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ASSESSING THE RELATIONSHIP BETWEEN BPM MATURITY AND THE SUCCESS OF ORGANIZATIONS

Joana Leite Pinto

Dissertação apresentada como requisito parcial para obtenção do grau de Mestre em Gestão de Informação

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ABSTRACT

For the past decades, organizations have been investing heavily in BPM projects in the hope of improving their competitive advantage in an increasingly complex environment. However, although it is believed that the higher the level of BPM maturity the greater the success of the organization, experience shows that this relationship is not always possible to prove.

The purpose of this study is to help clarify the relationship between the level of BPM maturity and the success of an organization. This was done through the implementation of a case study-based research within a global company that has an operation in Portugal, focusing on the shared services organization.

An analysis of the existing BPM maturity models and its level of coverage of BPM core areas was conducted as a way to select the most suitable BPM maturity model to conduct the assessment of the current BPM maturity level of the organization. It was also established a framework to characterize the success of an organization. These two inputs, along with information gathered to understand process improvements that were implemented and its impact in the organization, were the basis for conducting the research.

Results show a successful organization, with a high maturity level according to the BPM OMG maturity model, that has been investing in continually improving its processes with a strong focus on digital transformation. The identified benefits from a high level of BPM maturity, namely the improved productivity, cost reduction, error & risk prevention, higher agility, employee upskilling and knowledge retention, were shown to have a positive influence in the majority of the dimensions used to characterize the success of the organization.

KEYWORDS

Business Process Management, BPM Maturity, BPM Maturity Model, Success of Organizations, Process Improvements, Shared Services

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LIST OF ABBREVIATIONS AND ACRONYMS

5S	Sort, Set in order, Shine, Standardize and Sustain
BPM	Business Process Management
BPMM	Business Process Management Maturity
BPMMM	Business Process Management Maturity Model
BPMMOMG	Business Process Maturity Model of the Object Management Group
BPMS	Business Process Management Suites
BPOMM	Business Process Orientation Maturity Model
BPR	Business Process Reengineering
BPRMM	BPR Maturity Model
BSC	Balance Scorecard
BU	Business Unit
CCI	Continuous Capability Improvement
CMMI	Capability Maturity Model
CSR	Corporate Social Responsibility
DMP	Dynamic Multi-Dimensional Performance
DOM	Digital Order Management
DPP	Defect and Problem Prevention
EPM	Enterprise Process Management
ERP	Enterprise Resource Planning
FAM	Fixed Asset Process Workflow
FTE	Full-Time Equivalent
GMDM	Global Master Data Management Tool
H2R	Hire-to-Retire
HR	Human Resources
IS	Information Systems

ISA	Internal Service Agreement
KPIs	Key Performance Indicators
O2C	Order-to-Cash
OBG	Organizational Business Governance
OCAM	Organizational Common Asset Management
OCD	Organizational Competency Development
OCM	Organizational Configuration Management
OCPM	Organizational Capability and Performance Management
OCR	Optical Character Recognition System
OID	Organizational Improvement Deployment
OII	Organizational Innovative Improvement
OIP	Organizational Improvement Planning
OMG	Object Management Group
OPA	Organizational Performance Alignment
OPL	Organizational Process Leadership
OPM	Organizational Process Management
ORM	Organizational Resource Management
P2P	Purchase-to-Pay
PDCA	Plan, Do, Check, Act
PEMM	Process and Enterprise Maturity Model
PIA	Process Improvement for Accountant
PML	Process Maturity Ladder
PMMA	Process Management Maturity Assessment
PPA	Process and Product Assurance
PSBM	Product and Service Business Management
PSD	Product and Service Deployment
PSO	Product and Service Operations

PSP	Product and Service Preparation
PSPI	Product and Service Process Integration
PSS	Product and Service Support
PSWM	Product and Service Work Management
QPM	Quantitative Process Management
QPSM	Quantitative Product and Service Management
R&D	Research and Development
R2R	Record-to-Report
RDA	Robotic Desktop Automation
ROI	Return on Investment
RPA	Robotic Process Automation
RPN	Risk Priority Number
SM	Sourcing Management
VSM	Value Stream Mapping
WFM	Workflow Management
WI	Work Instructions
WUCM	Work Unit Configuration Management
WUMC	Work Unit Monitoring and Control
WUP	Work Unit Performance
WUPC	Work Unit Planning and Commitment
WURM	Work Unit Requirements Management

1. INTRODUCTION

1.1. BACKGROUND

Since the first industrial revolution, companies have been focusing on continuously improving their productivity by introducing new technical innovations, as well as by (re)organizing the work in a way to become more effective and efficient (Van Der Aalst, La Rosa, & Santoro, 2016). In this context, over the past decades, companies became aware on the benefits of being process oriented as a way to create competitive advantage and respond to the fast pace changing environment (Willaert, Bergh, Willems, & Dirk, 2007).

Along with that, the concept of Business Process Management (BPM) has been evolving in the past decades. It has its roots on the concept of workflow management (WFM), inspired by the production processes in the manufacturing industry, that is mainly focused on the automation of business processes (Van Der Aalst et al., 2016). BPM, on the other hand, has a wider scope and aims to improve business processes, possible without the use of new technologies (Van Der Aalst et al., 2016).

The BPM institute describes BPM as the "definition, improvement and management of a firm's end-to-end enterprise business processes in order to achieve three outcomes crucial to a performance-based, customer-driven firm: 1) clarity on strategic direction, 2) alignment of the firm's resources, and 3) increased discipline in daily operations" (Rock & Dwyer, n.d.). In fact, BPM can be understood as the efforts of an organization to analyse and continually improve its fundamental activities (Trkman, 2010).

In the past decades, many maturity models have emerged claiming to guide an organization towards its competitive advantage and, therefore, to its success (McCormack et al., 2009). The BPM maturity models have the purpose to outline the stages of maturation paths and provide a tool to assess the as-is situation, identify gaps, define improvement initiatives and control the progress (Röglinger, Pöppelbuß, & Becker, 2012). Research appoints that higher levels of maturity in a business process results, among others, in greater effectiveness to reach the defined goals and improving management ability to propose new and higher targets for performance (Röglinger et al., 2012).

Among several models, it is possible to highlight the BPM Maturity Model (BPMMM) (Rosemann & Bruin, 2005; Rosemann, de Bruin, & Hueffner, 2004), BPR Maturity Model (BPRMM) (Maull et al., 2003), Business Process Maturity Model (BPMMFisher) (Fisher, 2004), Process Management Maturity Assessment (PMMA) (Rohloff, 2009), BPO Maturity Model (BPOMM) (McCormack et al., 2009), Process and Enterprise Maturity Model (PEMM) (Hammer, 2007), Process Maturity Ladder (PML) (Harmon, 2004), Business Process Maturity Model (BPMMOMG) (Weber, C.; Curtis, B.; Gardiner, 2008) and the Business Process Maturity Model (BPMMLee) (Lee, Lee, & Kang, 2007) (Röglinger et al., 2012).

In spite of the fact that many empirical researches indicate that there is a positive correlation between process management and business success (Trkman, 2010), and that organizations can improve their performance by adopting a business process orientation (McCormack et al., 2009), research also suggests that only few organizations were able to obtain efficiency gains from the

process-oriented transformation programs they have implemented (Alibabaei, Bandara, & Aghdasi, 2009).

In fact, there is a common understanding among organizations that the greater the process orientation is, the larger its success. This premise has been guiding many of the investment decisions of organizations in the past years that expect to enhance their competitive advantage by investing significantly in a business process-oriented approach. However, experience shows that this relationship is not always straightforward once there are other variables that might influence the availability of the organization to incorporate the benefits of BPM, as well as its success.

1.2. OBJECTIVES

The purpose of this research is to provide a contribution to clarify the relationship between the level of BPM maturity and the success of an organization. Specifically, the research aims to answer the following question:

Is there a relationship between the level of business process management maturity of an organization and its success?

This was done by conducting a qualitative research through a case study within an organization with high perceived BPM maturity level to assess its current maturity and its level of success, as well as to understand the evolution done in the past years regarding process improvements. The data collected was the basis for analysing the results and providing insights about the relationship between the two areas.

Specifically, the research aims to:

- Assess the current BPM maturity level of an organization;
- Identify and characterize the drivers of success and KPIs of the organization;
- Understand the evolution of the process maturity of the organization and its impacts;
- Explore if there is a relationship between the BPM maturity level and the success of the organization.

1.3. STUDY RELEVANCE AND IMPORTANCE

The rising complexity of the business environment has been driving organizations to continuously search for ways of improving their efficiency and increasing the return on investment (ROI) (Janssen, Nendels, Smit, & Ravesteyn, 2015). Gradually, processes started to be understood has one of the main assets of an organization and, therefore, business process management started to become a priority (McCormack et al., 2009).

As companies continuously increase their investment in adopting a business process management approach, resulting in a positive evolution of their maturity level, it is important to understand if this investment is able to provide the expected outcomes.

As referred before, the present study aims to understand the relationship between business process management maturity and the success of the organizations.

Although some work has been done in trying to understand this relationship, the obtained results are still very limited and cannot provide a solid response to the research question (Tarhan, Turetken, & Reijers, 2015; Trkman, 2010). On the other hand, several research has been done in order to define organizational success and understand the variables that contribute for that (Maltz, Shenhar, & Reilly, 2003). However, the focus has been essentially on financial criteria, neglecting other measures that are also relevant and that can characterize the success of an organization.

In this context, the present study aims to contribute in two different ways:

1. On one hand, the study aims to provide additional insights to the research done in this field, presenting: (i) the state of the art of maturity level of one international organization with a high perceived BPM maturity level and (ii) additional insights on the relationship between business process maturity and the success of an organization. This could be the basis for further research in this area, applied to different realities to identify patterns and similarities that can be relevant for the scientific evolution. Also, as the study will start to review the existing BPM maturity models and analyse its level of coverage through the BPM core areas, which hasn't been done in an extensive way, new knowledge might be created through this analysis.

2. On the other hand, the study will also try to provide relevant insights for the decision-making process of organizations when it comes to invest in BPM projects. If the relationship between the level of BPM Maturity and the success of an organization exists in some extent, this will be a very important conclusion to support managers in developing the business case for investing in BPM projects.

1.4. STRUCTURE OF THE STUDY

The research is structured in 5 different chapters.

The first and current chapter, introduction, provides a background on the subject of this research and presents the objectives and the relevance of the study.

The second chapter presents a literature review and is focused on providing a good context on the research area. It includes topics as the concept of business process management (BPM), core areas and benefits, as well as an analysis of existing BPM maturity models. It also includes a review on the concept of success of an organization.

In the third chapter, the methodology used to conduct the study is depicted, explaining what was the strategy defined for implementing the research.

The fourth chapter is structured in four areas: (i) presentation of the organization where the study was conducted, (ii) design of the study, that provides more detail on how the study was implemented in the organization, (iii) results, that presents what were the outcomes of the research and (iv) discussion, where a reflection on the achieved results against the research purpose is conducted.

The fifth and last chapter refers to the conclusions of the study where a summary of the research is presented, as well as its limitations and proposals for further research.

2. LITERATURE REVIEW

There is a wide scope of research and literature available on the subject of BPM and BPM maturity models, which offers a consistent base to provide a solid literature review.

The following chapter is organized in three areas in order to provide a good context on the research conducted. The first section presents the definition of business process management and provides a background on its evolution through time, its core areas and its benefits for organizations. In the second section, the BPM maturity concept is introduced, presenting an analysis of six selected BPM maturity models. Lastly, as one of the research drivers relate with the success of an organization, a literature review on the key drivers of success is also presented.

