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Improving a GDPR project management process through lean thinking

Joana Margarida Faria Camacho

Master Thesis

Supervisor at FEUP: Prof. António Carvalho Brito

Supervisor at Strongstep: António José Torres Diogo



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Abstract

The lean trend and lean thinking philosophy have been increasing rapidly and by all types of organizations. Despite having appeared initially in the automotive sector, its applicability is extensive. Recently, this application has been seen in the services sector, which seeks to reduce the waste of their companies by focusing on activities that add value to their customers.

Given this situation, the current problem arises as a necessary first step towards improving the GDPR project management process by identifying opportunities for improvement and reducing the waste of resources in a service company. Another reason that motivated the pursuit of this theme was the application of tools generally applied in the context of the manufacturing industry, in a topic as current and vital as the GDPR.

To solve this problem, an extensive literature review was carried out, followed by series of semi-structured interviews, an extensive analysis of the available documentation, as well as an ethnographic study to obtain more descriptive and detailed insights of the process to be studied that enable an initial design of the process for the application of lean tools. Then a strategy for applying lean tools that were later applied following a logical order to focus on the identified improvement opportunities.

The lean tools and methodologies used to solve these problems and opportunities for improvement were the following: 5s, visual management, RIE, standard work and PDCA. The application of these allowed the resolution of quick and urgent problems identified in the company, as well as the standardization of documentation, a better understanding of the process and the implementation of a culture of continuous improvement in the organization.

With the completion of this project, it was possible to fulfil the initially proposed objectives, such as the standardization of the process through applying lean thinking, reducing unnecessary waste, and identifying the optimal lean tools to apply in a service context.

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List of abbreviations

DPO - Data Protection Officer

EA – Enterprise Architecture

GDPR - General Data Protection Regulation

IS - Information Systems

ISO - International Organization for Standardization

KOM – Kick-off meeting

LSS – Lean Six Sigma

PDCA – Plan Do Check Act

PIA – Privacy Impact Assessment

SMED - Single Minute Exchanges of Dies

TPS – Toyota Production System

VMS – Value Stream Mapping

1 Introduction

In this first section, an introduction to the theme of the work developed is presented in a more detailed way.

Divided into five parts, we start by introducing the scope of this dissertation, context and what motivated the report's development and the contributions to the IS field, highlighting some of the key points.

Next, we present the company's specific problem where the project will be developed

Finally, the problem is presented along with the objectives and research questions that arose and that will be used throughout the work and later answered with the completion of it, as well as the outline of the entire report.

1.1 Scope of the dissertation

This dissertation, "Improving a GDPR project management process through lean thinking" was developed with the aim of obtaining a master's degree at the Faculty of Engineering of the University of Porto.

1.2 Context

Technology and protection of personal data

Technology has become one of the great pillars of our society, especially in the last decade. Since then, there has been a significant increase in the use of technology devices and their availability to the public. This and the digitization of books, music, documents, and many others caused a massive amount of data to overflow the internet. There is such a large amount of information available on the internet that no one could ever read.

The escalated use of social media by individuals, as the trend for online shopping or search for topics of interest and other activities for which people can use personal technology devices. Also made more and more people around the world unconsciously sharing data about their tastes, hobbies, preferences, and many other data of interest to be available to the public, mainly the new generations.

Its rapid development in recent years has made it possible for data generated by users to be stored, processed, and transmitted to take advantage of this information (Huth, 2017).

Another important point on which we should focus on is that in the last few years, organizations learned that for their business to be successful, they had to put the client at the center and to understand the importance of knowing the client, their needs and find ways to offer added value to products/services.

Companies started making a profit from this sensitive information, profiling consumers, and using it to make them buy their products, selling them to other companies without any legislation or boundaries.

To impose limits on the sharing and collecting of this data, the European Union has proposed the General Data Protection Regulation GDPR (EU 2016/679) to protect confidential and personal data (Commission, 2016) from the European Union citizens.

The mandatory implementation of this Regulation from May 2018 imposes some measures regarding collecting, storing, processing, and disseminating data (Gabriela et al., 2018) which has been difficult for some companies to implement due to the lack of knowledge on this topic.

Lean Thinking in Service Companies

On another topic, we have the increasing adoption of lean thinking to improve processes in organizations. The trend over the years has been for the concept of lean to move away from the manufacturing industry, where it had emerged into the service sector. Thus, the emergence of the lean services concept, one of the most recent areas of this philosophy (Pinto, 2009).

Lean thinking is considered the new philosophy of successful companies, reducing waste, and leveraging immaterial resources while adding value to the services/products offered. According to Pinto (2009), the important thing when we try to apply lean thinking in this type of organizations is to figure out how to add value to the client, not reduce waste. Seek to satisfy client needs while maintaining efficiency.

1.3 Motivation and Contributions to the IS field

The motivation for the elaboration of this project arises not only from the interest in the new lean methodology application in service companies processes and not in manufacturing companies as it traditionally emerged, allied to an essential topic for all of us individuals, the protection of personal data.

As previously mentioned, data protection is a very current and important theme. It has become a critical topic in the last years due to the increased use of technology and new regulations for disclosing to other people.

However, some companies are not prepared to make the required changes to comply with these regulations. Due to these problems, some organizations are looking for service companies to help them implement their processes to comply with the GDPR standards.

The lean thinking philosophy will be applied in a project management process of one of those organizations that help companies overcome these difficulties and prevent possible problems in implementing these projects to comply with GDPR standards. This application of lean thinking will make the GDPR project management process leaner and, consequently, better implemented for its clients.

A combination between this theme and lean thinking in services companies' processes, will help implementing these standards more lightly and straightforwardly, using the concept of continuous improvement and slowly reduce waste in these processes.

This project will contribute to the Information Systems field by:

- Applying lean methodologies in a service context.
- Improving the management of GDPR projects by using lean thinking.
- Optimal use of resources at all stages of the implementation of GDPR projects.

1.4 Study and Project Development at Strongstep

The development of this project took place at Strongstep – Innovation in software quality, a software engineering consultancy company. Its main activity is the consultancy focused on process improvement in an innovative way to help the companies it collaborates with to adopt

the best management practices, focusing mainly on software engineering and information security.

This company places great emphasis on being pragmatic and with a results-oriented philosophy that drives change management and continuous improvement, characteristics of a company that adopts lean thinking.

Within the extensive range of services that offers, the one on which we will focus in the development of this project is the GDPR project management process. This service aims to collaborate with companies to ensure compliance with the GDPR, with a multidisciplinary team in the legal and IT areas.

The problem and research questions presented will be explored through the compliance GDPR consultancy process at Strongstep.

1.5 Problem Description, Objectives and Research Questions

Going with the line of thought presented previously, we will briefly describe the problem under study that will later be analyzed in detail.

The company's offer of the GDPR consultancy process is still new and with some room for improvement.

At first glance, it was a bit difficult to understand how the project management process was processed, but after that, we were able to identify how it was developed and find some problems to be resolved.

There is similar information in different places with different names, implying a lack of organization in project management and other issues. It will be one of our objectives to identify and solve this type of situations.

This lack of systematization and standardization suggest that the lean thinking methodology will help us solve these problems, maximizing the value delivered to the client and, therefore, it's considered a great environment for the application of this project.

Going into more detail with the objectives that we hope to achieve with the resolution of this problem, these are:

- Standardize the process of managing GDPR projects through lean thinking.
- Reduce the use of unnecessary resources in the execution of the GDPR management process through lean thinking.
- Contribute to the literature applying lean thinking in a service company.

These new norms imposed by the GDPR that companies are obligated to implement created an environment to study their processes and diminish waste, time, and other various resources.

The two main research questions for this project are:

1. How lean thinking can promote successful GDPR project management?
2. Which are the appropriate lean tools to improve processes?

The questions presented above will be answered with the help of a literature search and subsequently the application of the lean thinking philosophy. This methodology will be explained further in chapter 4.

The work carried out in the following sections will make it possible to collect the information necessary to answer the identified questions and comply with imposed objectives by recommending a set of improvements, and subsequent implementation in the company.

1.6 Report outline

This dissertation is divided into six sections.

Initially, we present the scope of this dissertation, context, and the motivation for the development of this project, as well as critical points to be covered in the work, followed by a description of the problem, research questions and objectives, and a brief introduction of Strongstep where these will be developed. This section also presents how the topics are presented in the report and their organization.

Then in Section 2 is introduced the literature review, covering essential topics such as the GDPR, project management, lean thinking, lean in organizations, lean tools including the PDCA cycle, RIE, 5S, visual management, and standard work, removing the main conclusions and insights to help the elaboration of this dissertation.

In Section 3, a more extensive characterization of the problem is made. We start with a characterization of the company and the respective process we will focus on and the definition of practical and research objectives, aligning these with the gaps identified in the literature. This section also includes important documents developed and crucial for the project.

Next, Section 4 will briefly analyze existing methodologies, the chosen methodology, and the steps and procedures taken.

On a more practical note, we have Section 5, which includes resolving the problem identified above, the measures taken, applying lean thinking with the application of RIE, 5S, visual management, standard work, and PDCA to the problems identified considering the company's scope. This analysis of results enables the resolution of the research questions presented above.

Ultimately, we lay a concrete conclusion of the results obtained and how they contribute to the literature, the limitations experienced during the project's development, and future work to be developed in this area.

2 Literature Review

In this chapter, we present the state of art of some important themes for the development of this dissertation.

First, we talk a little about the GDPR and its emergence, followed by a brief look at project management and moving on to lean thinking, the available tools and methodologies and the application of this philosophy in organizations.

2.1 The GDPR

On 27 April 2016, the General Data Protection Regulation 2016/679, known as GDPR, was approved by the European Parliament. This regulation emerged intending to protect individuals regarding the processing of personal data and the free movement of such data, repealing Directive 95/46 / EC from October 1995, which had been considered insufficient (Commission, 2016).

