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Model to assess Organizational Readiness for a Continuous Improvement Culture: The case of Rangel

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Resumo

Ao longo dos anos, tem existido um número crescente de empresas que tentam criar uma cultura de melhoria contínua entre os seus funcionários devido às suas vantagens. Este tipo de *mindset* permite às empresas reduzir os seus custos, aumentar a sua eficiência e melhorar a qualidade dos seus produtos (Kasivisvanathan & Chekairi, 2014). Infelizmente, bastantes empresas têm falhado ao implementar este tipo de mudança organizacional devido ao facto de não considerarem a complexidade do fator humano (Almanei, Salonitis, & Tsinopoulos, 2018).

Com quase quatro décadas no mercado, a Rangel é atualmente uma referência nacional no que diz respeito a fornecer soluções logísticas com padrões de excelência. A Rangel desenvolveu um modelo Lean, mas deparou-se com algumas dificuldades ao implementá-lo. Isto deveu-se à falta de preparação para implementar esta mudança organizacional. Assim, o principal objetivo deste projeto passa por encontrar a melhor forma de a Rangel implementar este modelo e estabelecer uma cultura de melhoria contínua na empresa. Este projeto teve lugar num dos clientes da Rangel, a Tabaqueira, a maior produtora de tabaco em Portugal. Aqui a Rangel é responsável pela maioria dos processos logísticos internos.

Este projeto começou pela definição da área de melhoria contínua da Rangel e posteriormente avaliou-se a empresa relativamente à sua preparação para implementar Lean. Esta avaliação foi feita através de um questionário aos colaboradores. Assim, oportunidades de melhoria foram identificadas no sistema da empresa para que posteriormente fosse possível propor medidas para apoiar a Rangel nesta mudança organizacional.

Keywords: Melhoria Contínua, Lean, Implemenetação de Lean, Gestão da Mudança, Modelo Kotter.

Sistema de Classificação JEL: M11 – Business Administration: Production Management;

Abstract

Nowadays, more and more companies try to establish a continuous improvement culture among employees due to its great advantages. The Lean thinking allows companies to achieve costs reduction, efficiency increase and higher quality products (Kasivisvanathan & Chekairi, 2014). Unfortunately, many companies have failed to implement this organizational change due to the fact of not considering the complexity of the human factor (Almanei et al., 2018).

With almost four decades in the market, Rangel is currently a national reference of providing logistics solutions with high excellence standards. Having already developed a Lean model, Rangel struggled implementing it due the lack of change readiness to establish this kind of culture. Thus, the main objective of this project is finding the best approach to Rangel to implement this model and establish a continuous improvement culture in the company. The project took place in one of the most important clients Rangel has, Tabaqueira, the biggest tobacco producer in Portugal. Here, Rangel is responsible for most internal logistics processes of its client.

This project started by defining continuous improvement approach of Rangel and posteriorly an assessment was made regarding the company readiness to implement Lean. This assessment was conducted by a survey to employees. Hence, improvement opportunities were identified in the company system to subsequently propose proper actions to support Rangel in this organizational change.

Keywords: Continuous improvement, Lean, Lean implementation, Change Management, Kotter model.

JEL Classification: M11 – Business Administration: Production Management;

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List of Abbreviations

SWOT – Strength, Weakness, Opportunity, Threat

VSM – Value Stream Mapping

PDCA – Plan, Do, Check, Act

SDCA – Standardize, Do, Check, Act

ADKAR – Awareness, Desire, Knowledge, Ability, Reinforcement

CM – Change Management

1. Introduction

1.1. Introduction

In this chapter the problem context is addressed and explained in order to have a fully insight of this case study. Furthermore, the project objective will be also identified, when the research question is stated. Only after the general objective is well defined, is possible to determinate more specific goals. In addition to this, the scope and the methodology of this project will be also presented. At the end of this chapter, the structure of this thesis can be found.

1.2. Problem context

Accordingly to (Bhasin, 2013), companies must develop strategical solutions in order to face the constant evolution of the business environment due to factors as new technologies, political issues and population behaviour. Continuous improvement can be seen as the answer to this major problem, because of its great capacity to solve problems with low operating costs. This approach push companies to improve their own performance and quality, while reducing costs (Milner, 2016), engaging their own employees. However, Bhasin (2012) states that less than 10% of the United Kingdom organizations implement Lean a in successful way, emphasizing the high failure rate of Lean implementations and how hard it is to establish a continuous improvement culture. This kind of initiative can be treated as any other organizational change (Almanei et al., 2018) because accordingly with Galli (2018) change management is used when the current state has to evolve to a pretended one. Change management aims to facilitate the transition of organizations by leading and guiding the change initiative by managing and controlling several difficulties in order to overcome resistance (Almanei et al., 2018). Therefore, change management can help organizations to increase the chances of implementing Lean successfully.

Rangel is a logistics company that recognizes this approach as the path to be followed to achieve excellence. A continuous improvement model called LeaRn based on Lean tools and more precisely Kaizen already exists, but Rangel struggled to implement it in others facilities due to the current organizational culture and the absence of preparation to change.

At Tabaqueira, Rangel had several improvements regarding their processes, but it was not enough to create a sustainable culture of continuous improvement. These projects were sporadic and not continuous, as this method recommends. Thus, this project is generated from this need, assess Rangel in order to evaluate its readiness to proceed with this organizational transformation of implementing LeaRn and this king of culture.

1.3. Research Question

Taking into consideration the previous problem statement, the main objective of this project can be found in the following researching question:

> *"How should Rangel proceeds to achieve a successful implementation of a continuous improvement mindset in the company?"*

1.4. Objectives

Having as the main theme the assessment of Rangel culture regarding its readiness to implement a continuous improvement culture, is important to identify which aspects should be altered or improved before starting this organizational change. Only in this will be possible to define how Rangel will have to proceed to be successful when implementing this kind of mindset in the company. Since it is a cultural issue, the outcome of this thesis will be unique and singular.

To comply with the main objective, minor objectives were also identified:

- Characterize how continuous improvement is applied in the company;
- Analyse Rangel readiness to change;
- Recommend proper actions to help Rangel be prepared to change.

Only when the above milestones were achieved, the main objective of this thesis can be concluded and lead Rangel to a well-established continuous improvement culture.

1.5. Methodology

After the current situation has been analysed is possible to conclude that this project will follow a case study research methodology. Accordingly to Yin (2018), is necessary to confirm three different conditions to use this type of social science research method:

- Research question is a "how" or "what" question;
- Investigator has few or no control over events;
- Focuses only on contemporary events.

Concerning the systematic investigation, a sequence of steps will be followed in order to collect data through conduct a quantitative research. First, an initial state diagnosis of Rangel´s continuous improvement culture will be accomplished to understand the current state. Then, to assess Rangel change readiness, a questionnaire based in change management will be shared with the Rangel employees and an interpretation these results will be made. Accordingly, with the previous step, proper actions will be given to Rangel with the purpose of preparing to change to a Lean culture.

1.6. Scope

According to the previous objectives, this case study will take place at the facilities of one of many clients Rangel has. The culture of the company that was established through several years at Tabaqueira will now conduct this case study. Here, there is a need of creating a continuous improvement sense among Rangel employees so is important to determine what should be changed and improved before establishing this kind of culture.

1.7. Dissertation Structure

Regarding the structure of the present project, several chapters were defined with the aim of answering the research question and comply with all the objectives established previously.

- **Introduction:** The contextualization and the scope of the project were presented as well as the research question and their specific objectives that in order to be attained will follow a specific methodology.
- **Literature Review:** The theoretical background that supports this project includes different concepts and tools about the thematic developed that were previously investigated and published.
- **Methodology:** In this chapter the methodology chosen will be introduced for the current case study.
- **Case study:** This chapter will hold the company presentation and all the results obtained and their respective analysis with objective of obtaining possible conclusions. These results will be linked with the literature review whenever possible.

- **Conclusions:** The last chapter will include the conclusions of this case study and answering the research question. The contribution of these conclusions will also be part of this chapter that includes a set of improvement actions to be implemented.

2. Literature Review

2.1. Introduction

The theoretic framework that supports this case study is presented in this chapter, where different models and methodologies will be discussed. Change management is the emphasis of this research because this study field has the answers to the question mentioned previously – *"How should Rangel proceeds to achieve a successful implementation of a continuous improvement mindset in the company?"*

This chapter starts by introducing change management and is followed by its different models to identify the most appropriate one for the project. Then, a deeper analysis to the Lean philosophy is also conducted in order to connect both concepts. Finally, both themes will be combined with the purpose of getting a better conceptual understatement of how they can be integrated into each other. A conceptual framework to implement based on change management and Lean philosophy will also be presented.

This literature review was constructed using B-on, Google Scholar, Science Direct, Emerald - Operations, Logistics & Quality and Research Gate while searching by key words: Continuous improvement, Lean, Lean implementation, Change Management, Kotter model.

2.2. Change Management

Nowadays the only constant is change and organizations are now facing extreme challenges to keep up with the change rate of their environment. Kotter (2012b) states that the business environment volatility will keep rising in the next few decades. Thus, transformational changes are a mandatory requirement to survive such hostile and competitive markets (Burk, 2020). Kotter (2012b) also agrees with this, stating that firms are being forced to make drastic changes to survive due to the globalized economy, which is generating more opportunities for organizations but also more hazards. Several forces are responsible for the globalization of the economy and they are directly related to technological change, international economic integration, maturation of markets in developed countries and the collapse of worldwide communism. Thus, large-scale changes in organizations are becoming more common and they usually include, reengineering, restricting, quality programmes, merges and acquisitions, strategic change and cultural change.

Newton (2011) categorize changes initiatives into three different categorizations based on scale and scope:

- Transformational Change: Large scope vision that takes years to achieve;
- Bounded change: Scope is more limited and accomplished in months;
- Deliverable-led change: More closely associated with a definition of a project.

With this in mind, Galli (2018) stated that change management is addressed when the current state must evolve to a desired one and the main objective is to improve how the organization work is done (Voehl and Harrington, 2016). Project Management Institute (2013) also describes CM by being an approach to help individuals, groups and organizations to move from the current state to another that is more beneficial to the business. According to (Voehl and Harrington, 2016), CM is a disciplined framework to change behaviours to drive business results. Different methods and tools are put in practice to achieve a required business outcome, involving the managing of new business processes, change in organizational structure and cultural changes. Besides being fundamental to organizations survival and success, many change initiatives do not achieve the established objectives resulting in wasted resources and burned-out and frustrated employees (Kotter, 2012b). This change initiatives failure rate is around 70-80 per cent (King and Peterson cited in Smith, 2015), enhancing the need to appeal to the change management field to prevent these failures to occur.

2.2.1. Change readiness

In order to fully understand change management, change readiness must be addressed as well as its assessment. Project Management Institute (2013:30) states: "*Change readiness refers to an optimal state of acceptance demonstrated by an organization. The change readiness assessment measures the reality of the current organization in relation to the future state.*" This can be reflected by people's beliefs, attitudes and intentions regarding the changes that are needed and the capability of implementing those changes, making people resist or embrace these change initiatives (Armenakis, Harris and Mossholder, 1993).

Numerous change initiatives face resistance because organizations do not assess their change readiness properly, hampering and slowing down the change progress. Different factors are not taken into consideration when preparing an organizational change. These factors include effective leadership, a good relationship between managers and employees, organizational commitment, a positive communication climate, a coherent change strategy, the organization having the resources necessary to implement the change, a high employee participation and change agents with availability and proper skills (Burnes, 2017). Smith (2015) also states that it is necessary to assess change readiness and spend time evaluating the organization in order to increase the change implementation success. In addition to this, Hayes (2014) confirms that there is a positive correlation between successful changes implementation and the level of change readiness.

In sum, is fundamental to evaluate the current state of organizations before starting the change itself due to its potential of anticipating future problems or even preventing the change initiative to fail.

2.2.2. Resistance to change

Resistance to change is pointed for being the major issue behind the high failure rate of change initiatives (Bateh, Castaneda, & Farah, 2013). Burnes (cited by Peiperi, 2017, p.13) defines that resistance as:

> *"active or passive responses on the part of a person or group that militate against a particular change, a program of changes, or change in general."*

Thomas Diefenbach (2007) claims that one of the followings is enough to trigger resistance to change:

- People believe that change will make them lose something they value;
- Lack of trust in change agents;
- Fear of being unable to adapt to change;
- Fear of losing jobs;
- Believe change will not benefit the organization;
- Believe that the time and commitment invested on change won´t be enough;
- Believe that the knowledge provided will not be enough.

Smith (2015) argues that even on the smallest changes it should be expected resistance and managers should be prepared to face it. Bateh, Castaneda and Farah (2013) also state that change agents must expect employee resistance in order to overcome it and consequently. This agents main duty is to enlighten people that our natural instinct of resisting change is not always right (Palmer cited by Burnes, 2017). In addition to this, everyone carries different amounts of willingness to resist change, varying accordingly with a person's level of dispositional resistance causing change management a complex and complicated issue (Burnes, 2017).

With regard to change barriers, several topics can be pointed but the principal obstacle to implement changes successfully is the corporate culture (Project Management Institute, 2013; Erwin and Garman cited by Katombe, 2018). This issue is one of the biggest difficulties for companies to overcome because usually includes employees inertia, lack of trust in change agents, absence of change competencies and high bureaucracy corporate decision processes resulting in a change slowdown (Project Management Institute, 2013).

To summarize, resistance to change is one of the largest obstacles that change managers need to overcome in order to increase the possibilities of implementing a successful change. So, is important to managers to address it before and during the change process, always taking into consideration that the human dimension is a critical success factor for change implementation (FORD & FORD, 2010).

2.2.3. Change models

Change models can be divided into two different groups, the rational ones, that assume both organization and employees are ordered and controllable, and social process ones, that focus more on dealing with the human dimension (Almanei et al., 2018).

Lewin model was one of the first rational change models to appear to address organizational changes and is mostly composed by three phases: unfreeze, change and re-freeze. The first stage regards preparing the organization to change, the second one is implementing change and finally, the last one consists of change standardization and establishment (Lewin cited by Almanei et al., 2018). Unfortunately, this model do not detail how to deal with the human part of the change, being a major concern for change programmes which are based on people (Galli, 2018). A great example of how the Lewin model can be used towards a change implementation can be seen when two agricultural organizations wanted to become market-oriented. At the unfreeze step, in order to make sure the organizations were ready to change, several long-help assumptions about the nature of commodity products, the nature of production, the marketplace power and the 'commodity cycle' were uncovered. Only when the new market-oriented approach was accepted, the movement phase started. Here, the firm moved towards a set of values that involved the role of leadership, the use of market intelligence and organizational style. Finally, to refreeze this change, supportive policies were aligned to achieve a better relationship between the organization and the marketplace (Beverland & Lindgreen, 2007).

ADKAR model on the other hand is a social process model that focuses on individual change (Hiatt, 2006). It starts with the emlpoyees as the forefront of the change, being inadequadable to large-scale organizations changes with complex processes (Galli, 2018). This model stands that an individual, to change successfully, must pass through five steps:

1. Awareness of the need for change;
2. Desire to support the change;
3. Knowledge of how to change;
4. Ability to demonstrate new skills and behaviours;
5. Reinforcement to make the change stick.

A good example of this model applied is the case of the Husky company. One of the world´s largest brand name supplier of injection molding equipment and services to the plastic industry, the company Husky applied the ADKAR model to a high-impact strategic initiative. Project managers responsible for this project used this framework, making it easier to communicate the value change management brought to this project (Prosci, n.d.). Additionally, was also possible to convey how other project team members and managers could help to adopt this new solution (Prosci, n.d.).

Another model that also focus on individual instead of organizational change is "7 habits of highly effective people". Those habits are destined for those who are leading the change and not for all organization (Covey, 2016).

- Habit 1: Be Proactive;
- Habit 2: Begin with the End in Mind;
- Habit 3: Put the first Things First;
- Habit 4: Think Win/Win;
- Habit 5: Seek First to Understand, Then to Be Understood;
- Habit 6: Synergize;
- Habit 7: Sharpen the Saw.

Regarding this model, a large manufacturer of corrosion and fire-resistant coatings in the United Kingdom used it to conduct a change. The company leaders received individual training regarding those habits and embraced them, which launched the company on a process of change. After five years, the company revealed considerable gains in revenue and its culture (Collinwood & Skilling, 2009).

All the three models mentioned above are usually linked to smaller projects in terms of scope (number of people affected) and scale (what will be changed) as is possible to see in Figure 2.1 (Almanei et al., 2018). Lean implementation involves major changes in the company structure, system, processes and employee behaviour. This kind of transformation requires a radical change during a considerable time for altering the culture. Therefore, these models do not fulfil Rangel needs towards an organizational change as Lean implementation.

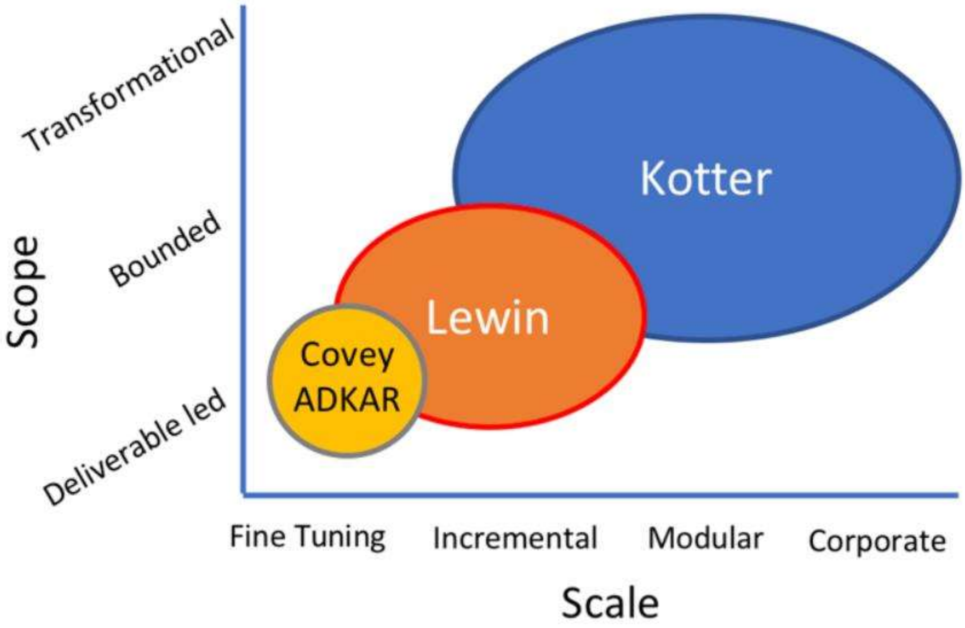

Figure 2. 1 - Change Theories linked by Project Size (Almanei et al., 2018, p.1163).

2.2.4. Kotter model

The Kotter model is divided into eight steps and it was developed based in an analysis of real change initiatives. This model will be applied to the case study, so it will be described in more detail. This change model is a sequence of steps that can help managers address improvement initiatives and leading organizational changes, making it more indicated to large-scale changes that can take years to establish (Kotter, 2012b). Kotter also (2012b) states that this model helps transformational changes through improving communication and change's sustainability. All the eight stages were developed to fight one error Kotter identified in previous organizations. The steps are the following:

Step 1: Establishing a sense of urgency

This stage is fundamental to create momentum and to gain employees cooperation as much as possible. A high complacency level combined with a low urgency level can jeopardize the whole change strategy resulting in wasted resources and frustrated people. Thus, Kotter identified complacency sources with the intention of helping managers to manage this fundamental concern.

Sources of complacency:

- The absence of a major and visible crisis;
- Too many visible resources;
- Low overall performance standards;
- Organizational structures on narrow functional goals;
- Internal measurement systems that focus on the wrong performance indexes;
- A lack of sufficient performance feedback from external sources;
- A kill-the-messenger-of-bad new, low condor, low confrontation culture.

People usually tend to underestimate all these issues making it harder to progress and improve. Kotter (2012b:44) states: *"A good rule of thumb in a major change effort is: Never underestimate the magnitude of the forces that reinforce complacency and that help maintain the status quo."*

Regarding the urgency level, powerful actions can be taken in order to convince people the status quo is no longer acceptable to the organizations needs and that change is required. Those actions will generate a big momentum that should be properly driven by managers. This stage is not complete until the majority of employees, managers and all top executives believe that the *status quo* is unacceptable and a change initiative is essential.

Step 2: Creating a guiding coalition

According to Kotter (2012b) change initiatives are not easy to accomplish so it is important to have a team in charge to guide and lead employees to a common goal. Thus, this group of people will be responsible to take major decisions aligned with the change vision that will be exploited in the next stage. Credibility and leadership should define the guiding coalition that must be constituted by people with a strong positional power and varied expertise. Kotter (2012b) also states that independently of how the guiding coalition is created, there must be one fundamental component: trust. Only with trust is possible to work as team with low hierarchisation and create a shared goal that will help fighting all the forces of inertia.

Step 3: Developing a vision and strategy

"Vision refers to a picture of the future with some implicit or explicit commentary on why people should drive to create that future"(Kotter, 2012b:71). In a transformational change, a good vision includes three main purposes. Clarifies the direction for change, motivates people to take action in the right direction and it helps to coordinate different people towards a common goal (Kotter, 2012b). Thus, people can make decisions in a faster and more efficient way because doubts and uncertainties disappear by asking a simple question – is this in line with the vision?

An effective vision must be:

- Imaginable;
- Desirable;
- Feasible;
- Focused;
- Flexible;
- Communicable.

Only when these characteristics can be found in the created vision, a strategy can be defined including plans and budgets. Only then, this step is completed and is possible to move to the communication of the change vision.

Step 4: Communicating the change vision

After creating the major purpose of change, it is time to share and communicate it to employees. Only by sharing this desirable future is possible to guide and motivate people to pursue it and take actions towards it. Unfortunately, there is a lot of information inside people's minds, making the vision communication a lot harder because it can be easily diluted and lost. In order to prevent this from happening, several key elements should be used to communicate vision:

- Simplicity;
- Usage of metaphor, analogy and example;
- Usage of different communication channels;
- Repetition;
- Explaining of seeming inconsistencies;

- Two-way communication.

However, the most powerful form of communicating is through leading by example, where both words and deeds are always together.

"*Nothing undermines the communication of a change vision more than behaviour on the part of key players that seems inconsistent with the vision.*" (Kotter, 2012b:99)

Thus, the behaviour of the guiding coalition and other important managers should coincide with the new direction in order to prevent the change credibility to fall. After sharing the path to follow, is time to empower employees to take actions towards it.

Step 5: Empowering employees for broad-based action

Internal organizational changes usually demand as many people as possible to be involved and to help fighting inertia. Hence, this shows how fundamental is empowerment in change processes. Empowered people can be the difference between a well-established change and a total failure. Despite the fact of being an essential concern in change management, several barriers can be found when trying to empower employees. So is important to take some measures as ensuring that the organization's structure and system support employee action, prepare employees training to take the right decisions towards change vision and lastly confront or even remove managers who could inhibit employee's empowerment.

Step 6: Generating short-term wins

With the purpose of providing a momentum boost for employees, short-term wins can help trigger the needed motivation to start an institutional change. Those short-term wins can be defined as projects aligned with the change vision that are easy to implement and have a great and visible impact on organizations performance. Apart from the momentum, different advantages come with these initiatives. Provide pieces of evidences that sacrifice and work are worth it, concrete feedback from employees about the validity of vision, individual recognition and rewarding for those who worked to produce change, undermining cynics and those who are against change are only some of the potential benefits of this stage. Due to this fact, short-term wins should be part of the change strategy.

Step 7: Consolidating gains and producing more change

As said before, short-term wins are fundamental to create momentum but if the celebration of those wins is done incorrectly, the sense of urgency that took a lot of time and effort to establish can disappear. High complacency can bring all traditional forces and sweep all change accomplished. Kotter (2012b:139) states: "*Whenever you let up before the job is done, critical momentum can be lost and regression may follow"*. So is fundamental to use this momentum to create more changes. Most organizational transformations need a long period of sustaining and embedding the change into the organization's culture. During this period, the guiding coalition should create more pressure to deliver more change, increasing the resources into change, reducing unnecessary interdependencies of the organization's system and making lower ranks in the hierarchy more responsible for change's projects. In this way, with the right commitment and leadership from senior management, is possible to create more changes.

Step 8: Anchoring new approaches in the culture

Despite almost all the change process that has been accomplished, there is still a high probability of losing all progress to the organization's culture. If the change program is not aligned with the nature of culture, eventually, it will be subject to regression and may cause the successful change to disappear. Therefore, it is important to identify old aspects that can threaten the change progress and addressing them by stating the new change advantages and improved performance. This last stage is the culmination of the model and is where most cultural change happens because is when most people change behaviours and attitudes definitely towards the change vision. Lastly, anchoring change also requires the commitment of managers to transmit this new approach to the next generation of management.