2.1. BUSINESS PROCESS MANAGEMENT (BPM)

2.1.1. The BPM concept

As a starting point for this research, it is important to understand the concept of business process management. There are several definitions in the literature as a result of the extensive body of knowledge in this area.

It is possible to understand business processes as the way enterprises perform work to deliver value to their customers. The ability to manage this processes allows organizations to develop strong business practices that lead to more effective workflow, greater efficiency and agility and, ultimately, create competitive advantage (ABPMP, 2013). In this sense, the business process management concept arises.

The BPM institute describes BPM as "the definition, improvement and management of a firm's end-to-end enterprise business processes in order to achieve three outcomes crucial to a performance-based, customer-driven firm: 1) clarity on strategic direction, 2) alignment of the firm's resources, and 3) increased discipline in daily operations" (Rock & Dwyer, n.d.).

The ABPMP *BPM CBOK Version 3.0* (2013) defines BPM as "a management discipline that integrates the strategy and goals of an organization with the expectations and needs of customers by focusing on end-to-end processes. BPM comprises strategies, goals, culture, organizational structures, roles, policies, methodologies, and IT tools to (a) analyse, design, implement, control, and continuously improve end-to-end processes, and (b) to establish process governance".

In sum, BPM can be understood as the efforts of an organization to analyse and continually improve their fundamental activities (Trkman, 2010), aligned with its strategy, policies, resources and culture. In this context, an organization can be seen as a collection of business processes that can be modelled, managed and improved in order to provide business excellence (Looy, Backer, & Poels, 2011).

The concept of business process management has been evolving through time as a result of innovation, customization, client focus and business growth (Lusk, Paley, & Spanyi, 2005). It has its roots in the industrial age, where the focus lied on the specialization of labour, task productivity and cost reduction. With the beginning of the information age, three waves of process evolution emerged (Lusk et al., 2005):

- The first wave, process improvement, which started in the 1960's and extended to the 1980's, was triggered by the fact that technology increasingly became a business driver. The focus relied on quality management, continuous flow and task efficiency.

- The second wave, that occurred in the late 1980's and early 1990's, was called process reengineering and was focused on process innovation, best practices and on a better, faster and cheaper production.

- The third wave, business process management, can be defined as the current wave and focus on assessment, adaptability and agility, as well as a continuous transformation. In this phase, the role of technology has evolved from a process driver to a process enabler.

According to Van Der Aalst et al. (2016), the concept has its roots on the concept of workflow management (WFM), inspired by the production processes in the manufacturing industry, that is mainly focused on the automation of business processes. However, BPM has a wider scope and aims to improve business processes, possible without the use of new technologies (Van Der Aalst et al., 2016).

2.1.2. BPM core areas

The ABPMP *BPM CBOK Version 3.0* (2013), a reference for BPM practitioners, defines nine BPM core areas that reflect the capabilities organizations should have in order to implement a business process approach. Those areas are segmented in two perspectives: (i) the enterprise perspective and (ii) the process perspective. While the process perspective is focused on the specific processes and is aligned with their lifecycle within the organization, the enterprise perspective provides a wider approach on how organizations can establish mechanisms to align the governance, portfolio and architecture of processes as a whole.

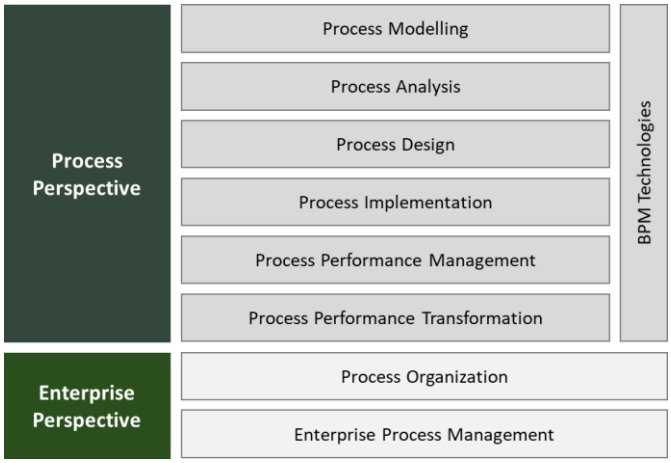


Figure 1 – BPM Core Areas

Adapted from ABPMP CBOK Version 3.0 (2013)

Within the process perspective, it is possible to consider process modelling as the starting point of the BPM journey once it allows organizations to better understand their business through a process point of view. This core area refers to the skills and techniques that allow people to systematize the information about the processes, creating a common ground to communicate and understand them throughout the organization.

After modelling processes, we move to the next stage – process analysis – where the aim is to deeper understand the process in terms of its efficiency and effectiveness. This is key to comprehend the as-is situation of the process and could be defined as a baseline to address improvement opportunities. Also, it is a fundamental input for the next core area – process design – that intends to design (or

redesign) the process. In fact, the assessment of the current situation of the process creates a trigger to change it in order to ensure that it delivers the expected value to the organization.

The (re)designed processes should be implemented, which can be done or not through BPM technologies – process implementation. The implemented processes need to be continuously monitored throughout execution to track if they are providing the expected results in terms of efficiency and effectiveness – process performance management. With this information, organizations are able to decide what they should do with the process (e.g. redesign, eliminate, etc.) so they can ensure its strategic alignment, as well as evolve in the maturity stage.

This bring us to the next stage: process transformation. This core area analyses the results of process performance management and reflects on how the process(es) should change to deliver the expected benefits. This can be done through a set of approaches, techniques, technologies and should always keep in mind that process transformation demands a well designed and implemented change management process.

The last core area within the process perspective – BPM technologies – can be seen as a transversal component once it leverages all the other core areas through the process lifecycle. In fact, the implementation of business process management systems (BPMS) allow organizations to design, analyse and improve or transform their processes, providing automation capabilities that add value to organizations.

Taking in consideration the enterprise perspective, the first core area is process management organization. As organizations evolve in their process management maturity, they progressively change from a more functional structure, organized in silos, to a process-oriented structure. This core area addresses the issues related with process driven organizations such as culture, roles and governance.

Lastly, the enterprise process management core area introduces a new and broader view of the organization, different from the traditional approaches. It provides an understanding of the organization based on its final outputs – products and/or services – and all the work that is necessary to conduct in order to achieve those outputs with quality and in a timely and cost-efficient manner. This approach of the organization has several benefits, as depicted in chapter 2.1.3.

2.1.3. The benefits of BPM

The adoption of a BPM approach within organizations provides several direct and indirect benefits for a wide range of stakeholders. The following benefits are appointed:

- Clear ownership and responsibility for continuous improvement, allowing to create a commitment to the process improvement (ABPMP, 2013);
- Performance measurement promotes costs and quality control, optimizing performance along the process which allow to achieve higher productivity and better financial performance (ABPMP, 2013; Agus, Krishnan, & Kadir, 2000; Calabrese & Spadoni, 2013; Grönroos & Ojasalo, 2004; Kanji, 1996);

- Access to useful information simplifies process improvement and improved processes will positively impact customer satisfaction, allowing organizations to be better positioned in the market (ABPMP, 2013; E. Anderson, Lehmann, & Fornell, 1994; E. W. Anderson, Fornell, & Rust, 1997; Grönroos & Ojasalo, 2004; Hu, Kandampully, & Juwaheer, 2009; Kanji, 1996);

- Assessing costs of processes facilitates cost control and reduction, delivering better priced products and services which also impacts customer satisfaction (ABPMP, 2013; E. Anderson et al., 1994; E. W. Anderson et al., 1997; Fielt, Bandara, Miskon, & Gable, 2014; Hu et al., 2009);

- Processes monitoring improves compliance, diminishes risks and endorses consistency, promoting a more proactive organization through incident identification and solution that impacts quality and compliance costs (ABPMP, 2013; Gordon, Loeb, & Tseng, 2009; Hoyt & Liebenberg, 2011; Mohammed & Knapkova, 2016).

- Visibility of processes and its performance allow organizations to have a better understanding and a higher readiness for change which improves agility and a faster response to the changing environment (ABPMP, 2013; Rudden, 2007);

- Documenting operations and sustaining the knowledge ensures the sustainability of the organization and impacts organizational culture and employee retention (ABPMP, 2013; Alias, Mansor, Rahman, Ahmad, & Samsudin, 2018; Bosomtwe & Obeng, 2018; Mutua & Simba, 2017);

- Higher transparency regarding processes allow actors to have an ene-to-end view of the processes, its interdependency and the requirements needed to perform the work, improving resource management from a quantitative (workload) and quantitative (skills) perspective which, on its hand, can improve commitment and retention of the workforce (ABPMP, 2013; Kompaso & Sridevi, 2010; Rudden, 2007).

In order to capitalize the benefits of business process management, organizations need to become more mature in the way they manage their processes and use them to leverage their competitive advantage. Chapter 2.2. goes into detail on the BPM maturity concept and the models that allow organizations to assess their current state and increase their BPM maturity level.

2.2. BPM MATURITY MODELS

The evolution of the business process management concept challenged organizations to start looking at processes as strategic assets that, as any other asset, requires investment as they become more mature (McCormack et al., 2009). This created the need for organizations to understand their as-is situation and how they can evolve to become more proficient in managing their processes and, consequently, benefit from a BPM approach.

Thus, a set of business process management maturity models emerged, most of them based on the Capability Maturity Model (CMMI) (Rohloff, 2009; Rosemann & Bruin, 2005; Rosemann et al., 2004). In a broad sense, a maturity model is composed by a sequence of maturity levels that represent an expected evolution path. This can be applied both to processes as well as organizations or other objects. (Becker, Knackstedt, & Pöppelbuß, 2009).

The lowest stage of a maturity model usually represents the initial state of the organization towards that object and is characterized by the absence of or little capabilities in the domain we are considering (e.g. processes). On the other hand, the highest stage represents the total domain and, therefore, the conception of total maturity (Becker et al., 2009). The concept of maturity is therefore understood as "the state of being complete, perfect or ready" (Tarhan, Turetken, & Ilisulu, 2015).

Organizations constantly seek to evolve in their maturity level as they expect that a greater maturity level will result in better performance in terms of efficiency, costs, client satisfaction, among others (Fisher, 2004; Rohloff, 2009; Rosemann & Bruin, 2005).

Therefore, maturity models can be used as an instrument to improve the way organizations manage their processes, allowing them to provide products and services with greater quality (Tarhan, Turetken, & Ilisulu, 2015). In fact, they are powerful tools that can be used to assess the current situation, identify constraints, define improvement initiatives and control the progress, allowing organizations to evolve and adapt to an increasingly demanding environment (Röglinger et al., 2012). Also, maturity models can provide organizations a comparison of their reality against industry standards, supporting them on defining priorities and achieving their business goals (Lee et al., 2007).

A study conducted by Röglinger et al. (2012) provides a systematic view of several BPM maturity models available in the literature. After implementing a set of criteria, the authors have selected ten maturity models that comprise academia, industry and international consortia. They describe the models in terms of scope, lowest maturity model and upmost maturity model.

The models selected by Röglinger et al., (2012) were the starting point for this literature review as the selection methods were accurate and allowed to answer this research proposal. This information was completed with information from the study of Tarhan, Turetken, & Ilisulu (2015), that assesses the characteristics of nine BPM maturity models. Thus, it was selected for deeper analysis the models that were common between both studies, as they reflect the most widely used models, resulting on a total of seven BPMMM. The models analysed are presented on Table 1.

After the selection, a deep analysis of each model was conducted using the information provided on the previous mentioned studies, as well as specific information collected and analysed from each selected BPM maturity model. The results of the analysis are presented in Table 2.