In May 2018, the regulation was imposed on all organizations using data from European citizens (Commission, 2016) with the aim of "contribute to the accomplishment of an area of freedom, security and justice and of an economic union, to economic and social progress, to the strengthening and the convergence of the economies within the internal market, and the well-being of natural persons" (Commission, 2016). According to Goddard (2017), this is a substantial landmark on the European privacy framework.

The law regulates the collection, storage, and processing of personal data. (Gruschka et al., 2018).

Personal data is defined as any information that directly or indirectly makes it possible to identify an individual (Goddard, 2017). Examples of this are personal emails, names, tax identification numbers, among others (Teixeira et al., 2019).

This law covers all personal data of all European residents, regardless of the data processing location (Goddard, 2017). If the data owners are not European residents and the data controller or a data processor located in the territory of the EU, this law also applies (Gruschka et al., 2018).

The GDPR has 6 principles regarding the processing of personal data (Goddard, 2017):

1. Lawfulness, fairness and transparency concerning the data subject (Commission, 2016).
2. Purpose limitation.
3. Data minimization concerning the purposes for which they are processed (Commission, 2016).
4. Accuracy of the data.
5. Storage limitation.
6. Integrity and confidentiality regarding the protection of the personal data processed by the organization (Commission, 2016).

There is yet another unmentioned principle, accountability. Those responsible for personal data must prove that they comply with the principles presented above (Commission, 2016).

This regulation will have a significant impact on organizations, and they will have to change their internal processes and procedures to face these new challenges (Teixeira et al., 2019).

2.2 Project Management

Project management is defined as "planning, organization, monitoring, and control of all aspects of the project, with the motivation of all, included to achieve project goals in a safe manner, within the agreed schedule, budget and performance criteria" (Radujković & Sjekavica, 2017).

The five attributes highlighted by Veres and Varga-Toldi (2020) in which clients from the consulting organizations evaluate the quality of service are:

- **Deliverables:** Achievements delivered following the client's expectations and what he asked for.
- **Consultants:** Have the necessary expertise to resolve the proposed problems.
- **Client adaption:** Provide the right level of service personalization, make sure that they are heard and that their needs are met.
- **Consulting process:** Must go smoothly and be effective.
- **Communication:** Constant communication.

That resulted in a conceptual model with four dimensions. The clients evaluate expertise and relations based on the consultant behavior, involvement based on the level of service personalization delivered, and performance evaluated based on the capacity to solve problems along the way and effective resource management (Veres & Varga-Toldi, 2020).

For these projects to be effective, Radujković and Sjekavica (2017) identify three fundamental factors for project management success: education in project management competence, a good relationship between the project and the organization, and quality of methodologies, methods, tools, and techniques for project management.

2.3 From Lean-to-Lean Thinking

Since 1990 the lean concept has become globally known due to the release of *The Machine that Changed the World* by Womack (Womack et al., 1990). This book describes the Toyota Production System – TPS and its ability to be superior to other companies in the automotive industry, whether for productivity, quality, or the speed of new product development (Pinto, 2009).

The type of system used by the Toyota company was called lean system instead of the one generally adopted by others called "mass production" (Weigel, 2000).

Womack et al. (1990) referred the system used was focused on eliminating three types of inefficient resource allocation:

- Waste (or *muda*).
- Inconsistency (or *mura*).
- Overburden (or *muri*).

Simply put, lean aims to establish a smooth workflow to satisfy the customer by adding value and eliminating waste through continuous improvement (Hines et al., 2004). This waste elimination involves cutting unnecessary resources in the value chain, less time, less space, less human resources, and all those resources that do not add value (Womack & Jones, 1996).

In 1996, the concept of lean thinking first appeared, again in the hands of Womack, with the book *Lean Thinking* (Pinto, 2009). This book allowed us to move away from seeing lean as a

system applied in manufacturing companies to see it as a concept applied to any type of company (Womack & Jones, 1996).

This book presents an amazingly detailed view of the lean thinking concept, presenting the advantages and disadvantages of its application.

Womack and Jones (1996) defined conceptual framework of five key principles of lean thinking, namely:

1. **Identify value:** define value for the customer.
2. **Map the Value Stream:** identify all the steps necessary to transform inputs into outputs while delivering value to the customer.
3. **Create Flow:** make sure that the steps run smoothly through the value stream to deliver value to the customer without problems.
4. **Establish Pull:** production only starts when the customer needs it. The work is developed only when demand says so.
5. **Seek Perfection:** these principles are a cycle of continuous improvement through the elimination of waste.

Hines et al. (2004) reported that the exploration of practices that support lean promoted the application of the methodology in other areas based on the premise that the problems and manufacturing technologies "universal problems" faced by management, which shows the range of applicability of this philosophy in different business areas.

Atkinson (2004) referred that lean thinking represented a great opportunity for improvement for service companies, namely consultants, which shows the applicability of this concept to the organization.

2.4 Lean Tools

To implement lean thinking theory, numerous tools and methodologies were available through the contributions generated by the North American and Japanese industry to help the implementation in organizations (Pinto, 2009).

These tools aim to simplify and optimize processes by removing activities and processes that do not add value, which is unnecessary in the constant effort of companies to achieve efficiency through continuous improvement (Pinto, 2009).

Some of these lean solutions come from using tools such as kanban, 5S, SMED, six sigma, agile, visual management, PDCA, VMS, standard work, and many more (Hines et al., 2004).

Although beneficial when well used, their implementation in organizations should not be random and follow well-defined steps that make sense (Pinto, 2009). Hopp and Spearman (2004) suggested a set of steps aimed at the application of lean tools for the implementation of lean thinking philosophy, some of these steps went through:

1. Eliminate obvious waste.
2. Apply lean solutions such as VMS, 5S, and the 7 quality tools.
3. Reduce and identify causes of variability.
4. Continuous improvement.

Neves et al. (2018) presents an application of the 5S, 5W2H, and the PDCA cycle methodologies with excellent results and refer that the applied methodology can be used in other contexts to increase the operating company and competitiveness.

2.4.1 PDCA

The PDCA cycle or Deming cycle originated in the 1930s but was only popularized in the 1950s by W. E. Deming in Japan (Pinto, 2009). This cycle is used for problem solving by establishing standards and constantly improving them to reduce errors and waste of resources (Moen & Norman, 2006).

Johnson (2002) stated that this cycle consists of 4 phases, which are the following:

1. Plan: Refers to recognizing a problem, seeing the opportunity, and planning. The definition of a problem and later possible causes and solutions (Moen & Norman, 2006).
2. Do: Implementing to test the change to collect data.
3. Check: Compare and evaluate results, analyze, and draw conclusions.
4. Act: Taking action based on what has been learned, either by standardizing a process or repeating the cycle with a different plan.

2.4.2 5S

In 1980 Takashi Osada introduced 5S, going from just a philosophy to a framework (Gapp et al., 2008). This framework aims to reduce waste in the workplace through the implementation of an organized environment, neat, clean, standardized, and disciplined in the workplace (Osada, 1991).

According to Osada (1991), these practices are based on the meaning of five words of Japanese origin and have the following meaning:

1. *Seiri* – Sort: separate the necessary things from the unnecessary.
2. *Seiton* – Set in order: organize all elements of the workplace to define their specific places according to the frequency of their use.
3. *Seiso* – Shine: keep the workplace clean by setting standards.
4. *Seikiso* – Standardize: standardize previous practices by defining rules.
5. *Shitsuke* – Sustain: Foster a culture of organization and cleanliness in the workplace by implementing the practices presented to reduce waste and implement continuous improvement.

Monden (2011) said that 5S represents the foundation for improvements in the workplace. Aiming to reduce waste and improve the performance of processes and people, some of the main points on which lean thinking theory is based through an improvement in the workplace (Pinto, 2009).

2.4.3 Visual Management

This lean thinking methodology aims at visual communication to see an increase in the effectiveness and efficiency of processes to make them simple, perceptible, and avoid doubts among the company members (Pinto, 2009).

Despite appearing simple, visual management can enhance information flow in organizations offering effective solutions (Eaidgah et al., 2016).

Examples of the application of this methodology are the application of 5S, kanban, brands painted on the floor, clothing of different colors, among others that deliver information visually and simply (Pinto, 2009).

Service companies have used this tool to provide relevant information in a simple, stimulating, and easy to understand way for their workers (Tezel et al., 2010).

2.4.4 Standard work

The standardization of a company's processes can go through the formalization of its practices through the creation of templates. This practice will make all individuals perform the tasks in the same way, with the same procedure, avoiding unnecessary mistakes and wasting resources (Pinto, 2009).

Its application will allow performing processes in a consistent, repeatable manner to reduce waste and variability to achieve continuous improvement (Lu & Yang, 2015). According to Pinto (2009), this tool is one of the most important and crucial in implementing lean thinking and a basis for the PDCA cycle.

The standard work is composed of 3 key elements (Bragança & Costa, 2015), they are:

1. **Takt time or Cycle time:** Corresponds to the time needed to complete each step of the production sequence from beginning to end (Pinto, 2009).
2. **Production sequence or WIP** is the sequence of production tasks that results in the development of the final product/service in the safest way (Bragança & Costa, 2015).
3. **Standard inventory:** is the exact amount of stock so that the production sequence can normally happen without any predicament (Bragança & Costa, 2015).

2.4.5 RIE

According to Pinto (2009), the rapid improvement events or kaizen events correspond to small improvement workshops of short duration and with a small team, which aim to solve small problems of great urgency.

These events or workshops usually require 4-5 days of intensive work with a team focused on using their knowledge to make processes more effective and efficient by solving the problems identified previously (Smith et al., 2012). The teams must consist of 6 to 8 people, half of which must belong to the process and include people external to it to have a different view of the process (Wolf et al., 2013).