In sum, Kotter created a roadmap to guide managers to lead a major organizational change, preventing them to make the same errors that he identified in pasted changes initiatives. Thus, this model is ideal for major changes in terms of scope and scale (Almanei et al., 2018).

Kotter (2012a) updated this model where the eight steps became eight accelerators, becoming concurrent and always at work. The author also suggests a duo operating system where the traditional hierarchy system is complemented by a flexible and agile network (Kotter, 2012a). Thus, the model Accelerate becomes too complex for the change Rangel needs.

The Kotter model was used by the company Dyno Nobel in order to plan the transformation of the company into a Lean enterprise. After performing a SWOT analysis, a sense of urgency was raised to make everyone cooperate with the change. A guiding coalition, constituted by senior managers that believed in the change, was chosen to guide the change program. The vision created was related to supplying solutions to create value for their stakeholders to be recognized as the leading explosives company. The change vision was communicated while involving employees. Only then, it was possible to empower employees, providing them enough information and training, fostering employees to assume their roles more actively and encouraging their involvement in the kaizen philosophy. A set of short term wins was generated through the usage of the 5S tool to build momentum. Thus, it was possible to create more changes and anchor this new approach in the culture (Hurum, 2006).

2.2. Lean in Change Management

Lean can be considered as any other organizational change because managers address Lean to improve the current state to a leanest one with the main purpose of improving how the organization performs by reducing waste, maximizing value to the customer and improving their efficiency with a continuous improvement mindset.

2.2.1. Lean

The Lean philosophy emerged in the manufacturing industry with the main objective of increasing productivity at the lowest cost, while maintaining the quality of products and processes (Kasivisvanathan & Chekairi, 2014). This management philosophy focuses on delivering the maximum value to the final customer while reducing activities and resources that do not add any value – wastes (Gisi, 2018). These wastes can be divided into seven groups: overproduction, waiting, transportation, unnecessary inventory, inappropriate processing, defects and unnecessary motions (Monden, 1993 cited in Singh *et al.*, 2010).

With this in mind, five fundamental principles should be seen as a guide to the organization employees to eliminate waste and generate leaner processes (Hines, Found, Griffiths, & Harrison, 2011):

- Stipulate what generates value from the customer perspective;
- Identify all the value stream activities;
- Make these activities with no interruptions;
- Produce only what is asked by the customer;
- Pursue perfection through continually removing waste

According to Gisi (2018), an activity to be considered non-valued added are tasks that the final customer is not willing to pay, for instance inspections, reviews, approvals and finally waste. In contrast, a value-added activity is defined by being done right the first time, positively transformation of a product and the customer must be willing to pay.

Lean manufacturing is also directly related to the usage of several tools like Total Quality Management, 5S, Kanban, Visual Management, VSM, Poka-Yoke, PDCA and Kaizen due to their high capability of transforming regular processes into Lean processes. (Shah and Ward, 2003; Singh *et al.*, 2010; Alcaraz, Vento and Macías, 2017). By systematically using these tools, is possible to constantly identify and remove non-value added activities and resources and maximize the added value to the client (Alcaraz et al., 2017). However, this requires a continuous improvement mindset, where a constant effort by the organization and its employees is done in order to improve products, processes and standards. In this way, companies can create a competitive advantage based on developing more efficient and effective operations (Gisi, 2018).

2.2.2. Continuous Improvement

Nowadays the business environment can be defined as being highly dynamic, suffering rapid and dramatic changes, leading to higher demands on manufacturing organizations (Singh and Singh, 2019). In order to remain competitive in this environment with a high degree of change, companies implemented different strategies with the purpose of increasing their reliability, availability and maintainability in their manufacturing processes (Ahuja & Khamba, 2008). Thus, continuous improvement is seen as a strategy used to follow these fast changes.

Gisi (2018) states that a continuous improvement mindset is directly related to daily improvements that are made by everybody, contributing to reduce the differences between one particular process output. Thus, waste and variation can be identified with the help of techniques and tools and subsequently be eliminated (McLean, Antony, & Dahlgaard, 2017). Therefore, this approach aims to maintain and improve quality through a constant evaluation of causes that are directly increasing defects and consequently taking actions (Li, Papadopoulos, & Zhang, 2016).

These changes can be incremental or radical, but should be continuous with the aim of eliminating waste and inefficiencies of internal processes (Gisi, 2018). All these internal efforts are customer-driven, aiming to improve the quality of products or services and consequently increase the customers' satisfaction (Singh and Singh, 2019).

2.2.3. Critical success factors for Lean implementation

Enterprises usually attempt to implement Lean due to all benefits involved in this management philosophy. Unfortunately, this process is quite complex and difficult so is fundamental to take into consideration some factors that are critical for a successful Lean implementation (Houti, El Abbadi, & Abouabdellah, 2019). Therefore, companies must establish roadmaps and frameworks that are based on those factors to prevent risks of failure (Houti et al., 2019). Managers responsible for this kind of projects need to ensure that these key elements are properly addressed (Houti et al., 2019).

According to Houti et al (2019) the main critical success factor for Lean implementation are:

1. Top management support and commitment;
2. Project management and planning;
3. Change management and Organizational Culture;
4. Skills and expertise;
5. Employee attitude;
6. Effective communication at all levels;
7. Training and education;
8. Resources and capabilities;
9. Adoption of soft practice and good Lean tools;
10. Business plan and clear vision;
11. Active, strategic and visionary leadership;
12. Project selection and prioritization;
13. Project monitoring and evaluation of performance.

Numerous companies try to embrace Lean manufacturing due to its major advantages as production capacity increased, costs and waste reduction and others mentioned above. Nevertheless, there still exists a high failure percentage (Almanei et al., 2018; Bhasin, 2012) regarding Lean implementation so is fundamental to review these critical success factors before starting this change program. (Almanei et al., 2018)

Adopting Lean philosophy is a tremendous and long journey for every company, so a few frameworks have been developed such as the Wright and Mostafa frameworks (Almanei, Salonitis, & Xu, 2017). However, most of them can be defined as a sequence of different Lean tools that should be implemented without taking into consideration the human factor that is one of the most important things in Lean and consequently many companies failed in implementing it (Almanei et al., 2018). Almanei et al. (as cited in Lean Enterprise Insititute, 2018) affirms that in a study of over 900 executives, only 4% stated that their Lean efforts were in advantage stage. On the other hand, successful Lean implementations are usually accompanied by a change in structure, system, process and employee behaviour (Almanei et al., 2018). So, as change management suggests, is fundamental to address the organization’s culture to create an on-going change, making this a concerning issue in any organizational change.

2.2.4. Why Kotter model?

Lean implementation programs are usually related to great transformations that involve changing the culture of the company (Almanei et al., 2018). Thus, Lean can be defined as a transformational change that occurs for a long period involving a large change scale. As mentioned in the Figure 2.1, the Kotter model is the most appropriated for this kind of change. An adapted Kotter model was developed based on Lean implementation (Almanei et al., 2018). All eight stages can be seen in the Figure 2.2.

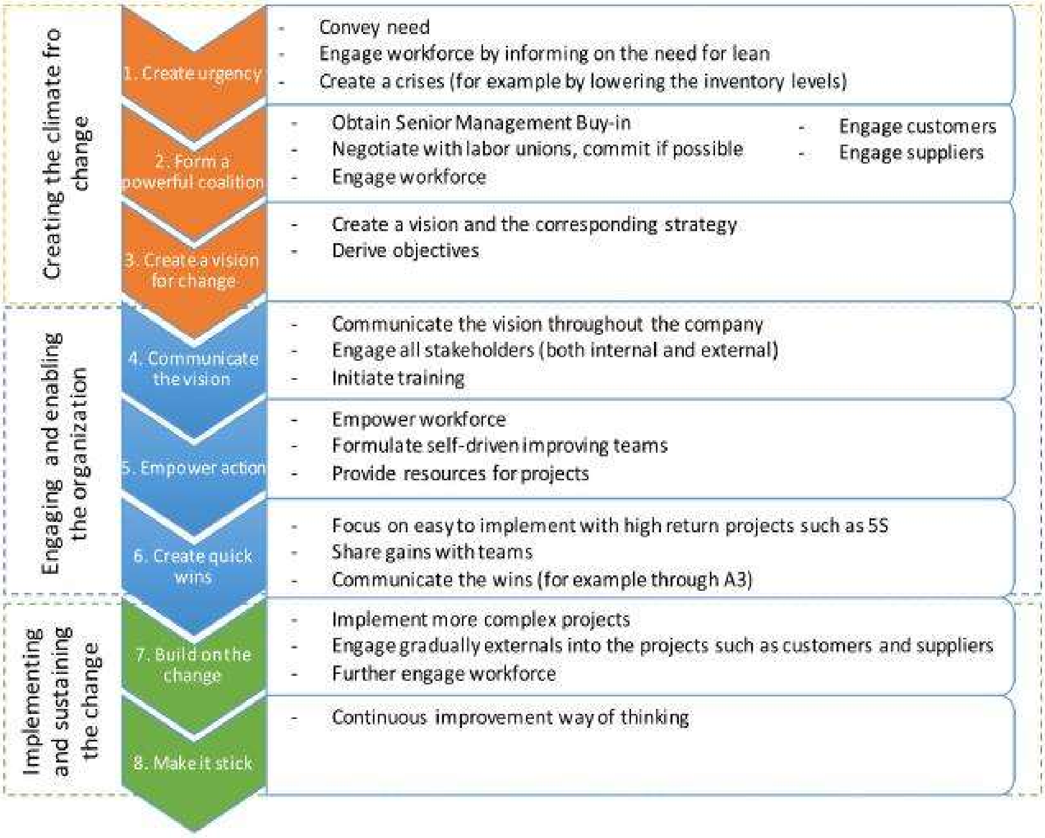
Creating the climate fro change
1. Create urgency
- Convey need
- Engage workforce by informing on the need for lean
- Create a crises (for example by lowering the inventory levels)
2. Form a powerful coalition
- Obtain Senior Management Buy-in
- Negotiate with labor unions, commit if possible
- Engage workforce
- Engage customers
- Engage suppliers
3. Create a vision for change
- Create a vision and the corresponding strategy
- Derive objectives
Engaging and enabling the organization
4. Communicate the vision
- Communicate the vision throughout the company
- Engage all stakeholders (both internal and external)
- Initiate training
5. Empower action
- Empower workforce
- Formulate self-driven improving teams
- Provide resources for projects
6. Create quick wins
- Focus on easy to implement with high return projects such as 5S
- Share gains with teams
- Communicate the wins (for example through A3)
Implementing and sustaining the change
7. Build on the change
- Implement more complex projects
- Engage gradually externals into the projects such as customers and suppliers
- Further engage workforce
8. Make it stick
- Continuous improvement way of thinking

Figure 2. 2 - Proposed framework for implementing Lean manufacturing (Almanei et al., 2018, p. 1164).

This model can be grouped into three different stages:

- The first stage, constituted by steps 1 to 3, has the main purpose to create the most appropriate environment possible to change. Depending highly on leadership, management commitment and workforce engagement (critical success factors to implement Lean), this is the most critical stage to a successful Lean implementation. This phase allows the defrosting of the status quo and prepare the organization to change.
- The next stage includes the steps 4, 5 and 6 and regards enabling the organization to change through the engagement of the workforce. There is large focus on communication as well as training employees regarding Lean and its tools (such as 5s) within this stage. Lastly, through the implementation of short and easy wins, momentum is raised, increasing the commitment towards the Lean implementation.
- The steps 7 and 8 constitute the third stage, where the employee's momentum is the basis to implement more complex projects and deploy more Lean tools (such as VSM and Poka-Yoke). Only in this way is possible to sustain the change in the long term.

Mishra (2013) also mapped the Kotter model alongside with Lean reasons for success based on two different studies of implementing Lean. The first one is regarding a study done to more than 20 enterprises which tried to implement Lean but failed (Chen & Meng, 2010) and the second one remains for a large company that only at its second attempt accomplished to implement Lean successfully (Scherrer-Rathje, Boyle, & Deflorin, 2009). In this way, we can see this model with a Lean approach including key factors for each step in order to implement Lean successfully. This can be seen in Table 2.1.

Table 2. 1 - Kotter model with key factors for Lean success

Kotter steps	**Key factors for Lean success**	
	(Chen & Meng, 2010)	(Scherrer-Rathje et al., 2009)
1. Establishing sense of urgency	Get support from leaders and involve management at different levels	Visible management commitment
2. Create guiding coalition		
3. Develop vision and strategy	Involve and change work habits	Open discussion of short term and long term goals
4. Communicate the vision		Formal communication

5. Empower others to act on the vision		Formal mechanism for autonomy
6. Planning for and creating short-term wins	-	Communicate wins
7. Consolidating improvements and producing still more change	-	Evaluate changes
8. Institutionalizing new approaches	Standard work Long term commitment Establish HR system	Long term sustainability

Thus, is possible to have a better understatement of which aspects should be considered when implementing Lean through the usage of the Kotter model. Accordingly to Mishra (2013), even with sufficient knowledge about Lean tools, change management tools and techniques are required to successfully implement Lean. Additionally, Mishra (2013) also recommends including a continuous performance evaluation of this organizational change.

2.3. Summary

With the theoretical underpinning addressed in this chapter, the present case study tends to analyses the current state of Rangel in order to assess it towards a Lean implementation. This analysis will appeal to change management because the Lean implementation is considered an organizational change so it should be treated like one. In addition to this, this chapter will help to suggest adjustments and changes to be implemented with the purpose of increasing the chances of implementing a Lean culture successfully.

This chapter starts with introducing change management by exploring its importance to companies that want to follow the business world changes in a proper way. Since one of the main goals of this case study is to assess Rangel readiness to change, change readiness is also mentioned as a fundamental concern before starting a change program in order to prevent several issues but mainly resistance to change. Different change models were analysed with the purpose of choosing the most appropriate to be the foundation of the change readiness assessment. The Kotter model was the chosen one to use in this investigation.

Then, this theoretical research allowed to connect both change management and Lean philosophy, including a conceptual Lean implementation framework based on Kotter´s model. This model will help to assess Rangel readiness to implement Lean.

3. Methodology

3.1. Introduction

In this chapter, the case study methodology is presented and its choice is justified accordingly with the objectives specified previously. With the methodology selected, all steps conducted to achieve the main goal will be explained, including which data collection methods will be used in this case study.

3.2. Case Study Methodology

According to Yin (2018), to choose the most suitable structure to conduct this investigation, numerous conditions must be verified. So, in order to use a case study methodology in the current project, the followed conditions should be affirmed:

1. The research question is a "how" or "why" question;
2. The researcher has no control over the studied events;
3. The researcher seeks to study a contemporary event or set of events.

In fact, all these aspects can be found in the current investigation, proving that the case study methodology is the most appropriate to understand this case study (Yin, 2018).

When conducting a case study is important to understand its general goal so that the investigation is properly executed (Yin, 2018). A case study may have up to three different purposes: exploratory, descriptive and explanatory. Once a real-world case is described among the investigation and other similar situations can be explored with the current research question, the purpose of this case study is descriptive and explanatory.

Accordingly to Yin (2018), the present case study is classified as a single case study. This is because the current investigation focuses only on Rangel's business situation, no taking into account other companies.

3.1. Steps in the research methodology

In this chapter, investigation steps will be presented as well as their respective data collection methods and how this information will be processed. In this way, all the objectives of this project can be achieved. The methodology steps can be found below:

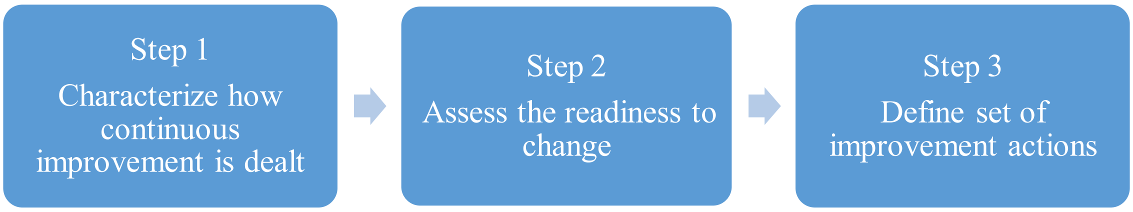
Step 1
Characterize how continuous improvement is dealt
Step 2
Assess the readiness to change
Step 3
Define set of improvement actions

Figure 3. 1 - Investigation steps

3.1.1. Step 1 - Characterize how continuous improvement is dealt

In this step, the Rangel environment towards change will be characterized with help of different information sources. Accordingly to Yin (2018), case study evidence may come from: documentation, archival records, interviews, direct observations, participant observation and physical artefacts. This step will only appeal to documents, direct observation and interviews in order to identify and describe continuous improvement techniques and methodologies of the company.

Regarding qualitative data, some continuous improvement documents will be analysed to understand how this area is dealt within the organization. In addition to this, the continuous improvement model LeaRn will be also analysed through this source. Direct and participant observation will be also fundamental to understand the culture lived inside Rangel. A semi-structured interview will be taken with continuous improvement employee to better understand how Lean and continuous improvement are handled within the organization.

3.1.2. Step 2 - Assess the readiness to change

Accordingly to Holt et al. (2007) an assessment of readiness can be conducted using both qualitative and quantitative methods. Despite the fact of qualitative data can provide specific information regarding change, quantitative methods like surveys are an appropriate method to gather information in large firms because it can be distributed broadly in short periods.

Quantitative data will be collected through a survey interview, using a structured questionnaire. Accordingly to Yin (2018), this kind of situation is relevant when a survey to workers and managers is conducted in an organization case study. The literature review was the foundation to develop this questionnaire where two major issues were addressed:

- Kotter´s model and the Lean implementation framework based on this model;
- Critical Success Factors of Lean implementation.

Two different questionnaires were created due to the fact of existing two different audience targets. Firstly, operational workers that live and work indeed Rangel culture have a more vividly point of view because they are who perform manager's decisions. On the other hand, managers (area supervisors and other managers) who have a more generalist view are also fundamental to understand how the decisions are made and how strategic changes are dealt within the organization.

In both questionnaires (Annex A and Annex B), the sample is characterized based on age, education level and employees areas. Then, all Kotter's model stages are addressed with a few questions always taking into consideration the critical success factors to implement Lean and consequently a continuous improvement culture. The questions can be seen at the Table 3.1 as well as their respective organization aspects that were assessed.

Table 3. 1 - Questionnaire design

Kotter model	**Questions**		**Aspects assessed**
	Workers	Managers	
Create urgency	• This culture of continuous improvement is necessary at Rangel. • I am a change supporter. • There is a high level of complacency within the organisation (acceptance level with the current state of Rangel). • When there is a need to implement a change in Rangel, the reasons for this change are usually presented to employees. • I am involved when it comes to solve problems.	• This culture of continuous improvement is necessary in Rangel. • I am a change supporter. • There is a high level of complacency within the organisation (acceptance level with the current state of Rangel). • When there is a need to implement a change in Rangel, the reasons for this change are usually presented to employees. • Workers are involved in problem solving.	• Company complacency and urgency to change (Kotter, 2012b) • Employees support (Kotter, 2012b) • Employee attitude (Houti et al., 2019) • Employee engagement (Almanei et al., 2018)

Form a powerful coalition	• The team has enough credibility and leadership to drive an organisational change.	• The team has enough credibility and leadership to lead this change. • The team is functionally diverse (with different points of view). • The team has authority and decision-making power. • The team has a high level of hierarchy. • Top management supports this change. • The team has enough availability to lead and support this change.	• Team credibility (Kotter, 2012b) • Team leadership (Houti et al., 2019; Kotter, 2012b) • Team decision-making power (Kotter, 2012b) • Team expertise (Kotter, 2012b) • Top management support and commitment (Almanei et al., 2018; Houti et al., 2019; Mishra, 2013)
Create a vision for change	• This vision is clear and easy to communicate. • This vision is advantageous for me. • This vision is advantageous for the client. • This vision is executable.	• This vision is clear and easy to communicate. • This vision is advantageous for me. • This vision is advantageous for the client. • This vision is executable.	• Vision characteristics (Kotter, 2012b)

Communicate the vision	• This vision will be communicated in an appropriate and objective way. • In my working day it is normal to lead by example. Ex: When someone tells you to act in a certain way, that same person also acts in this way. • I have adequate training for my functions and needs. • Are you familiar with the lean concept? Example: 5s, Kaizen, Value Stream Mapping, Poka Yoke, Kanban. • I am willing to receive training in Lean Management.	• Will this vision be communicated in an appropriate and objective way? • In my working day it is normal to lead by example. Ex: When someone tells you to act in a certain way, that same person also acts in this way. • Workers have adequate training for their functions and needs. • Are you familiar with the lean concept? Example: 5s, Kaizen, Value Stream Mapping, Poka Yoke, Kanban. • Lean management training for workers is essential to the success of this change.	• Leadership (Houti et al., 2019; Kotter, 2012) • Employees Lean expertise (Almanei et al., 2018; Houti et al., 2019)

Empower action	• I usually suggest new improvements. • I have sufficient autonomy and independence to implement small improvements in operational processes. • Supervisors are independent and autonomous enough to implement new improvements.	• Workers usually suggest new improvements. • Workers have sufficient autonomy and independence to implement small improvements in operational processes. • Supervisors are independent and autonomous enough to implement new improvements • The process of implementing new improvements is bureaucratic. • Is there any recognition or reward system to motivate employees to cooperate with this change?	• Employees attitude (Houti et al., 2019) • Employees autonomy (Houti et al., 2019; Mishra, 2013) • Change bureaucracy (Kotter, 2012b) • System support to the change (Houti et al., 2019; Kotter, 2012b; Mishra, 2013)
Create quick wins	• Whenever a new project is implemented it is usually communicated. Example: changing a process.	• Whenever a new project is implemented it is usually communicated. Example: changing a process. • Is possible to implement new improvements that are effective and simple to complete? • Are there performance indicators in operations to analyse the impact of improvements?	• Opportunity to implement quick wins (Kotter, 2012b) • Project's communication (Kotter, 2012b) • Performance evaluation (Houti et al., 2019; Mishra, 2013)

Build on the change	• The improvements implemented in the processes are permanent. • If you do not consider that changes are permanent, what reasons do you associate with their non permanency?	• Supervisors have availability to support this change. • The improvements implemented in the processes are permanent. • If you do not consider that changes are permanent, what reasons do you associate with their non permanency?	• Employees availability (Houti et al., 2019) • Change permanency (Houti et al., 2019; Almanei et al., 2018)
Make it stick		• The team is ready to make an ongoing assessment of the performance of this organisational change. • The team is committed to leaving this management approach to the next generation of managers.	• Monitoring change programme (Houti et al., 2019; Mishra, 2013) • Next managers generation (Kotter, 2012b)

Firstly, a group of questions was created to describe the audience of the survey. Moving on for the Kotter model, the first stage will be evaluated in terms of change acceptance by part of both workers and managers in general. The employees' involvement takes a major role in Lean implementation. In the next stage, several questions were generated to evaluate the team who will lead this change program, being this one factor that is fundamental to implement Lean. Then, several aspects of the vision and its communication will also be evaluated in order to check if they were adequate for the change program. The next step is related to empowering actions, so a group of questions was created to analyse this aspect. Afterward, it will be asked if there are any opportunities to create quick wins to generate momentum to pursue the change vision. To assess the seventh step and eight step, an assessment will be made to the permanency of changes and the establishment of this culture change.

Thus, will be possible to assess Rangel readiness to implement each step towards a Lean culture and indicate organizational issues that should be improved. After receiving the workers' and managers' responses, data treatment will be made based on Microsoft Office Tools.

3.1.3. Step 3 - Define a set of improvement actions

After understanding what are the improvement points that should be worked on, several improvements propose will be made in order to support Rangel towards a continuous improvement culture. Those proposes will be founded on the literature review on Kotter's model and the Lean philosophy.

4. Case Study

4.1. Introduction

In this chapter, the company where the case study occurred will be introduced. Furthermore, all the research steps will be presented. Firstly, the current state of Rangel (company under study) will be described as well as its continuous improvement approach. Then, the readiness to change will be analysed in order to identify points that can danger the change initiative towards a continuous improvement culture. After this, it will be possible to suggest appropriate actions to support Rangel into the organizational change.

4.2. Rangel

Rangel Logistics Solutions is a Portuguese company that was founded in 1980 by Eduardo Rangel and nowadays transport acts in more than 220 countries and territories, being a reference in this sector.

With almost four decades in the market, its mission concerns about offering integrated and global logistics solutions while creating sustained win-win relationships with all stakeholders involved, being this the only way to create value and obtain excellent logistics services.