Model	Year	Author(s)	Reference(s)
BPM Maturity Model (BPMMM)	2004, 2005	Rosemann, M. & de Bruin, T.	(Rosemann et al., 2004) (Rosemann & de Bruin, 2004) (Rosemann & Bruin, 2005)
Business Process Maturity Model (BPMMFisher)	2004	Fisher, D. M.	(Fisher, 2004)
Process Management Maturity Assessment (PMMA)	2009	Rohloff, M.	(Rohloff, 2009)
Process and Enterprise Maturity Model (PEMM)	2007	Hammer, M.	(Hammer, 2007)

Model	Year	Author(s)	Reference(s)
Process Maturity Ladder (PML)	2004	Harmon, P.	(Harmon, 2004)
BPO Maturity Model (BPOMM)	2007	McCormack, K.	(McCormack et al., 2009) (Lockamy, Childerhouse, Disney, Towill, & McCormack, 2008)
Business Process Maturity Model (BPMMOMG)	2008	Weber, C., Curtis, B. and Gardiner, T.	(Weber, C.; Curtis, B.; Gardiner, 2008)

Table 1 – Selected BPMMM for analysis

Model	CMMI based?	Motivation and Purpose	Brief Description	Maturity Stages
BPM Maturity Model (BPMMM)	Partially	The model was proposed in order to provide a more holistic and contemporary view of the existent BPM Maturity models, as well as to overcome some of their main limitations such as limited scope, focus on one dimension and lack of practical applicability.	• Model to measure BPM Maturity and not the maturity of business processes; • It is composed by five BPM Maturity stages. The evolution to a next stage assumes that the previous stage was fulfilled; • BPM Maturity results from a combination between coverage (degree to which the principles are implemented) and proficiency (quality and effectiveness of BPM). For both coverage and proficiency, three criteria are defined and each criteria has a five-point scale that corresponds to the maturity levels; • The model is multidimensional, as it considers 3 components: (i) factors: strategic alignment, governance, method, IT/IS, people and culture, (ii) maturity stages and (iii) scope: organizational entity and time; • Two assumptions are made: (1) the factors represent the independent variable and the actual process performance represents the dependent variable; (2) higher maturity in the factors reflect higher levels of success in BPM. • It can be used as a self-assessment (quantitative survey, five-point scale) or third-party assessment tool (case study including survey, semi-structured interviews and documentation study).	5 BPM Maturity stages: (1) Initial State, (2) Defined, (3) Repeatable, (4) Managed and (5) Optimized.

Business Process Maturity Model (BPMMFisher)	Yes	The model started to be developed with the intent to be a simple representation and, simultaneously, provide sufficient detail for the organizations. In this context, a multi-dimensional and non-linear model was proposed.	• The model has two dimensions:
			  • The first dimension is called five Levers of change and include strategy, controls, people, technology and process;
			  • The second dimension refers to the States of Process Maturity and includes five states.
			• The combination between levers of change and states of maturity allow us to have a matrix that provides key characteristics of the organization. For each lever of change, a company can be in one of the five states which might result on a more mature level for a lever of change and lower maturity level for other lever of change;
			• The non-linearity of the model refers to the fact that, to move to a different state, different levers contribute in a different extent.
				5 states: (1) Siloed, (2) Tactically Integrated, (3) Process Driven, (4) Optimized Enterprise, (5) Intelligent Operating Network.

Model	CMMI based?	Motivation and Purpose	Brief Description	Maturity Stages
Process Management Maturity Assessment (PMMA)	Yes	The model was first developed to assess the process management maturity of an international large company (Siemens AG) and identify improvement opportunities for the business process management in the company.	• It is influenced by two maturity models: OMG (Weber, C.; Curtis, B.; Gardiner, 2008) and Rosemann (Rosemann et al., 2004). It also considers the structure of the CMMI Model; • Its scope is composed of nine categories on which maturity levels can be assessed: (1) process portfolio & target setting, (2) process documentation, (3) process performance controlling, (4) process optimization, (5) methods & tools, (6) process management organization, (7) program management, qualification and communication, (8) data management and (9) IT-architecture. Each category can be decomposed into one to three sub-categories; • For each category, the maturity level is analysed, using a five-stage approach; • It allows an organization to quantify its maturity level based on the classification obtained.	5 maturity levels: (1) Initial, (2) Managed, (3) Defined, (4) Quantitatively Managed, (5) Optimizing.
Process and Enterprise Maturity Model (PEMM)	No	The model is a result of the large experience of the author in working with several companies. It is applicable to companies in any industry and any process.	• It considers five process enablers, mutually independent - design, performers, owner, infrastructure and metrics - and four enterprise capabilities - leadership, culture, expertise and governance; • The model provides an assessment tool that allow to evaluate the maturity of the business processes and the maturity of the enterprise in terms of receptiveness to a process change; • To assess the maturity of the processes, the author considers the process enablers. For each process enabler, there are four levels of strength. Each level corresponds to a specific organizational behaviour. The higher the level, the stronger the enabler and, consequently, higher the maturity. A process is in a specific level if all the enablers have achieved that level; • To assess the maturity of the enterprise, the author considers the four enterprise capabilities. The assessment dynamic is similar to the one presented for the processes.	4 levels of strength: P-1, P-2, P-3 and P-4.
Process Maturity Ladder (PML)	Yes	The model was developed as a pragmatic approach to process maturity and aims to activate	• It presents five stages of maturity. The first level is characterized by a lack of process maturity while the last level is characterized by well-managed and measured processes and continuous process improvement.	5 stages of maturity: (1) Initial, (2)

Model	CMMI based?	Motivation and Purpose	Brief Description	Maturity Stages
		the needs of the organization to think about processes. It intends to be applied in a very simple way, providing the basis for a more detailed assessment.		Repeatable, (3) Defined, (4) Managed and (5) Optimizing.
BPO Maturity Model (BPOMM)	Yes	The model was developed based on the concepts of process maturity, BPO and CMMI.	• The scope of the model is focused on business process orientation maturity; • It includes three basic components of maturity: process view, process jobs and process management and measurement. These components are complemented by two supporting components: process structure and customer focused process values and beliefs; • It is based on the assumption that there is a linear relationship between BPO and process maturity and considers 8 BPO domains: (1) customer orientation; (2) process view; (3) organizational structure; (4) process performance; (5) culture, values and beliefs; (6) people management; (7) information technology; and (8) supplier orientation.	5 maturity levels: (1) Ad hoc, (2) Defined, (3) Linked, (4) Integrated and (5) Extended.
Business Process Maturity Model (BPMMOMG)	Yes	The model follows the principles of Humphrey's Process Maturity Framework, as well as the CMM (CMMI) principles, including improvements in terms of coverage, structure and interpretation. It should be seen as a guideline for improvement in order for organizations to become more mature and disciplined regarding their processes.	• It considers five maturity levels. These levels define a scale that allow organizations to measure the maturity of their processes and evaluate process capability. Each level should be seen as a foundation to move to the next stage, creating a roadmap for continuous improvement; • Each maturity level, excepting level 1, has a set of defined process areas: nine at level 2, ten at level 3, five at level 4 and six at level 5, performing a total of thirty process areas. • The maturity level is achieved when the goals of that process areas area accomplished. In this context, process areas can be considered as the requirements to achieve a specific maturity level.	5 maturity levels: (1) Initial, (2) Managed, (3) Standardized, (4) Predictable, (5) Innovating.

Table 2 – Analysis of selected BPMMM

2.3. DEFINING SUCCESS OF AN ORGANIZATION

Once this research focus on assessing the relationship between business process management maturity and organizational success, it is fundamental to understand the concept of success and how it can be measured within organizations.

Organizational success has been a key driver in the field of management research for the last decades due to its complexity and the multiplicity of approaches (Helming, Ingerfurth, & Pinz, 2013; J. Richard, M. Devinney, S. Yip, & Johnson, 2009; Maltz et al., 2003). This lack of clarity on the concept caused it to be often defined as organizational performance, efficiency, viability, among others (Helming et al., 2013).

As commercial organizations focus on profit maximization, a set of financial or accounting variables, namely the ones related with profitability and shareholder value, has been widely used to measure their success (Helming et al., 2013; Leković & Marić, 2015). However, this perspective is very limited as an organization is a complex system comprised by its internal and external context. Also, not all the organizations aim profit maximization, which represents another limitation of this perspective. In this context, in the past decades, a set of non-financial measures started to be considered as relevant to understand organizations' performance and success (Kaplan & Norton, 2001; Keerthika & Alagarsamy, 2018; Maltz et al., 2003; Murphy, Trailer, & Hill, 1996; Neely, 2007).

Pickle & Frielander (1967) define organizational success as the degree to which extent companies can respond to the needs of their stakeholders, such as community, government, customer, employees, creditors, suppliers and the owner(s).

The Balanced Scorecard approach (BSC), developed by Kaplan & Norton (2001), was proposed as a solution for the performance measurement problem. The authors state that the financial measures are limited when it comes to capture the value of the organization and define that organizational performance should be measured considering four perspectives: financial, customer, internal and learning & growth.

The Dynamic Multi-Dimensional Performance framework (DMP), proposed by Maltz et al., (2003) represents an evolution from the BSC and aims to tap the limitation identified in the previous framework. They propose a framework that measures organizational performance based in five major dimensions: financial, market, process, people and future.

In the book edited by Neely (2007), the challenge of measuring organizational performance is raised, presenting several perspectives such as accounting, marketing, operations and supply chain.

Fleck (2009) highlights that measuring organizational success has often been done considering two important dimensions – growth and time – which introduces the notion proposed by Chandler (1977) of organizational self-perpetuation that can be understood as the combination of continuous growth and continued existence.

Crumpton-Young & Ferreras (2013) propose a company success index model that is composed by six components: profit, productivity, ergo and safety, quality, efficiency and employee morale.

Leković & Marić (2015) define success as a specific aspect of performance and refers to growth, profitability and survival as primary measures of success.

Keerthika & Alagarsamy (2018) propose an approach that defines organizational performance as a combination of financial performance, market performance and customer performance.

This multiplicity of approaches raises a challenge on how to measure organizational success. Miller & Peter (1978) define success as “the degree to which firms are able to achieve their objectives subject to the constraints of long run viability”.

Once organizational goals have a wide scope and are set for different organizational areas, the measurement of success should consider a multi-variated approach. In this context, for the purpose of this research, and based on the literature review conducted, it is proposed a multidimensional approach to organizational success that includes five key dimensions, as per chapter 3.2. Selection of the measures of organizational success.

3. METHODOLOGY

To achieve the desired outcome, the work was structured in three phases, as per Figure 2: 1) conceptualization, where the goal was to, through a literature review, identify the problem and research questions that will guide the study, as well as to define the basis for the research; 2) implementation, where the focus was the implementation of the research according to the inputs provided in the first phase and 3) analysis, where the results were systematized, analysed and discussed in order to answer the research question.

