated teams that progressed through Tuckman's model vs. those that did not in lean project completion, overlooking the temporal dynamics of lean development throughout the five phases of Tuckman's model. The progression of teams through Tuckman's model significantly influences lean teams' timely, efficient and effective completion of lean projects (Guttenberg, 2020). However, this line of research assumes that lean teams are equally the same. Other lines of research (Boppel et al., 2013) suggest that lean teams vary. Therefore, it is crucial to understand how lean teams progress through the phases of the Tuckman model. This paper extends this line of research by identifying the dynamics of lean team development in each phase of the Tuckman model. This research paper reveals that team members who view lean as a fad re-form lean teams. Lean teams might create a 'them vs. us' dichotomy within an organisation's workforce. Due to work commitments, line managers may refrain from releasing team members to develop shared mental models in the norming phase. In the performing phase, prioritisation disagreements among members result from too many lean-related projects and insufficient time to complete them. In the adjourning phase, lean teams dissolve once the early excitement has faded. However, in some cases, lean teams transform into teams such as a 'sustainability team' to maintain what lean teams have previously achieved from a lean programme. Therefore, we extend the existing literature by suggesting that not all lean teams progress through a thorough Tuckman model.

Third, while the existing literature (Garcia-Palao et al., 2019; McGrew et al., 1999) acknowledges the practicality and effectiveness of Tuckman's model to explain the phases of team development, it also argues that the model needs extension to explain the dynamics of different teams other than what the Tuckman model was developed for. Therefore, this paper takes this line of research on board and extends Tuckman's model (Tuckman & Jensen, 1977, 2010) to lean teams by adding the developmental elements of a lean team in the five phases. The developments throughout an organisation's life cycle determine lean teams' contributions to lean adoption (Demeter & Losonci, 2019; Guttenberg, 2020). It shares the challenges that lean team development faces, which the original model does not address. Therefore, this research paper proposes an empirically induced extension to Tuckman's model for

understanding lean teams' challenges over the team's life cycle (see Figure 3.5). This extension will guide further studies to refine the model to explain lean team lifecycle in service contexts or industries other than the service sector.

### 6.1.2 Contribution to practice

Further, the findings have real-world implications. First, when organisations create lean teams to support lean programmes, selecting members with a critical perception of lean will render those teams dysfunctional and keep them in the formation phase. Even though organisations may justify having such individuals on lean teams due to their expertise, lean teams need enthusiastic team members who trust that a lean programme will bring about significant changes (O'Reilly et al., 2018).

Second, businesses must proceed cautiously when investing funds to train members of lean teams (Adam et al., 2020). Even while such investments are mandated for a lean programme (Dinis-Carvalho, 2020; Zirar et al., 2020), how the rest of an organisation's workforce perceives them poses a dilemma for a lean programme. One strategy some of the case studies used was implementing advanced lean training courses for lean team members and introductory lean training courses for every workforce member. Further, as part of the initial lean-related training, it is crucial to explicitly teach lean team members the phases of the Tuckman model and the dynamics of group development in each phase (Riebe et al., 2010). Existing understanding (Riebe et al., 2010) suggests that when team members are taught the model and the dynamics of group development through the lens of the model, they will have a greater awareness of teamwork.

Third, line managers must have agreements that extend across the entire organisation to allow lean team members to have regular meetings to create shared mental models. While an organisation may decide to have lean teams comprised of individuals who do not report to functional line managers (Guttenberg, 2020), this strategy could foster a "them vs. us" mentality among workers. A different strategy is to have members of the functional department on a lean team with organisational-wide agreements to free them to meet regularly.

Fourth, there must be a mechanism for lean teams to prioritise tasks linked to lean, and such a mechanism must consider how much time is needed to complete lean-related initiatives.

Fifth, when a lean programme is deemed complete, an organisation might dissolve lean teams. However, labelling a lean programme complete may be based on the incorrect assumption that lean methods will become routine once a programme is deemed complete. Therefore, if a lean team is dissolved once such programmes are deemed complete, an organisation must carefully assess how what is accomplished through a lean programme is sustained.

Sixth, lean practitioners can also explicitly teach potential lean team members about Tuckman's team development model as an early intervention before forming lean teams. Such interventions improved team effectiveness in education (Riebe et al., 2010). Similarly, lean team members will benefit by learning about the model early on by being more aware of team dynamics in each phase.

### 6.2 Limitations

This research paper has limitations. First, the qualitative dataset includes 27 interviews, and the interviewees came from various backgrounds and worked in lean teams for their organisation. The remarks made in the interviews reflected the circumstances of the case studies and the interviewees' experiences working in lean teams in those environments.