This company provides eight different services:

- Feirexpo;
- Express;
- Customs Broker;
- International Road Freight;
- Sea Freight;
- Air Freight;
- Custom Critical;
- Contract Logistics.

The last one (Contract Logistics) will receive more emphasis because this is the service the company is providing directly linked with this work. Currently, Rangel is providing this service to Tabaqueira, meaning that is responsible for a big percentage of the internal logistics processes and its respective products. Thus, processes improvement to Rangel is of very high importance, not only because they are providing a service to one of the biggest clients Rangel has (Tabaqueira), but also because their logistics processes are a critical factor to the business.

4.3. Tabaqueira

Tabaqueira, an affiliate of Philip Morris International, is the biggest tobacco company in Portugal located in Albarraque, Sintra. Additionally, is also one of the major production points of Philip Morris International in Europe with 800 employees. Different brands are produced here, such as SG, Português, Marlboro, L&M and Chesterfield. Besides this, is also responsible for the IQOS commercialization, a new form of tobacco consumption with a lower risk of damaging users' health. Philip Morris International is a leader of the international tobacco marketplace, with 73,500 people all over the world. Its product, sold in almost 200 markets, are produced in 38 facilities worldwide, being Tabaqueira one of them. At Tabaqueira facilities, Rangel employees are divided into 13 different operations areas. A supervisor (area manager) manages each team by three to fifteen workers. Lastly, there is a continuous improvement department and a top management team.

4.4. Investigations steps applied to Rangel

4.4.1. Step 1 - Characterize how continuous improvement is dealt

Nowadays, continuous improvement is becoming more and more critical to companies in modern manufacturing and service (Li et al., 2016). Through the continuously look for new ways to do things is possible to achieve several small improvements that lead to great enhancement regarding costs, time and safety. This is why so many companies try to establish a continuous improvement culture among their employees and Rangel is no different. However, a big percentage of these companies fail to do it (Almanei et al., 2018), so is mandatory to understand how Rangel's culture works in order to prevent this initiative to fail.

At Tabaqueira, Rangel has a specifically continuous improvement department and it was where the project was developed. Three employees and their manager composed this team as is possible to see in the Figure 4.1. Though they belong to this department, different responsibilities were held by them. One of the employees was responsible for safety and hygiene at the workplace. The supervisor of all Tabaqueira areas where Rangel was present also belonged to this team. The last employee was responsible for new projects and continuous improvement. Managing other warehouses and all logistics processes inside Tabaqueira was the manager's function. These last two also work in other clients besides Tabaqueira.

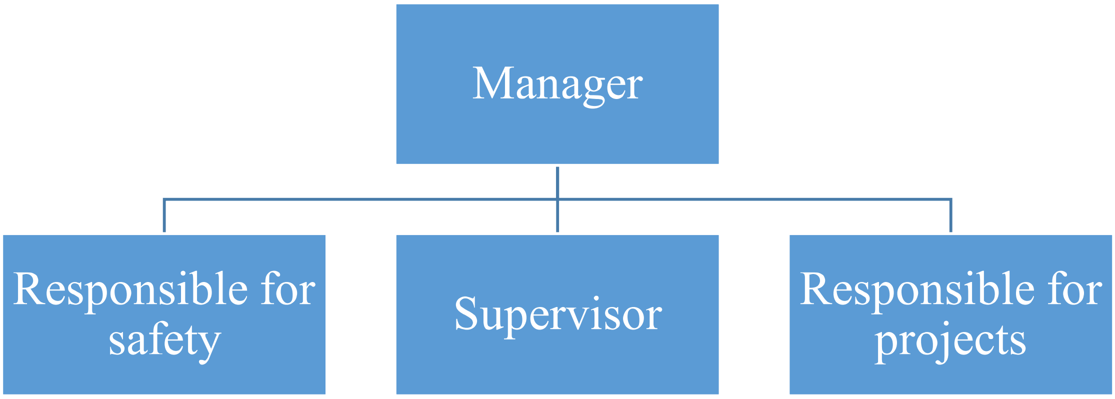

Figure 4. 1 - Organogram of continuous improvement department

Despite the fact that this team was composed by four different people, the time spent on continuous improvement was very little or even none. Not because there was not goodwill to improve the existing processes but because due to prioritization, other tasks are set always first, resulting in continuous improvement always comes in second place. Since there are no allocated resources (people) working exclusively for the continuous improvement field, the importance of this process has been lost through time.

During the project execution it was possible to directly observe that improvements were approached only in a reactive way. Improvements were only made when problems already occurred and not the other way around, creating a reactive mindset to solve problems, not a proactive one to try to prevent them. A semi-structured interview (Annex B) conducted with one of the continuous improvement employees also confirmed this fact. In addition to this, when improvement projects are implemented in Rangel there is a considerable lack of control regarding their progress and performance. This is due to the lack of time invested in this field and the absence of key performance indicators linked to Rangel operations, inhibiting the performance control of operational areas and consequently their projects implemented. Rangel employees work under a well-defined hierarchy with low flexibility. Working at client facilities also makes improvement processes too much bureaucratic and time-consuming. All these factors inhibit people to see the advantages of continuous improvement, discouraging them to try to improve the current state of Rangel processes.

With this in mind, the team manager of Rangel knew that an intervention was needed with the purpose of establishing a continuous improvement mindset among all employees and create a solid process to support this kind of culture.

Previous research work was done by another Rangel's team that developed a continuous improvement model called LeaRn that was implemented at the beginning of 2019 at Rangel Pharma, a business unit focused in pharmaceutical logistics located at Montijo. This model consists in several Lean tools such as Process Mapping, Ishikawa, SDCA, PDCA and 5S. However, the main point of this model is based on Kaizen boards and quick meetings with the employees to identify operational improvements that should be implemented. LeaRn main goal is to establish a Lean culture and achieve a sustainable efficiency growing through the continuous analysis of operational problems and solving it with the employees cooperation. In this way, it would be possible to reduce or even eliminate potential waste and create more value. To help implement these solutions, an adapted Deming´s cycle called APLICA (Analysis, Planning, Implementation, Control and Action) is also used by the continuous improvement team in order to monitor the improvement projects. Despite the fact that this model requires continuous support from the continuous improvement team, these kaizen meetings depended too much on their permanent struggle and effort. The lack of motivation and a Lean mindset of employees were a big barrier to this initiative. This happened because there was a big gap between LeaRn and Pharma Rangel behaviours that should have been filled first. Employees did not feel the necessity and urgency to change towards a Lean culture, resulting in a lack of interest and participation in the kaizen events.

LeaRn

Rangel

Figure 4. 2 - LeaRn

Before implementing LeaRn is important to assess the readiness of Rangel to implement this Lean mindset among employees and identify which actions can be taken to increase the chances of success.

4.4.2. Step 2 - Assess Rangel readiness to change

In order to assess Rangel readiness to change towards this continuous improvement culture, two different questionnaires were conducted to both Rangel's managers and workers.

Regarding managers surveyed (area supervisors and other managers), the size of the population was 15 and its sample was also 15, meaning that all managers answered the survey, obtaining 15 different answers. On the other hand, the size of the population of workers surveyed was 150 and it was possible to obtain 35 answers from 35 different workers.

This assessment is organized in nine different segments accordingly with the questionnaire. The first one remains to the characterization of the sample and the following eight are based on the eight steps of the Kotter model always taking into consideration the Lean philosophy as was possible to see in the Table 3.1.

4.4.2.1. Description of audience

In a first moment, a characterization of respondents was made to facilitate the interpretation of the questionnaire answers.

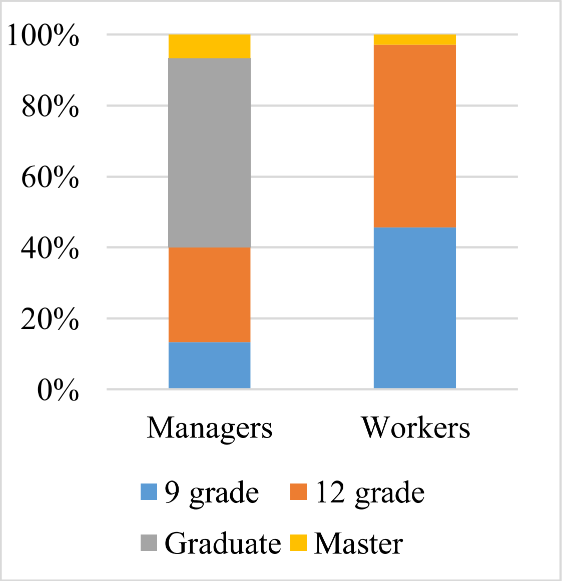

Figure 4. 4 - Description of audience: Employees' education level

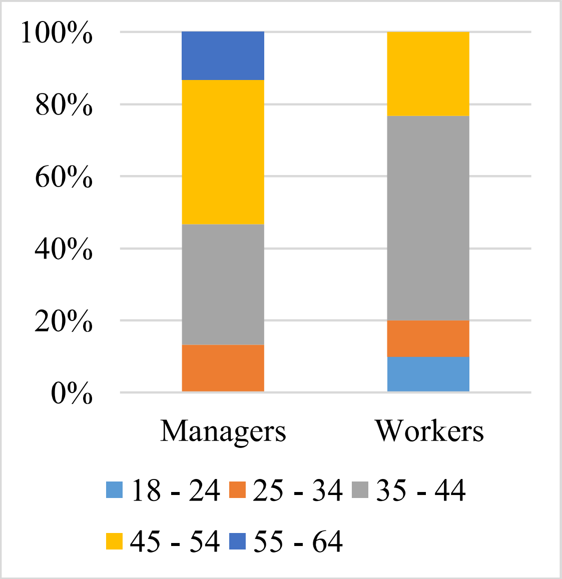

Figure 4. 3 - Description of audience: Employees' age

The majority of managers have between 35 and 54 years and around 53% are graduated. On the other hand, most workers are aged between 35 and 44 years and divided by the 9th and 12th grade.

Table 4. 1 - Description of audience: Employees' areas

Areas	**Managers**	**Workers**
AE – Armazém de Expedição	1	6
AMT – Armazém de Matéria Técnico	1	2
APA INC – Armazém de Produto Acabado	0	7
APL – Armazém de Produção	0	4
CCH – Armazém de Coruche	1	2
DOP – Departamento de Operações	3	0
IQOS – Armazém de IQOS	1	0
Melhoria Contínua	4	0
Infeed	0	1
SAC – Serviço de Apoio ao Consumidor	2	1
SEMI´s – Armazém de Matéria-Prima	2	0
Armazém Secundário	0	2
Triagem	0	3
W16 - Armazém 16	0	7
Total	**15**	**35**

Most of Rangel departments are represented in this study, but unfortunately was not possible to collect data from every department due to the worker's lack of accessibility to computers and the pandemic scenario of covid-19. Regarding managers, there are some departments that don´t have a manager associated.

4.4.2.2. Create urgency

Establishing a sense of urgency is a key factor to successfully implement any change. This first step of the Kotter's model is the most important one due to the fact of having a direct impact on creating a climate to change. Thus, is fundamental to understand if Rangel is ready to create this climate of urgency, so several questions were asked to both workers and managers.

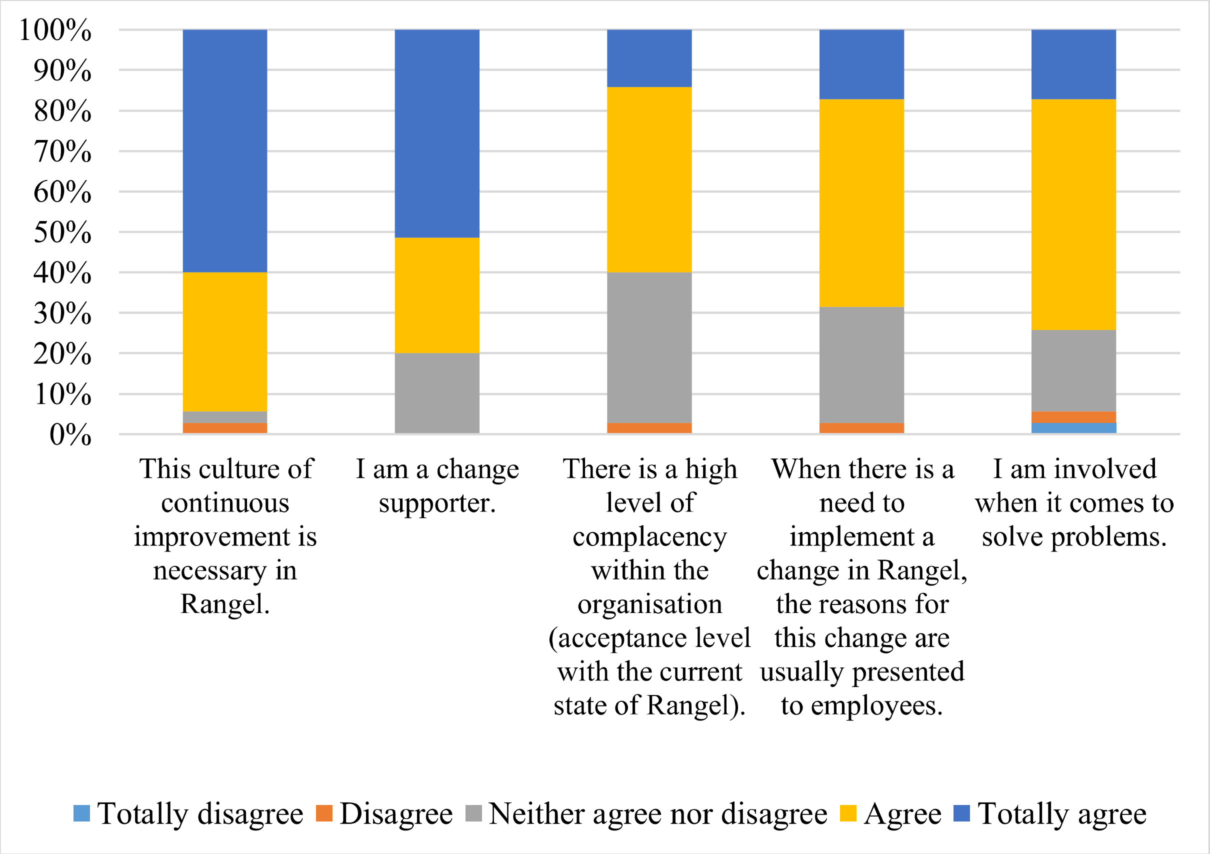

Figure 4. 5 - Create urgency: workers

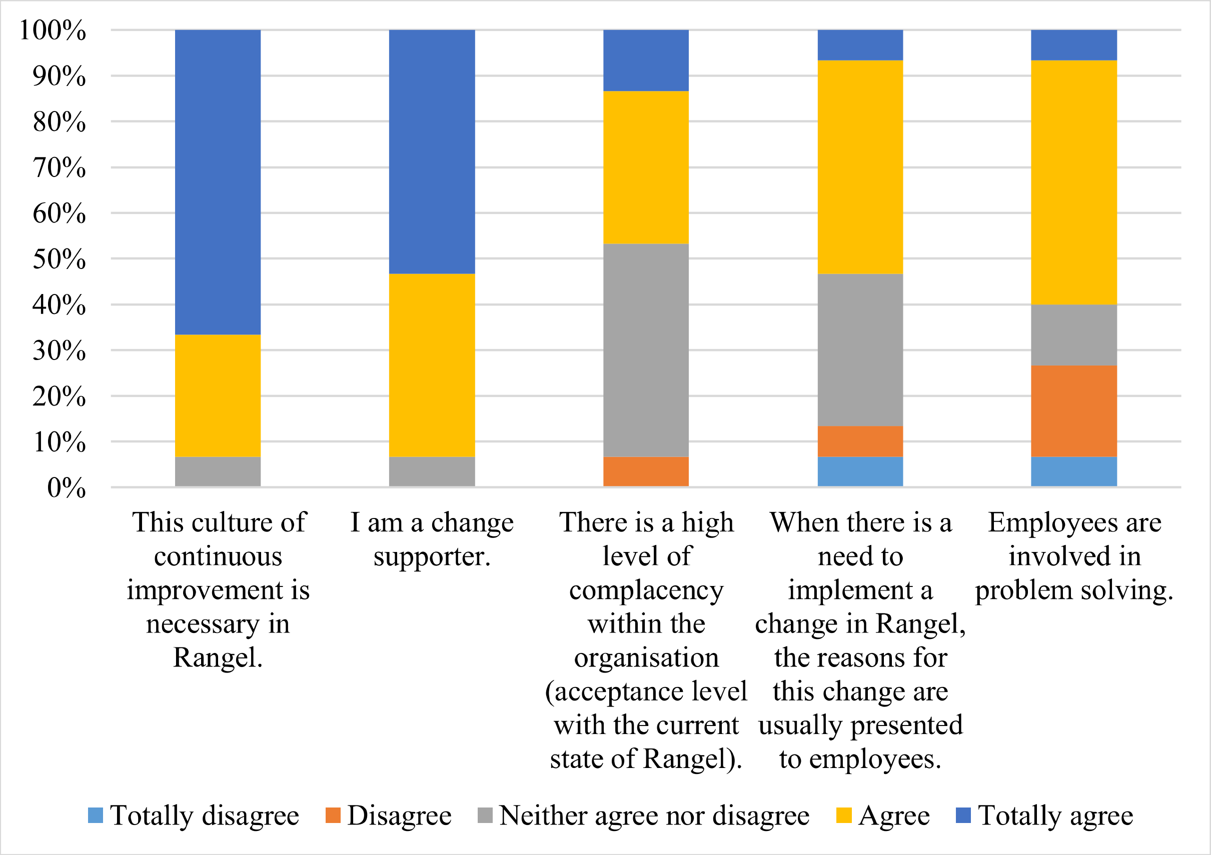

Figure 4. 6 - Create urgency: managers

Almost every manager (93%) and (94%) worker surveyed agree that a culture of continuous improvement is necessary at Rangel. Additionally, most of them state that are change supporters (93% for managers and 80% for workers). Both managers and workers were asked if there is a high level of complacency inside Rangel's culture. Besides realizing that a culture of continuous improvement is needed, there is a high level of acceptance with the current state among most employees (46% for managers and 68% for workers). With this is possible to conclude that most employees agree that is necessary to establish this culture but a high complacency level with the current state was also identified. They realise the status quo should evolve, meaning that if a change towards a Lean and continuous improvement culture occurred, a considerable amount of support and understatement by part of the Rangel employees would be expected. However, accepting the fact of the current state is enough can slow down the change progress or even jeopardize it. All employees must understand that the status quo is no longer sustainable or viable to meet the organization's goals. So is essential to diminish the complacency to raise the urgency level of establishing this culture.

To create this sense of urgency and to apply this change model towards a Lean implementation is also important to understand the level of engagement with the workforce. Thus, it was asked if the reasons behind any change are usually explained to workers. Despite the fact of most workers agreed with this statement (69%), only 53% of the managers admit to clarify changes' motives. Besides a considerable percentage of workers feel engage (75%), only around 60% of the managers agree that involve workers to solve problems and 25% state that do not do it. Not having a high level of workforce engagement can be a future problem because it is one of the most important aspects in continuous improvement.

4.4.2.3. Form a powerful coalition

All changes initiatives must be led by a credible and authority team that should guide employees towards a vision. In this case, only the members of continuous improvement department will compose this guiding coalition. Several questions were asked to all employees in order to evaluate this step.

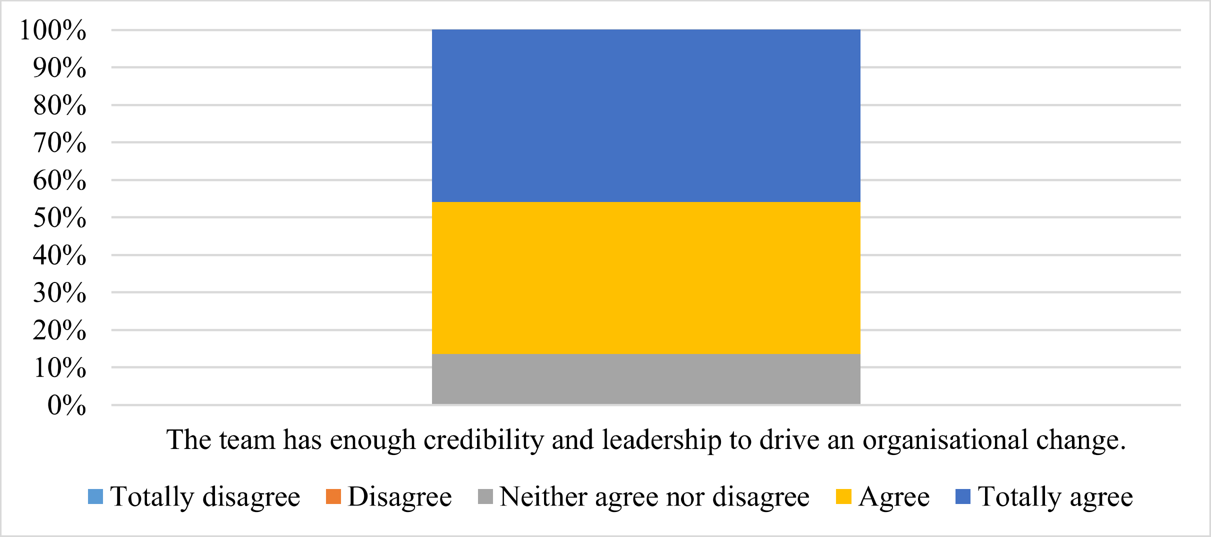

Figure 4. 7 - Form a powerful coalition: workers

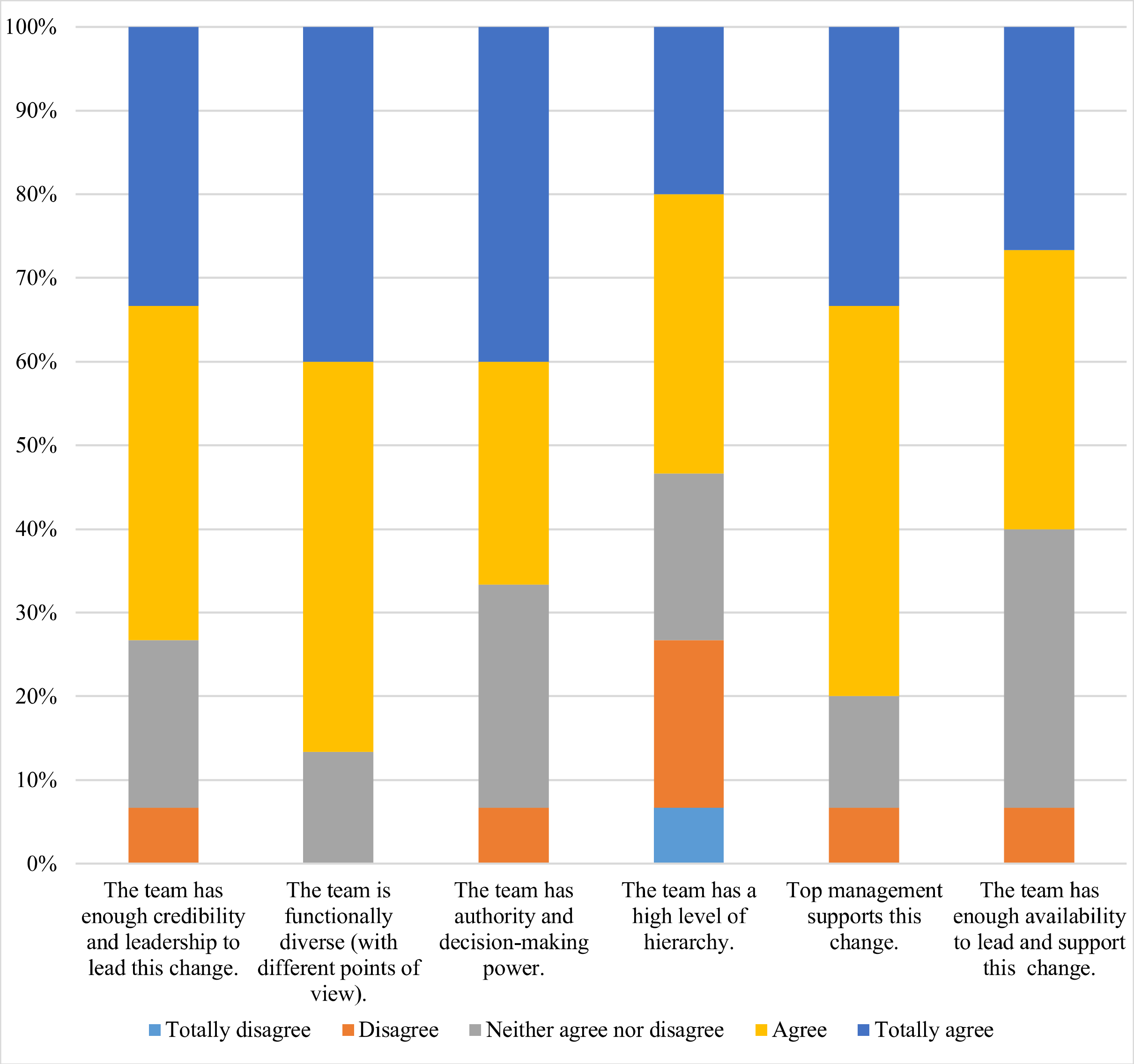

Figure 4. 8 - Form a powerful coalition: managers

The first question remits to the level of credibility and leadership of this team. A large part of the employees (73% for managers and 85% for workers) agrees that this team has enough of those aspects to guide an organizational change.