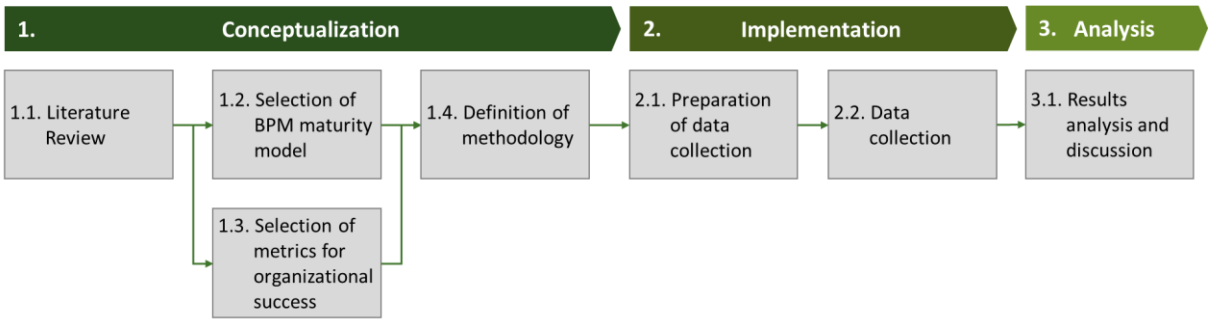


Figure 2 – Phases of the study

The first step was to conduct an extensive literature review to understand the key concepts related with business process management, business process management maturity and success of an organization. The results are presented in chapter 2. Literature Review.

Once there are many BPM maturity models that can be applied to assess the BPM maturity level of the organizations, a selection of one model was done. For that, an analysis of the existing BPM maturity models and its level of coverage of BPM core areas was conducted. The detail of this step is presented in chapter 3.1. Selection of the BPM maturity model.

Along with that, and based on the literature review, a conceptual model to measure the success of the organization was defined. The model presents the dimensions, categories and metrics to be used to measure the success of an organization, as per chapter 3.2. Selection of the measures of organizational success.

These two inputs were the basis to conduct a qualitative research, implemented through a case study. The selection of this approach and method was done in step 1.4. Definition of methodology and took into consideration several factors such as the research problem, purpose of the study and its specific goals. The case study was implemented within a shared services organization of an international company who operates in Portugal and has a high perceived process maturity level. This was done through in-depth interviews and documentation analysis, as presented in detail in chapter 3.3. Case study implementation and in chapter 4.2. Study design.

After collecting all the data, results were systematized in order to bring inputs to support the answer to the research question - step 3. These results were analysed, focusing on ensuring the accomplishment of the study objectives, as well as identifying limitations and recommendations for further research. The output of this phase is presented in chapter 4.3. Results and 4.4. Discussion.

3.1. SELECTION OF THE BPM MATURITY MODEL

The literature review has shown a multiplicity of business process maturity models. Although most of them are based on the CMMI model, they represent different variations of a solution to answer some fundamental questions: (i) how mature are the processes of an organization and (ii) how mature is the organization to manage those processes.

There is no best answer to these questions. The key is to understand the needs of the organization and how can the evaluation of its BPM maturity contribute to achieve positive outcomes. Based on these factors, organizations should select the model it is considered to best fit their purpose (Van Looy, Backer, Poels, & Snoeck, 2013).

Even though several BPM maturity models could be used in this research, that would increase significantly the complexity of the assessment tool, which might diminish the company's willingness to participate. Therefore, one of the critical success factors is the selection of one maturity model that best address the purpose of the study.

The selected model should be applicable to any company, in spite of its dimension and business sector. It is also important that the model is aligned with the key areas of business process management, providing a holistic approach on the maturity of the organization for this subject.

To address these issues, an analysis of the coverage of the BPM maturity models through the BPM core areas was undertaken.

The starting point were the models analysed in depth during the literature review phase. Those models were studied in depth in order to understand to which extent they refer to the practices contained within each BPM core area.

A BPM maturity model was considered to have coverage of one BPM core area if they have a dimension, a factor or similar, according to its specific structure, that clearly matches the description and principles of the core area. On the opposite, if no match was possible, the model was considered as having no coverage of the BPM core area. In some situations, where the match was not direct or totally clear, or if it only covers some components of the core area, the model was considered has having partial coverage.

The results are presented in Table 3. Also, a justification of the classification provided for each BPM core area can be found in Appendix A.

		BPM Core Areas								
		Process Perspective							Enterprise Perspective	
Model	Author	Modelling	Analysis	Design	Implementation	Performance Management	Transformation	IT/IS	Organization	EPM
BPM Maturity Model (BPMMM)	Rosemann, M. & de Bruin, T.	C	C	C	C	C	C	C	C	NC
Business Process Maturity Model (BPMMFisher)	Fisher, D. M.	NC	NC	NC	NC	C	NC	C	PC	C
Process Management Maturity Assessment (PMMA)	Rohloff, M.	C	NC	C	NC	C	C	C	C	PC
Process and Enterprise Maturity Model (PEMM)	Hammer, M.	C	C	C	NC	C	NC	C	C	C
Process Maturity Ladder (PML)	Harmon, P.	PC	NC	PC	NC	C	C	NC	PC	NC
BPO Maturity Model (BPOMM)	McCormack, K.	C	NC	NC	NC	C	NC	C	C	MC
Business Process Maturity Model (BPMMOMG)	Weber, C., Curtis, B. and Gardiner, T.	C	C	C	C	C	C	NC	C	C

C – Covers; PC – Partially Covers; NC – No Cover

Table 3 – Results of the analysis of level of coverage of BPM maturity models through the BPM core areas

With the conducted analysis, it is possible to conclude that there is no BPM maturity model that covers all the BPM core areas. However, some provide greater coverage such as the BPM Maturity Model (BPMMM) of Rosemann & de Bruin (2004) and the Business Process Maturity Model (BPMMOMG) of the OMG Group (Weber, C.; Curtis, B.; Gardiner, 2008). While the first model lacks on the coverage of the enterprise process management (EPM) core area, the second one lacks on the information systems / information technology (IS/IT) core area.

Once it is intended to evaluate the level of maturity of an organization and not specifically the level of maturity of a process, it is important that the selected model covers the core areas that are under the enterprise perspective. In this context, and despite its limitations, the BPM OMG maturity model was selected.

3.2. SELECTION OF THE MEASURES OF ORGANIZATIONAL SUCCESS

The literature review has shown that defining the success of an organization is not straightforward and, in some extent, there is some confusion with the term.

Based on the assumption that the level of success represents in what extent can an organization fulfils its objectives (Miller & Peter, 1978), and if we consider that an organization is a complex system composed by several dimensions with specific objectives, a multidimensional approach to the success of an organization should be considered.

In this context, a 5-dimension model to characterize the success of an organization is proposed:

Figure 3 – Dimensions of Organizational Success

1. **Fulfilment of mission**

   Mission statements are one of the cornerstones of strategy definition, providing a sense of purpose and establishing the direction of an organization (Pinho, Silva, & Macedo, 2016). Rey & Bastons (2018) propose a holistic conceptualization of the mission that includes three dimensions: 1) a formal dimension, that relates with the reason because organization exists, 2) a dynamic dimension, that reflects how the mission is carried out in practice and 3) the motivational dimension, that considers the motivation of other stakeholders.

   Taking into account that the mission statement of an organization represents its ultimate goal, it cannot be disregarded the fulfilment of the mission as a dimension to measure organizational success.

2. **Financial performance**

   Financial performance has been one of the most traditional perspectives to measure the success of an organization. Although the fact that other perspectives have been included in measuring organizational performance and success, the financial perspective is still widely used in the literature, as well as in business practice, and cannot be discarded (Crumpton-Young & Ferreras, 2013; Kaplan & Norton, 2001; Keerthika & Alagarsamy, 2018; Leković & Marić, 2015; Maltz et al., 2003).

   When measuring financial performance, metrics related with growth, profitability and efficiency are often referred in the literature (Crumpton-Young & Ferreras, 2013; Fleck, 2009; Leković & Marić, 2015; Murphy et al., 1996). In fact, the study conducted by Murphy et al. (1996) highlights those three dimensions as the most used to measure performance.

3. **Market performance**

   Along with financial performance, market performance has been widely considered in measuring organizational performance, providing an external point of view (Kaplan & Norton, 2001; Keerthika & Alagarsamy, 2018; Maltz et al., 2003). In fact, besides the importance of having a financially well performed company, it is also relevant to consider how the company is performing in the market against its competitors, as well as to which extent it is satisfying its customer needs (Clark, 2007; J. Richard et al., 2009; Maltz et al., 2003).

4. **Internal performance**

   Internal performance refers to the internal aspects that might contribute to the success of the organization, such as its processes, its human capital, its corporate culture as well as other internal practices that allow companies to develop and sustain its competitive advantage. The Balanced Scorecard (Kaplan & Norton, 2001) introduces this variable through the internal and the learning & growth perspective. The DMP approach also reflects the internal performance through its people development and process dimensions (Maltz et al., 2003). Also, Pickle & Frielander (1967) refer to one of the most important stakeholders within a company: the employees. Therefore, internal performance is considered to be related with human capital management issues, quality issues as well as cultural issues.

5. **Sustainability**

   Another view on company's success relates to the sustainability of the organization. Organizations perform their activities in a given environment, influencing it. In this context, the concept of corporate sustainability has been gaining importance (Alexandre & Francisco, 2018; Asemah, Okpanachi, & Edegoh, 2013; Linnenluecke & Griffiths, 2010). However, the sustainability concept within the business context does not have a single definition. The study conducted by Lankoski (2016) identifies different usages of the concept highlighting the concept of sustainability as the long term viability of the business and sustainability as corporate social responsibility. Both of these approaches to the sustainability concept will be considered in this study.

For each of the five dimensions proposed to characterize organizational success, some categories were defined based on the literature review. The purpose of defining categories is to provide a more consistent logical framework for measuring success. Also, defining categories helps with the process of selecting metrics for measurement, allowing it to be more focused and straightforward.

In this context, for each category, one or two measures were selected. The number of measures was not too extensive, so the research would not be highly complex, increasing willingness to participate from the company. Besides ensuring that the proposed metrics were aligned with the dimension and category to be evaluated, three key aspects were considered when selecting the metrics for each category, such as:

1. **Obtainability of quantitative data or subjective data that could be transformed in quantitative data**

   The selected metrics should provide quantitative data or quantifiable data. Quantifiable data is understood as data that, although might be subjective, is possible to be objectified and translated into a measurement through some techniques such as implementation of a questionnaire. An example of a quantifiable data is when we try to collect information about perception on a specific subject. Although perception is subjective, as it depends on each individual, it could be quantifiable if we define a scale and ask each individual to use that scale to characterize his/her perception.

2. **Availability of information in the company**

   There are several metrics that can be used to measure each category and dimension. As the research was intended to be implemented within an organization, and the process of defining the metrics was previous to its selection, it was important to ensure that the proposed metrics are able to be provided by an organization, independently from the business, sector or market where it operates. Therefore, a preference to metrics that are more common and publicly disclosed (e.g. through annual accounts report) was considered.

3. **Relevance of metrics**

   When conducting a research that collects some of the key performance indicators of a company, analysing only absolute metrics could be misleading. For instance, looking at the number of employees could provide an idea of the dimension of the company but little on productivity. Rather than using just the number of employees, employee growth rate could give more insights on the performance of the company. Hence, this was also considered when selecting the metrics.

Furthermore, the metrics should be simple, understandable and useful as a tool (Székely & Knirsch, 2005). The metrics selected for each dimension and category are presented in Table 4.