Despite going against the philosophy of continuous improvement of lean, these events, when applied in conjunction with other tools and a well-defined strategy and continuous improvement, can be very beneficial and solve urgent problems causing quick wins (Pinto, 2009).

These quick improvement workshops are very present in service organizations (Pinto, 2009).

2.5 Implementing Lean in Organizations

According to the Lean Enterprise Institute, lean has "The ultimate goal is to provide perfect value to the client through a perfect value creation process that has zero waste." Although this concept is more used in manufacturing companies, it can be used in various lines of work, services, processes, among others (Pinto, 2009).

Frameworks that envision implementing lean practices in their processes help improve consumer performance and satisfaction (Gupta & Sharma, 2018).

Business Process Change is defined as "an element of a wider concept of the business process re-engineering which involves the radical redesign of business processes to produce equally radical performance improvements" (Rymaszewska, 2017).

Rymaszewska (2017) developed a Framework to incorporate lean methodologies in the processes of an organization.

- At the first level, we have a lean change in the existing business processes followed by new responsibilities and progress monitoring.
- In the second level, an acknowledging of a shift towards leaner processes with continuous improvement and change.
- the third level, the organization learns the new techniques that are embedded with a leaner approach.

To implement lean initiatives is not only necessary to have a good design framework but also, according to (Sony et al., 2020). Organizations must consider factors to implement a practical lean approach like:

- **Organization-wide lean culture.** The culture of an organization must be aligned with a lean approach to foster sustainability.
- **Organization-wide innovation culture.** As the culture, innovation is also linked with sustainability, and it is also essential to align with the lean approach.
- Continuous **training and retraining of employees on Lean** is one of the most important factors.
- **Continuous top management support.** Training improvement, quality, and the entire organization for lean.
- **Linking lean to business strategy.**
- **Linking lean to the customer** to create added value.
- **Project selection strategy** employing a tremendous and well-structured improvement methodology.
- **Communication** mainly in the initial phase of implementation.

Despite all these factors that help implement lean performance, sometimes organizations cannot implement this strategy successfully (Pinto, 2009). To prevent this from happening, we should consider the factors presented before, especially the culture of the company, training of employees, and make sure that they absorb the knowledge necessary.

To prevent these projects from failing, we can do a performance test. Vlachos and Siachou (2018) suggest some managerial recommendations for organizations that aim to achieve a successful lean performance testing the hypothesis using four lean measures.

Ensure that the implementation gives continuous improvement to the organization's core business, minimizing waste management of resources, ergonomic of the employees in the working place, and product quality (Vlachos & Siachou, 2018).

2.6 Literature conclusions

The literature research carried out on the GDPR helped us gain a basis for simplifying the information described in the process to be explored and a greater understanding of its purpose.

Exploring the theme of project management helped to understand what customers value in a service and what areas we should focus on when looking for potential problems.

As for lean and lean thinking, exploration made it possible to understand how I came up with this methodology and how it became a philosophy applicable to all organizations. The exploration of the tools available for its application in solving the problem.

Finally, through an analysis of the state of art of lean applied in an organizational context and how to implement this project.

3 Strongstep and the Problem Characterization

In this section, we have a more extensive and complete description of the company that will help gather the insights for the elaboration of this dissertation and the specifics of the process that we will be improving, the GDPR project management process.

Taking this into account, all process issues will be identified and later resolved in Chapter 5.

3.1 The Company – Strongstep

Strongstep was born on June 9, 2009, as a spin-off from the Faculty of Engineering of the University of Porto. It is now a software engineering consulting company dedicated to helping improve processes in organizations worldwide, working collaboratively with them to achieve this goal.

Their activity is based on the principle of installing efficiency and excellence in all the projects they work on, with a team of experienced professionals and the use of the best management and multidisciplinary practices to provide the best response to any problem that may arise.

In addition to the qualities mentioned before, the company also has partnerships with important global reference institutions that, combined with the team spirit, client confidence, and quality in the services presented, make it possible to consolidate each improvement towards the top and leadership.

The focus areas where it operates are mainly software engineering and information security. Considering this, the company has a range of quality services, including GDPR, DPO, ISO, and others related to information security, quality implementation in organizations, software development, and service management.

Our focus will be on the GDPR consulting service. It consists in helping companies gain awareness concerning the protection of the personal data of their employees or clients through risk analysis of their processes. This shows their concern with helping companies better their processes and the concern in changing people's mentalities for change and helping organizations in their autonomy.

3.2 Glance at the problem

Considering what was previously mentioned in chapter 1, more specifically in section 1.4 Study and Project Development at Strongstep and 1.5 Problem Description, Objectives and Research Questions, the defined problem will be studied in the company Strongstep, specifically in the GDPR project management process.

In a first assessment and conversation with the people responsible for this process, we could see that their goals were to resolve the following difficulties:

- Waste of time in the project management process.
- Prioritize valuable activities and reduce waste in GDPR project management.

In addition to this, they also expected a standardization of the documentation used.

So, along with the research objectives previously identified in section 1.5 Problem Description, Objectives and Research Questions.

- Standardize the process of managing GDPR projects through lean thinking.
- Reduce the use of unnecessary resources in the execution of the GDPR management process through lean thinking.
- Contribute to the literature applying lean thinking in a service company.

We will add the following practical objectives:

- Improve the consulting process within Strongstep with the application of lean tools and methodologies.
- Identify opportunities for continuous improvement in the Strongstep GDPR management process.

Specific of the work to be developed within the company utilizing the lean methodology and tools.

3.3 GDPR project management process characterization and analysis

Before applying lean thinking, it is essential to identify the existing process pain points that will later be considered improvement opportunities.

For this, it is necessary to characterize the process, make a description of all the information already used, individuals involved, how this is organized, among other important information.

This section was developed with the help of an extensive review of available documentation and several informal interviews with all those involved in this process within the company.

We start by describing what the objective is and what it means to implement the GDPR in organizations.

The GDPR Consulting Service procedure is applied to the entire organization and the activities necessary to execute GDPR consulting projects. We can say that this service has two expected results:

- ✓ Optimized processes and in compliance with the GDPR.
- ✓ Transmission of in-depth knowledge and autonomy for the application of the GDPR.

Strongstep evaluates all the company's processes and departments to have a notion in which of them there is the processing of personal data, and which are the most critical, to make a critical implementation and correct allocation of the available resources.

To make a small explanation, this result is achieved through 4 fundamental lines of action:

1. Initial assessment of the organization's compliance with the GDPR
2. Data Protection Training
3. Definition and implementation of processes following the GDPR
4. GDPR Final Evaluation

As for the people involved in this process, we can consider 3 types:

First, we have the person **responsible for the process** or sponsor whose functions are to award the contract by the company and resolve any problem or project that occurred during the same.

The **project manager**, whose function is to plan the entire project, from the necessary documentation, milestones, the estimated effort, and the definition of the project team. In short, this aims to guide the company in implementing the GDPR

Finally, we also have **backup consultants** who are part of the project team and are needed to support the project manager, whether in the initial assessment, the implementation of processes, or whenever necessary.

A more visual representation of this hierarchy of the process in managing GDPR projects is present in APPENDIX A.

To have a more transparent and more complete perception of how this process is performed, we present the phases that constitute it and then, going into more detail, each phase's main activities and the consequent explanation of each one of them.

The process starts when the proposal is adjudicated. It has three phases, Preparation, Execution, and Closure represented in grey and ends with project closure, as shown in Figure 1.

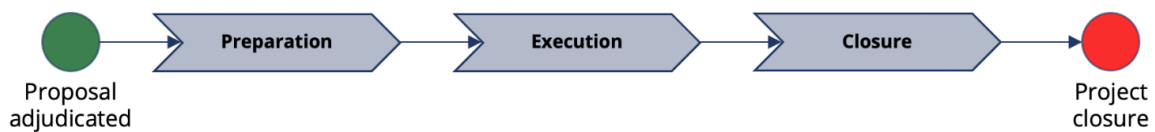


Figure 1 - Phases of the GDPR Consultation Process

Starting with the first phase of this process, the preparation is constituted by a set of four activities represented in the Figure 2.

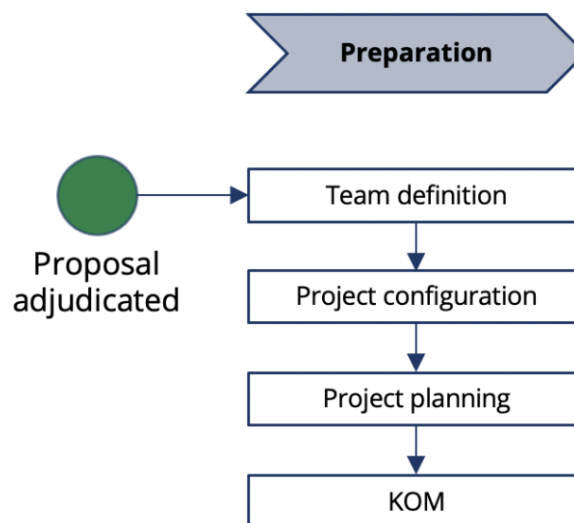


Figure 2 - Preparation phase and activities

This phase aims to carry out all the activities necessary to start the most practical part with clients. Most of these activities are done internally. The objective of each activity is:

- **Team definition:** corresponds to the definition of the work team within the company, including the project manager and the other consultants.
- **Project configuration:** this activity aims to create two folders, one for tracking work internally on the company's platform and another folder on dropbox for sharing important documents with the clients.
- **Project planning:** here, the planning of the expected progress of the project is done. Including the time, the process is expected to take, the necessary phases, risks, objectives, and any relevant information.
- **KOM:** this activity marks the beginning of the project for the clients. The project roadmap is presented to the client, and all the necessary and relevant information was prepared in the previous activity. In this activity, the departments to be evaluated in the gap analysis are also discussed, along with all the relevant details.