Managers agree with the fact that this team has different points of view, where 40% strongly agree with this. Despite the fact of belonging to the same department, is important to remember that all members have different backgrounds and unique functions at Rangel.

Despite most managers (66%) think that this team has the authority and decision-making power, working inside Tabaqueira facilities can create some difficulties in implementing some operational changes. Depending on the client to make some decisions can be time-consuming and bureaucratic. Additionally, decisions may not be aligned with the client's needs, having a big probability of being declined. Thus, all this process can cause a loss of momentum on the part of the employees and the guiding coalition.

Is also possible to conclude that most managers (53%) also agree that there is a significant amount of hierarchisation in this team, meaning that the information needed to make decisions is processed sequent and orderly through all hierarchy levels. This will affect negatively the decision-making process, making it too slow and hampering the change's implementation.

As the most important critical success factor for Lean implementation, is fundamental to know if the top management accepts and supports this change initiative. Almost every manager (80%) answered that top managers will support the establishment of a continuous improvement culture. In this line of thought, a considerable percentage (60%) of the managers agree that this team has enough availability to lead this change.

4.4.2.4. Create a vision for change

The guiding coalition function is to lead employees to a desirable future, so is fundamental to have a concrete idea of where this change will take them. The continuous improvement model, LeaRn, already has a vision defined:

"Being recognized as a reference in the service quality in all operations through the creation of a continuous improvement culture.

Reach levels of efficiency, innovation and reliability demanded by clients through application of the continuous improvement model.

Sustainable growth of efficiency through the involvement of the entire team."

Regarding this change vision, several questions were surveyed to managers and workers to assess different aspects that every vision should have.

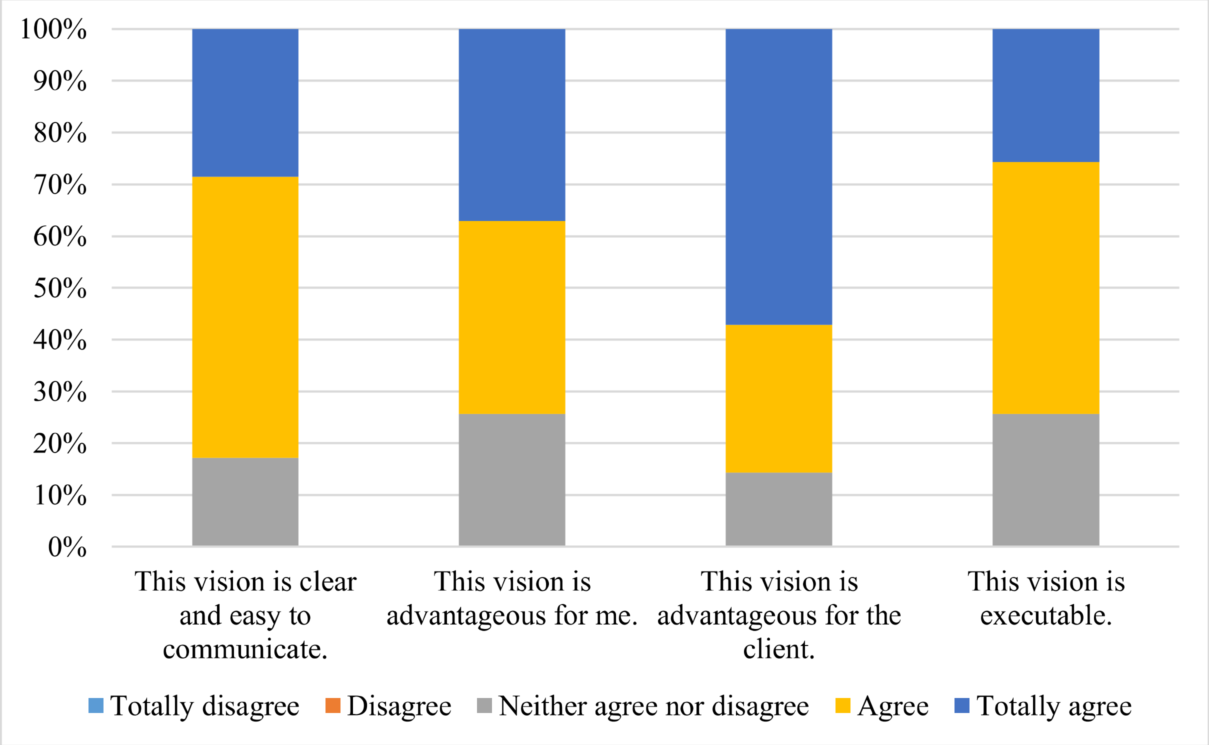

Figure 4. 9 - Create a vision for change: workers

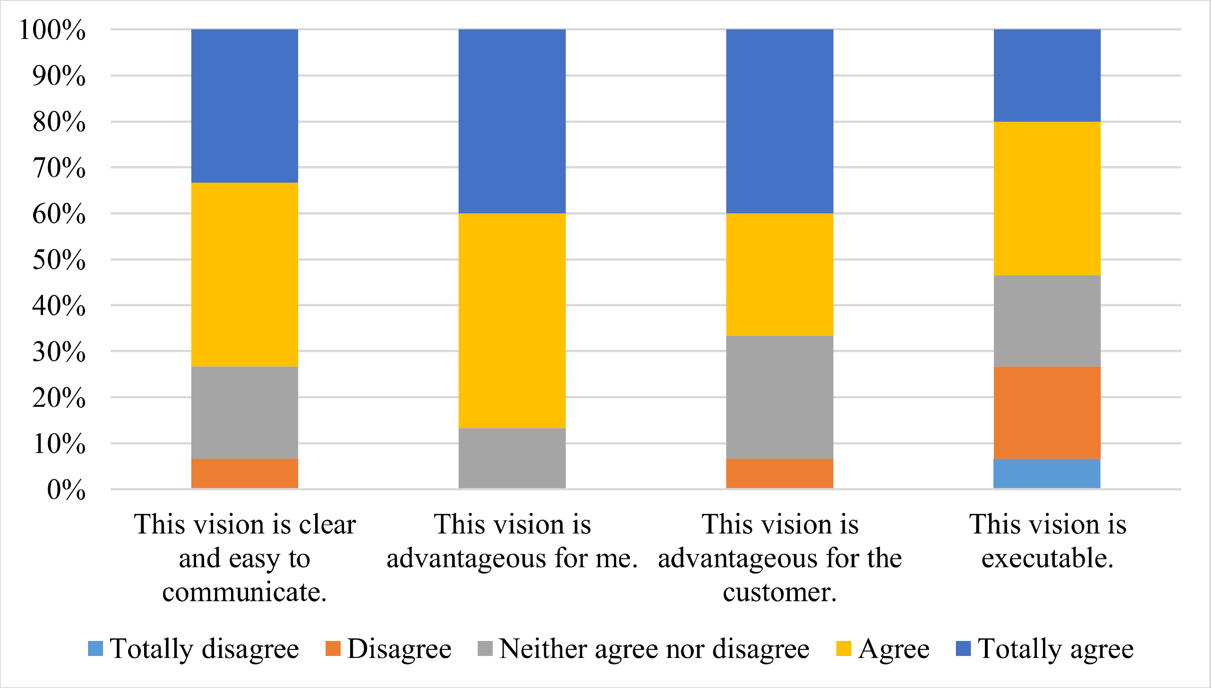

Figure 4. 10 - Create a vision for change: managers

The majority of both managers (73%) and workers (82%) agree that this vision is clear and it will be easy to communicate among all the organization. Furthermore, this kind of vision must be desirable by people who will be impacted by. In this case, all Rangel employees and Tabaqueira must see this vision as an advantage to them. Therefore, it was asked if this vision would benefit employees where both managers (93%) and workers agreed (74%) with the statement. Regarding the client, positive feedback was also received, where 86% of the managers and 85% of the workers agreed that this vision would benefit the client. Lastly, around 73% of managers agreed this vision is feasible along with 74% of total workers.

Respectively to the strategy to achieve this change, the only thing that is defined is that the model LeaRn will be implemented area by area, having no objectives and a proper strategy defined . Without this, resources can be spent, people can get frustrated and the change progress can be small or even null. Having a strategy can help managers monitor the change initiative and take action towards its success.

4.4.2.5.Communicate the vision

The real potential of a vision is unleashed when most of those who are involved understand the desired future and the path to follow. Only when this happens, people get motivated and know which actions should take to help to achieve this future.

In this step, the chosen guiding coalition will communicate to employees what is the desirable future and how to get there. Additionally, the employees' training will start at this stage too. Employees were surveyed regarding some communication aspects inside Rangel.

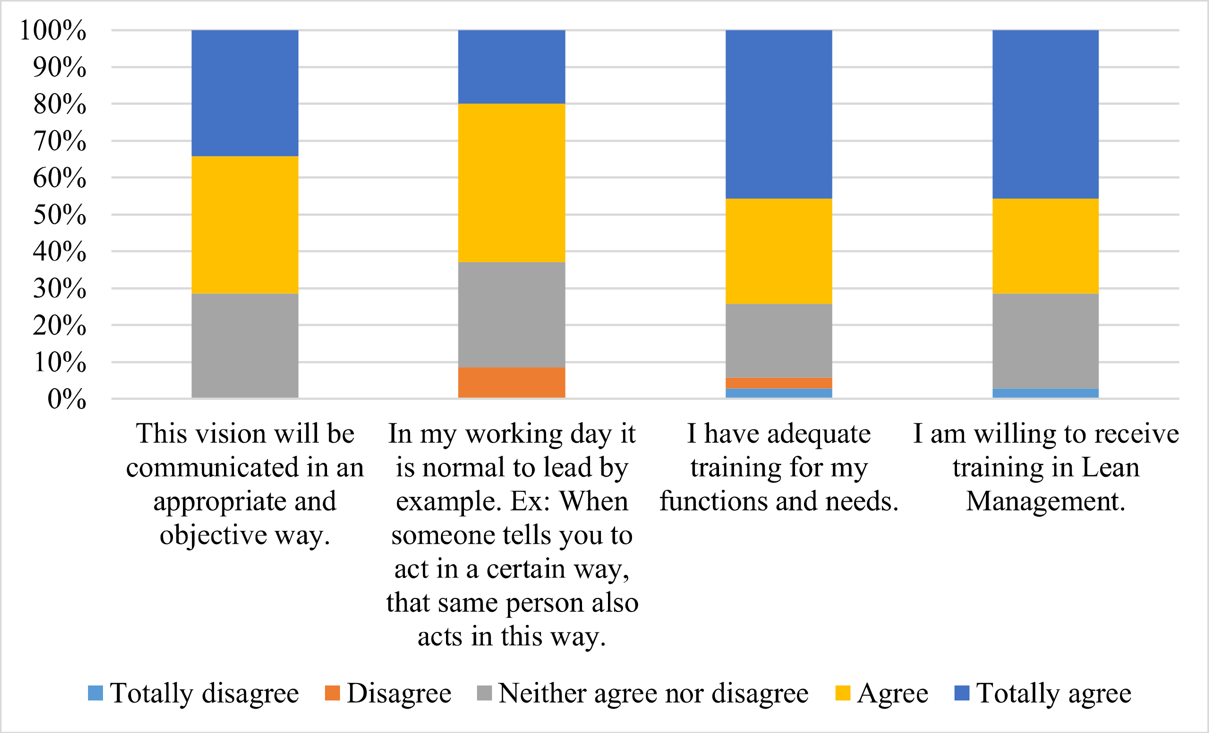

Figure 4. 11 - Communicate the vision: workers 1

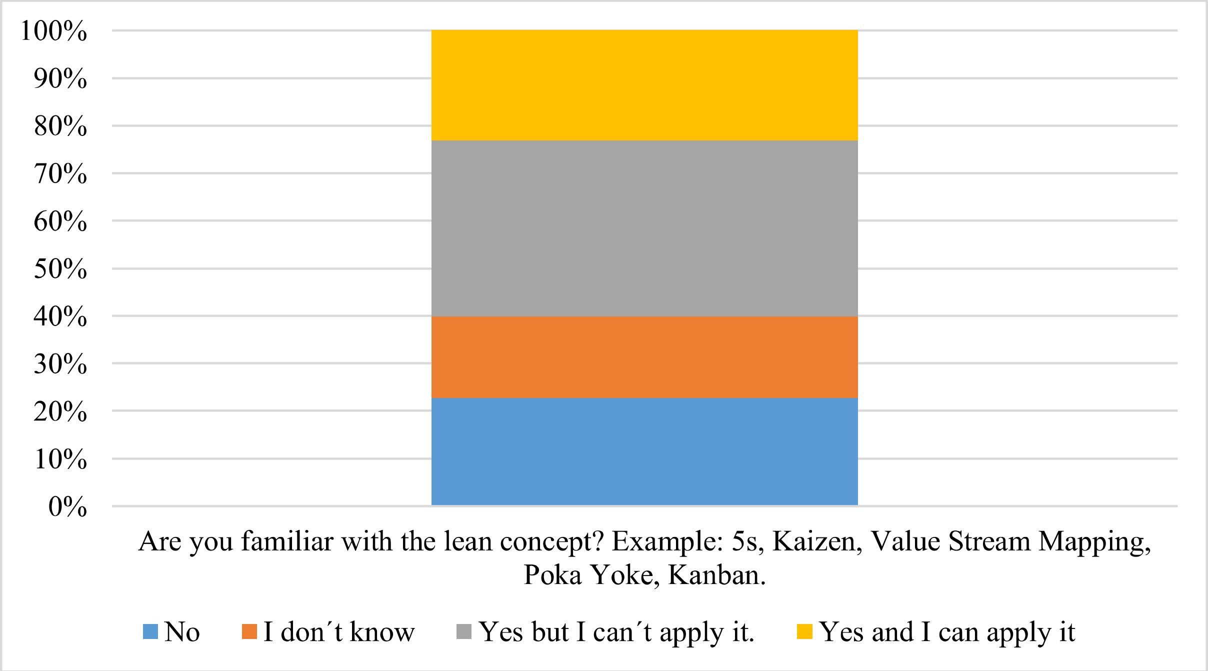

Figure 4. 12 - Communicate the vision: workers 2

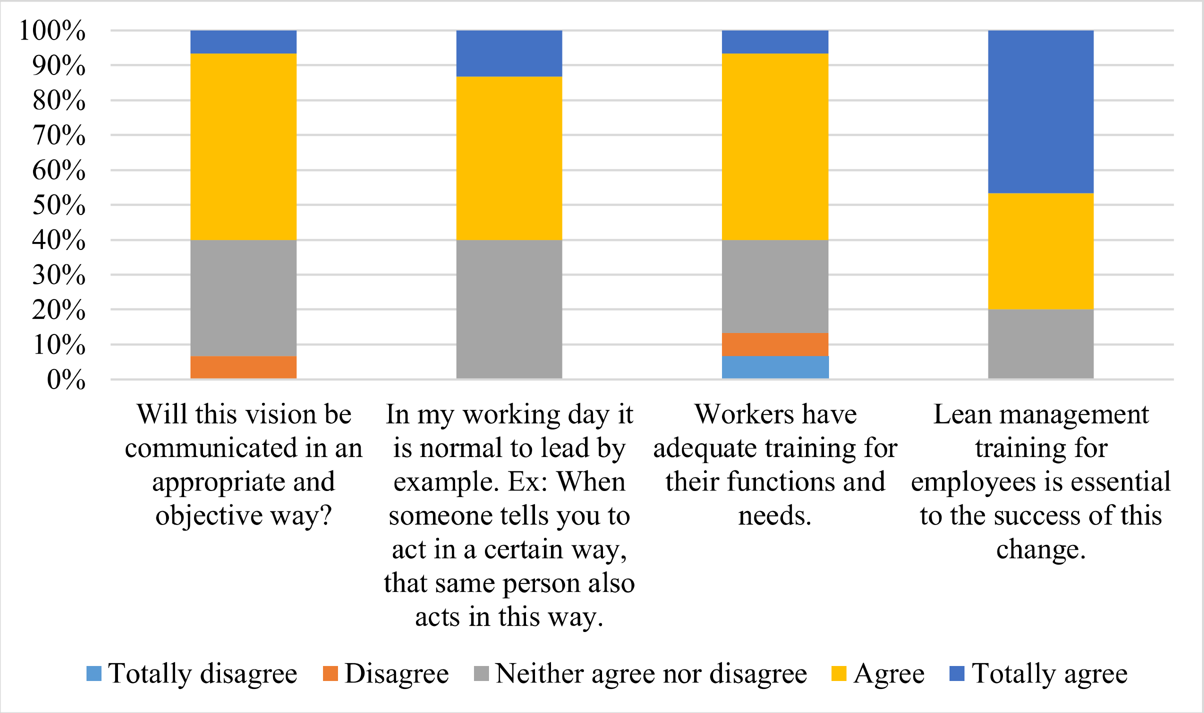

Figure 4. 13 - Communicate the vision: managers 1

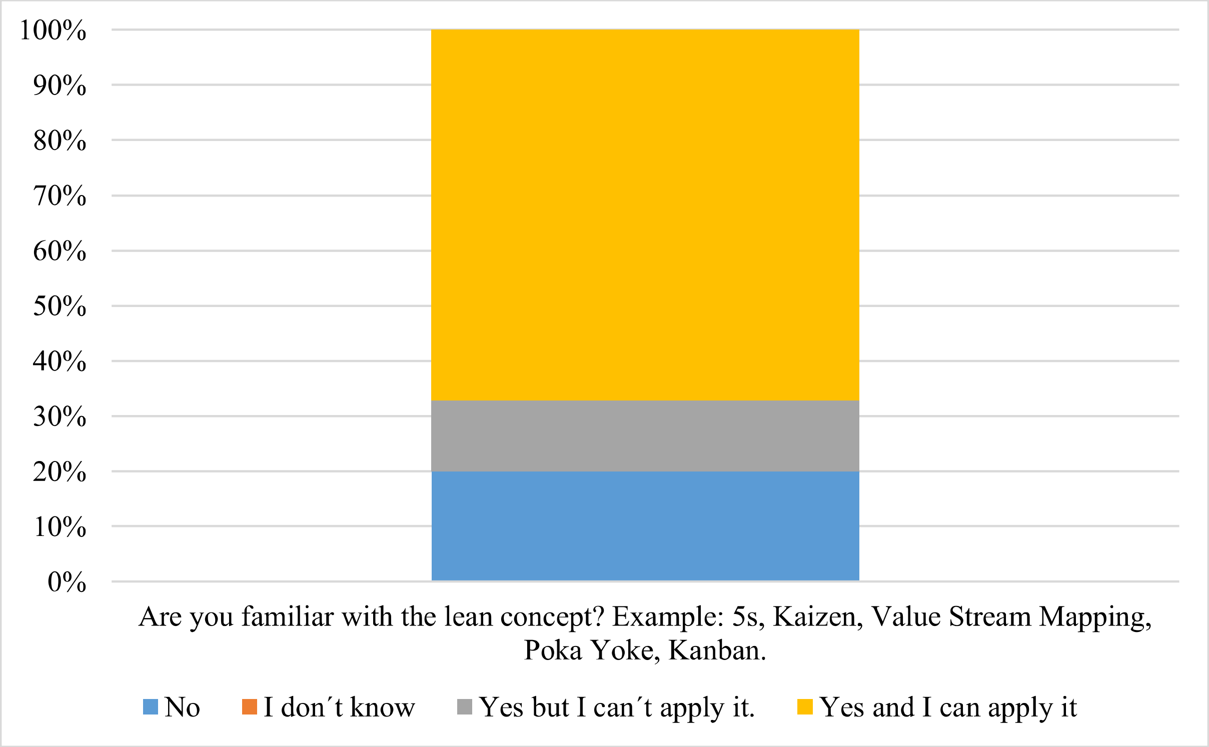

Figure 4. 14 - Communicate the vision: managers 2

In terms of how the vision will be communicated, just 60% of managers agree that this vision will be communicated objectively and properly, where only 7% totally disagree with this. Despite this, 71% of workers believe that this vision will be communicated properly. If the guiding coalition fails to communicate the change vision, the result will be a stalled transformation. Initial momentum can be lost, people can be confused toward the direction to go and all change programme can be in danger. Regarding leadership by example, only 60% of managers and 63% of workers believe that people act accordingly to what they announce and demand, where a significant percentage of workers (9%) disagree with this. The most crucial aspect of communicating a vision is acting out accordingly and when does not happen, change credibility starts being questioned.

Another aspect that could be pointed to as a fundamental factor to the establishment of this vision is the employees' mindset towards Lean. This is because employees' skills and expertise are a critical success factor for Lean implementation, so is mandatory employees have enough Lean training and formation. A considerable percentage of workers (74%) agree that have appropriate training for their functions and needs but only 60% of managers believe that workers have appropriate training. Additionally, it was asked if it was known what Lean is. Regarding managers, 66% know the concept and are able to apply it, 13% know the concept but can´t apply it and 20% do not know the concept at all. On the other hand, only 37% of workers know the Lean concept and are able to apply it and 22% know the concept but can´t put into practice. By following this line of reasoning, it was also asked managers if is fundamental for workers to receive Lean training, where 80% agreed and the majority totally agree with this statement. Along with this, a considerable number of workers (71%) are willing to receive this training. Thus, is possible to conclude only a small group of workers can apply Lean and the majority is willing to receive this training. Workers play an essential role in a Lean culture and if most managers agree with workers receiving Lean training, this can be translated as a great improvement opportunity.

4.4.2.6. Empower action

Employees tend to not support and cooperate with changes when they feel powerless, meaning that if employees feel without enough power to take action, they will not help to pursue the change vision. Empowering employees play a key role in change processes. With this this in mind, different questions were surveyed in order to assess Rangel into this aspect.