Dimension	Category	Metric	References
Fulfilment of Mission	-	Perception of managers	(Pinho et al., 2016)
Financial Performance	Growth	Income growth rate	(Székely & Knirsch, 2005)
	Profitability	Net profit margin	(J. Richard et al., 2009; Murphy et al., 1996)
	Efficiency	Return on equity	(J. Richard et al., 2009; Maltz et al., 2003; Murphy et al., 1996)
		Return on assets	(J. Richard et al., 2009; Maltz et al., 2003; Murphy et al., 1996)

Dimension	Category	Metric	References
Market Performance	Market position	Market share	(Clark, 2007; J. Richard et al., 2009; Maltz et al., 2003; Murphy et al., 1996)
		Sales growth rate	(J. Richard et al., 2009; Maltz et al., 2003; Murphy et al., 1996)
	Customer satisfaction	Level of customer satisfaction	(Clark, 2007)
Internal Performance	Human capital	Turnover rate	(Murphy et al., 1996)
		Employee growth rate	(J. Richard et al., 2009; Leković & Marić, 2015; Murphy et al., 1996)
	Organizational culture	Perception of managers on how strong the culture is	(Garmendia, 2004)
	Quality & risk management	Implementation of operational internal audits	(Shin, Dahlgaard, Dahlgaard-park, & Kim, 2018)
		Implementation of risk management procedures	(Shin et al., 2018)
Sustainability	Longevity	Number of years company is in business	(Murphy et al., 1996)
	Corporate social responsibility	Investment in CSR initiatives on total revenue	(Kao, Yeh, Wang, & Fung, 2018)
	Innovation	Investment in R&D and self-innovation	(Kao et al., 2018)

Table 4 – Dimensions, categories and metrics to measure organizational success

3.3. CASE STUDY IMPLEMENTATION

Selecting the best approach and methodology is usually one of the most challenging aspects when implementing a research.

As previously mentioned, there is a lack of research between the relationship between BPM maturity and the success of the organizations and the purpose of this research is to provide insights and to better understand this relationship, which could be a starting point for further research.

According to Darke, Shanks, & Broadbent (1998), case study has been one of the most used methods to implement a qualitative research in information systems (IS) research. It assumes particular

relevance when it is used to investigate a complex phenomenon that rely on several evidences. Hughes & McDonagh (2017) also refer its popularity in IS research and refer it as a powerful method when implementing an exploratory research as it allow to get higher richness of data. Trkman (2010) also refers that case study methods can be used when we are still trying to understand or discover a problem within an emerging area.

In spite of its limitations (Darke et al., 1998; Hughes & McDonagh, 2017), it is considered as suitable to be used when trying to relate information systems innovation and organizational contexts (Darke et al., 1998), which fits the scope of this research.

In this context, an exploratory research based on a qualitative approach with case study was the selected method.

The research was implemented within a global company that operates in the energy sector and has an operation in Portugal. The starting point to identify a company was the list of the five hundred (500) bigger companies in Portugal, published annually by Exame magazine, a magazine leader in the business sector. Within the list, the criteria applied to select the company were the following:

- High perceived process maturity level – due to the purpose of this research, that aims to establish a relationship between the process maturity level and the success of the organization, it is important that the company shows both of these components. The success component is established from the fact that the company figures on the list of the top 500 companies in Portugal. The high perceived maturity level is established with a more subjective approach and considers news, publications as well as the reputation of the company in the market.

- Operates in Portugal – the company needs to have an operation in Portuguese territory as this research should be implemented within Portuguese context. This was also given from the list of the top 500 companies provided by Exame magazine.

- Willingness to cooperate – with the two above factors applied, the list was narrowed down and, to ensure the success of this research, willingness of the company to cooperate was key.

The selected company operates in Portugal for one hundred and twelve (112) years in several areas such as energy, infrastructures and mobility. It is also an important hub for providing services to other companies and locations within the same business group through its shared services organization. More detail on the organization can be found in chapter 4.1.

Considering the existent body of knowledge and literature available in this area, it is possible to understand that business process management practices have been assuming particular importance in the shared services area.

Shared services could be understood as the support functions from different departments that are consolidated into a specific organizational entity that aims to provide these services in an efficient and effective way. This services usually include areas such as human resources, finance and procurement (Fielt et al., 2014; Lacity & Willcocks, 2016).

Establishing a shared service organization has been an approach that many companies have been following in the past decades as a way to allow them to focus on its business, improve quality, reduce costs and develop new capabilities, among other benefits (Fielt et al., 2014).

Considering the benefits of a high business process management maturity and business process orientation, along with the expected benefits from implementing a shared services area, it is possible to identify similarities regarding efficiency, quality and continuous improvement which raises the importance of conducting this study within a shared service organization.

Also, the complexity of the company, in which the business units have different report lines and are spread through several locations, creates some constraints regarding the implementation of the research. Once the shared services area in Portugal has a high autonomy, working as a hub, this allow the organization to be studied as a whole.

More details about the study design can be found in chapter 4.2.

4. THE STUDY

This chapter focus on presenting the results of the study and it is structured in four areas: (i) presentation of the organization, that includes a short overview of the organization where the case study was conducted; (ii) study design, where more detail is presented about how the study was designed, aligned with the defined methodology; (iii) results of the research in the main areas namely: BPM maturity assessment, process improvements and its impacts and characterization of the success of the organization; and (iv) discussion, where a reflection on the achieved results against the research purpose is conducted.

4.1. PRESENTATION OF THE ORGANIZATION

The study was conducted in an international company that operates in Portugal, being one of the biggest companies with operation in the country. Within the company, the study focused on the shared services organization once Portugal is a very important hub for providing services to other companies and locations within the same business group.

Figure 4 – Mission statement of the organization

The overall shared service organization of the company started twenty years ago and has currently a big dimension with ten key delivery centres with approximately 6.000 employees worldwide. Global charges represent more than 400 million euros per year.

In Portugal, the shared services organization started to operate in 2008 and currently is a proven competence centre with more than six hundred employees that provide services to forty-nine different countries.

They provide services throughout the customer value chain that includes all the steps since buying the supplies to manufacture or operate until the delivery and the service provided to the customer. The service volume currently reaches 35 million euro per year.

The organization is structured in five different business lines:

- Hire-to-retire (H2R) that incorporates all the processes since the moment an employee enters the organization until the moment when he/she lefts the company such as HR administration, payroll, compensation & equity services, benefits and pensions administration, travel and expenses, employee service desk and operational reporting & systems support.

- Purchase-to-pay (P2P) that includes the services from purchasing to outgoing payments such as supplier readiness, processing, support & enabling services and P2P projects such as electronic supplier integration and P2P digitalization platform.

- Opportunity-to-cash (O2C) refers to the management of the relationship with the customer and includes the processes since the generation of a lead until the moment where the order is completed and payments for the service are processed such as opportunity-to-order (O2O), order-to-invoice (O2I), invoice-to-cash (I2C), after sales services and process optimization, digitalization and analytics.

- Record-to-report (R2R) ensures from the financial recording process to financial closing and reporting. It also includes a tax services area, master data services and, more recently, the real estate services that manage company's infrastructure.

- Business solutions and services (B&S) provides project-based services that demand a high expertise such as marketing, translation, documentation and communication services.

Business lines are supported by a portfolio of digital solutions that include, amongst others, digitalization and automation of processes, data analytics and artificial intelligence solutions and virtual workforce solutions. They are also complemented by project services & transformation that provide management, advisory, transition and transformation projects with high impact in the business.

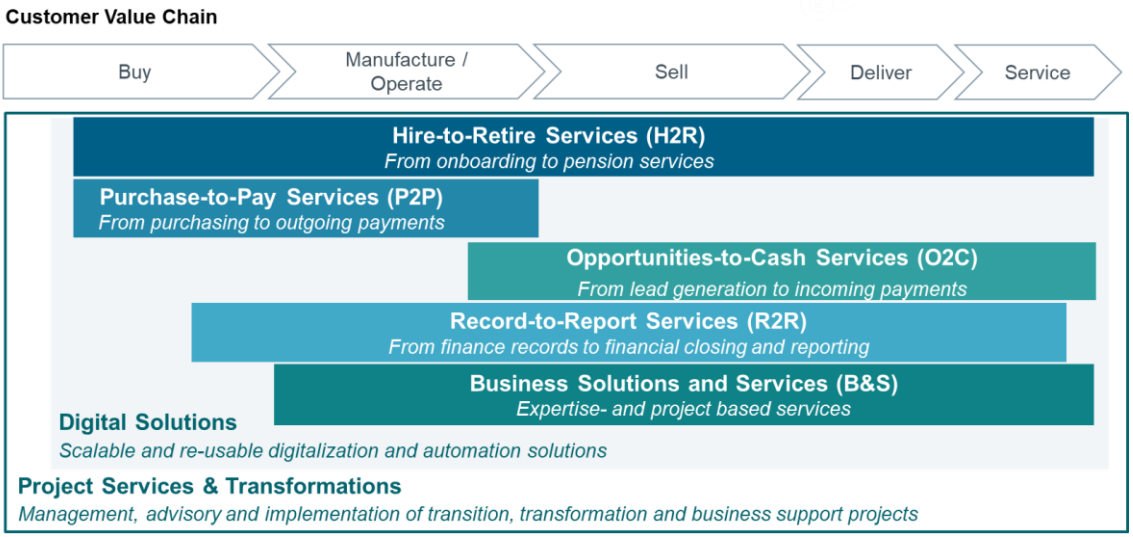


Figure 5 – Portfolio of services of the organization

4.2. STUDY DESIGN

As referred in chapter 3., the study was conducted with a qualitative approach based on the implementation of a case study.

To ensure that the case study is aligned with the purpose of this research, it was important to select the methods that were feasible within company's context and that were able to provide the input needed to answer the research question.

Several authors refer that implementing a case-based research is usually done by using multiple data collected methods (Benbasat, Goldstein, & Mead, 1987; Hughes & McDonagh, 2017; Trkman, 2010; Venkatesh, Brown, & Bala, 2013). To complement this assumption, the work done by Hughes & McDonagh (2017) refers several data collection methods that can be use within a case-study based research, highlighting its strengths and weaknesses. Documentation is pointed as stable, exact and that offers a broad coverage of time and events. On the other hand, it might have issues related with access, reporting bias and retrievability. Interviews are presented as targeted, as they allow to focus directly on case study topics, and insightful, as they allow to perceive causal inferences. As a weakness, they could represent bias and reflexivity – giving the interviewer what he/her wants to hear. Other appointed methods were archival records, direct observations, participant observation and physical artefacts.

Considering both strengths and weaknesses for each method, it was decided to implement the case study research based on semi-structured interviews and documentation analysis. The decision also took into consideration two other factors:

1. The guidelines provided by the selected BPM maturity model (BPMMOMG) regarding how the appraisals should be conducted. According to the model, a set of interviews should be conducted, along with an analysis of data from the organization and the processes in order to understand its conformance with the expected maturity level artefacts (Weber, C.; Curtis, B.; Gardiner, 2008);

2. The selected methods should be easily accepted to be implemented by the organization to be studied.

The interviews were structured in three areas: BPM Maturity assessment, process improvements and its impacts and characterization of the success of the organization. This was complemented by the documentation analysis as depicted in the following chapters.

4.2.1. Assessment of the current BPM maturity level of the organization

The first area aimed to assess what was the current BPM maturity level of the organization. The assessment was prepared based on the selected maturity model presented in chapter 3.1. – the BPM OMG maturity model (Weber, C.; Curtis, B.; Gardiner, 2008).

For each of the process areas of the model, in a total of thirty (30), it was prepared a question that aimed to evaluate the fulfilment of the specific goals under each area. The specific practices of the model were not the basis of the question but were considered when collecting and analysing data. This is due to the fact that, if the specific practices were considered as questions, the length of the

interview would be significantly high as there are 351 specific practices in the model. This would represent a constraint to the research as it might limit the availability to participate from the company.