Second, the data came from five case studies, and these organisations are grouped under the umbrella term of the 'service sector' (Companies House, 2015). However, this suggests two limitations. First, the findings need caution when interpreted in industries other than the service

sector, such as manufacturing, construction, etc. Research (Radnor & Osborne, 2013, 2016) suggests several differences between manufacturing and services. Second, due to the nature of services, even service organisations differ, like the services offered, the customer base, and the competitive landscape, among other factors. While the findings of this study can still provide valuable insights in such contexts, it is crucial to consider the unique characteristics of an industry and an organisation when applying the insights.

Third, Tuckman's model is widely used in group dynamics research (Miller, 2003). The model is straightforward and supported by extensive research (Bonebright, 2010; Garcia-Palao et al., 2019; Guttenberg, 2020; Kuipers & Stoker, 2009). Recent research (Vaida & Şerban, 2021) clearly stated the model's usefulness in different levels of organization settings, particularly the creative leadership process in project team development through Tuckman's model. However, Tuckman's model has also drawn criticism, such as the likelihood that team development could diverge from the successive phases (Forsyth, 2018), the likelihood that teams go through the phases in a different order or develop in ways that the model cannot explain (Seeger, 1983), and the difficulty of clear separation of the phases (Arrow, 1997), and whether patterns in therapy groups can be applied to teams in organisational settings (Kuipers & Stoker, 2009). The findings, therefore, need to be viewed with criticisms of Tuckman's model in perspective.

### **6.3 Future research directions**

We understand from the literature that lean teams play a 'make or break' role in lean programmes (McMackin & Flood, 2019; Zirar et al., 2020). However, we have yet to fully understand lean team development's nuances and temporal dynamics beyond a statistically significant relationship between lean teams and lean programmes. This study explored lean team development in real-world contexts of the service sector. Future studies can capitalise on this study and explore lean team development in other service industries, such as a service company with distinct service types (Fenner & Netland, 2023) or sectors other than the service sector, such as manufacturing (Primo et al., 2020), oil and gas industry (Shou et al., 2020). Findings from such future studies will provide further support to the findings of this study and add other insights into lean team development's nuances and temporal dynamics.

We used data from 27 interviews with individuals who were members of lean teams in their organisation. We understand that this number is sufficient for this study (Saunders & Townsend, 2016). However, when we collected data and during our site visits, we observed a dichotomy between people from the same workforce of the same organisation who were members of lean teams and those who were not. Future research can include additional participants to understand the nuances of 'lean team' development from more perspectives using the lens of Tuckman's model. Additional participants can include members of the workforce of an organisation who are not a member of lean teams. If future research suggests that lean teams create such dichotomy in the workforce of an organisation, we need to understand if such dichotomy will be counterproductive to lean programmes.

One observation from this study is that team members take time to adjust to the culture of newly formed lean teams. The findings suggested this might be because members of a lean team might be in the team because of their expertise in their functional area. Unless these functional experts are enthusiastic about lean (lean champions), they are unlikely to adjust. Therefore, it is interesting in the future to investigate how long members take to adjust to the expectations that come with a lean team for a lean programme.

The interviewees sometimes referred to teams to lead specific lean-related projects, such as a quote by Steve, Programme Support Manager at CS2: "... problems and countermeasures ... the team manager would ask the staff for ideas about what they could do better, the countermeasure, the solution." This quote suggests the existence of a team that looked at

problems and countermeasures as part of the lean programme at CS2. It is, therefore, interesting to ask questions in future studies about the different features of different teams/projects under the umbrella of lean teams from a team-based perspective. Insights from such data will enrich our understanding of whether different lean projects influence how lean-related teams progress through Tuckman's model.

Further, the data for this study were collected from lean team members who may have yet to hear of the Tuckman model and the five phases before our interviews. References to the model were not made during the interviews as such references might have led the interviewees to tweak their statements accordingly. However, there are indications in the existing literature (Riebe et al., 2010) that when team members are taught the Tuckman model and its phases, before the forming phase, they will have an increased awareness of the lifecycle of team development. It is suggested that such awareness helps with teamwork and developing teamwork skills (Riebe et al., 2010). Therefore, future studies can examine this understanding through action research (Coughlan & Coughlan, 2002) to explore the relationship between prior understanding of the model and how team members behave through the five phases in a lean team.