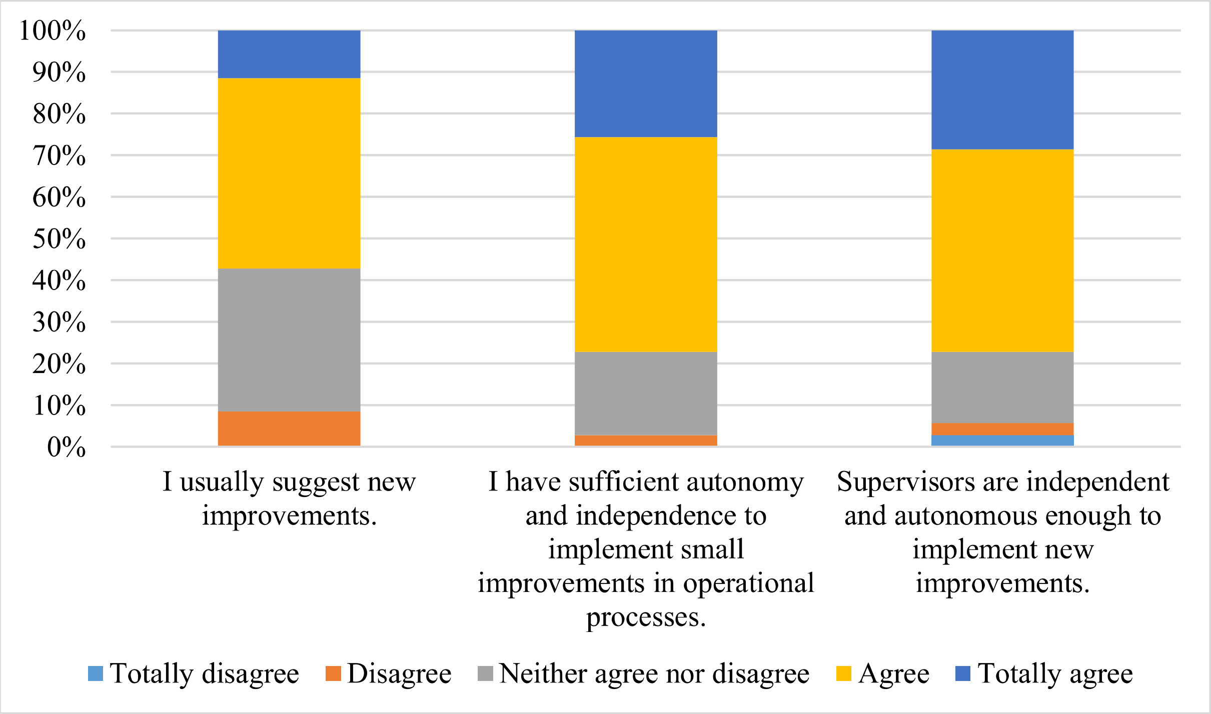

Figure 4. 15 - Empower action: worker

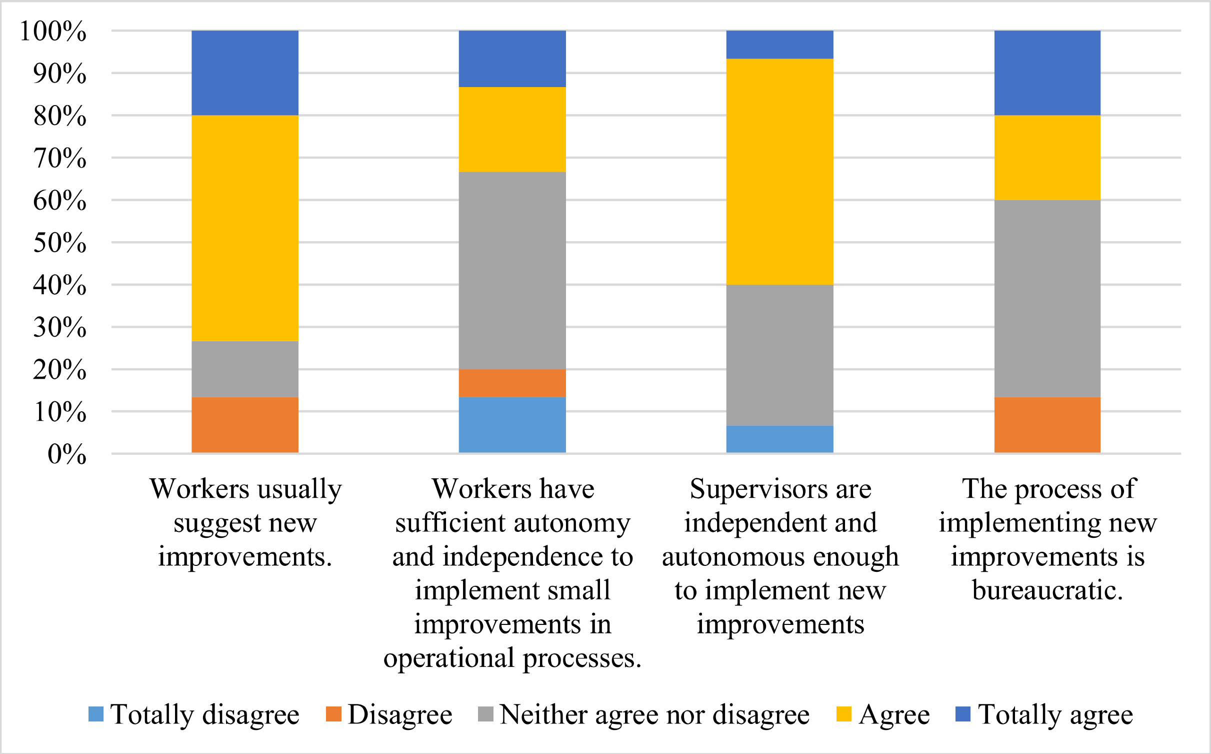

Figure 4. 16 - Empower action: managers 1

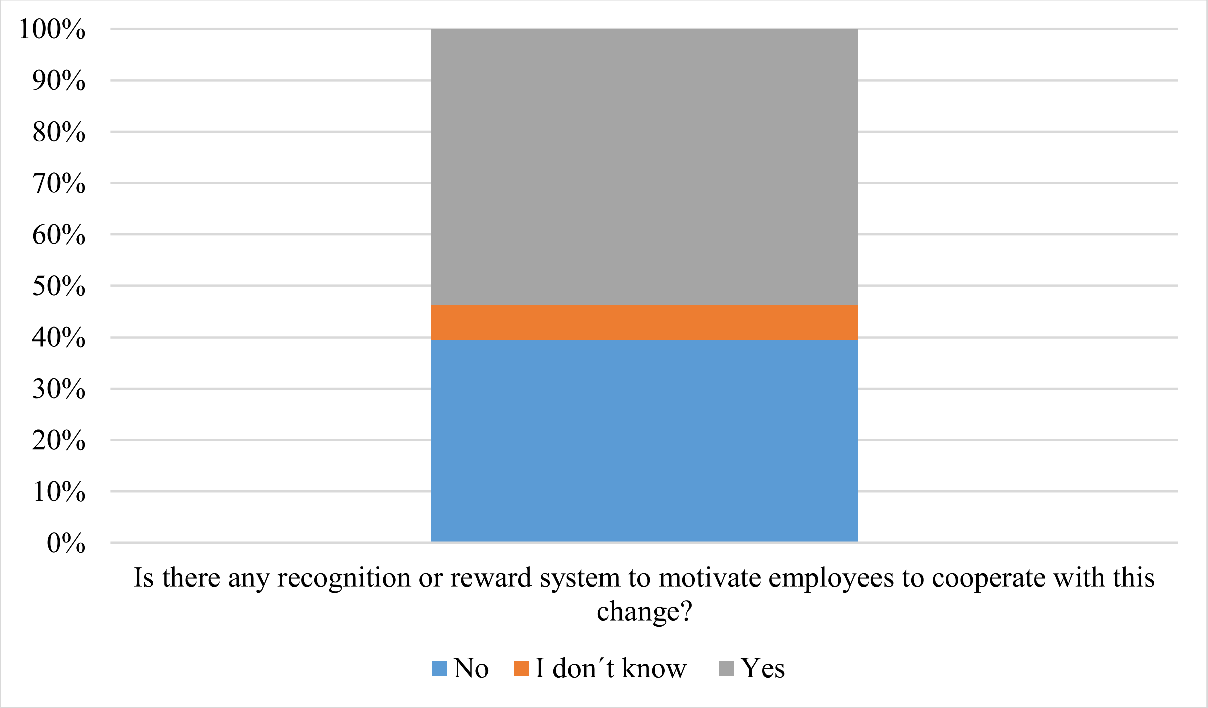

Figure 4. 17 - Empower action: managers 2

A large percentage of managers (73%) agree that workers usually suggest improvement opportunities but only 57% of workers give improvement suggestions. In addition to this, most workers (77%) agree that have enough autonomy and independency to implement small improvements but only 33% of managers agree with this statement and 20% disagree. With this, we can conclude that there is room for a significant increase in the empowerment of workers. Additionally, 40% of managers state there is not a rewarding or recognition system that could motivates workers to help this change programme. This issue can be an obstacle to pursue the change vision and embrace the change program.

Regarding the supervisor´s independency and autonomy to implement new improvements both managers (60%) and workers (77%) agree with this statement. Thus, the supervisor's empowerment could increase too.

Finally, a considerable amount of managers (40%) agrees that the process of implementing new improvements is bureaucratic, meaning that this process takes too much effort from people and this can be a barrier for empowerment.

4.4.2.7. Create quick wins

This change stage has as main objective to motivate employees and build vision credibility through easy and powerful wins, so a group of questions was surveyed to assess these aspects.

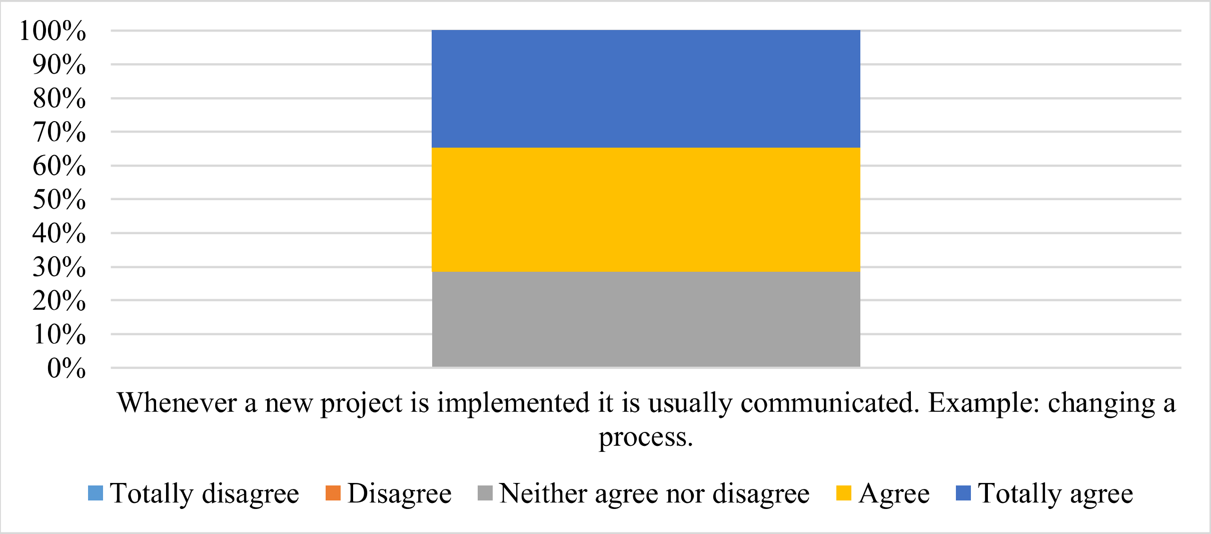

Figure 4. 18 - Create quick wins: workers

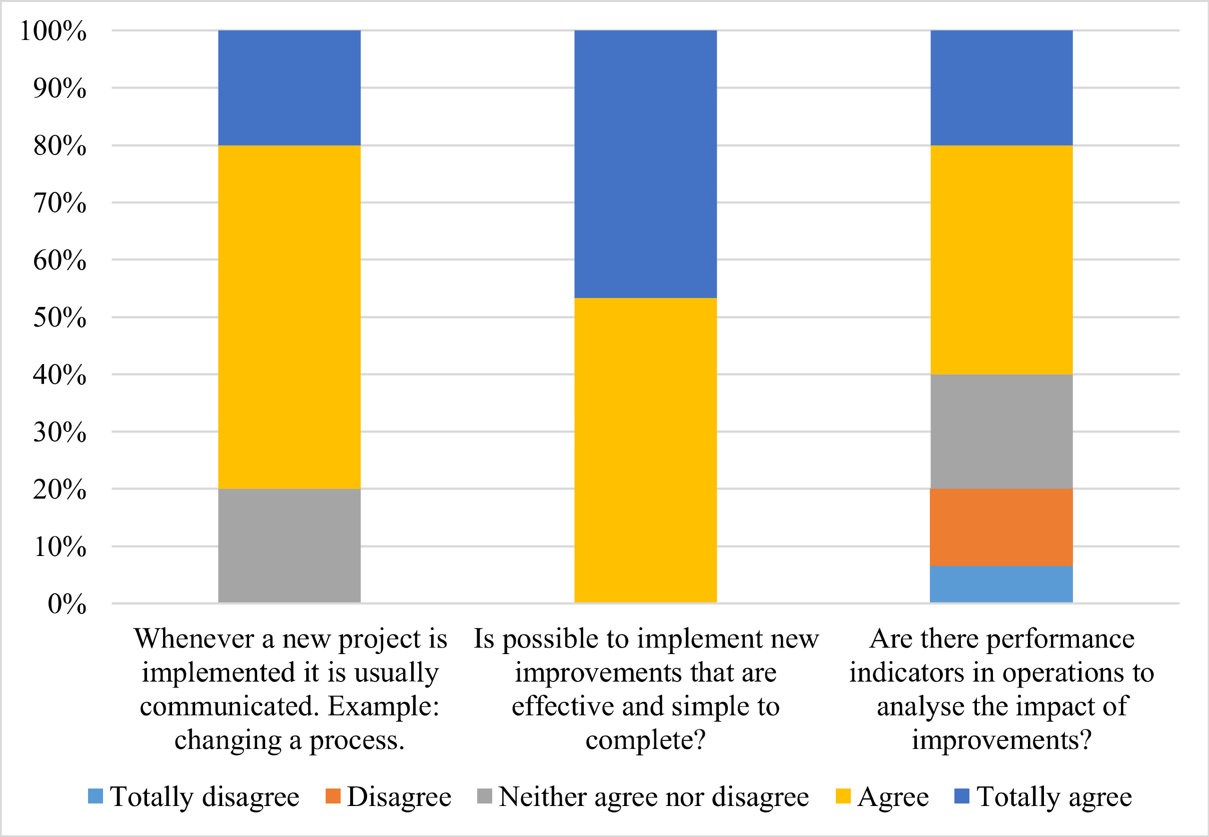

Figure 4. 19 - Create quick wins: managers

So, it was asked to managers if there was the opportunity to implement Lean projects that were simple and effective. All managers agreed with the statement, meaning those quick wins will be possible to implement during the process change. Furthermore, most managers (80%) and workers (71%) agreed that when new projects are implemented they are communicated. This is important because when achieving these minor wins, managers should report to workers that the work to implement the Lean vision is paying off.

Lastly, it was asked to managers if there are performance indicators to get a better understand of improvement impacts. Only 60% agreed and 20% did not, meaning there are areas that won´t be possible to track the initiative progress and if those improvements are in aligned with the vision and its strategy.

4.4.2.8. Build on the change

In this stage, previous changes should be consolidated and more projects should be implemented. Therefore, it was assessed Rangel’s capability of producing and establishing permanent projects and supervisors availability to assist this change.

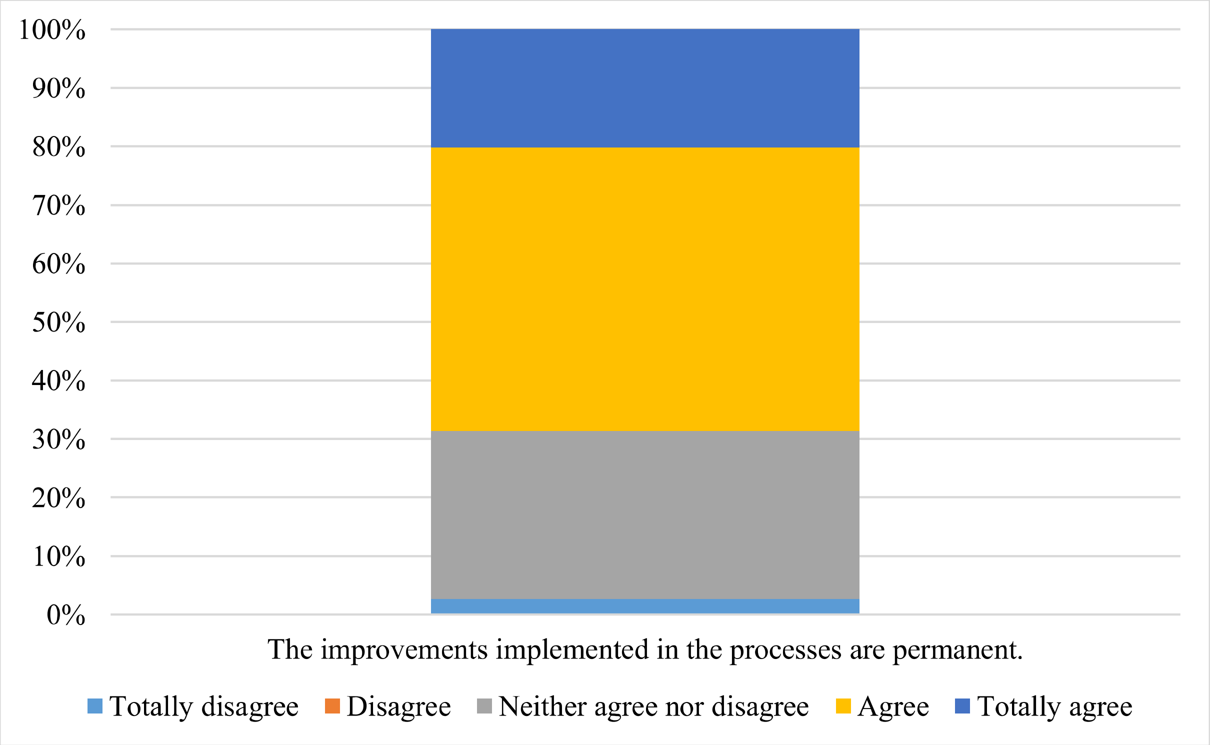

Figure 4. 20 - Build on the change: workers 1

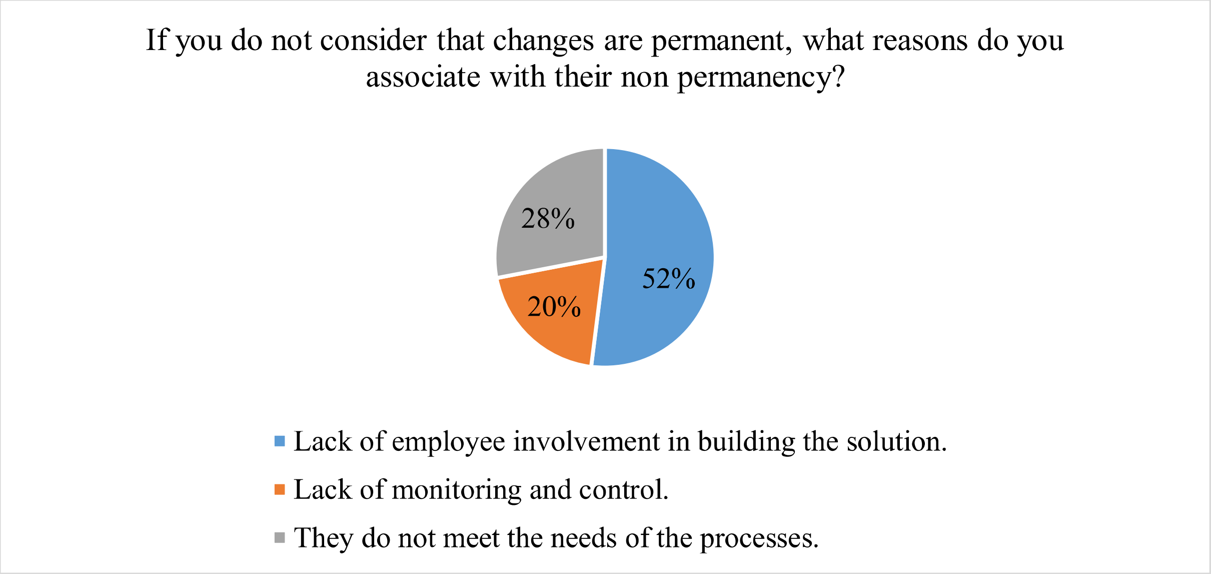

Figure 4. 21 - Build on the change: workers 2

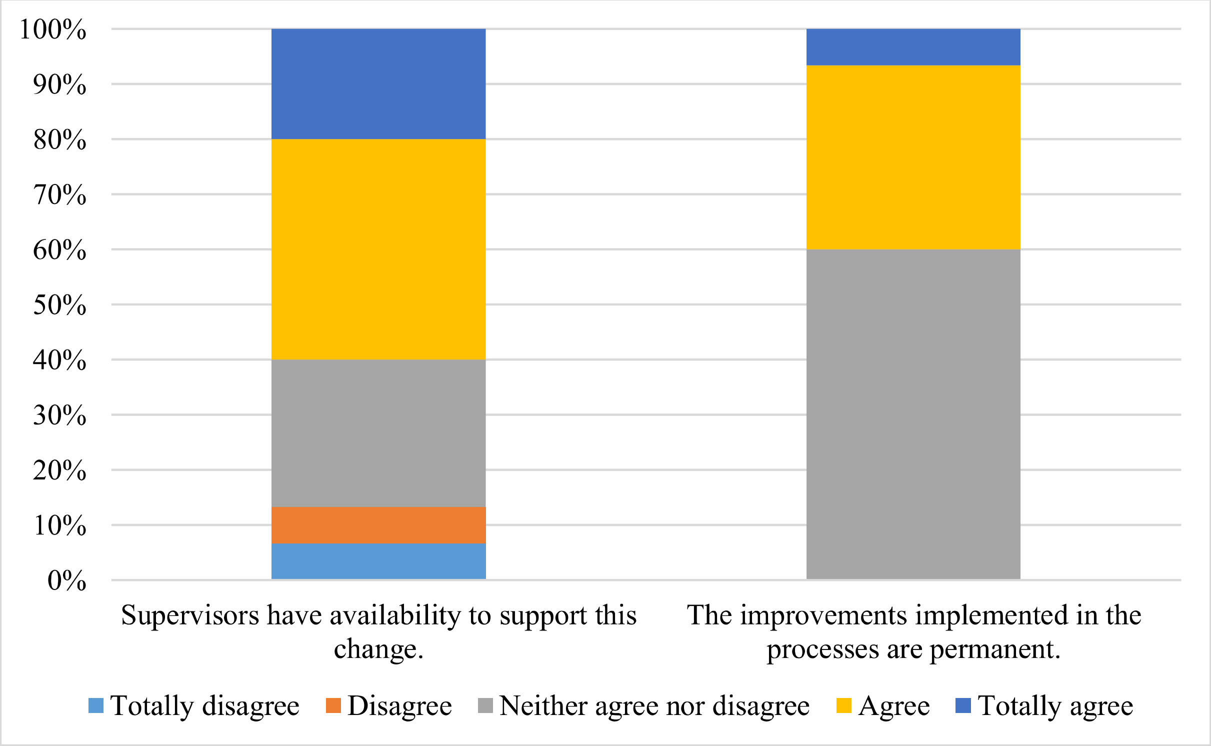

Figure 4. 22 - Build on the change: managers 1

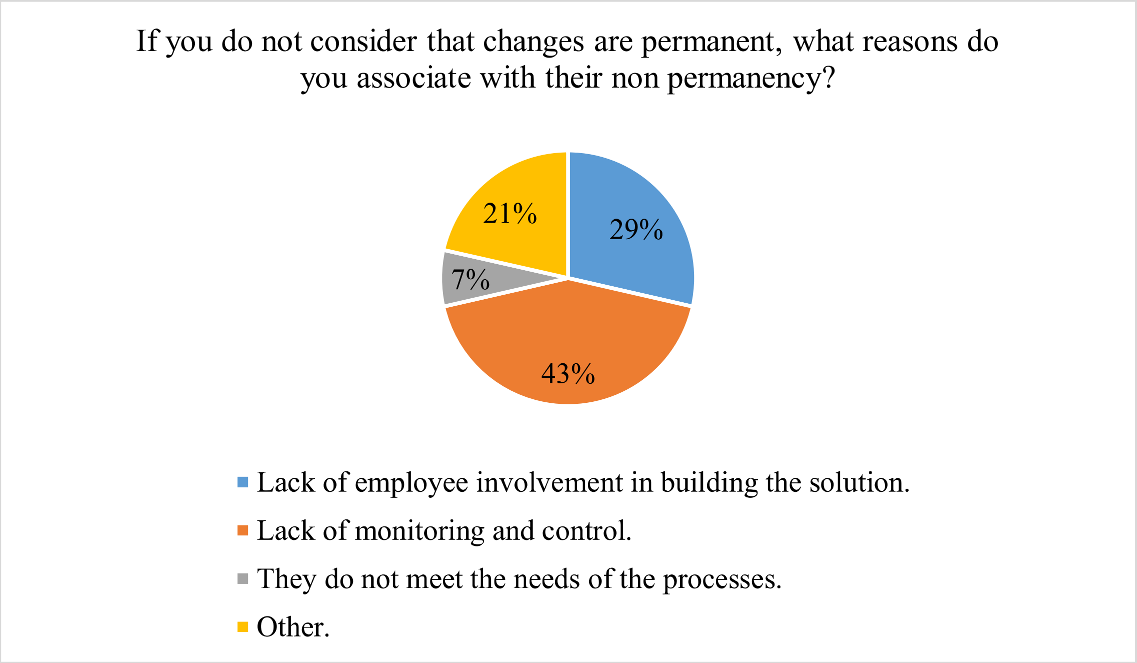

Figure 4. 23 - Build on the change: managers 2

In order to evaluate if previous changes will be standardized, it was asked if process improvements were permanent where only 40% of managers and 69% of workers agreed with it. The most common reasons behind this were the lack of engagement with workers, lack of monitoring and not meeting the process needs.

Besides this, the guiding coalition won´t be able to manage all Lean projects and nor is that the aim of this change initiative. Thus, a question was made regarding if managers had availability to support this change. Only 60% agreed with it and 13% disagreed. If managers do not have enough time to lead their team to follow this Lean vision, all change programme can be in danger because workers won´t follow this vision by themselves.