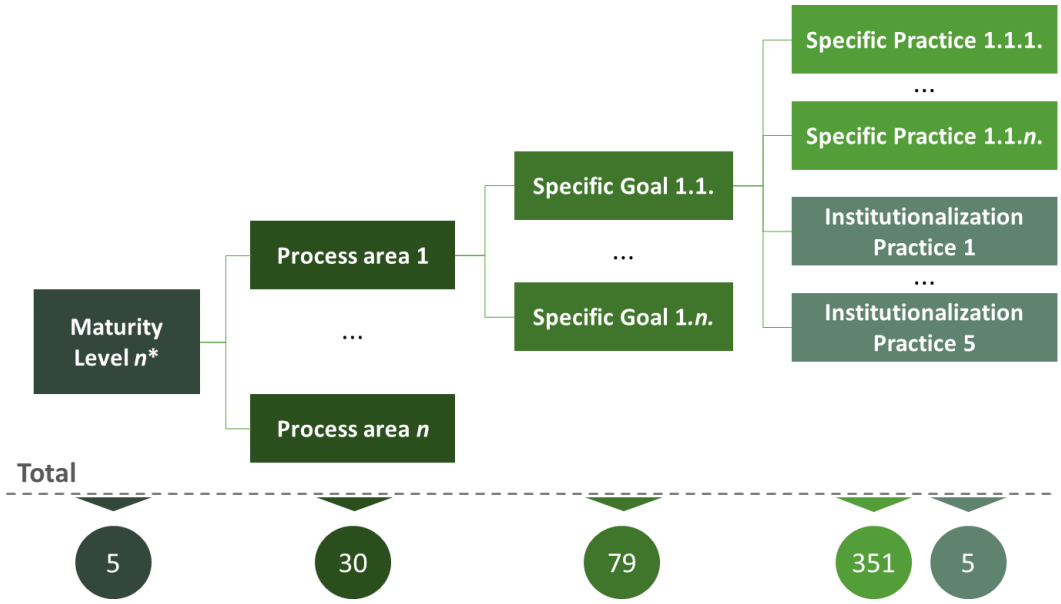


Figure 6 – Structure of the BPM OMG Maturity Model

Besides the process areas, and as a way to overcome one of the limitations of this model presented in chapter 3.1. that is related with the absence of coverage of the technology area, an additional question was incorporated to assess in what extent are the processes supported by information systems and technologies.

The interview script that was used as a basis for conducting the BPM maturity assessment is presented in appendix B.

This interview was expected to be conducted to the business process manager of the shared services area but, due to the absence of this figure within the Portuguese company, it was conducted to the quality manager of the organization once it was the person appointed as the one with greater knowledge to support the study.

The interview went over the questions presented in the interview script. When conducting the interview, it was requested that, whenever possible, practical examples could be provided to understand in what extent the process area is covered by the current practices of the organization.

The results of the assessment are presented in chapter 4.3.1.

4.2.2. Analysis of process improvements and its impacts

The second area was focused on understanding what key improvements have been made on the processes in the past years such as process redesign, reengineering, automation, robotization,

among others, and what were the results of those improvements, in a qualitative and, if possible, quantitative way.

Due to the nature of the questions, it was important to have information from the managers and/or people who work directly with the specific processes of each area in order for them to provide real examples. In this context, this second part was implemented through a set of four interviews, one per business line: hire-to-retire (H2R), record-to-report (R2R), order-to-cash (O2C) and purchase-to-pay (P2P). Business Solutions was not included as it is a project driven area. For each area, the managers indicated one representative that could best answer to this topic.

The interview was conducted based on the interview script presented in Appendix B and the results are presented in chapter 4.3.1.

4.2.3. Characterization of the success of the organization

The third and last area aimed to collect information to characterize the key variables for organizational success. This interview followed a different approach as there was not an interview script with open questions such as the previous interviews but, instead, there was a checklist for collecting information for each metric.

The first round of information was collected with the process manager as some of the metrics refer to its perception about the company. This was done during the BPM maturity assessment interview.

The second round of information collection was done with a designated employee of the organization that is currently working in the controlling area.

4.2.4. Documentation analysis

Besides the interviews, documentation was also collected and analysed with the purpose to support the answers provided, as well as to corroborate some of the achieved results.

There was as initial list of information that was complemented with specific points gathered when conducting the interviews. The analysed documentation includes, among others, the following items:

- Organizational structure of the shared services area;
- Reports with key information about the shared services area – global;
- Report with information about operational and quality KPIs;
- Quality Management System Manual;
- Reports regarding user satisfaction;
- Sample of Internal Service Agreement.

4.3. RESULTS

In this section the results of the study are presented in three areas: (i) BPM maturity analysis, where the results of the maturity assessment are highlighted; (ii) process improvements and impacts, where it is presented a reflection about the activities conducted to improve the processes and its impacts; and (iii) analysis of the success of the company, where the study of the main variables defined in chapter 3.2. is conducted.

4.3.1. BPM maturity analysis

As previously mentioned, the assessment of the current BPM maturity of the company was conducted based on the BPM OMG maturity model. The model is aligned with Humphrey's Process Maturity Framework, as well as the CMMI principles and is composed by 5 maturity levels - (1) Initial, (2) Managed, (3) Standardized, (4) Predictable, (5) Innovating (Weber, C.; Curtis, B.; Gardiner, 2008).

Each maturity level, except the first one, have a set of defined process areas in a total of thirty (30) process areas. The maturity level is achieved when the goals of the process areas are accomplished. Process areas can be related with four main cornerstones: organization, work unit, product & service offering and improvements (Weber, C.; Curtis, B.; Gardiner, 2008).

Based on the interview conducted with the process manager, as well as from the analysis of the documentation provided, it was possible to establish what was the level of fulfilment of each process area hence each maturity level. To do that, and due to the fact that a process area can only be considered as accomplished if its specific goals are achieved (Weber, C.; Curtis, B.; Gardiner, 2008), an analysis per specific goal was undertaken. For each specific goal, a score between 0 and 1 was attributed, using the scale presented in Table 5.

Score	Description
0	The specific goal is not achieved / None of the aspects related to the specific goal can be observed
0.25	A few of the aspects related to the specific goal can be observed
0.5	Some of the aspects related to the specific goal can be observed
0.75	Most of aspects related to the specific goal can be observed
1	The specific goal is fulfilled / All of the aspects related to the specific goal can be observed

Table 5 – Scoring of achievement of specific goals

The accomplishment level of each process area is given by the average of the scoring of each specific goal. The details of the scoring of each specific goal are presented in appendix J.

4.3.1.1. Maturity level 1: Initial

The first maturity level does not have any process area associated and it is achieved when individual efforts with no explicit process or organizational support can be observed. It can be understood as the maturity level of organizations who have not achieved one of the other levels of the model (Weber, C.; Curtis, B.; Gardiner, 2008).

The results from the assessment reveals that the organization has achieved this level as it has a coordinated effort regarding processes and continuous improvement. It is also possible to understand from the results of the other maturity levels, presented in the following chapters, that the initial maturity level is fulfilled.

4.3.1.2. Maturity level 2: Managed

The second maturity level is composed by nine different process areas: (1) organizational process leadership; (2) organizational business governance; (3) work unit requirements management; (4) work unit planning and commitment; (5) work unit monitoring and control; (6) work unit performance; (7) work unit configuration management; (8) sourcing management; and (9) process and product assurance. In this maturity level is expected that managers are able to establish a stable work environment within their work unit (Weber, C.; Curtis, B.; Gardiner, 2008).

The first process area, organizational process leadership (OPL) refers to the establishment of executive sponsorship and accountability for the performance of organization's process improvement activities (Weber, C.; Curtis, B.; Gardiner, 2008). The results appoint to a complete accomplishment of this process area once executive management, in all levels (business line heads, service line managers and team leaders), sponsors the improvement activities of the organization. Through the definition of key performance indicators (KPIs), that establish the desired levels of performance, the company ensures the alignment with the management systems. The achievement of the KPIs is done through several improvement activities and strategies that might impact organization's processes and for which the executive management is accountable for.

In this context, it is also important to highlight the existence of a very solid quality management system that aims to ensure that the organization is compliant with the requirement of ISO 9001 norm, as well as there is a continuous improvement culture established within all organizational levels, from executive management until the teams and individuals. The quality management system is supported by the 9 Mandatory Elements (9MEs) framework that has been implemented in the organization since 2012.

Organizational Business Governance (OBG) is a process area similar to the previous one, but the focus relies on the business and not specifically on the process. The purpose is to ensure that there is an accountability for the performance of the organization's work and results (Weber, C.; Curtis, B.; Gardiner, 2008). This relates to several practices that are well established in the organization such as the strategic alignment and target definition process. In fact, there is a strategic orientation from the executive board that is implemented through the definition of several activities and targets to be accomplished at all the levels – from the business unit to the individual levels – which reflects a solid organizational alignment. The established governance model – business line heads, service line managers and team leaders – also ensures that the responsibilities of each organizational level are clear and that they are accountable for the work and results.

The work unit requirements management (WURM) process area focus on ensuring that there are documented and agreed requirements for the work that needs to be conducted in each work unit (Weber, C.; Curtis, B.; Gardiner, 2008). This is also well established in the organization once the requirements for each work unit are defined, agreed, documented and maintained by the work unit in procedures and work instructions (WI), as well as through the internal service agreements (ISAs).

Work instructions reflect all the activities that each work unit needs to perform under each process and can be understood as the requirements of the work unit. An ISA is a document where it is established the agreement between the organization and its clients that, due to the context of the organization, refer to other organizations that operate within the same business group. It is composed by 3 areas: (i) a standard area that established the terms and conditions of the agreement; (ii) an annexure that presents, in detail, the service description that could be understood as the requirements from the client; (iii) an annexure that establishes the KPIs agreed between the organization and the client and that reflect the performance criteria which upon the organization and the service provided will be evaluated.

The internal service agreements are supported by a change management process that allows to identify, track and implement all the required changes to the service and, ultimately, in the processes. In this context, ISAs can be understood as the requirements baseline as they establish the scope of work and performance expected to be achieved by the work unit.

The fourth process area – work unit planning and commitment (WUPC) – establishes and maintains the plans and commitments for performing and managing the work of each work unit or project. This area is fully accomplished in the organization once the work is estimated, the commitments and agreements are approved, and plans are documented and consistent. In fact, the definition of an ISA demands a quantification of the work to be performed and the resources needed to perform that work. Also, they represent a commitment from the work unit to perform the scope of work that is established and agreed by both parts. The scope of work and KPIs presented in the ISA can be understand as a plan that is documented and guides the implementation of the service from the work unit.

The work unit performance (WUP) process area complements the previous one and establishes the agreements for the individuals and work groups to perform and produce the expected results (Weber, C.; Curtis, B.; Gardiner, 2008). Through the existence of the work instructions (WI), that detail the work to be performed within each process and by each individual, the work assignments are accepted. The work established in the WI, along with the ISA, is then performed and delivered. In the end, and to complete the cycle, the work of each individual and work group is measured through the performance management program in place and through the achievement of the defined targets for the work unit.

The performance management program establishes the approach and the framework for the performance appraisal of each individual. This process establishes the goals and evaluates the processes and activities conducted to achieve those goals. The results are the input for the development plans that could be individual, team or organization related and that represent the improvement actions to be implemented.

Work Unit Configuration Management (WUCM) is the process area that is focused on identifying, managing and controlling the contents and changes to the work unit's configuration (Weber, C.; Curtis, B.; Gardiner, 2008). This area is fulfilled once the information of each work unit regarding its configuration is established, managed through the change management process, monitored through the current routines and processes in place and communicated and reported to the relevant stakeholders.

Sourcing management (SM) is a process area that manages the acquisition of products and services from external suppliers (Weber, C.; Curtis, B.; Gardiner, 2008). This is also a well accomplished area due to the high compliance issues related with this topic. The sourcing agreements are approved with qualified suppliers and involve the relevant stakeholders. They are then satisfied by the supplier and the acquired products and services are incorporated into the work unit's infrastructure, processes and services.