In this phase, we have the most important process activities, which correspond to the most practical and most interactive component of the process. The related activities of this phase are shown in Figure 3.

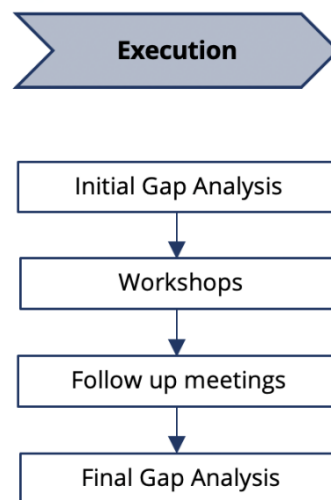


Figure 3 - Execution phase and activities

- **Initial training:** training of a small workshop with basic GDPR concepts that are imperative for performing gap analysis.
- **Initial Gap Analysis:** all processes considered as priorities of each department are evaluated concerning the practices adopted and the personal data processed.
- **Workshops:** the workshops aim to provide more in-depth training on the themes of the GDPR, an identification of the most critical processes, and further assistance for the preparation of dataflows and PIA.

- **Follow up meetings:** The follow up meetings aim to help the client develop dataflows, PIA, templates, or any other question within the theme.
- **Initial Gap Analysis:** very similar to the initial gap analysis, in this activity, compliance with the GDPR is assessed by all departments with critical processes.

Finally, in Figure 4, we have the closure phase, we have all the necessary activities to close the project.

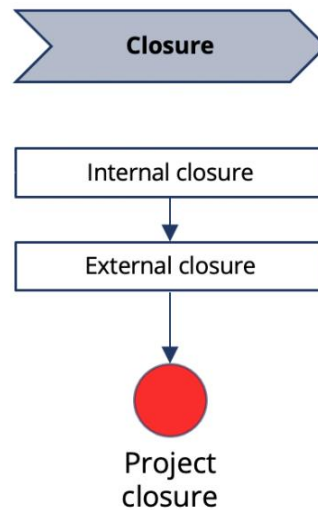


Figure 4 - Closure phase and activities

- **Internal closure:** an internal meeting is held where all lessons learned from the project are discussed and the closing of tasks in the internal platform and documents in dropbox.
- **External closure:** closure of the project with the client, recapitulating everything that was learned, and an assessment of satisfaction.

Considering the information described above, we present the process roadmap in Figure 5.

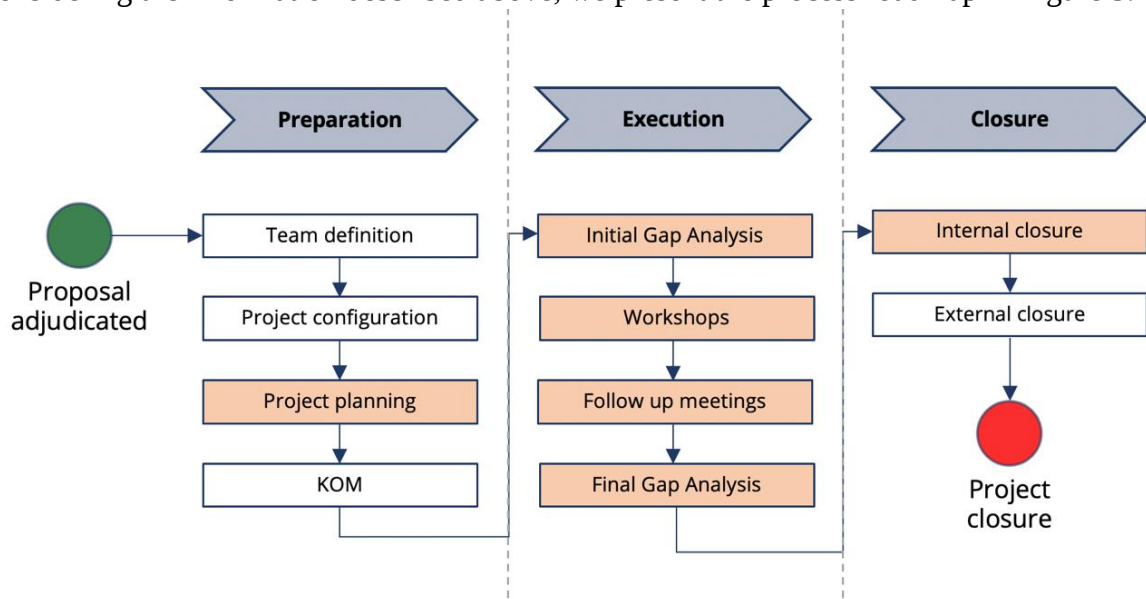


Figure 5 - GDPR process roadmap and critical activities

After completing the roadmap and having a more visual and clear perception of how the GDPR consulting process is unfolding, it was possible to identify the most critical activities, which are identified in Figure 5 in orange.

In the preparation phase, we only identified the Project planning activity as critical. This activity is significant since this is where the resources and effort that the team will make are allocated. If this is well calculated, it can avoid possible waste of resources.

As for the activities represented in the execution phase, all of these are considered critical due to several reasons.

In general, all activities in this phase are critical since:

- They involve stakeholder participation, which makes them quite volatile in relation to their schedule.
- Are long-lasting and important activities.

As for the **Gap Analysis activities**:

- They need a great deal of attention from the company and the ability to analyze client processes.
- Lots of documentation.

Training:

- Stakeholder participation is required and requires much attention from them.
- Crucial for the development of the other activities.
- A lot of information and very dense.

Follow up meetings:

- Lots of documentation to fill.
- Hard to calculate how long it will last.
- Depends a lot on stakeholder doubts.

Finally, in the **closure phase**, we only have the critical inner closure activity. With this activity, we can:

- Extract lessons learned and assess the team's performance on the project.
- Use lessons learned as ways to improve.

Furthermore, learn what is important for future projects and needs to be better used.

In addition to the reasons listed, all these activities are consequential to each other, so if one of them is not carried out correctly, all the activities following this one will suffer a more significant waste of resources.

It is important to mention that all activities involving individuals on the part of clients are critical, as it depends on their availability and there may be a greater waste of resources, however here we only represent the most important activities and where there may be more problems. These correspond to all activities of the execution phase as well as KOM and External closure.

To better understand the documentation normally used in each activity of the process, Table 1 was prepared.

ACTIVITY	DOCUMENTATION
Team definition	-
Project configuration	-
Project planning	Project planning excel
KOM	KOM PowerPoint
Initial Gap Analysis	Gap Analysis excel Results presentation PowerPoint
Workshops	Initial training PowerPoint Workshops PowerPoint PIAs Workflows Consents
Follow up meetings	Follow up meeting PowerPoint
Final Gap Analysis	Gap Analysis excel Results presentation PowerPoint
Internal closure	Lessons learned PowerPoint
External closure	Suggestions Excel

Table 1- GDPR process activities and documentation

It is possible that some documentation is not previously explicit as it depends on the needs of each company. This occurs mainly in the activities of workshops and follow up meetings.

In addition to the documentation described above, the company also has:

- A template of the GDPR implementation process with an explanation of all phases of the process, those responsible, and other relevant information.
- An excel data collection to be used throughout the project management process to track the missing tasks.

3.4 Issues in the GDPR project management process

Considering all the information described above on how the process is performed, we can now identify the problems and opportunities for improvement found more objectively and in more detail.

Regarding the activities, general documentation, and management of people involved in the process within the company:

People:

- ✓ There is no awareness of the team in general on how to register project tasks on the platform as to what name each task corresponds to.
- ✓ There is no complete knowledge of how the GDPR project management process is carried out, by all the people involved.

Documentation:

- ✓ The template representative of the process is outdated, making it not to be used when it could be a valuable tool for people who want to become familiar with the process.
- ✓ The technical file of the process on the company's platform is outdated, with inconsistencies in the updated language and inconsistent with the representative template of the process.
- ✓ There are three places where the process is tracked.
 - on the company's platform.
 - another is in an excel sheet where all projects of all the company's services are tracked as well as an evaluation of performance through indicators.
 - an excel sheet from the data collection to use with clients.

Activities documentation:

- ✓ Information in powerpoints is too dense, in a language not suitable for the target audience and not very condensed.
- ✓ There are few moments of interaction with clients during the workshops.
- ✓ The documentation for carrying out the gap analysis is barely perceptible even to the consultants carrying out the audit due to their language.

Now regarding the relationship maintained with clients throughout the project's duration:

- ✓ Some clients report that when carrying out the risk assessment of each process (PIAs), they feel that they are repeating information already mentioned in the Gap Analysis.
- ✓ Clients complain that the templates are not very personalized and adapted to their reality.
- ✓ Templates are challenging to understand for someone who has never seen that document before.

Although there is no visible problem with the Project planning activity, this could perhaps be one of the fields that would benefit from an improvement by creating an adjustable template with the necessary information.

It is also important to mention that only lessons learned are elaborated in the internal closing activity, and no improvement is carried out.

4 Methodology

This section will present the research methods and methodology that will be addressed in this study for being possible to assure the quality and reliability of the research results.

In addition, it is also presented a comparative analysis of different existing methods and the rationale for selecting the method used.

4.1 Comparative analysis of existing approaches

Research methodology is a process of depicting a strategy for the investigation, setting the choice of data gathering that should meet the research objectives previously defined to have a proper answer to the research questions (Fortin & Ducharme, 2003).

This methodology has two approaches that are well known and used in the scientific world, they are the qualitative research and the quantitative research. These two approaches are different in terms of the purpose for which we use each.

Quantitative research aims at a detailed analysis of data and the justification of hypotheses raised through statistics (Bernard, 2017). It is used to arrive at an answer of how a certain variable influences a specific result (Bernard, 2017).