Furthermore, this research explored the relationship between Tuckman's model and lean team development. However, a contemporary element called LSS (Lean Six Sigma) is commonly used in many organizations to reduce waste (Lean) and errors (Six Sigma). There is a lack of research to underpin Tuckman's model with LSS using Lean and Six Sigma methodology (DMAIC). This could be applied to both the service and manufacturing industries. This new research direction will provide valuable findings to practitioners when linking these three spheres (Tuckman's model, Lean, and Six Sigma) to achieve organizational performance. Also, future research can be carried out using the key principles of NPD (New Product Development) and NSD (New Service Development) by linking Tuckman's model philosophy. This will enable practitioners to determine the relationship between Tuckman's model with innovation (incremental and disruptive).

### **6.3 Conclusions**

This study revealed that excitement, anticipation, and a desire to be accepted characterise the forming phase of lean teams. New members are excited to be part of a lean team and strongly desire to be accepted by its members. However, these desires are followed by frustration, competition, and a need for individual recognition. In the storming phase, enthusiastic lean champions or functional experts pursue a need for individual recognition by perceiving lean teams as a platform for their continuous improvement ideas. Frustration results from lean team members who view lean as a fad and push lean teams to re-form. The case studies used training to give lean team members a common language to progress to the norming phase, cooperate, compromise, and develop a sense of unity. However, training unintentionally created a 'them vs. us' dichotomy. Line managers frequently chose to refrain from releasing team members to develop shared mental models in the norming phase due to work commitments. In the performing phase, lean teams enjoyed synergy, mutual support, and a focus on achieving the team's goals. The study revealed the six functions lean teams delivered at this phase. However, challenges such as complacency and a lack of innovation still existed, and prioritisation disagreements among members resulted from too many lean-related projects and insufficient time to complete them. The study suggested a mix of emotions in the adjourning phase. This emotion was reflected in satisfaction when lean teams transitioned to permanent teams, sadness and loss when the teams disbanded, and the early excitement was over.

**Figure 3**



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## **Appendix A: Indicative interview questions for team working**

### **The overarching question:**

- Does your organisation organise work through teams? Has this changed since you implemented lean?

### **Examples of follow-up and probing questions used:**

- Does your organisation organise work through teams? Has this changed since you implemented lean?
- How do you think teamworking has changed because of lean?
- I want to ask how lean has impacted how teams are formed.
- How are teams working, the span of the teams, the span of control?
- What has happened to the teams?
- You mentioned something about getting together more than before, so, if I may ask, in terms of the team structure, team span of control, the trade-offs between, like, the trading of surplus capacity between the teams. How do you find that now compared to the time before lean implementation?
- In terms of teams and team working, how do you think lean has benefited team and team working at your site?
- In terms of teams and team working, has lean changed any aspects of team working, for example, the span of control, how teams are managed, the number of members in a team, the type of meetings they are having, the structure of the teams?
- I think you mentioned something about team working. But if I ask you this question: Do your organisation use teams and team working to orient colleagues and staff towards lean implementation?
- If you guide me through the structure of teams here, how teams are structured here, the number of people, the positions, and how many different colleagues report to the team manager?
- Is one structure general to all the depots, or are they different?
- You mentioned the word teams [Name]. If I may ask, how do you think the 5S tool's impact will be on the teams and team working in the long run?
- How do you find the team working helpful in the lean deployment process? How much does it help to deploy lean? If you don't work through teams, do you think you can deploy lean the same way you are now working through teams?
- You mentioned that one of the lean's good things in terms of team working and management was balancing the teams. What other changes have lean introduced to teams and team working?

**Appendix B: The overarching interview question, its purpose and supporting references.**

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**Table 4**

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## Appendix C: Case profiles

CS1 is a public company which provides financial services. It is an international investment, savings, insurance and banking group. It was established in 1845 as a mutual insurance company. In 2016, the company announced a new strategy that separated its four core businesses: (i) emerging markets, (ii) banking, (iii) wealth management and (iv) asset management. This new strategy highlighted the company's focus on financial well-being, financial education, financial inclusion, and responsible investment.

In the UK, CS1 operates in London, Southampton and the Isle of Man. It provides financial services such as life insurance, savings and investment, asset management, banking and short-term insurance. Instead of head-to-head competing with its rivals in the market, it focuses its business strategy on areas where it believes it has a strong market position and well-developed competencies.

CS1 has three fundamental organisational values: (i) pioneering, (ii) dependable and (iii) stronger together. Pioneering is to lead change and drive growth by challenging industry conventions to create new and rewarding customer opportunities. Dependable is meant to bring expertise, care and judgement to guide customers through difficult and challenging times to a better financial future. Strong Together symbolizes diversity in the workforce to create a business that provides better customer service.