The last process area of maturity level 2 is process and product assurance (PPA). This area is related with providing conformance guidance and objectively reviewing the work performed to ensure that it is compliant with the applicable laws, regulations, standards, organizational policies, business rules, process descriptions and work procedures (Weber, C.; Curtis, B.; Gardiner, 2008).

The organization has in place a regular and systematic process of auditing and ensuring the compliance of the work performed which reflects an objective evaluation method. The non-conformance issues that arise from the auditing process and other events and processes in place are tracked, communicated and resolved.

The 8D tool supports the non-conformance process throughout the complete cycle. This is a framework for problem solving and incident management that aims to promote an open error culture within the organization. Through this tool, incidents are registered and notified. Root-cause analysis is performed, defining corrective measures that are implemented hence resolving the issues. This tool, along with the auditing process and the conformance controls, ensure that PPA process area is accomplished.

The result of the analysis of the nine process areas included within the maturity level 2 allow to conclude that the organization has achieved this BPM maturity stage. In fact, as presented in Figure 7, all the process areas in this level are accomplished by the organization through the systems, approaches, frameworks, methods and practices currently in place namely the strategic and target definition process, work instructions, internal service agreements with scope of work and KPIs, quality management system, auditing process and 8D tool.

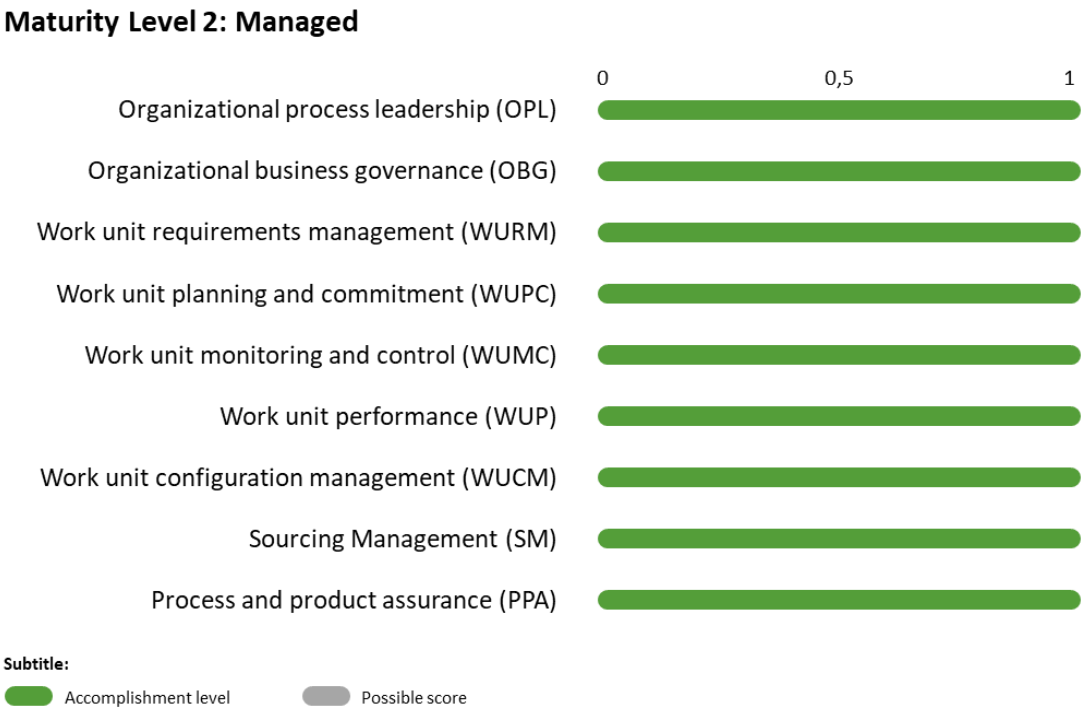


Figure 7 – Summary of results of Maturity Level 2: Managed

4.3.1.3. Maturity level 3: Standardized

Maturity level 3 is achieved when the organization establishes standard processes to perform their work and it is composed by ten process areas: (1) organizational process management; (2) organizational competency development; (3) organizational resource management; (4) organizational configuration management; (5) product and service business management; (6) product and service work management; (7) product and service preparation; (8) product and service deployment; (9) product and service operations; and (10) product and service support (Weber, C.; Curtis, B.; Gardiner, 2008).

Organizational process management (OPM) is the first process area within maturity level 3 and it refers to the development of usable standard process assets, its deployment and improvement (Weber, C.; Curtis, B.; Gardiner, 2008). The conducted assessment allowed to understand that this is also one solid process area within the organization.

Processes and work instructions are documented and available for all members of the organization and are the basis to provide the service agreed with the client, composing what is called process assets. These processes are continuously analysed in terms of its strengths and weaknesses through several methodologies for process improvement such as the failure mode and effect analysis (FMEA).

FMEA is a two folded methodology: on one hand, it is a risk assessment methodology and, on the other hand, it is also a process improvement methodology. It is implemented by a designated team that analyses the process to understand if it is adequate or not. In every step of the process, the same question is done: what can go wrong here?. Each identified item is categorized in three factors: severity, occurrence and existence of controls. The combination of the classification of each one of

these factors allow to calculate the risk priority number (RPN). The RPN allows organization to qualify each of the identified issues and define the priorities for implementation.

The outputs from FMEA analysis and from other methodologies in place (5S, VSM, PDCA, etc.), as well as from the experience of implementing the processes, allow organization to identify improvements and incorporate them in its activity.

The second process area in this maturity level is the Organizational Competency Development (OCD). This area is focused on ensuring that organization is developing the necessary competencies in its workforce to perform the processes and the work (Weber, C.; Curtis, B.; Gardiner, 2008). The organization has in place a competence development framework, aligned with the performance management program (PMP) that relates with performance appraisal and professional development. The results of the PMP are used to conduct a gap analysis between the current competences and skills and the ones that are demanded to perform the work. This will be used to create development plans and define the training plan for each individual to ensure that they develop knowledge, skills and process abilities that are necessary. In this context, it is possible to consider this process area as completely accomplished.

Organization resource management (ORM) is the third process area and is related with planning and managing the acquisition, allocation and reassignment of the resources to ensure the delivery of products and services (Weber, C.; Curtis, B.; Gardiner, 2008). The first goal is to ensure that organizational resources are aligned with the portfolio. This is something the organization does throught its capacity planning process that is defined each year, based on the established ISAs and the capacity available, and revised on a regular basis due to changes arising from the change management process in place. The capacity planning process also allows organization to fulfil the second goal that states that resources should be aligned with the capacity plans.

Organizational configuration management (OCM) is the process area that identifies, manages and controls the contents and changes to the organization's configuration related with the product and service offering (Weber, C.; Curtis, B.; Gardiner, 2008). As the configuration of the organization is clear to all organizational levels, being monitored through the auditing and controlling processes in place, and also communicated to the relevant stakeholders, this process area is accomplished.

Moving from the organizational perspective to the offering perspective, we have the product and service business management (PSBM) area that plans and manages the business and financial aspects of the organization's offering (Weber, C.; Curtis, B.; Gardiner, 2008). Internal service agreements are the cornerstone for this process area and allow it to be completely fulfilled. Through the ISAs established with the customers, organization is able to understand customer needs and provide services accordingly. These agreements are always supported by a business case that includes an impact analysis to understand if providing that service is feasible to the organization. Then, during the service lifecycle, financial analysis is conducted to ensure that the assumptions from the business case are realized, as well as to ensure that the return rate is as expected.

The offering of products and services is then drilled down into the work that needs to be conducted. This introduces a different process area: product and service work management (PSWM). This area is focused on planning and managing the work and results related with a product and service offering through the process assets and related processes (Weber, C.; Curtis, B.; Gardiner, 2008). The specific

goals are aligned with the production cycle: the work needs to be planed, performed, monitored and corrections should be implemented if needed. To plan and estimate the work to be done to offer a service, information regarding current processes and performance is used. With the KPIs defined in the ISAs, work can be monitored and results can be compared against plans and commitments. This is used to define and implement corrective actions that are supported by an important and key ritual: service reviews.

Service reviews are periodic meetings conducted with the customer that include the following minimum content: KPIs related to the service delivery, complaints, escalations, issues and user satisfaction index survey results. In these service reviews, deviations are analysed and improvement measures are proposed. Corrective actions may also arise from other internal processes such as non-conformances identification (through 8D tool) and FMEA analysis.

Product and service preparation (PSP) is the process area that establishes the requirements for a product and service offering and develops and prepares it so it can be deployed and used (Weber, C.; Curtis, B.; Gardiner, 2008). This includes definition and documentation of requirements for the offering and the construction of the offer which is done in the organization through the internal service agreements. As mentioned before, ISAs establish the scope of the work to be conducted for a specific service which can translate its requirements. The offering is then constructed and detailed in the form of work instructions. Before its deployment, the organization conducts the necessary tests to ensure that the service can be provided as expected and ensures all the necessary support during its implementation. These different pieces allow to conclude that this is also a process area that is accomplished.

After the product and service preparation, is time to ensure its deployment which bring us to the next process area: product and service deployment (PSD). This area installs, modifies, replaces and removes all the needed assets used to provide a service offer, including both operation as maintenance (Weber, C.; Curtis, B.; Gardiner, 2008). It includes topics as planning, deployment and demonstration. This is also one of the accomplished areas as the organization ensures that, before a new service is provided, it is planned and sustained by a business case. Those inputs are documented and agreed between the relevant stakeholders. Then, according to the defined capacity plan and the KPIs, the offer is deployed which means the service is provided according to the terms of the agreement. This only happens when everything is shown to be ready.

The next step is to ensure that the customers are provided with the capabilities and features of the offering which is ensured by the product and service operations (PSO) process area. This area is accomplished by ensuring a continuous communication with the customer and relevant stakeholders regarding resources, information, support, as well as results. Service reviews, conducted in a frequent way, play an important role in this area.

The last process area in the third maturity level refers to the product and service support (PSS). During operations, it is important to ensure that the needed resources are available to ensure the service delivery involving its maintenance, management in case of disruptions and ensuring that the requested support is provided. During the service offering, and according to the internal service agreement, organization ensures that all the resources are maintained. The organization also has established a business continuity model to ensure that the services are provided during and following

disruptive events. Support is also guaranteed through several tools, ensuring that incidents are registered, documented and resolved according to the defined processes.

Similar to maturity level 2, it is possible to conclude that the organization also achieved the third maturity level once all of its related process areas and the correspondent specific goals are achieved.