On the other hand, qualitative research is a less rigid methodology (Corbin & Strauss, 2008), more creative, and where the people who carry it out have to play an involving role in the research.

Although complicated and not very common, these two methodologies can be used together if properly justified.

4.2 Method used in the project

As explained above, the methodology used in this process goes through a research methodology. Data will be collected from one of the two approaches presented above to answer the research questions defined in Chapter 1 and fulfill the research objectives.

Firstly, it was done a theoretical context with a literature review from the most important concepts related to the problem: basic notions about data protection regulation, privacy, data collection and their legislation, project management, and lean and services to encounter the limitations and gaps in the literature.

In addition to finding areas where it was possible to contribute to the literature, this type of research also aimed to gain greater knowledge about the themes explored and provide a solid basis for the development of the project and helping solve the research problem answer the research questions.

Then, it will be addressed only qualitative research methods, which will be used to help data solve the problem with the help of lean tools.

A Case study Research approach was used to where an in-depth analysis of the GDPR project management process. The process was carefully depicted through a documentation analysis, process analysis along with the following actions for this qualitative study:

1. **Semi-structured interviews** with:

- Four companies that are implementing GDPR projects on the company that the work is being developed.

- Three members of the team that help its implementation process to have compliance with the European norms.
 - The person responsible for the GDPR implementation process from the company.
2. An **ethnographic study** of the implementation of the GDPR projects to pick up details that would not be possible to pick up in the interviews.

As mentioned earlier, qualitative research was chosen to solve this problem that will be done through semi-structured interviews.

To observe these processes and the companies' struggles, it is also vital to do ethnographic monitoring to watch the actors in their natural environment and not be influenced by the perspective that each different actor has on this problem. This made it possible to collect descriptive data about the process, workers' difficulties, and complaints from the company's clients that could be used for improvement opportunities.

During the performance of both actions mentioned above, notes were taken to have a more accurate analysis of the information provided and extract the most relevant insights from the methods used.

After this exploration and consequent definition of the problems/opportunities for improvement found in this case study present in this project, lean methodologies and tools were applied to apply the lean thinking philosophy and develop a Framework for process improvement. These methodologies were applied in detail below in chapter 5.1 Roadmap for a lean organization.

5 Implementing Lean Thinking

In this chapter, the research problem identified in chapter 3 is solved by applying lean thinking methodology.

First, we present the roadmap used to implement lean thinking in the process of the company.

Next, the most immediate changes through the improvement opportunities identified above applying RIE, moving to the application of chosen lean tools and methodologies, the 5S, visual management, and standard work.

Finally, the application of the PDCA cycle to foster continuous improvement in the process is under analysis.

5.1 Roadmap for a lean organization

First of all, and before applying any lean tool or methodology, it was essential to develop a roadmap to guide us through its implementation in the organization.

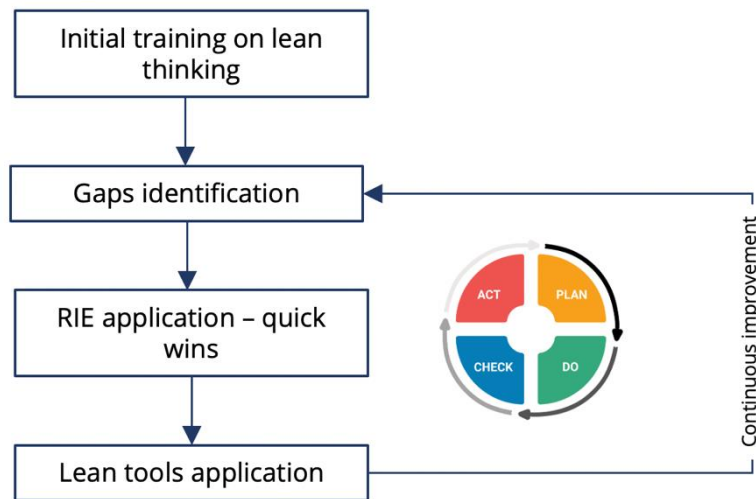


Figure 6 - Roadmap for implementing lean thinking

As we can see in the figure presented above, the first step taken was an initial training on lean thinking philosophy to transfer knowledge and good practices. This training presented the main objectives, tools, and methodologies it uses, such as PDCA, Kanban, Agile, among others, case studies and benefits they can bring to organizations.

It aimed to make this philosophy known to everyone in the organization. Although not all individuals are involved in the process in which we will focus, everyone must see the benefits of this implementation.

Next, the identification of gaps for improvement through the preparation of the process roadmap with the respective phases and activities, analysis of documentation, interviews, and observation is represented in chapter 3.

Small improvements through the application of RIE to get quick wins on problems with great urgency but with a perspective of continuous improvement.

To solve the rest of the problems identified below, lean tools are applied, namely 5S, visual management, and standard work.

Finally, the continuous improvement cycle is implemented, PDCA, so that the application of lean thinking is inherent in this process and in the people who develop it in the company.

5.2 RIE that lead to big changes

Rapid improvement events (RIE), also known as kaizen events, are, just as the name says, events that have the objective of quick wins aimed at solving very urgent problems that involve little waste of time.

Although not in line with the lean thinking philosophy, the RIE will not be used alone but framed in a continuous improvement strategy.

After identifying the problems in Chapter 3, we verified that some of these were quickly resolved, hence the usefulness of using this methodology.

That said, through a collective effort of four people, three belonging to the company in question, the following improvements were made in a short period:

- Translation of all documentation, including workshop powerpoints, templates provided to clients, consents, and all the information that it could identify and describe in Table 1 since the company has international clients and this was not done yet.
- Reformulation of workshops, Templates, Gap Analysis documents, and the language present in them becomes easier to understand, both for clients and for the team that implements the GDPR projects.
- Insertion of more client interaction moments during the workshops.
- Reduction of duplicated information between the initial gap analysis and the PIAs.

Despite being small changes and carried out in a short period, applied in this context helped to reduce waste and create value for the client.

5.3 Applying lean methodologies and tools

5.3.1 The 5S

The 5S tool is a set of practices to create optimal conditions in the workplace, optimize quality, and increase effectiveness and efficiency. It is typically used in manufacturing companies to create a simpler working environment.

In this specific case, this tool will be applied to a service company process. Due to this fact, we will consider that the workplace is the consultants' computers, and we will act in the way the documentation and information necessary for the development of the service is arranged and organized.

Given this, let us briefly explain how these 5S were applied in the described context.

1. Sort:

Separate what is needed from what is not needed in the workspace. Identifying everything that is not useful.

That said, an assessment was made of the folders for managing the projects we would be working with. We denoted that it was missing and that some documentation was unnecessary, as we will see below.

Figure 7 shows one of the documentation subfolders in the Dropbox folder used to manage a GDPR implementation project for company 1.

Name
▼ 1. Gap Analysis
▶ 1. Agenda
▶ 2. Opening
▶ 3. Interviews
▶ 4. Results Presentation

Figure 7 - Gap Analysis Folder

Folder 1. Gap Analysis corresponds to one of the activities performed in the process, the initial Gap analysis.

To apply this measure, we will evaluate folder 4. Results Presentation.

As we can see in Figure 8, we have many versions of the same document, either by the version number presented or by the team member that made it.

Name
Company1_ResultsPresentation_InitialGapAnalysis_v1.0pptx
Company1_ResultsPresentation_InitialGapAnalysis_v1.1pptx
Company1_ResultsPresentation_InitialGapAnalysis_v1.2_pch.pptx
Company1_ResultsPresentation_InitialGapAnalysis_v1.3_ajd.pptx
Company1_ResultsPresentation_InitialGapAnalysis_v1.4.pptx
Company1_ResultsPresentation_InitialGapAnalysis_v2.0.pdf

Figure 8 – Results presentation folder

As only one of these documents is used for the requested purpose, which would be the presentation of the results of the initial Gap analysis, we believe that the remaining documents are not needed in the workspace and are creating confusion and information jam.

Although they are not used for the final purpose, some of these documents may prove to be accurate and therefore cannot be deleted.

This situation verified in this folder happens throughout all folders and subfolders of the project folder. A folder was created to store the last 3 versions of the document to solve this problem, and the rest will be eliminated. We can see how this problem was solved in Figure 9.

Name
Company1_ResultsPresentation_InitialGapAnalysis_v2.0.pdf
▶ Outdated versions

Figure 9 – Updated results presentation folder

2. Set in order:

This practice aims to organize the workplace. It is important to define the location of each thing and check that they are in their place.

This organization was made through 3 measures:

1. Creation of nomenclatures according to each activity of the process through folders already existing in the company.
2. Organization of folders according to the user and according to frequently used folders.

As for the first measure, we will use the nomenclature created in chapter 3 represented in Figure 5 with some changes.

Accordingly, we represent in Figure 10 the new organization implemented organization.

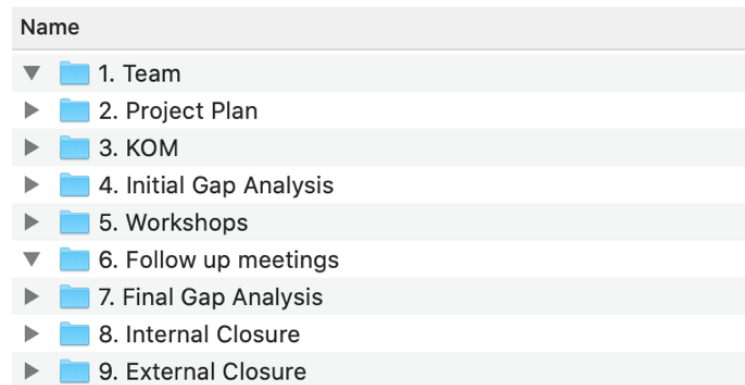


Figure 10 – Folder organization

The folders represented were organized and numbered according to the chronological order of the activities in the process, keeping the original name of the activity whenever it made sense.