4.4.2.9. Make it stick

After implementing a considerable amount of Lean improvements and projects, the continuous improvement mindset starts to be established. However, being a culture that is always seeking for new improvements, a continuous evaluation of the Lean programme is needed. By doing so, the guiding coalition can measure continuous improvement performance and take proper actions. This aspect can also be related to the most critical success factor for Lean implementation, top management support and commitment, so is fundamental to evaluate.

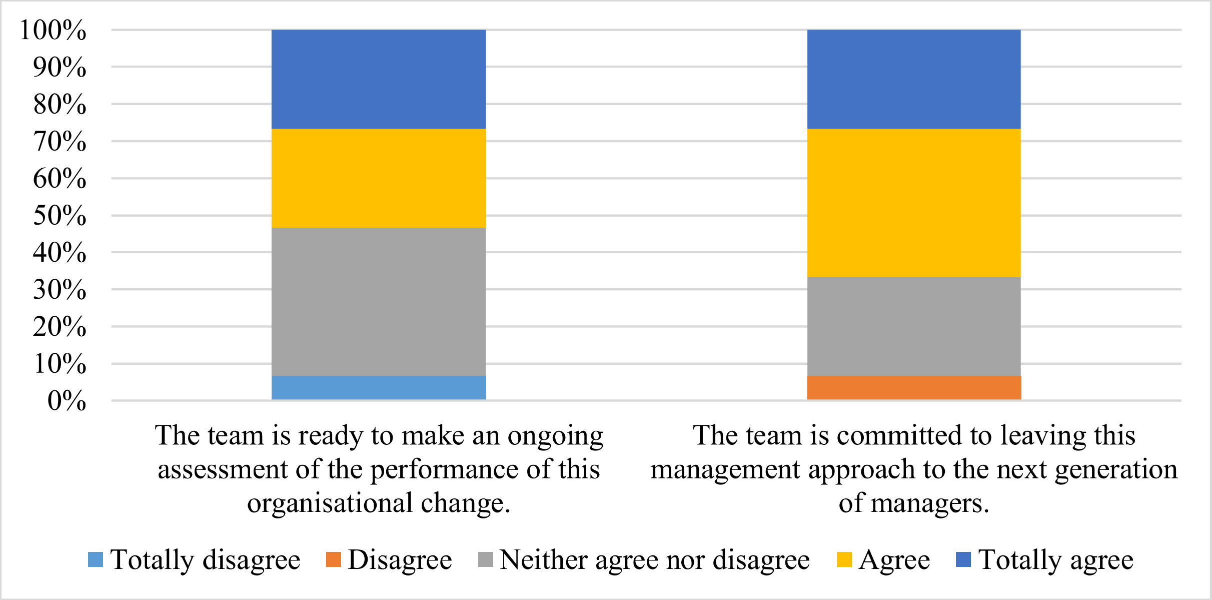

Figure 4. 24 - Make it stick: managers

Within this framework of thought, it was asked to managers if this team has availability to do a continuous evaluation of this organizational transformation, where 53% of managers agreed with the statement and 7% totally disagreed. Only with this concrete data about this evaluation and how these changes are beneficial to the organization, is possible to confront old habits that are not aligned with the organization's vision anymore. If those aspects are not confronted and eliminated, the old culture can reassert itself.

To definitely anchor this mindset in the culture is fundamental leave this new approach to next management generation. Most managers (67%) believe that this new approach will be left for the next managers and 7% disagrees.

4.3.3. Step 3 - Define a set of improvement actions

4.3.3.1. Create Urgency

In order to prevent what happened with the previous team that tried to implement LeaRn and failed, is mandatory to create enough sense of urgency that employees have no option than want to embrace this change.

Therefore, to increase the sense of urgency, the sources of complacency should be totally removed or at least minimized. Several sources were identified during the project.

Firstly, the absence of a major and visible crisis can complicate convincing workers that this change is needed. This crisis can be identified by examining the market and competitive realities through a SWOT analysis. Besides, an internal search can be also done in order to identify organizational problems. As last resort, a crisis can also be created by the guiding coalition (e.g. lowering inventory levels).

Secondly, the performance standards are really low. Thus, it is easy to achieve operational goals, creating a high level of complacency with the current state. In order to suppress this, the standards should be increased in a way that cannot be reached by conducting business as usual.

Taking this kind of action will generate momentum enough to motivate employees to embrace change. In this way, they will realize that if they don´t change and the way things are processed currently remain the same, the company itself can be endangered. So, employees will feel obliged to initiate this change initiative.

Human resources are essential to implement Lean because workers are the main element in operations, so will be mostly they who will work under the Lean circumstances and carry this culture change program. Thus, is fundamental to involve and engage with workers on a daily basis. These actions will generate better employees' engagement, creating more momentum and ownership of the employees to proceed with this change initiative.

In any change, the resistance to change is always an essential matter to address because can put at risk all change's progress. Therefore, the actions above have as main objective to diminish it.

4.3.3.2. Form a powerful coalition

People with a strong positional power must constitute the team who will lead change in order to easily make decisions. This can be seen in this guiding coalition but other key people can easily block progress. Therefore, a Tabaqueira manager should be pointed as an intermediator to help the team to make decisions aligned with the operational needs of the client. In this way is expected a more effective decision-making process, increasing the power and the authority of this team.

Additionally, this guiding coalition should work more as a flexible team where everyone has the power to make decisions than a rigid hierarchy where only the top manager can make decisions. Adopting this strategy will allow to process more information and more quickly, speeding up the implementation of a culture of continuous improvement.

With these two actions, the guiding coalition will be much more ready to make decisions and consequently to face this change.

4.3.3.3. Create a vision for change

To accomplish any change vision, a strategy should be defined. This roadmap for how the vision can be achieved should include plans with specific steps, timetables financial projections and goals. Only in this way is ensured that all the resources are used in the most efficient way, helping people getting motivated and excited to pursue this picture of the future. So is suggested to create a strategy adjusted to Rangel operations to help the guiding coalition establishing a continuous improvement culture with the LeaRn model.

4.3.3.4. Communicate the vision

To communicate properly, the guiding coalition can use several techniques such as vivid communication, message repetition, two-way communication and use different forums to share the vision (meetings, newspapers and e-mail). But the most powerful way to communicate this vision of Lean is through the behaviour of the managers, but more importantly through guiding coalition behaviour. When workers see this team and other managers acting out the vision, the change credibility will arise as well as the momentum. People tend to not believe in words but in actions, so making this will increase the chances of implementing this change successfully.

A solution that could solve the lack of Lean knowledge by part of the workers is giving them Lean training and formation, enabling them to understand better desirable vision. This will also fulfil the gap between workers expertise currently and the workers' expertise they will need to take the right actions towards the Lean vision.

4.3.3.5. Empower action

Rangel's objective is to create a continuous improvement mindset among workers but their current structure isn´t aligned with this. To make this happen, managers must believe in the workers' capabilities, giving them more responsibilities and autonomy to implement improvements. This will also help to reduce the bureaucracy of the implementing improvements in the processes.

Additionally, is necessary to provide enough training to workers to help them with their new responsibilities. This will help to build a sense of responsibility and empowerment in workers. As was said before, workers don´t have enough Lean knowledge so a Lean training is needed so they can take the best actions towards the change vision. In this step, the kaizen boards must be implemented to facilitate all the process of empowerment.

Creating a system that motivates workers to pursue this vision, will also support their empowerment and motivation. Having internal systems that are not aligned with the new vision can undermine the change. Things as performance indicators, personnel evaluations, strategic planning must be aligned with the new change in order to keep employees motivated.

Lastly, managers who undercut this change must be confronted as soon as possible in order to not disempower and demotivate workers to pursue this new vision.

4.3.3.6. Create quick wins

Change processes may require a lot of time until the establishment of the vision is done, making people slowly lose momentum and conviction. To counter this, short-term wins should be planned through all the change process and should be included in the strategy to achieve vision. In this way, workers have achievable milestones to pursue helping them to stay motivated and enthusiastic to take action towards the change vision. Moreover, it facilitates the guiding coalition to have concrete feedback about the vision and its strategy.

These projects must continue to be communicated among employees in a motivational way. Celebrating these wins will not only help to keep the momentum high but will also bring more people to support the change and undermine the change resisters. So, is mandatory that every manager has performance indicators to help him manage the change by proving the advantages of this change.

Through the usage of kaizen boards, the guiding coalition must engage with workers in order to find these quick wins and create momentum towards the change. 5S is a great example of these powerful and easy to implement wins.

4.3.3.7. Build on the change

After celebrating short-term wins, momentum is created and should be used to create more changes. However, before this step, previous improvements should be well established in order to consolidate the change programme gains. In Rangel case, improvements are usually not permanent. By implementing Lean tools as Kaizen (as mentioned previously) and new ones as the adapted Deming's cycle, APLICA, the risk of this happening is mitigated because with them is easier to monitor projects and involve workers. In this stage, more complex Lean tools, such as the VSM, should be applied in order to solve bigger problems and implement better solutions.

Managers will be the change agents for this Lean implementation so is fundamental to them having enough availability to create more changes. The guiding coalition should define a period where managers and workers do kaizen meetings and focus only on creating and implementing new changes.

4.3.3.8. Make it stick

This last step occurs when the culture and the employee's behaviours start changing towards the new vision. Unfortunately, if they are not well rooted, they can be subject to degradation if not well rooted in social norms and shared values.

Having enough availability to evaluate the change performance, the guiding coalition must communicate how these new behaviours and initiatives are helping the organization's performance. By constantly evaluating the change performance, the guiding coalition can manage this organizational change better and make decisions based on it. This also helps the change to sink in.

Future managers should be aware of this approach. The guiding coalition as well as the top management must be responsible for this to happen. Therefore, the promotion and hiring processes should be aligned with this new approach as well as the on boarding of new managers.

4.4. Chapter conclusions

In this chapter, all methodology steps were applied to the project company Rangel in order to fulfil all objectives of this thesis. Firstly, a brief description of Rangel was made followed by the definition of the current state. Here, was possible to understand how the company performs and more precisely how continuous improvement is dealt with inside the organization. Then, an assessment of Rangel readiness to change based on the Kotter model and the Lean philosophy was accomplished where several improvement opportunities and problems were identified. Based on these previous conclusions, proper recommendations were given in order to support Rangel to be ready to initiate this change programme and successfully implement a continuous improvement culture.

5. Conclusions and future work

The present project was developed in Rangel, a Portuguese company focused on logistics solutions, which is currently providing an internal service to Tabaqueira, the biggest tobacco company in Portugal. Thus, Rangel is responsible for most of logistics processes inside Tabaqueira facilities. It was within this context the actual project emerged, Rangel wanted to understand how should proceed to establish a continuous improvement mindset among the employees. Thus, to attain this main objective, minor objectives were defined. Firstly, the current state of how continuous improvement is dealt with was defined, then an analysis was made to Rangel readiness to change and finally, proper actions toward the change were recommended.

With the purpose of finding the best way to help Rangel in this organizational change, a literate review was conducted based on CM and Lean. Several change management models were analysed as well as some case studies. Being this project mainly based on an organizational change, having a high scope and scale in terms of change, the Kotter model is the most appropriate to use. Then with the literature review was possible to conclude that a Lean implementation framework based on the Kotter model is the most adequate to assess Rangel readiness to change towards a Lean culture.

To answer the research question - *"How should Rangel proceeds to achieve a successful implementation of a continuous improvement mindset in the company?"* – the current state of how Rangel handles continuous improvement was well defined through documents analysis, direct observation and unstructured interviews. With the purpose of assessing Rangel readiness to implement this change, a questionnaire based on the Kotter model and Lean was constructed. Both managers and workers answered different questionnaires in order to achieve a proper analysis. In this way, different organizational issues that could danger the change program were identified. Consequently, is possible to conclude that Rangel is not ready yet to embrace this change. After recognizing these obstacles, proper actions were defined in order to overcome them. Only after the implementing these initiatives, Rangel can be ready to implement LeaRn in a successful way and consequently achieve a well-established continuous improvement mindset among employees.

Accordingly to Yin (2018), case study conclusions are generalizable only to theoretical proposals. Since this project only takes into consideration Rangel, the results cannot be generalized to other companies in the manufacturing industry but can be useful to other investigations in this area.

The main limitation of the project was the pandemic scenario due to covid-19, limiting both time and access to more Rangel data. It was not possible to carry out more personal interviews with the employees and the questionnaire did not include every department regarding the worker's perspective because of the lack of computer accessibility. Additionally, none of the actions proposed to support Rangel establishing this change were implemented also due to covid-19.

In future work, there are other suggestions to develop even more this research. Firstly, by implementing the actions proposed would be possible to take deeper conclusions. Thus, the main difficulties faced when implementing these actions could also be analysed in order to find the most appropriate approach to implement them. Lastly, an assessment readiness framework could be developed in order to score how ready companies are to implement each Kotter step.

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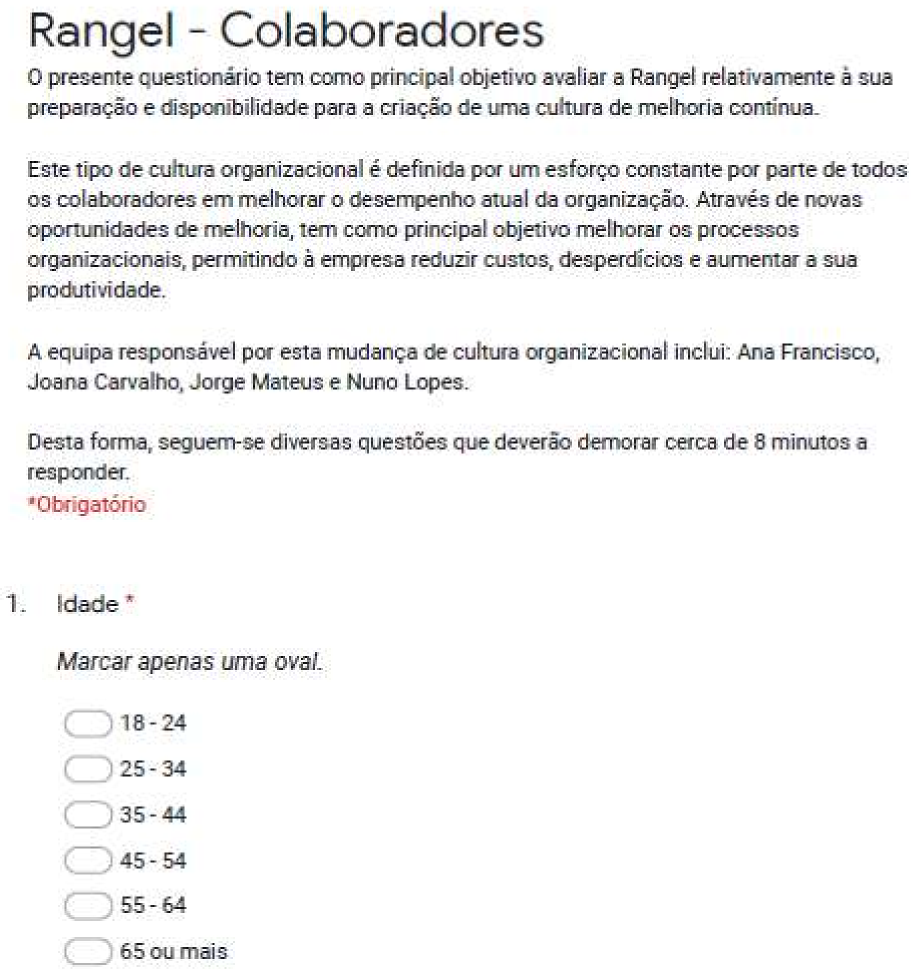
7. Annexes

7.1. Annex A – Worker's questionnaire



Rangel - Colaboradores

O presente questionário tem como principal objetivo avaliar a Rangel relativamente à sua preparação e disponibilidade para a criação de uma cultura de melhoria contínua.

Este tipo de cultura organizacional é definida por um esforço constante por parte de todos os colaboradores em melhorar o desempenho atual da organização. Através de novas oportunidades de melhoria, tem como principal objetivo melhorar os processos organizacionais, permitindo à empresa reduzir custos, desperdícios e aumentar a sua produtividade.

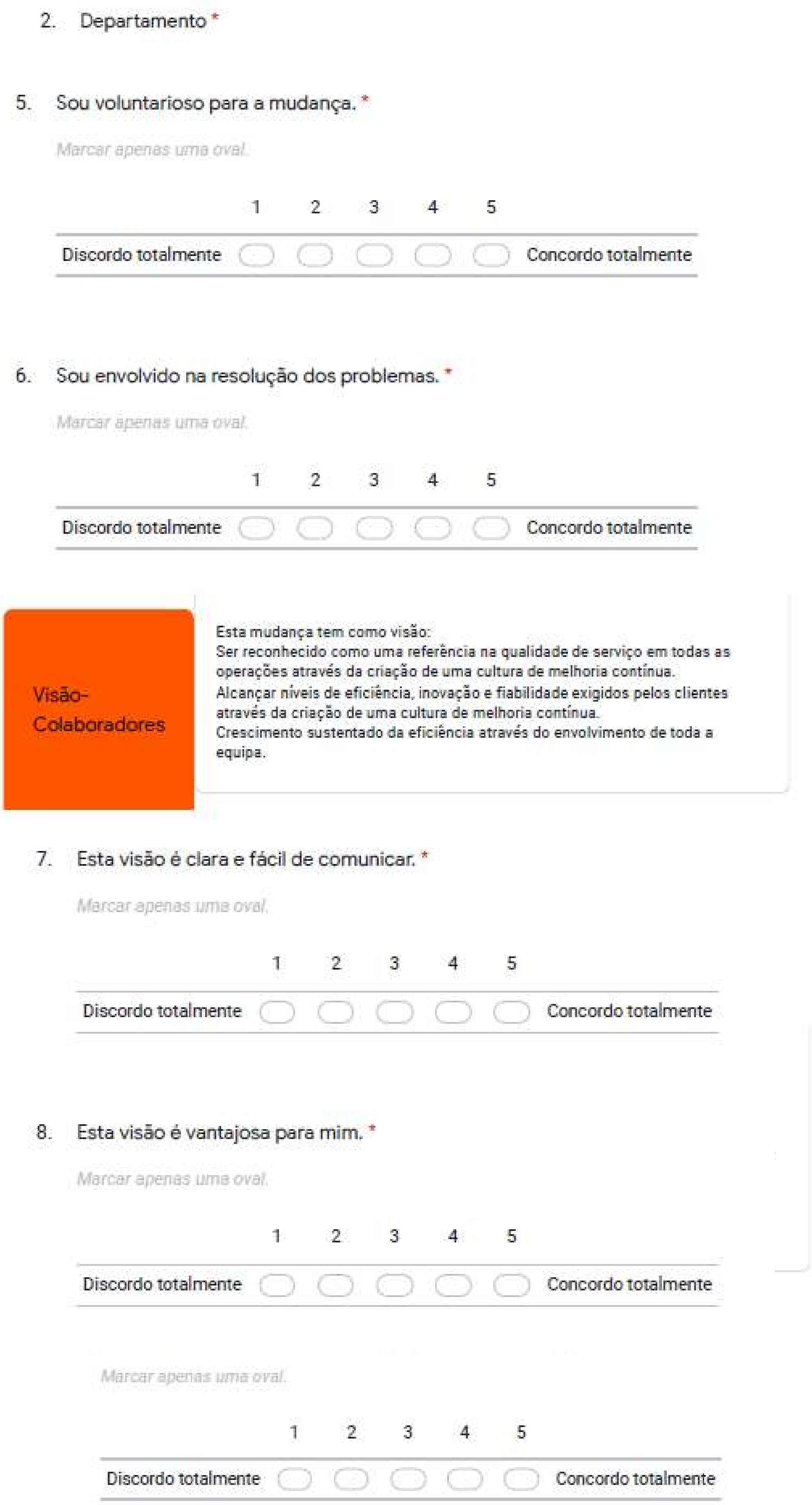
A equipa responsável por esta mudança de cultura organizacional inclui: Ana Francisco, Joana Carvalho, Jorge Mateus e Nuno Lopes.

Desta forma, seguem-se diversas questões que deverão demorar cerca de 8 minutos a responder.
*Obrigatório

1. Idade *

Marcar apenas uma oval.

○ 18 - 24
○ 25 - 34
○ 35 - 44
○ 45 - 54
○ 55 - 64
○ 65 ou mais



2. Departamento *

5. Sou voluntarioso para a mudança. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

6. Sou envolvido na resolução dos problemas. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

Visão-Colaboradores

Esta mudança tem como visão:
Ser reconhecido como uma referência na qualidade de serviço em todas as operações através da criação de uma cultura de melhoria contínua.
Alcançar níveis de eficiência, inovação e fiabilidade exigidos pelos clientes através da criação de uma cultura de melhoria contínua.
Crescimento sustentado da eficiência através do envolvimento de toda a equipa.

7. Esta visão é clara e fácil de comunicar. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

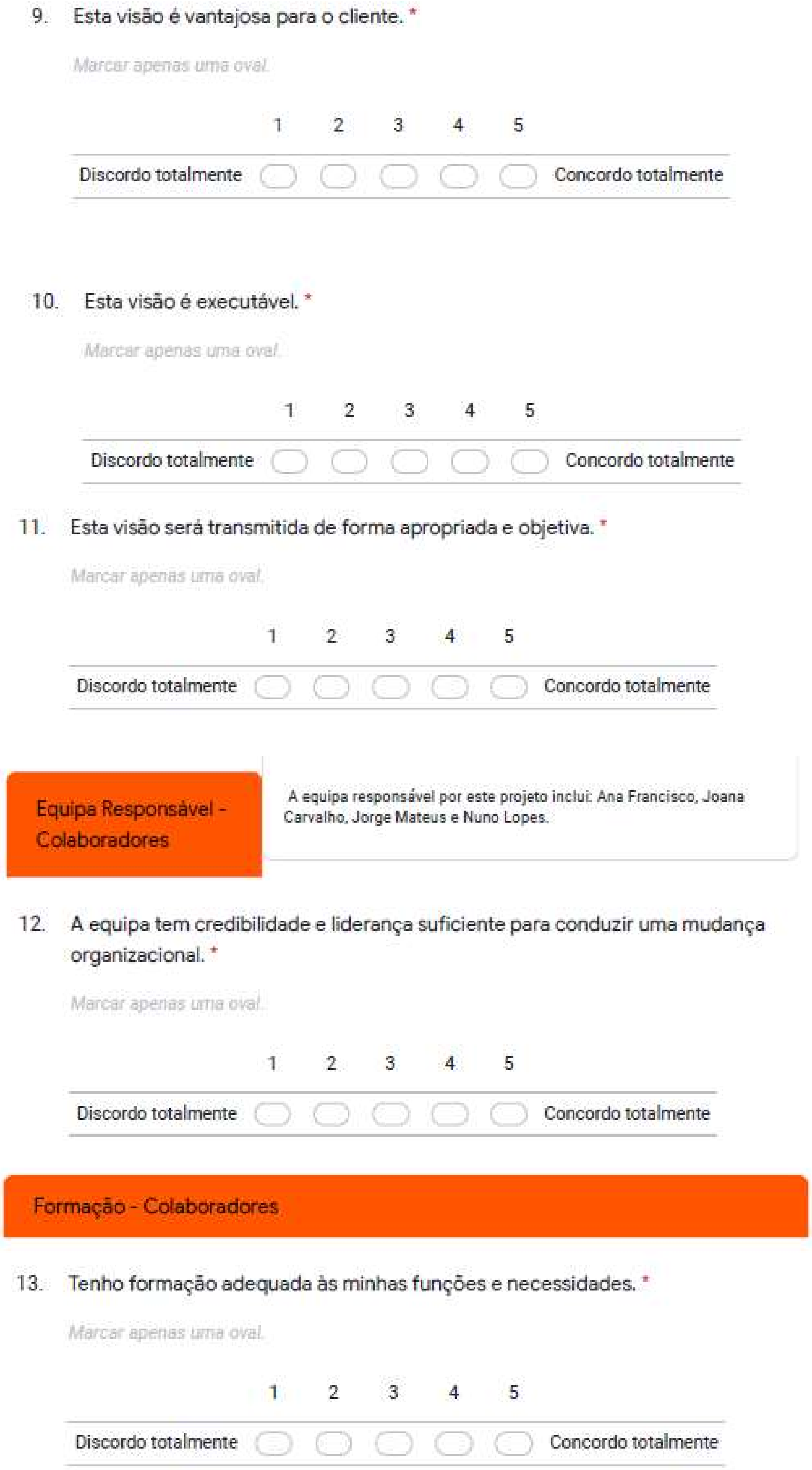
8. Esta visão é vantajosa para mim. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente



9. Esta visão é vantajosa para o cliente. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

10. Esta visão é executável. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

11. Esta visão será transmitida de forma apropriada e objetiva. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

Equipa Responsável - Colaboradores

A equipa responsável por este projeto inclui: Ana Francisco, Joana Carvalho, Jorge Mateus e Nuno Lopes.