The organisation is well-received publicly. It has around 20 million customers and £400 billion in assets under management. It is publicly received as a big company with many functions and offices, a growing company that creates prosperity for customers. It is constantly improving how it provides customer services—this is its strength in the market. It is also appreciated for paying significant attention to diversity in its workforce.

CS1 has 69000 employees. It considers its workforce as the key ingredient of its success. It usually recruits people with an entrepreneurial attitude. It appreciates candidates who will use the company's many opportunities to grow their careers and stand out. The organisation is generous in nurturing its employees equally regardless of their roles. It endorses that well-managed and motivated people are more productive and effective.

To help its employees be the best they can be at their job, it provides them with various development routes for those wishing to progress. These include: (i) study leave with financial support, (ii) leadership and management development programmes and (iii) business and soft skills development opportunities.

One of the central management concerns in CS1 is the continuous improvement of service delivery processes. In doing so, it attempts to drive strategic growth by continuously improving the organisation by leveraging the strength of its people and collaboration among its many businesses. It has plans to be customers' most trusted partner in helping them to achieve their lifetime financial goals. Lean principles at CS1 is to reach five main priorities: (i) deliver on its promise to customers, (ii) drive profitable growth from its core businesses, (iii) accelerate collaboration among its core businesses, (iv) build a culture of excellence and (v) continue to simplify its structure and value delivery service processes.

When the lead researcher conducted the interviews, CS1 was almost ten years into its lean programme. Site visits and direct observations allowed the lead researcher to observe that lean principles have helped the organisation to progress significantly towards fulfilling its priorities. First, it was passionate about serving its customers and being most accessible through face-to-face and digital channels. It provided its customers with the most concrete solutions, offering them financial education and advice. Second, it continued to drive profitable growth and sustainable performance in its core businesses. Third, it continued to share skills and experience across the organisation, emphasising collaboration between its core businesses. Fourth, it was clear about the behaviours that deliver continuous improvement in its workforce.

It continued to build a culture of excellence by developing its people. Fifth, it continued to simplify and optimise its service delivery processes by exiting non-core businesses.

**CS2** is a public limited company which provides financial and insurance services. Established in 1700, it has around 700 branches across the UK to provide banking services. In 2006, it trialled its first contactless debit and credit cards in the UK. The bank also introduced Visa Debit cards with contactless technology for its current accounts. Such changes required the bank to reconsider the efficiency of its operations using lean tools and techniques.

CS2 has operations worldwide. In the UK, it has service operations in all the cities. It even has small branches in towns across the UK. It provides full banking and insurance services to personal, business and commercial customers.

CS2 emphasizes its core purpose in all its operational excellence programmes: to serve customers well. The key company values are: (i) serving customers, (ii) working together, (iii) doing the right thing and (iv) thinking long-term. It aims to provide its customers with consistent, high-quality customer service and experience. These values are also consistent with lean service's core objectives: to eliminate waste and create value for customers.

The company attempts to be trusted, respected and valued by its customers and stakeholders. It serves its customers by focusing on their needs and delivering the services customers request. It also considers its employees as the core of its businesses and encourages its workforce to work and support one another as a family to realise their potential. It endorses fairness and diversity in its workforce. It also recognises the importance of conducting business openly, directly and sustainably with its customers and communities.

CS2 has been working to regain some acceptable publicity after it was hit with two main setbacks in the past years: (i) bail-out and (ii) sponsoring environmentally unfriendly projects. Since then, it has moved forward with various lean programmes to improve its service delivery processes across the bank and reduce waste. It has also been working on distancing itself from sponsoring environmentally unfriendly projects.

CS2 has more than 90000 employees. It maintains a diverse workforce that has women and disabled workers. It aims to have at least 30% women in leadership positions across the bank. As a result, it has been listed among the top 50 companies in the UK for employing women in its workforce. It has also been awarded for being a 'good employer' in general and for employing disabled workers. It has extensive employee training programmes and, for instance, has at least trained 16000 employees in leadership skills by the time of the data collection.

CS2 strives to keep its employees physically and mentally healthy to make the bank a great workplace. Towards that end, by the time the interviews were conducted, around 1000 of its managers were enrolled in its mental health awareness training programme. This training programme enabled line managers to spot signs of mental health issues at work and support employees. It prioritises its workforce and believes that if employees are supported with their careers in the bank, they provide customers with the best customer experience.

One of the key management concerns of CS2 is to close more than 300 branches across the UK in its latest round of cuts. It also attempts to shift customers to online banking. As part of this plan, it started its lean programme around seven years ago. Since then, it has been making steady progress towards building a simpler, smaller and fairer bank and remains focused on delivering financial services to personal and business customers.