Comparing with the initial state of the documentation, folders 1. Team, 2. Project Plan, 8. Internal Closure and 9. External Closure were added since this information would be spread over other folders.

Regarding the subfolders, these were also organized and numbered in the order in which the documentation is prepared or needed and considering the folder in which it is inserted, as shown in Figure 11.

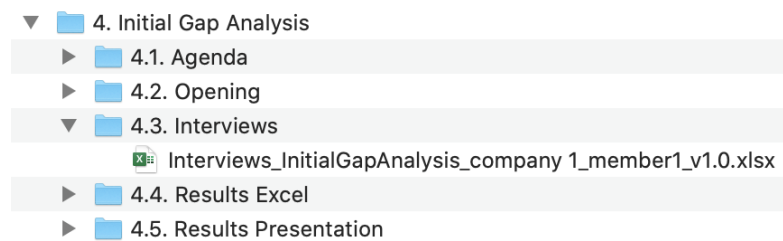


Figure 11 – Organization of subfolders and documentation

As for the documentation, a new nomenclature was introduced to be followed, as shown in Figure 11.

Each document must have the following name subfolder_folder_company_member1_v1.0. The member's name must be written using name's initials and is mandatory only in the case of Initial Gap Analysis interviews.

An example of using this nomenclature would be:

Interviews_InitialGapAnalysis_ZARA_AM_v1.0

Regarding the second measure, the organization according to the user and considering that we are already within the folder relating to GDPR projects, the organization is done according to the example in Figure 12.



Figure 12– Organization of the users' workplace

Each user has a folder with the clients they are working sorted alphabetically. Subsequently, each of these folders has a subfolder with the documentation shared with the client and another with the internal documentation related to that project.

The nomenclature of the folders can be seen in Figure 11.

Through observation of the work done in the company, we realized that some of the projects were momentarily stopped, so the use of the "favorites" tool was encouraged so that the user had access to the folders that he frequently used more easily.

3. Shine:

Considering the measures previously applied, a review was made of the workspaces of all those involved in the GDPR process to verify that access to the projects was all correct, depending on the user.

All folders were checked to see if there were documents out of place or in need of deletion.

It was also verified that all folders and documents were following the nomenclature defined above.

To keep each user's personal space and the space in general for the entire team clean and tidy, it was defined that the project manager would be responsible for cleaning all the folders that corresponded to their projects and verifying that everything would be in place.

This method has been applied to all folders of all GDPR implementation service projects.

4. Standardize:

To standardize the organization of folders and nomenclatures defined above, a template folder was created in English and in Portuguese with all folders, subfolders, and files used in the GDPR project management.

A picture of this template is present in APPENDIX C and aims to avoid cleaning and misusing the nomenclature.

Another template was created to help standardize the measures and rules for storage in the workplace presented above. It is a visual and easy-to-understand template for everyone.

This template is represented in APPENDIX D and aims for everyone to understand and apply the rules to increase the effectiveness and efficiency of the process.

5. Sustain:

To maintain the principles of systematization and cleaning, in addition to the measures and standardization of these measures previously made, a session was held with all those involved in the process to ensure that they understood the measures and would know how to implement them.

After this, a checklist was created to be filled in by the project manager to verify if the workplace cleaning of each one and the cleaning, in general, is being fulfilled as agreed.

These measures aimed to instill these principles of cleanliness and organization in the workplace so that this becomes automatic.

An example of that checklist is represented in Table 2.

Project	Task	State	Responsible	Expected end date	Comments
Company 1	Update Nomenclature	Done	AM	11/05/2021	
	Eliminate outdated files	Running	AM	11/05/2021	
+9sw					
Company 2	Move outdated version to "Outdated versions" folder	To do	JS	23/05/2021	

Table 2– Workplace Cleaning Checklist Example

The checklist has the name of the project, the task to be performed, the status of the task, the person responsible, the date the task is finished, and a space for possible comments that the project managers may want to make.

This checklist must be completed by all project managers and supervised by the project manager every 2 weeks.

5.3.2 Visual management

Visual management or visual control refers to the use of visual tools such as painted marks on the floor, kanban cards, or even the methodology used previously, the 5S, in order to make a visual communication so that it is more noticeable and better understood by all those involved in the process.

There is already a tool of this type within the company, the kanban, for the management of activities carried out, to be carried out, or in execution.

In addition to the improvements in this area through the measures implemented with the 5S tool, the development of the roadmap in Figure 5, and other documents produced, we realized that there would still be implementations to be done in this field for a better understanding of the process.

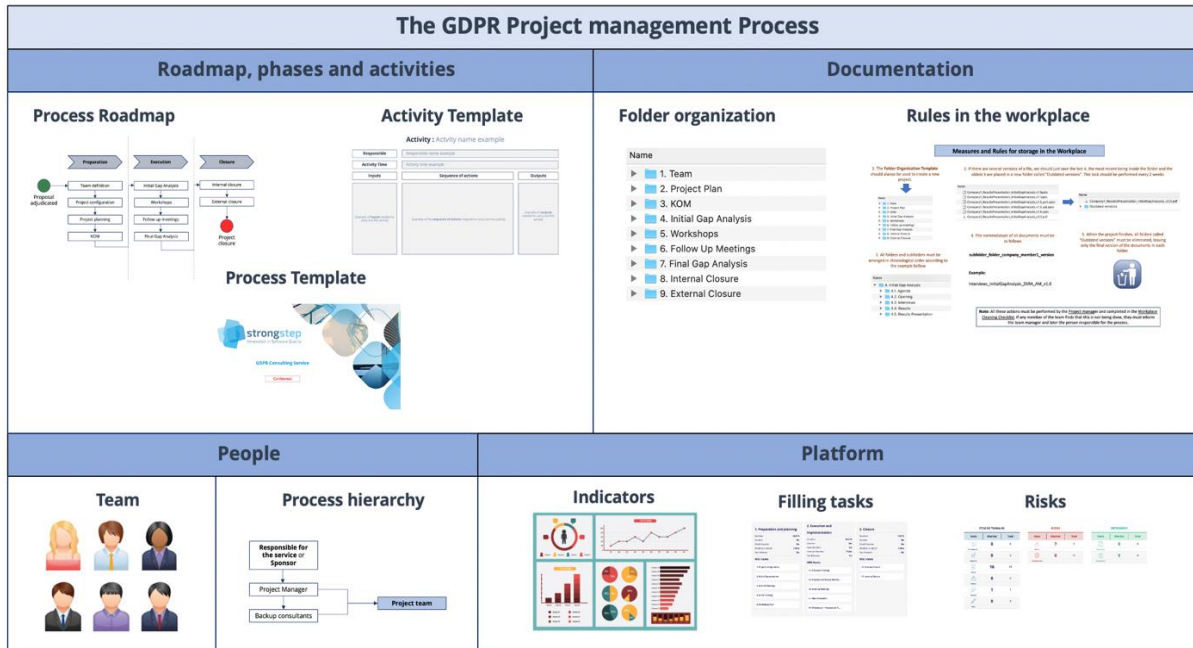


Figure 13 - GDPR Project management Process overview

Figure 13 represents an overview of vital information to know about the GDPR consulting process. This contains very relevant information such as:

- The people who have an involved part in this process and the team hierarchy.
- Information present on the platform, such as performance indicators, filling tasks, risks, etc.
- The organization of documentation and measures of organization of folders.
- Roadmap, process phases, activities, process template and many more.

This visual presentation allowed collaborators of the company a better view and understanding of the GDPR Project management.

Another application of this methodology was carried out to clarify to clients the deliverables they had to perform, the expected date, which activity they corresponded to, and the progress made so far in implementing the GDPR. The mentioned checklist is shown below in Figure 14.

GDPR Implementation Checklist

Activity	Document	State	Responsible	Expected end date	Observations
KOM					
KOM	Presentation	Open		24/03/2021	
Initial Gap Analysis					
Initial Gap Analysis	Initial Gap Analysis Excel	Closed			
Initial Gap Analysis	Initial Gap Analysis Report	Closed			
Workshops					
Initial Training	Presentation	Closed			
Workshop #1 - Data Processing, Risk and PIA	Presentation	Closed			
	Template	Open			
	PIA	Open			
	Workflow	Running			
Workshop #2 - Data Breach and Order Management	Presentation	Closed			
	Workflow	Running			
	PIA	Closed			
Workshop #3 - Privacy Policy & Consent	Privacy Policy	Closed			
	Consent	Closed			
Follow up Meetings					
Acompanhamento #1	Follow-up document				
Acompanhamento #2	Follow-up document				
Acompanhamento #3	Follow-up document				
Acompanhamento #4	Follow-up document				
Acompanhamento #5	Follow-up document				
Final Gap Analysis					
Final Gap Analysis	Final Gap Analysis Excel				
Final Gap Analysis	Final Gap Analysis Report				
External Closure					
External Closure	Presentation				
External Closure	List of suggestions				
External Closure	Lessons learned				

Figure 14 - GDPR Implementation Checklist with example

In addition to the fields mentioned above, a field with a color code was added to check the documentation status, whether the item was closed, open, or running with a color code to be more easily identifiable.

With the help of this field, it was possible to create a progress button that increases whenever a task is closed compared to the total number of tasks represented in Figure 15.

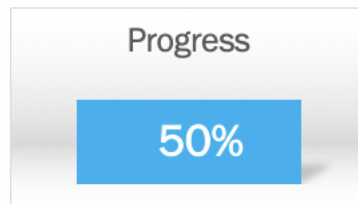


Figure 15 - Progress button

In addition to these measures, a color code was also implemented in the gap analysis file regarding client compliance with each GDPR article, as can be seen in Figure 16.