12. A equipa tem credibilidade e liderança suficiente para conduzir uma mudança organizacional. *

Marcar apenas uma oval.

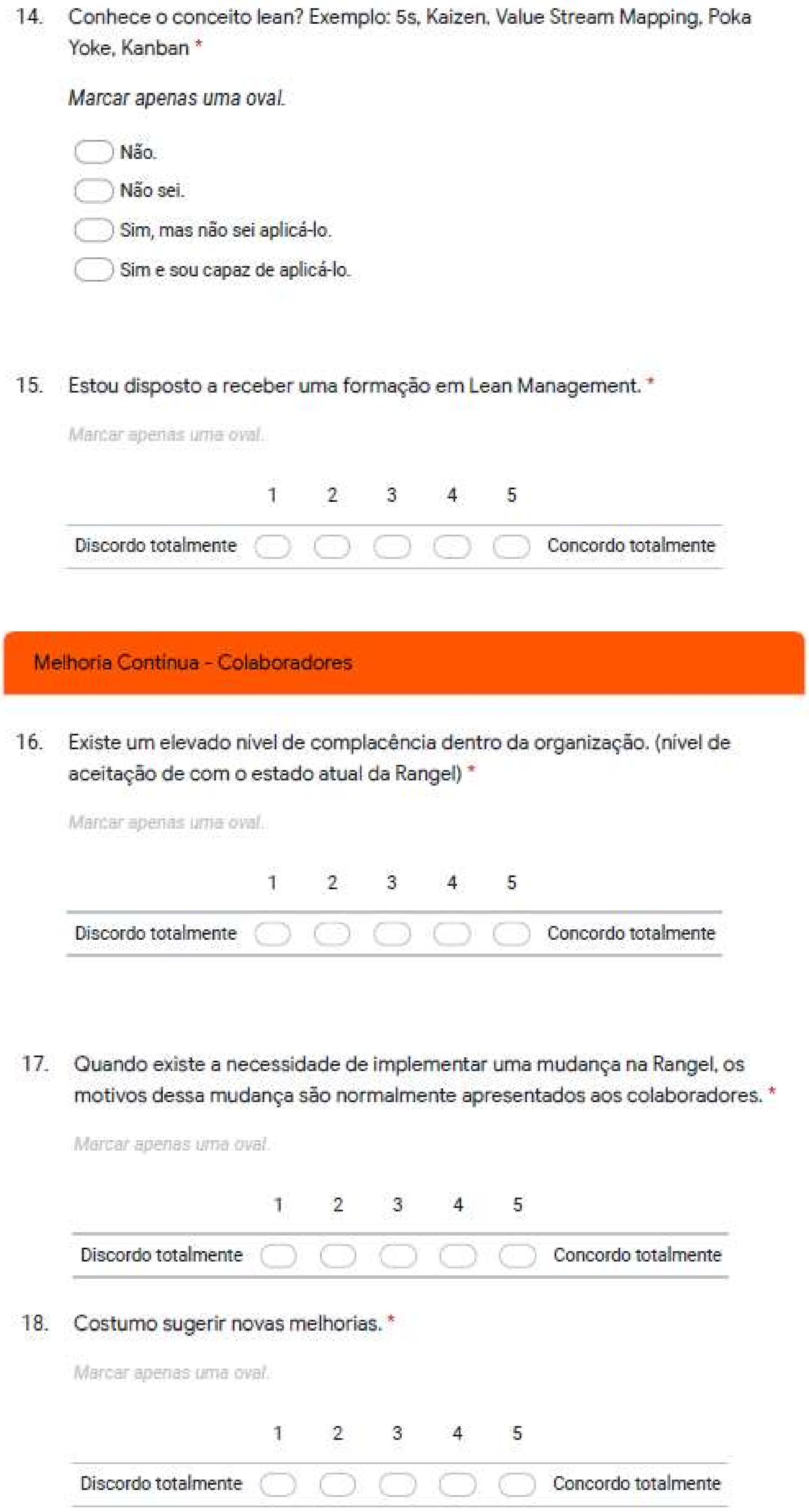
	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

Formação - Colaboradores

13. Tenho formação adequada às minhas funções e necessidades. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente



14. Conhece o conceito lean? Exemplo: 5s, Kaizen, Value Stream Mapping, Poka Yoke, Kanban *

Marcar apenas uma oval.

○ Não.
○ Não sei.
○ Sim, mas não sei aplicá-lo.
○ Sim e sou capaz de aplicá-lo.

15. Estou disposto a receber uma formação em Lean Management. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

Melhoria Contínua - Colaboradores

16. Existe um elevado nível de complacência dentro da organização. (nível de aceitação de com o estado atual da Rangel) *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

17. Quando existe a necessidade de implementar uma mudança na Rangel, os motivos dessa mudança são normalmente apresentados aos colaboradores. *

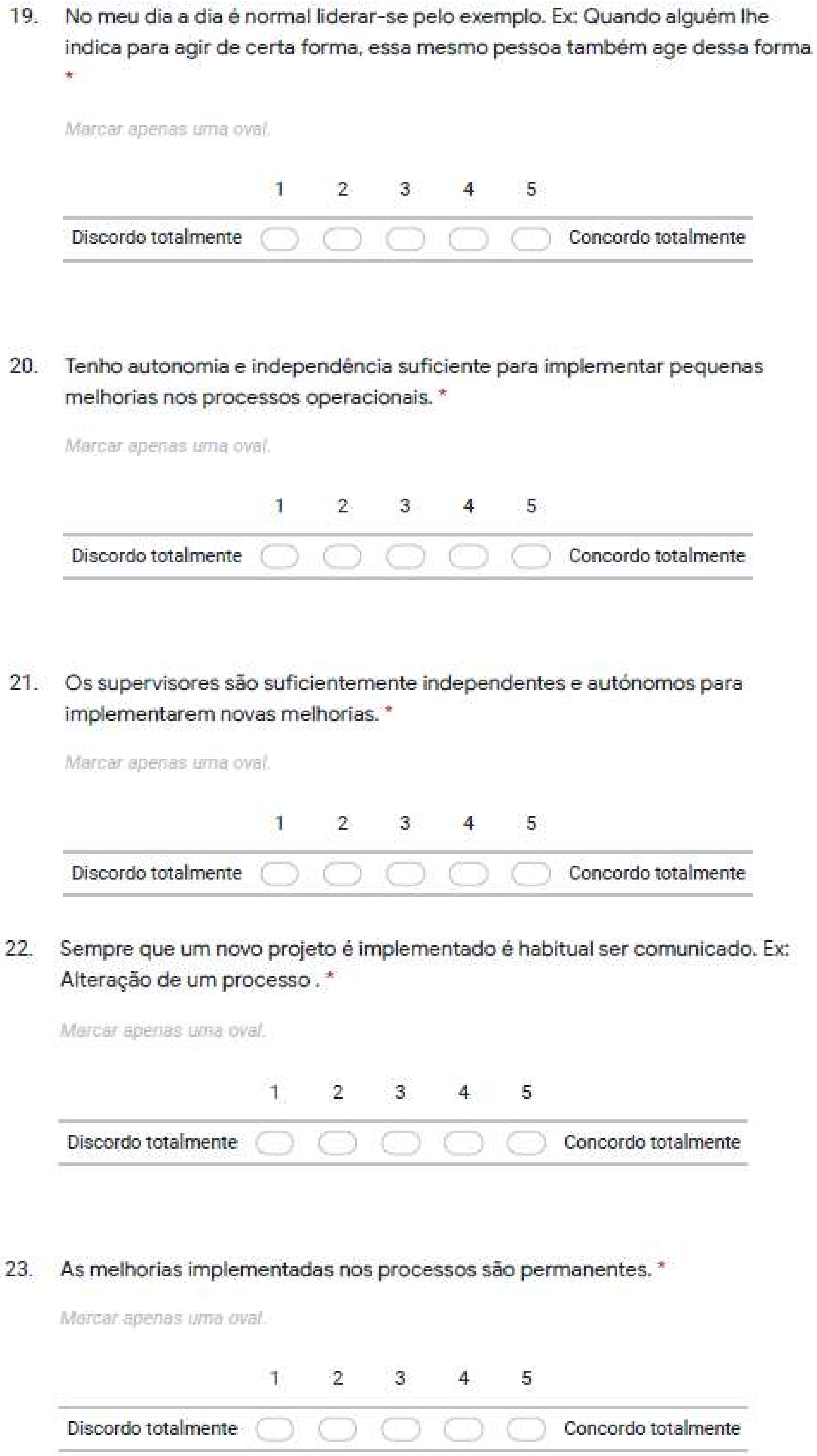
Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

18. Costumo sugerir novas melhorias. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente



19. No meu dia a dia é normal liderar-se pelo exemplo. Ex: Quando alguém lhe indica para agir de certa forma, essa mesmo pessoa também age dessa forma. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

20. Tenho autonomia e independência suficiente para implementar pequenas melhorias nos processos operacionais. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

21. Os supervisores são suficientemente independentes e autónomos para implementarem novas melhorias. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

22. Sempre que um novo projeto é implementado é habitual ser comunicado. Ex: Alteração de um processo . *

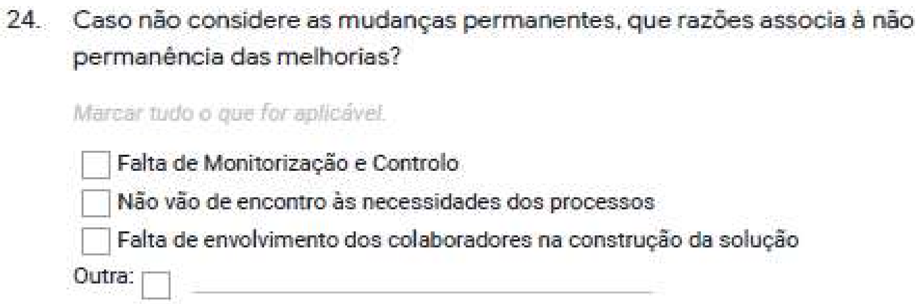
Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

23. As melhorias implementadas nos processos são permanentes. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

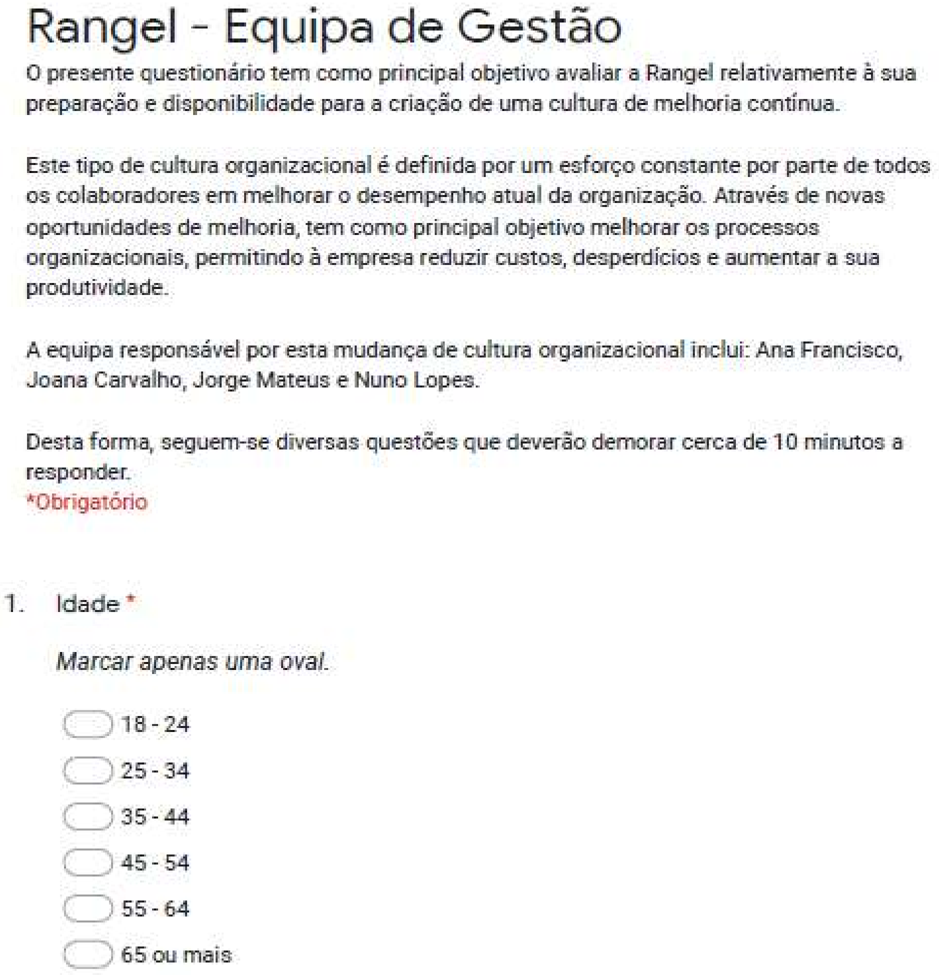


24. Caso não considere as mudanças permanentes, que razões associa à não permanência das melhorias?

Marcar tudo o que for aplicável.

☐ Falta de Monitorização e Controlo
☐ Não vão de encontro às necessidades dos processos
☐ Falta de envolvimento dos colaboradores na construção da solução
Outra: ☐ ____________________

7.2. Annex B – Manager's questionnaire



Rangel - Equipa de Gestão

O presente questionário tem como principal objetivo avaliar a Rangel relativamente à sua preparação e disponibilidade para a criação de uma cultura de melhoria contínua.

Este tipo de cultura organizacional é definida por um esforço constante por parte de todos os colaboradores em melhorar o desempenho atual da organização. Através de novas oportunidades de melhoria, tem como principal objetivo melhorar os processos organizacionais, permitindo à empresa reduzir custos, desperdícios e aumentar a sua produtividade.

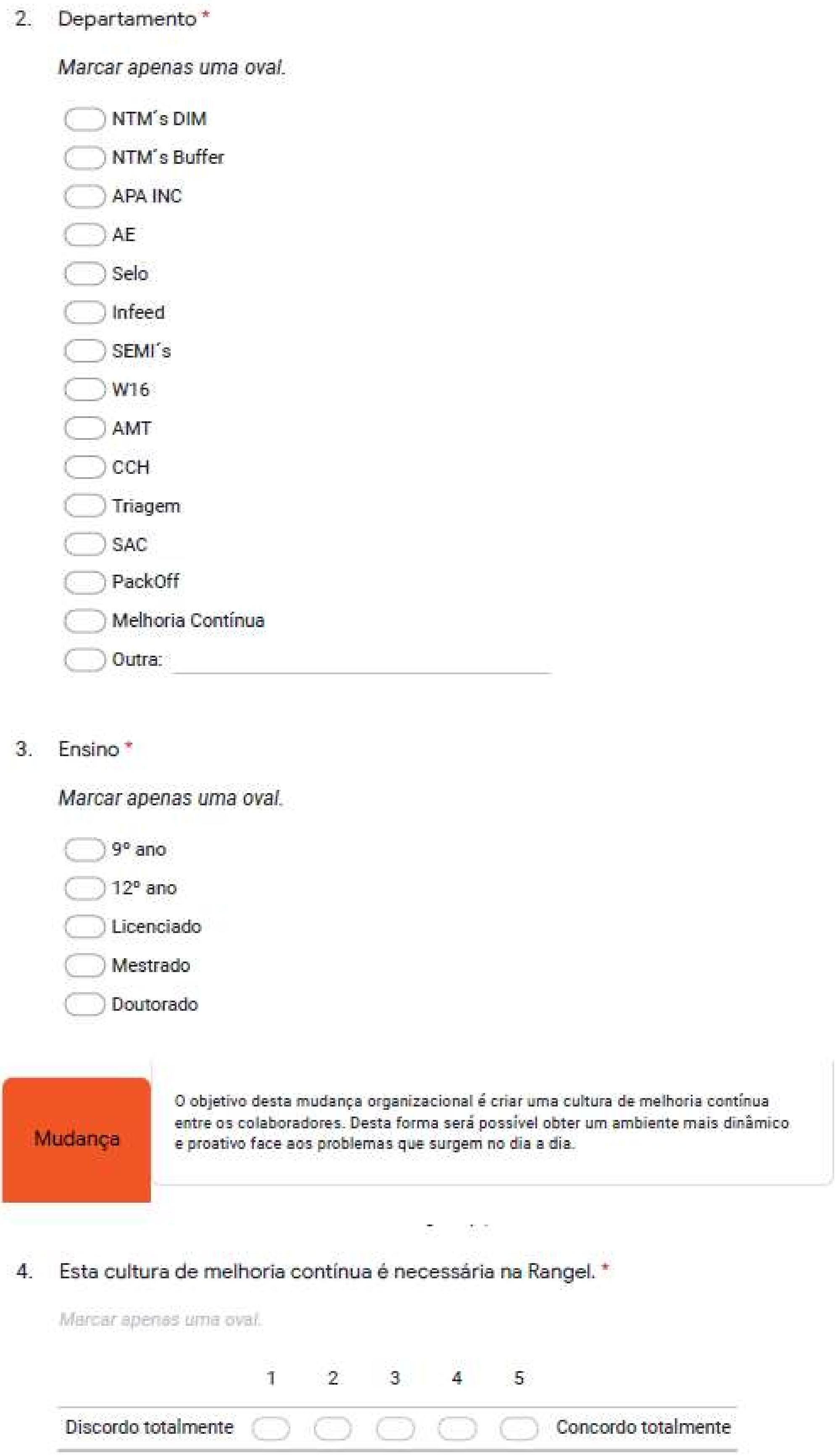
A equipa responsável por esta mudança de cultura organizacional inclui: Ana Francisco, Joana Carvalho, Jorge Mateus e Nuno Lopes.

Desta forma, seguem-se diversas questões que deverão demorar cerca de 10 minutos a responder.
*Obrigatório

1. Idade *

Marcar apenas uma oval.

○ 18 - 24
○ 25 - 34
○ 35 - 44
○ 45 - 54
○ 55 - 64
○ 65 ou mais



2. Departamento *

Marcar apenas uma oval.

○ NTM´s DIM
○ NTM´s Buffer
○ APA INC
○ AE
○ Selo
○ Infeed
○ SEMI´s
○ W16
○ AMT
○ CCH
○ Triagem
○ SAC
○ PackOff
○ Melhoria Contínua
○ Outra: ____________________

3. Ensino *

Marcar apenas uma oval.

○ 9º ano
○ 12º ano
○ Licenciado
○ Mestrado
○ Doutorado

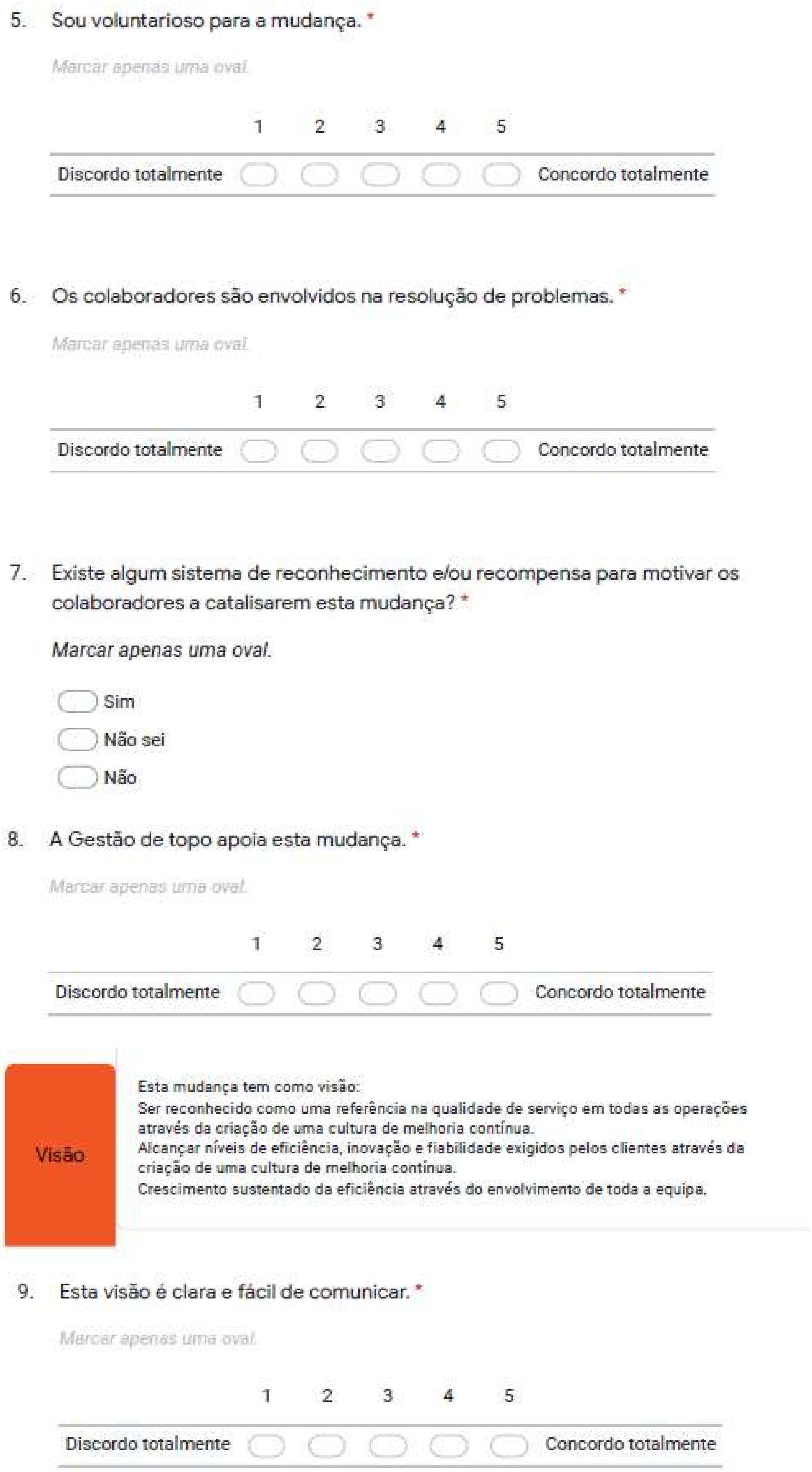
Mudança

O objetivo desta mudança organizacional é criar uma cultura de melhoria contínua entre os colaboradores. Desta forma será possível obter um ambiente mais dinâmico e proativo face aos problemas que surgem no dia a dia.

4. Esta cultura de melhoria contínua é necessária na Rangel. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente



5. Sou voluntarioso para a mudança. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

6. Os colaboradores são envolvidos na resolução de problemas. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

7. Existe algum sistema de reconhecimento e/ou recompensa para motivar os colaboradores a catalisarem esta mudança? *

Marcar apenas uma oval.