**CS3** is a public company which was split from its parent company in 2015. It is a multinational enterprise found in California, United States. It operates in the UK and provides consulting and financial services to banks across the UK. However, the financial services are mainly image-based cheque-clearing services to banks.

The company values timely and accurate cheque-clearing services for its client banks. As the largest cheque clearer of sterling payments globally, it strives to ensure the delivery of digital transformation programmes that protect its client bank position in the market. It also values digitisation and, as part of that, helps businesses to digitise their service operations. Hence, the digitisation of financial services is one of its main strengths. It has committed itself to help those banks looking to make these changes with rich digital experiences that benefit their customers and employees.

CS3 employs more than 60000 employees. It is generally praised as a good employer. It provides its employees with various opportunities for career development. It also provides them with benefits such as three weeks of vacation. If an employee still works with the company for more than five years, the vacation time significantly increases. It also maintains a diverse workforce, sometimes labelled by its employees as a global diverse workforce. It seems that CS3 offers something for every employee. It also offers flexible work schedules to employees, including remote office considerations and virtual offices.

One of the key management concerns at CS3 is the reduction of costs. During the site visits to the company, its employees referred to ‘a never-ending workforce reduction programme’ as part of the lean initiative to reduce costs. The company also needs to improve its humble record with its salary increases.

CS3 initiated its lean programme around four years ago by the time of the data collection. Since then, it has benefited from cross-training and natural attrition to reduce staff levels. It has also improved in terms of recognition and rewarding its staff members. It attempts to remunerate its employees for their contributions equally across all its business units.

**CS4** is a public limited company which provides waste management services. It was established in 1900 to modernise household waste collection. In 1971, the organisation built new facilities to manage landfill and incinerate domestic waste. In 1997, it gradually decided to focus on two areas: (i) energy and environment by developing new technologies for the treatment of waste and (ii) recycling and the production of renewable energy.

CS4 provides waste management services to households and businesses across the UK. These include activities and actions required to manage waste from its inception to its final disposal, such as waste collection, urban cleansing, transfer station design and operation, waste sorting and recovery and the operation of landfill facilities. In the UK, the company collects, transports, treats and disposes of waste in strict compliance with rules and regulations.

CS4 has more than 80000 employees. It encourages its employees to appreciate that by working in CS4, they work towards a good cause—a cause that saves resources for future generations. The company finds its employees at the core of its success. It provides a supportive environment and pays special attention to accepting and respecting the identity of employees.

**CS5** is a cooperative society which distributes goods to around 5000 stores across the UK. It was established in 1850 and has developed over 150 years to become the current organisation. By the 1990s, its share in the UK market declined significantly. To survive, CS5 questioned its entire business model. It employed significant modernisation and rationalisation of its businesses. In 2017, CS5 shifted its focus on the business from the rebuilding phase into a phase of planning for renewal.

CS5 values its customers and employees. In doing so, it does what matters for its community and keeps its service delivery processes simple for its customers. It encourages its employees to act at their discretion to support the company. It showcases care towards its employees, stakeholders and community. It also centres its success on cooperation with other businesses in the market.

CS5 endorses individual differences in its workforce. The company is publicly recognised as a place where diversity is accepted and nurtured. It highly promotes the notion of inclusion. It aims to portray the company as a place where its customers, employees and stakeholders feel they belong. It engages with people from across all sections of society to make this happen.

It employs over 60000 employees and considers its employees as the core of a fair, ethically and morally strong business operation. As part of this understanding, it supports employees and provides them with various opportunities to develop, progress, shape their careers, and serve their customers and communities. It boasts that its employees get personal satisfaction from working for the company because they work for an organisation that is fair and does well. It also remunerates its employees generously. It is passionate about gender equality in the workplace, and its statistics show that 51% of its employees are female.

CS5 began its lean programme almost 20 months prior to conducting the interviews. The company initiated its lean programme to focus on doing what its customers and communities find as value-adding services. Therefore, as part of its programme, it aimed to focus on the outcomes of its service delivery processes than deliverables. It also attempted to promote an open culture through lean practices about how the organisation delivers services.

Further, its lean programme was a vehicle to promote the trust that everyone works in their organisation's best interest. For that reason, it aimed to provide its employees with timely feedback on their performance through lean practices. It is believed that by providing timely feedback on performance, employees and teams would be motivated to focus on areas of improvement. It also aimed to use lean practices to promote a culture where employees working in teams and teams replace the rigid hierarchy of the organisation. This was part of the belief that teams are at the centre of service delivery in the organisation. It also aimed to use its lean programme to communicate that quality is everyone's responsibility in the organisation.