Compliance - Articles

6	Lawfulness of Processing	Defined
7	Conditions for consent	Defined
8	Conditions applicable to child's consent in relation to information society services	Initial

Figure 16 - Color coding in Gap Analysis documents

The nomenclature was as follows:

- Non-Existent in bright ref if there is no awareness or action in this area.
- Initial in red if there is awareness, however there are actions or good practices to be applied to ensure the protection of personal data.
- Defined in yellow if there are some good practices and awareness for the protection of personal data, but insufficient.
- Managed in light green if some actions have been implemented and there are good practices to ensure the protection of personal data.
- Optimized in green if all actions and good practices considered necessary for the protection of personal data have been applied.
- Not Applicable in black if it is outside the scope.

5.3.3 Standard work

Standard work is one of the most important lean thinking tools, and many of the other existing tools have a variation of it.

Considering what was said above, the following measures were taken in the company's documentation:

- Review of all documentation correcting all spelling errors, poorly placed formulas in excel, and other types of errors found.
- Process template and technical file of the process on the company's platform update considering the roadmap of the process represented in Figure 5.

Aiming at standardizing documentation, correcting errors in templates already used, and updating them when necessary.

Moving on to a more structured application of this tool, we will use the three basic principles that represent it and apply them to the organization's context in question.

1. Takt time or Cycle time:

This specific case corresponds to the time it takes each activity of the process under study to be carried out. That is, the cycle time applied to the GDPR implementation process corresponds to the activity time.

2. Production sequence:

This corresponds to the sequence or order of production that leads to the realization of each task or stage of production. The context in question corresponds to the steps taken to carry out each activity in the GDPR implementation process. Let us call it the sequence of actions.

3. Standard inventory:

It is the amount of stock needed for the process to run smoothly. In this case, it corresponds to the inputs needed to carry out the activity under normal conditions. Applied to the case under study, we will call it inputs.

After this context, we consider that the 3 basic principles applied to the organization's context would be activity time, sequence of actions, and inputs.

Located in the company's GDPR service template, there was already a section with two applied principles. Given this, this part of the documentation was reformulated to include the 3 principles and some more necessary information according to the information provided by the company.

This reformulation is shown in Figure 17, with the basic principle highlighted in blue.

Activity : Activity name example

Responsible	Responsible name example	
Activity Time	Activity time example	
Inputs	Sequence of actions	Outputs
Example of inputs needed to carry out this activity	Example of the sequence of actions required to carry out this activity	Example of outputs needed to carry out this activity

Figure 17 - Activity template with basic principles of standard work highlighted

In APPENDIX D, we have the template for the activities.

According to the template presented, all company documentation, including the official service template, has been updated again to contain these latest updates.

From the three defined principles, we realized that only the activity time was not well defined since it depends on a lot from client to client. However, we created a template to fill in the duration of each activity depending on the project so that we could obtain an average so that it could be listed in the future. The template is presented below in Figure 18.

Activity : Activity name example

Project	Activity Time
Project name example	Activity time example

Average:

Time average
example

Figure 18 - Average time by activity template

This tool was used to obtain coherent documentation, reduce errors during the process, and support the implementation of the methodology presented below. It only makes sense to apply a continuous methodology when we have standardized processes.

5.4 The path to continuous improvement - PDCA

The PDCA cycle is one of the best-known and more straightforward lean tools for fostering a continuous improvement cycle.

It aims to:

- ✓ Establish a solution testing culture.
- ✓ Minimize potential repetition of work.
- ✓ Increase client satisfaction.
- ✓ Support a continuous improvement mindset.

This cycle has a four-phase sequence **Plan, Do, Check, Act** (PDCA) that is repeated to enable continuous improvement or situation analysis.

As we can see throughout this project, the company already plans and executes the project and ultimately assesses client satisfaction and the lessons learned from the project itself.

However, we can see that these lessons learned, or client feedback can often not be used as opportunities for improvement due to the lack of a method to assess and implement them.

For this reason, a method was developed to treat this information and transform it into improvements in the company.

With the help of visual management for the implementation of improvement proposals that clients give throughout the implementation of projects or at the end of them when they assess satisfaction, Figure 19 is presented.

Suggestion Implementation / Problem Solving			
Problem Characterization:	Action taken	When?	By who?
Objectives:			
Implementation Plan	Check Results	Standardize	
Actions to take:			

Theme: _____ Date: _____ By: GDPR Team

Figure 19 - Suggestion Implementation/Problem Solving Template

1. Plan:

The square with the titles in yellow is intended for planning to solve the problem. A characterization is made of defining the objectives and how we will achieve them through an action plan.

2. Do:

The green section records the actions taken to carry out the problem or implement the solution, who did them, and when they were carried out to ensure that they were carried out.

3. Check:

The section corresponding to this measurement is blue color and aims to analyze and verify the results obtained with the measurements taken.

4. Act:

After these three measures, we take the final step to standardize the process based on the results obtained. If none of the implemented measures have a positive effect, we analyze the information described in the previous measures and reformulate them to obtain different results.

This cycle must be repeated for each new problem found or suggestion to be implemented or when the results are unfavorable.

The template and its completion were explained to the entire team involved in the management GDPR projects to ensure its use.

6 Conclusion, limitations, and future research

In this section, we present the conclusions from applying the lean thinking philosophy through lean tools and methodologies.

First, the results and objectives that were possible to fulfill with applying the philosophy and the answer to the research questions were initially identified and the contributions to the literature.

Then the difficulties and limitations felt during this dissertation's development and the future research to be carried out in this context.

6.1 Results and contributions to the literature

With the end of this project, we can verify that it was possible to fulfill all the objectives proposed at the beginning of the project development, both the identified research objectives:

- Standardize the process of managing GDPR projects through lean thinking.
- Reduce the use of unnecessary resources in the execution of the GDPR management process through lean thinking.
- Contribute to the literature applying lean thinking in a service company.

As well as the practical objectives identified for the work developed in the company:

- Improve the consulting process within Strongstep with the application of lean tools and methodologies.
- Identify opportunities for continuous improvement in the Strongstep GDPR management process.

This was only achieved with the solid foundation of the literature and the subsequent application of lean thinking philosophy through lean tools and methodologies, namely the visual management, 5s, standard work and the PDCA cycle and RIE applied in a context of continuous improvement.

Through applying lean methodologies and tools and inherently through the literature, it was also possible to answer the research questions proposed initially.

In the case of the question "How lean thinking can promote successful GDPR project management?" we can say that this can have a substantial impact on increasing the efficiency and effectiveness of management through a reduction in the waste of resources, better document management, allows to standardize work and better knowledge of the people involved in the project order to reduce errors.

Regarding the question "Which are the appropriate lean tools to improve processes?" we could understand that for applying lean tools, a logical procedure and a well-defined strategy are necessary, as well as the tools indicated according to the identified problems.

In the case of a specific study present in this dissertation, a set of specific tools and methodologies were applied with the following results:

- With the RIE, it was possible to tackle problems that are easy to solve and of great urgency.

- With the application of 5S, it was possible to organize better and standardize the organization of the workplace and the documentation present there.
- Visual management allowed a better communication of the process and activities to be performed by team members or anyone involved in this process and a better understanding of some of the documentation used in the process.
- Standard work allowed for the standardization of the company's documentation and process.
- With the application of the PDCA cycle, we were able to instill in the company a mentality of continuous improvement and a way of implementing the suggestions given by clients.

Through the rigor and relevance of solving the problem presented in a real context, it allowed a contribution to the literature and the IS field using DSR and application of lean thinking in a service sector and also by creating a roadmap for the implementation of lean thinking in service companies.

6.2 Limitations and difficulties

Initially, in the development of this project, it was not easy to understand how it unfolded, the activities carried out, and the documentation in each of these. This was because the information was duplicated, outdated, and with a different nomenclature in several places.

This fact caused that there was a delay in the milestones initially defined.

After overcoming this setback, it was possible to carry out the design of the process, its phases, and respective activities, as well as the documentation that flowed during them, which helped us to create a good vision of the process and, subsequently, the identification of opportunities for improvement.

Also, the short duration of the project made it impossible to visualize the implementation of the GDPR project from beginning to end, which may have influenced the collection of information and the results obtained since it was not possible to collect detailed information on all project activities.

Finally, due to the time of the project, it was not possible to verify the improvements from the application of all implemented lean methodologies and tools, a consequence also of the applied methodology since this is known for presenting a slow and constant change.

6.3 Future Research

As time goes by, it would be interesting to see the benefit from the tools and methodologies implemented in the company and to evaluate the positive differences verified during this period.

The application of this philosophy is characterized by taking a long time to adapt and being a little hard to see an immediate improvement.

One way to see and evaluate the application of this benefit would be the introduction of continuous improvement measurement metrics, the KPI's. This tool would make it possible to make decisions based on facts and hard data.

In addition to this, it would be essential to resolve some of the problems identified that were not resolved, such as the case of duplicated information regarding the tracking of the process. Although the company is transferring all the information to its platform, this situation causes a decentralization of information and confusion for the individuals involved.

It would also be interesting to explore further lean applied to the company's relationship with clients and see how this regulation could be implemented more smoothly.

Finally, there is a lack of information and application of lean methodologies and tools applied to a service context or not applied to industrial plants. It would be important to explore this topic further to inform other companies in an informed way and with real practical cases.