○ Sim
○ Não sei
○ Não

8. A Gestão de topo apoia esta mudança. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

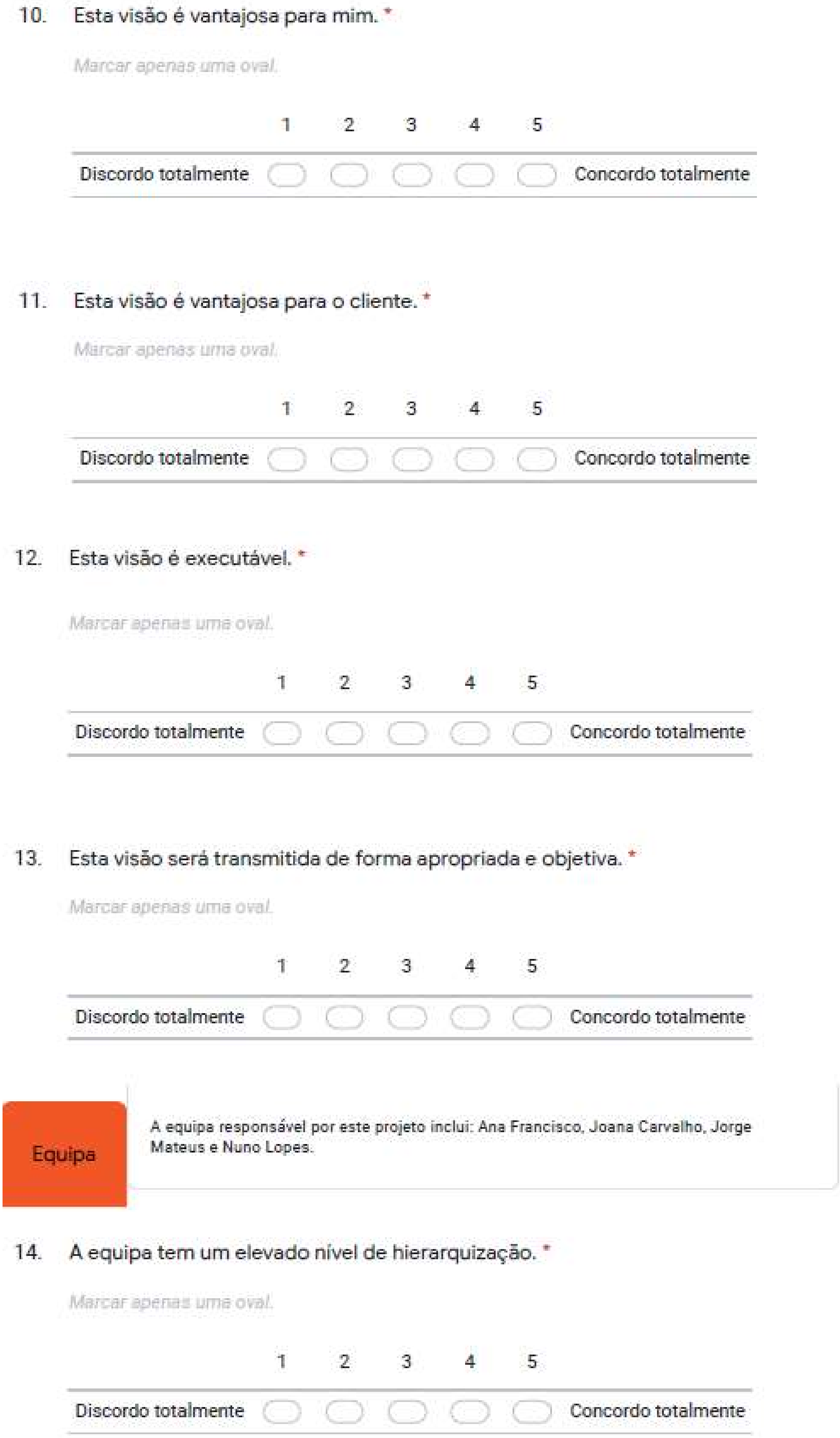
Visão

Esta mudança tem como visão:
Ser reconhecido como uma referência na qualidade de serviço em todas as operações através da criação de uma cultura de melhoria contínua.
Alcançar níveis de eficiência, inovação e fiabilidade exigidos pelos clientes através da criação de uma cultura de melhoria contínua.
Crescimento sustentado da eficiência através do envolvimento de toda a equipa.

9. Esta visão é clara e fácil de comunicar. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente



10. Esta visão é vantajosa para mim. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

11. Esta visão é vantajosa para o cliente. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

12. Esta visão é executável. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

13. Esta visão será transmitida de forma apropriada e objetiva. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

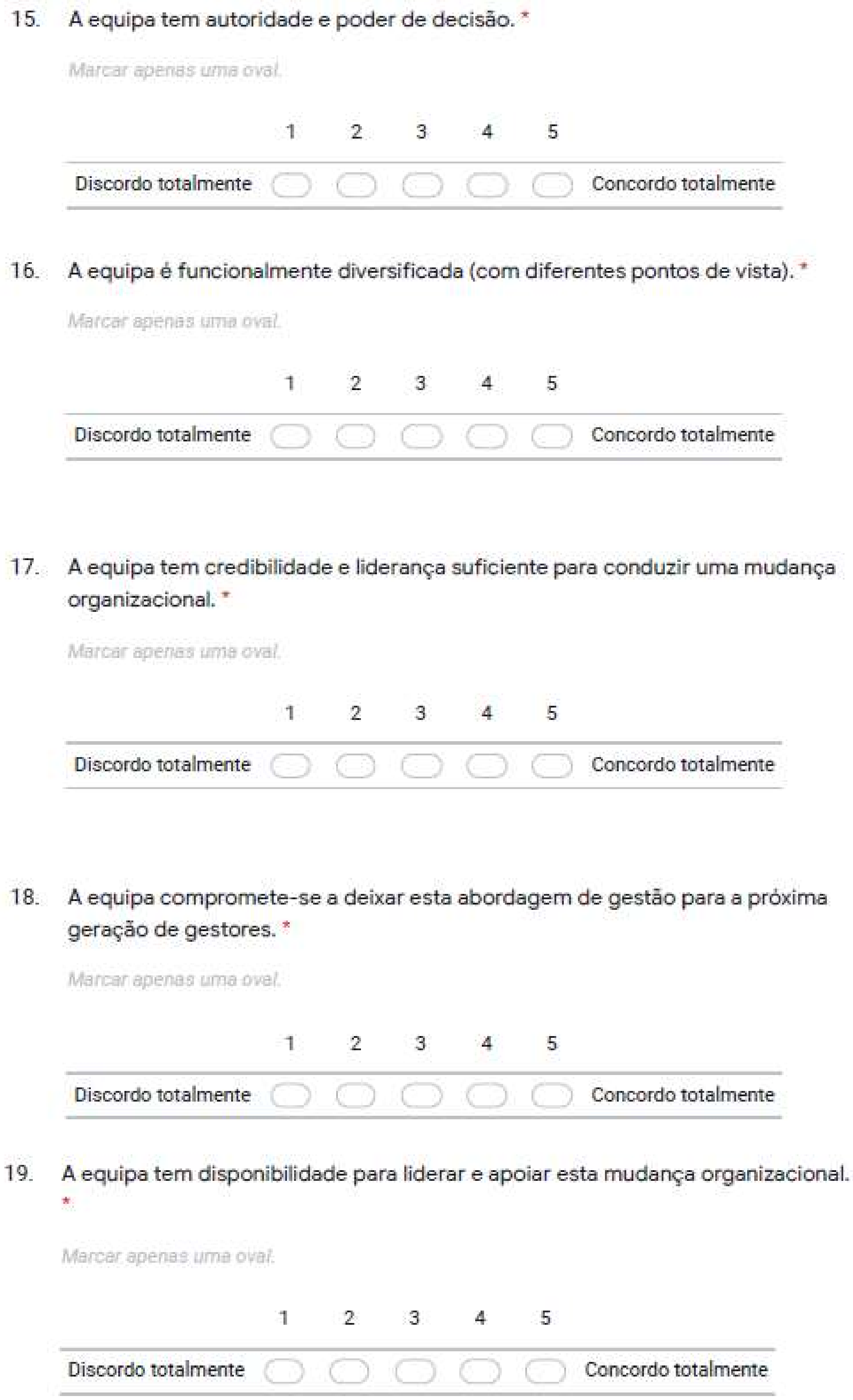
Equipa

A equipa responsável por este projeto inclui: Ana Francisco, Joana Carvalho, Jorge Mateus e Nuno Lopes.

14. A equipa tem um elevado nível de hierarquização. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente



15. A equipa tem autoridade e poder de decisão. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

16. A equipa é funcionalmente diversificada (com diferentes pontos de vista). *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

17. A equipa tem credibilidade e liderança suficiente para conduzir uma mudança organizacional. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

18. A equipa compromete-se a deixar esta abordagem de gestão para a próxima geração de gestores. *

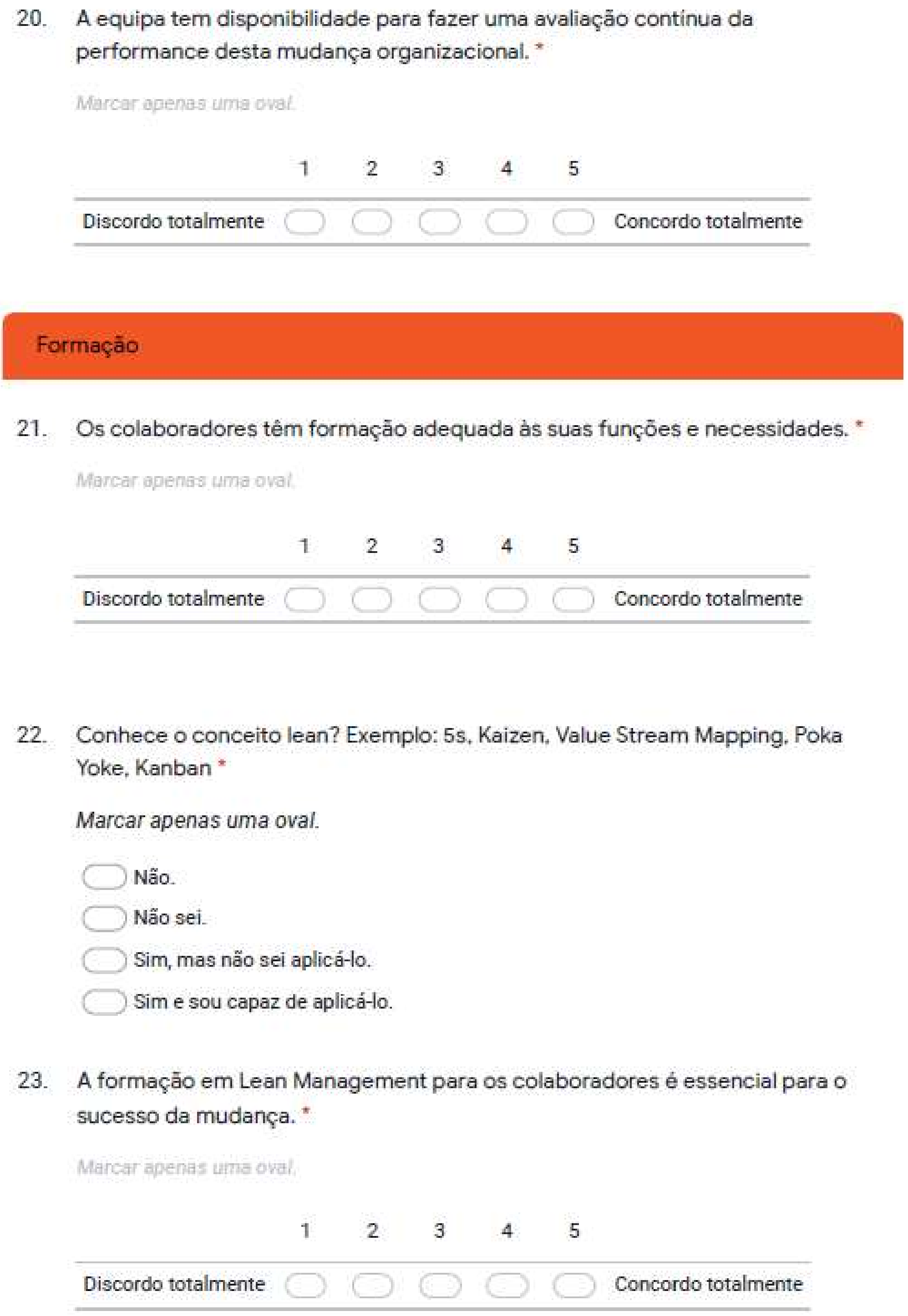
Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

19. A equipa tem disponibilidade para liderar e apoiar esta mudança organizacional. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente



20. A equipa tem disponibilidade para fazer uma avaliação contínua da performance desta mudança organizacional. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

Formação

21. Os colaboradores têm formação adequada às suas funções e necessidades. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

22. Conhece o conceito lean? Exemplo: 5s, Kaizen, Value Stream Mapping, Poka Yoke, Kanban *

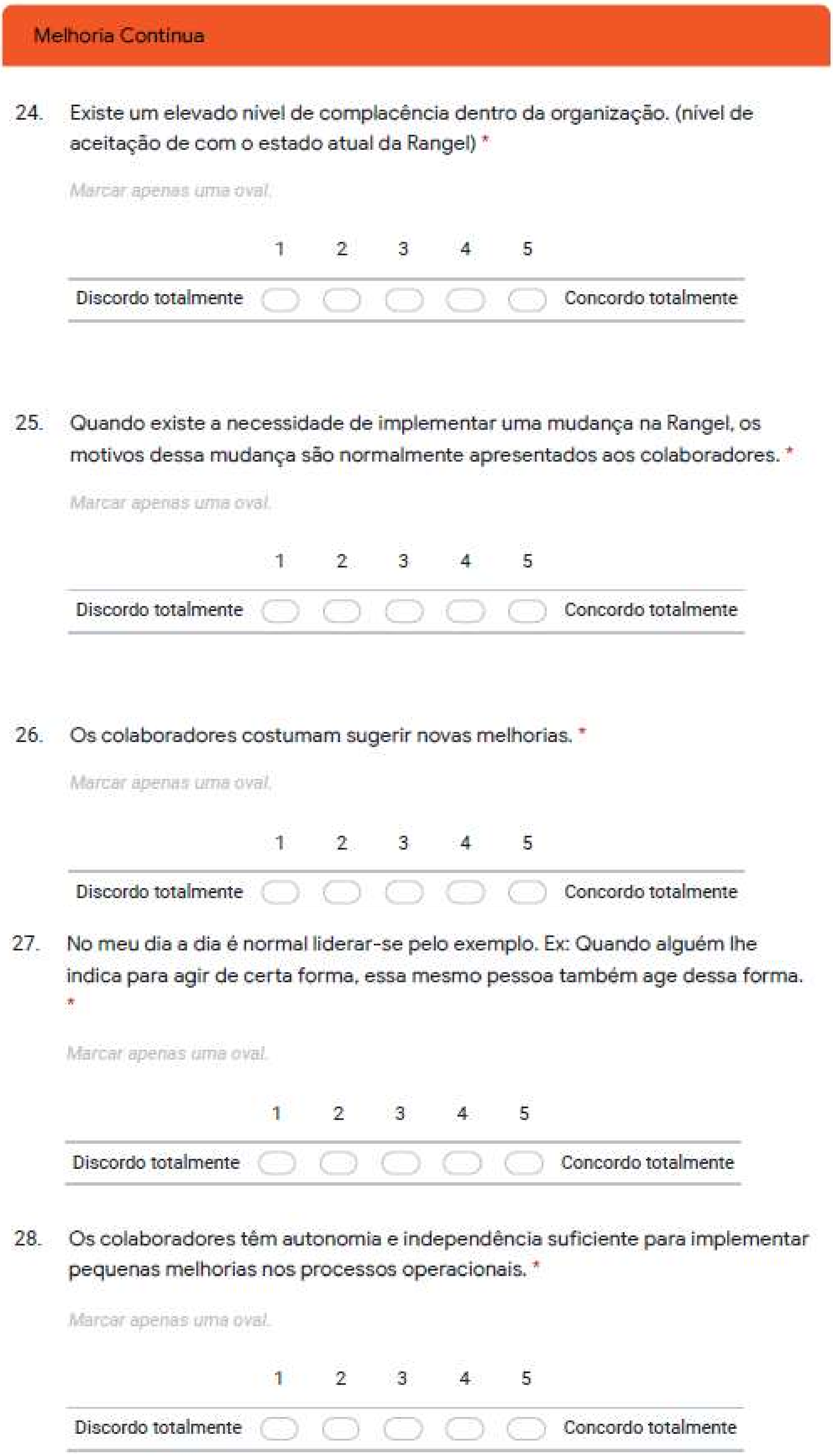
Marcar apenas uma oval.

○ Não.
○ Não sei.
○ Sim, mas não sei aplicá-lo.
○ Sim e sou capaz de aplicá-lo.

23. A formação em Lean Management para os colaboradores é essencial para o sucesso da mudança. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente



Melhoria Contínua

24. Existe um elevado nível de complacência dentro da organização. (nível de aceitação de com o estado atual da Rangel) *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

25. Quando existe a necessidade de implementar uma mudança na Rangel, os motivos dessa mudança são normalmente apresentados aos colaboradores. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

26. Os colaboradores costumam sugerir novas melhorias. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

27. No meu dia a dia é normal liderar-se pelo exemplo. Ex: Quando alguém lhe indica para agir de certa forma, essa mesmo pessoa também age dessa forma. *

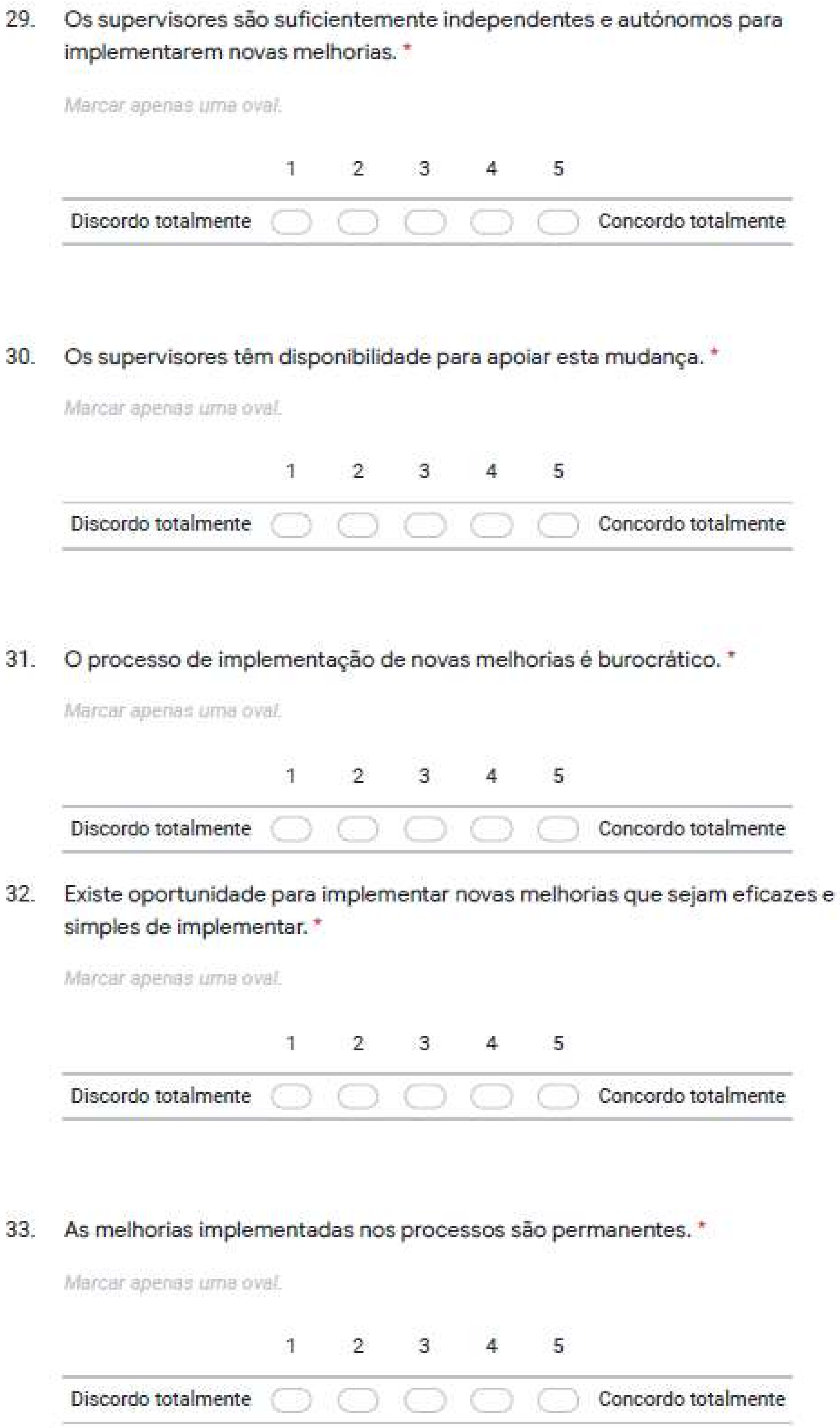
Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

28. Os colaboradores têm autonomia e independência suficiente para implementar pequenas melhorias nos processos operacionais. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente



29. Os supervisores são suficientemente independentes e autónomos para implementarem novas melhorias. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

30. Os supervisores têm disponibilidade para apoiar esta mudança. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

31. O processo de implementação de novas melhorias é burocrático. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

32. Existe oportunidade para implementar novas melhorias que sejam eficazes e simples de implementar. *

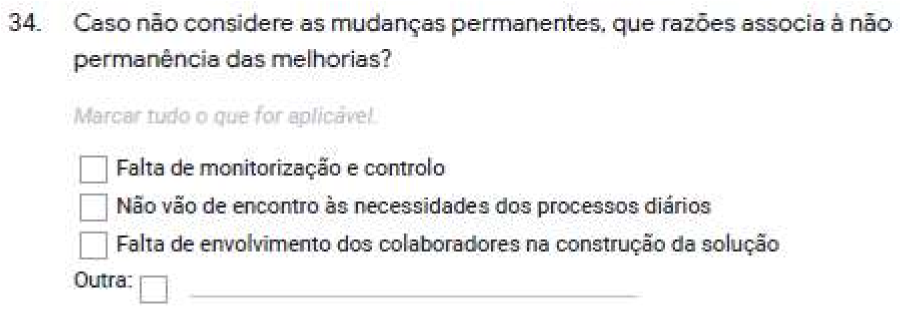
Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

33. As melhorias implementadas nos processos são permanentes. *

Marcar apenas uma oval.

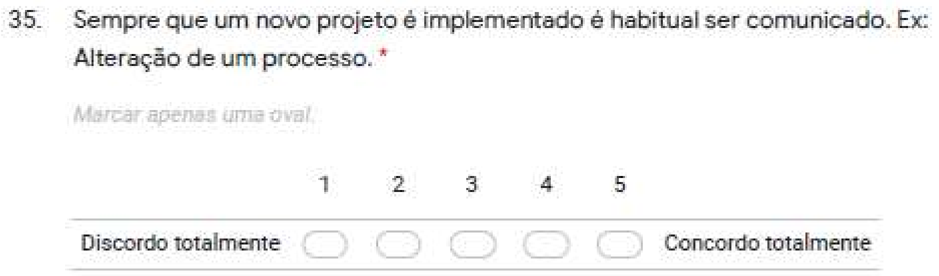
	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente



34. Caso não considere as mudanças permanentes, que razões associa à não permanência das melhorias?

Marcar tudo o que for aplicável.

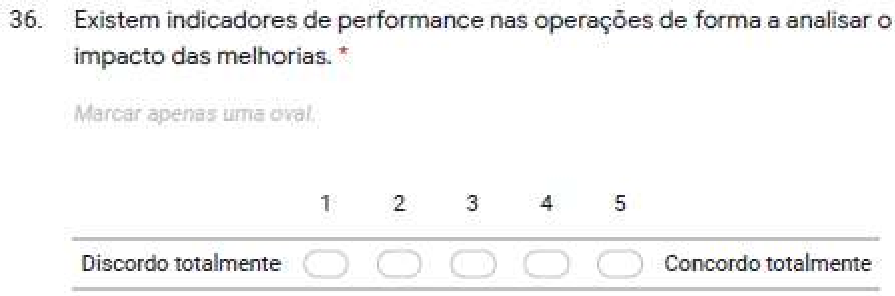
☐ Falta de monitorização e controlo
☐ Não vão de encontro às necessidades dos processos diários
☐ Falta de envolvimento dos colaboradores na construção da solução
Outra: ☐ ______________________



35. Sempre que um novo projeto é implementado é habitual ser comunicado. Ex: Alteração de um processo. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente



36. Existem indicadores de performance nas operações de forma a analisar o impacto das melhorias. *

Marcar apenas uma oval.

	1	2	3	4	5	
Discordo totalmente	○	○	○	○	○	Concordo totalmente

7.3. Annex C – Semi-structured interview

Question: Como é processada a melhoria contínua na Rangel?

Answer: Não temos qualquer tipo de iniciativa relativamente ao âmbito da melhoria contínua.

Question: Os projetos inerentes ao departamento de melhoria contínua normalmente nascem de problemas ou de oportunidades de melhoria?

Answer: Nós simplesmente resolvemos problemas urgentes, não procuramos melhorar os processos internos. Somos literalmente “apaga-fogos”. Nunca houve um foco nos processos já existentes para melhorar. Para além disto, sempre demos prioridade a novos projetos do que à melhoria continua. Não existe ninguém somente focada na melhoria contínua.

Question: Após a implementação dos projetos, existe algum tipo de controlo?

Answer: Não, a grande maioria das vezes só planeamos e executamos os projetos, nunca havendo qualquer tipo de controlo dos projetos de formar a avaliar a sua performance. Os nossos indicadores de performance também não estão ajustados de forma a fazer esta avaliação.

Question: Existe uma cultura de melhoria contínua? Porque acha que não? Que dificuldades sentem ao envolver os colaboradores na melhoria continua?

Answer: Não, não existe. Os colaboradores não se sentem ouvidos para além de que os processos são burocráticos e demorados pois temos uma estrutura bastante hierarquizada. Desta forma é difícil demonstrar às pessoas as vantagens da melhoria contínua.