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APPENDIX A: Understanding the process

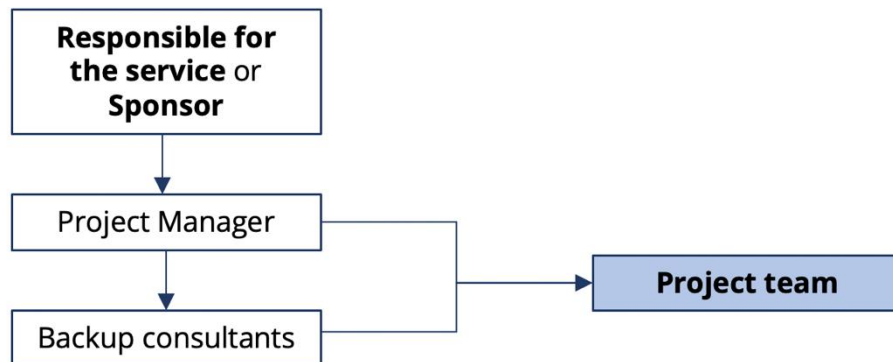


Figure A1 – Project team and types of individuals involved in the process

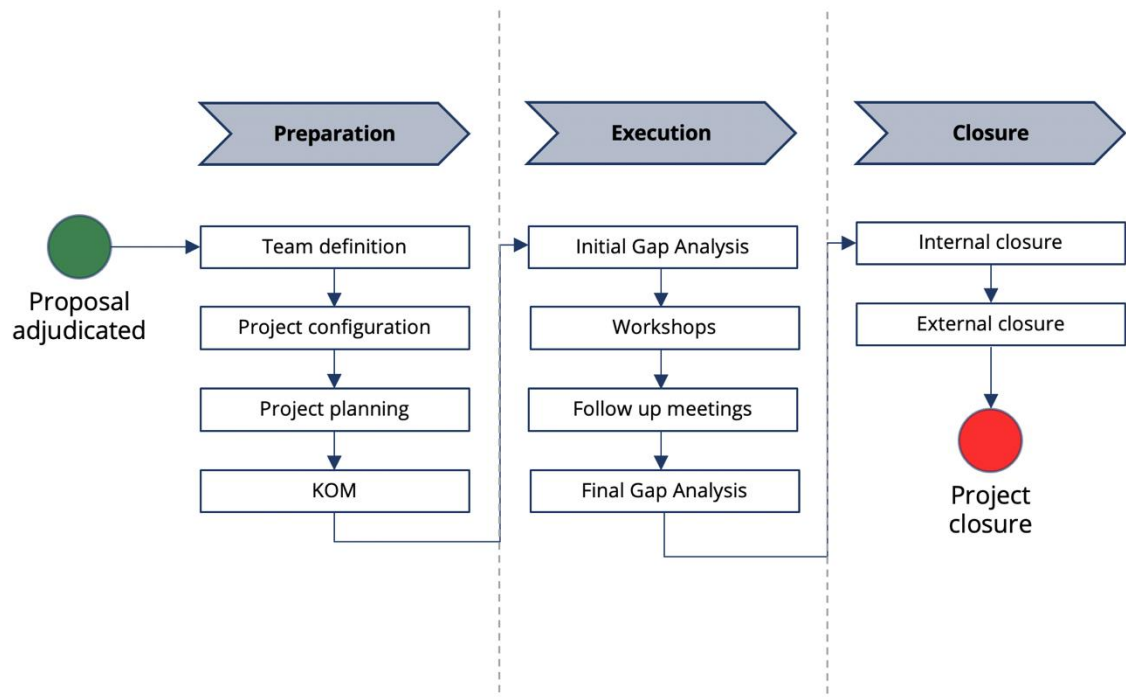


Figure A2 – GDPR project management process roadmap

APPENDIX B: Workplace Cleaning Checklist

Project	Task	State	Responsible	Expected end date	Comments
Company 1	Update Nomenclature	Done	AM	11/05/2021	
	Eliminate outdated files	Running	AM	11/05/2021	
Company 2	Move outdated version to "Outdated versions" folder	To do	JS	23/05/2021	
Company 3					
Company 4					
Company 5					
Company 6					

Table B1 – Full Workplace Cleaning Checklist with example

APPENDIX C: Folder Organization Template

Name
▼ 1. Team
Team_Company1_v1.0.pdf
▼ 2. Project Plan
ProjectPlan_Company1_v1.0.pdf
▼ 3. KOM
KOM_Company1_v1.0.pdf
▼ 4. Initial Gap Analysis
▼ 4.1. Agenda
Agenda_InitialGapAnalysis_Company1_v1.0.pdf
▼ 4.2. Opening
Opening_InitialGapAnalysis_Company1_v1.0.pdf
▼ 4.3. Interviews
Interviews_InitialGapAnalysis_Company 1_Member1_v1.0.xlsx
Interviews_InitialGapAnalysis_Company 1_Member2_v1.0 .xlsx
▼ 4.4. Results
Results_InitialGapAnalysis_Company 1_v1.0 .xlsx
▼ 4.5. Results Presentation
ResultsPresentation_InitialGapAnalysis_Company1_v1.0.pdf

Figure C1 – Folder Organization Template from folder 1. to 4.

Name
▼ 5. Workshops
▼ 5.1. Agenda
Agenda_Workshops_Company1_v1.0.pdf
▼ 5.2. Initial training
InitialTraining_Workshops_Company1_v1.0.pdf.pdf
▼ 5.3. Workshop #1 - Data Processing, Risk and PIA
▼ 5.3.1. Workflow
Workflow_Workshop#1_Workshops_Company1_v1.0.bpm
▼ 5.3.2. Template
Template_Workshop#1_Workshops_Company1_v1.0.docx
▶ 5.3.3. PIA
Workshop#1_Workshops_Company1_v1.0.pdf.pdf
▼ 5.4. Workshop #2 - Data Breach and Order Management
▼ 5.4.1. Workflow
Workflow_Workshop#2_Workshops_Company1_v1.0.bpm
▼ 5.4.2. Template
Template_Workshop#2_Workshops_Company1_v1.0.docx
▼ 5.4.3. PIA
PIA_Workshop#2_Workshops_Company1_v1.0.xlsx
Workshop#2_Workshops_Company1_v1.0.pdf.pdf
▼ 5.5. Workshop #3 - Privacy Policy & Consent
▼ 5.5.1. Workflow
Workflow_Workshop#3_Workshops_Company1_v1.0.bpm
▼ 5.5.2. Template
Template_Workshop#3_Workshops_Company1_v1.0.docx
▼ 5.5.3. PIA
PIA_Workshop#3_Workshops_Company1_v1.0.xlsx
Workshop#3_Workshops_Company1_v1.0.pdf.pdf
▼ 6. Follow Up Meetings
▼ 6.1. FollowUpMeeting #1
FollowUpMeeting#1_FollowUpMeetings_Company1_v1.0.pdf.pdf
▼ 6.2. FollowUpMeeting #2
FollowUpMeeting#2_FollowUpMeetings_Company1_v1.0.pdf .pdf

Figure C2 – Folder Organization Template from folder 5. to 6.

Name
▼  7. Final Gap Analysis
▼  7.1. Agenda
 Agenda_FinalGapAnalysis_Company1_v1.0.pdf
▼  7.2. Opening
 Opening_FinalGapAnalysis_Company1_v1.0.pdf
▼  7.3. Interviews
 Interviews_FinalGapAnalysis_Company 1_Member1_v1.0.xlsx
 Interviews_FinalGapAnalysis_Company 1_Member2_v1.0 .xlsx
▼  7.4. Results
 Results_FinalGapAnalysis_Company 1_v1.0 .xlsx
▼  7.5. Results Presentation
 ResultsPresentation_FinalGapAnalysis_Company1_v2.0.pdf
▼  8. Internal Closure
 InternalClosure_Company1_v1.0.pdf
▼  9. External Closure
▼  9.1. Suggestions
 Suggestions_ExternalClosure_Company1_v1.0.xlsx
 ExternalClosure_Company1_v1.0.pdf

Figure C3 – Folder Organization Template from folder 7. to 9.

APPENDIX D: Measures and Rules for storage in the Workplace

Measures and Rules for storage in the Workplace

1. The **Folder Organization Template** should always be used to create a new project.



Name
▼ 1. Team
▶ 2. Project Plan
▶ 3. KOM
▶ 4. Initial Gap Analysis
▶ 5. Workshops
▼ 6. Follow up meetings
▶ 7. Final Gap Analysis
▶ 8. Internal Closure
▶ 9. External Closure

3. All folders and subfolders must be arranged in chronological order according to the example below

Name
▼ 4. Initial Gap Analysis
▶ 4.1. Agenda
▶ 4.2. Opening
▶ 4.3. Interviews
▶ 4.4. Results
▶ 4.5. Results Presentation

2. If there are several versions of a file, we should just save the last 4, the most recent being inside the folder and the oldest 3 are placed in a new folder called "Outdated versions". This task should be performed every 2 weeks.

Name
Company1_ResultsPresentation_InitialGapAnalysis_v1.0pptx
Company1_ResultsPresentation_InitialGapAnalysis_v1.1pptx
Company1_ResultsPresentation_InitialGapAnalysis_v1.2_pch.pptx
Company1_ResultsPresentation_InitialGapAnalysis_v1.3_ajd.pptx
Company1_ResultsPresentation_InitialGapAnalysis_v1.4.pptx
Company1_ResultsPresentation_InitialGapAnalysis_v2.0.pdf



Name
Company1_ResultsPresentation_InitialGapAnalysis_v2.0.pdf
▶ Outdated versions

4. The nomenclature of all documents must be as follows

subfolder_folder_company_member1_version

Example:

Interviews_InitialGapAnalysis_ZARA_AM_v1.0

5. When the project finishes, all folders called "Outdated versions" must be eliminated, leaving only the final version of the documents in each folder.



Note: All these actions must be performed by the Project manager and completed in the Workplace Cleaning Checklist. If any member of the team finds that this is not being done, they must inform the team manager and later the person responsible for the process.

Figure D1 – Measures and Rules for storage in the Workplace

APPENDIX E: Standard work templates

Activity : Activity name example

Responsible	Responsible name example	
Activity Time	Activity time example	
Inputs	Sequence of actions	Outputs
Example of inputs needed to carry out this activity	Example of the sequence of actions required to carry out this activity	Example of outputs needed to carry out this activity

Figure E1 – Activity Template