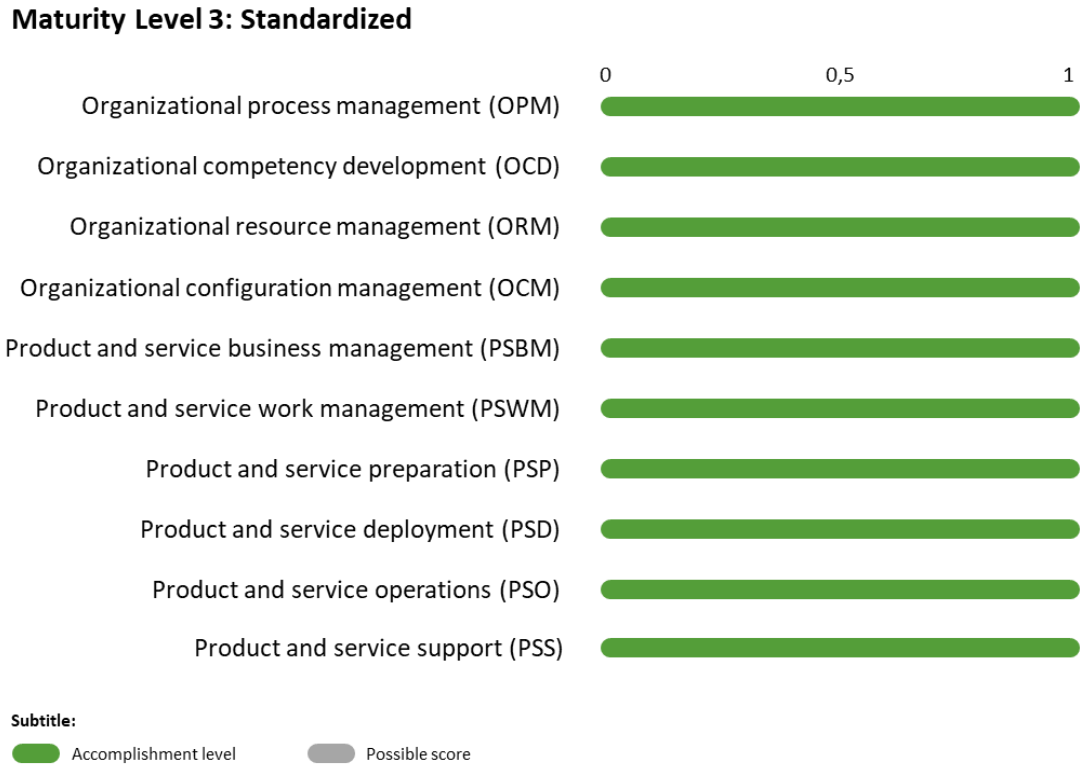


Figure 8 – Summary of results of Maturity Level 3: Standardized

4.3.1.4. Maturity level 4: Predictable

Maturity level 4 occurs when the organization manages the processes in a quantitative way in order to establish predictable results. It is composed by five process areas: (1) organizational common asset management; (2) organizational capability and performance management; (3) product and service process integration; (4) quantitative product and service management; and (5) quantitative process management (Weber, C.; Curtis, B.; Gardiner, 2008).

The first area, organizational common asset management (OCAM) determines the common characteristics of the current and future products or services and exploits it to improve the processes (Weber, C.; Curtis, B.; Gardiner, 2008). It is related with two strategic goals: one for developing common assets and one for deploying them. Through the existence of a best practice community that identifies lessons learned, best practices and other relevant knowledge to share within the organization and with other similar organizations within the same group, and due to the fact that these practices are then used by the organization to improve the results, it is possible to consider this area as accomplished.

The organizational capability and performance management (OCPM) process area is responsible for quantitively characterize the current capabilities of the organization and use this data to quantitatively manage the work efforts to provide the services (Weber, C.; Curtis, B.; Gardiner, 2008). Although organization defines quantitative performance goals, through the KPIs established in the ISA, as well as defines a quantitative capacity plan with the full-time-equivalent (FTE), currently it does not have implemented predictive models to quantitatively manage the work to be performed. Also, in spite of the capacity planning conducted on a regular basis, this is focused on the service offering and not yet focused on the process level. In this context, we can consider this process area as partially accomplished.

Product and service process integration (PSPI) process area promotes the connection between the different processes involved in the service offering to improve efficiency and effectiveness of the work (Weber, C.; Curtis, B.; Gardiner, 2008). The purpose is to ensure that the interdependent processes are integrated and used to provide the service offering. Due to a recent restructuring, that focusing on implementing an organizational structure that is aligned with an end-to-end vision of the processes, the integration of the different processes for providing a service was possible. However, since this is a recent approach, the maturity is not yet high which allows to establish that this process area is not completely accomplished but most of the related aspects are fulfilled.

The process area quantitative product and service management (QPSM) has the purpose to plan and manage the work involved in a service to ensure it achieves the defined performance and quality quantitative goals (Weber, C.; Curtis, B.; Gardiner, 2008). It presupposes that quantitative goals are defined and the achievement of these goals is managed. As mentioned before, the organization has established quantitative performance and quality goals as a part of the service agreement which are called KPIs. There is also a strategy in place to achieve those goals. However, the work is not statistically managed to define the goals. There is a common awareness that the goals need to be achieved and they are monitored on a regular basis but this is not based on statistic methods. Due to this gap, it is possible to conclude that this area is only accomplished in some extent.

Going into a more detailed view, focused on the processes, the quantitative process management (QPM) area arises. This area statistically manages the performance of a work effort to achieve the defined performance and quality goals (Weber, C.; Curtis, B.; Gardiner, 2008) and it is only partially accomplished in the organization. In fact, although the work efforts are planned in a quantitative way to achieve the defined KPIs, through the capacity planning process, process variations as well as work effort are not statistically managed.

From the assessment results it is possible to understand that the organization hasn’t completely achieved the maturity level 4 once some of the process areas such as organizational capability and performance management, quantitative product and service management and quantitative process management are not fully accomplished. This means that, although work processes are managed in a quantitative way, this is done in an incipient way and needs to evolve to more robust and statistically managed approaches in order to establish predictable results.

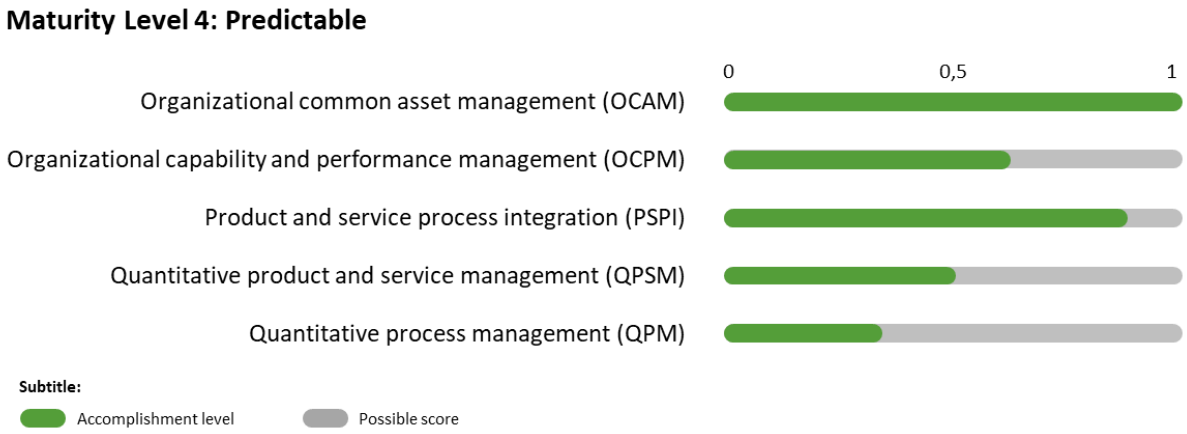


Figure 9 – Summary of results of Maturity Level 4: Predictable

4.3.1.5. Maturity level 5: Innovating

The last maturity level of the BPMMMOMG is achieved when organization's processes are continuously improved and it can be detailed in six process areas: (1) organizational improvement planning; (2) organizational performance alignment; (3) defect and problem prevention; (4) continuous capability improvement; (5) organizational innovative improvement; and (6) organizational improvement deployment (Weber, C.; Curtis, B.; Gardiner, 2008).

Organizational improvement planning (OIP) is the first process area and has the purpose to establish organization's quantitative improvement goals as well as the framework for systematically implement improvements to achieve the defined goals (Weber, C.; Curtis, B.; Gardiner, 2008). This area is accomplished if the organization's improvement strategies are aligned with the organizational systems, if improvement needs are defined and if the improvement work is aligned with the objectives.

To support this result, it is important to highlight the existence of the quality management system (9MEs) which score is one of the quantitative targets defined by executive management. This shows a clear concern of the management in improving the maturity level of the organization towards quality, performance and continuous improvement. The management systems in place are aligned with the continuous improvement strategy and there are several approaches, methods and tools in place to promote the achievement of the defined improvement targets.

The second process area is organizational performance alignment (OPA) that ensures alignment between organization's business strategies and its business goals in all organizational levels and across all the services provided (Weber, C.; Curtis, B.; Gardiner, 2008). The target definition process currently in place allows organization to fulfil this process area.

The target definition process follows a top-down approach where the board defines high level targets that are drilled down to the business units, service lines, teams and, in the end, to the individuals. These targets are quantitative. When creating the plans for each year, the organization aligns the activities to be performed with the defined targets and expected results. Performance and

results will then be monitored and measured against the defined targets ensuring the alignment between strategy and business goals.

Evolving from the organizational to the improvement perspective, a new process area arises: defect and problem prevention (DPP). This area addresses the causes of defects, problems or issues that might limit the achievement of the defined plans and quantitative improvement goals (Weber, C.; Curtis, B.; Gardiner, 2008).

The first specific goal is focused on ensuring that route causes are determined. This is a very systematic process in the organization and is done in a reactive and proactive way. On one hand, non-conformance issues are recorded and processed using 8D tool that includes root cause analysis with corrective and preventive actions. On the other hand, the implementation of FMEA methodology addresses, in a proactive and indirect way, potential root causes for the identified issues.

After identification of root causes, they are addressed to prevent the issues from recurring, as stated in the second specific goal. In fact, the identified root causes are the basis for identification of process improvements. Through the 8D tool, special attention is paid to recurrent issues during the monitoring process conducted by the teams.

These inputs are considered in the communication strategy implemented by organization that intends to ensure an open error culture and inform the relevant stakeholders about the incidents, actions undertaken to solve those incidents and recommendations of behaviours to prevent them to happen in the future. This fulfils the third specific goals related with this process area.

The fourth process area, continuous capability improvement (CCI), continually and measurably improves the performance of the organization's processes by implementing incremental improvements (Weber, C.; Curtis, B.; Gardiner, 2008). Although the organization has a continuous improvement approach in place, through several methods and tools already mentioned, the focus on the individual processes or group processes is still limited. The improvements identified to specific processes are done in an indirect way through the analysis of KPIs: if the quality and performance targets are not being fulfilled, this means the process is not performing as expected, thus needs improvement measures. This is acknowledged by the organization as one of their greatest limitations to ensure a higher maturity level.

Organizational innovative and improvement (OII) is a process area that formulates a complete improvement solution to achieve the specific quantitative improvement goals. This includes three goals: identification of improvements, development of improvement solution and prepare the solution for deployment (Weber, C.; Curtis, B.; Gardiner, 2008).

As already mentioned, the organization has several approaches, methods and tools in place to identify improvement actions. They are implemented with the purpose to improve the business goals and targets, as well as the KPIs established with the customers that are defined in quantitative terms. Once an improvement solution is identified, it is developed by the team and verified so it can be deployed.

The deployment of the improvements takes us to the last process area organizational improvement deployment (OID) that ensures the implementation of the identified improvements in a systematic

manner (Weber, C.; Curtis, B.; Gardiner, 2008). This area is only partially achieved by the organization as it lacks the prediction of the quantitative impacts of each deployed improvement.

In fact, the improvement actions are identified and planned for implementation in order to improve the quantitative targets defined by the organization. However, they are not quantified in terms of its impact in the defined goals. There is an assumption that the implemented actions will improve the quality and performance of the processes and, ultimately, the KPIs and there is a subjective opinion if the process was improved or not after the implemented actions. However, it is not possible to understand in what extent each action contributed to the achieved improvements in a quantitative way.

In conclusion, maturity level 5 is also partially achieved. Despite the continuous improvement routines in place, there is still a lack of understanding of the specific impacts of each improvement in the individual or group of processes.

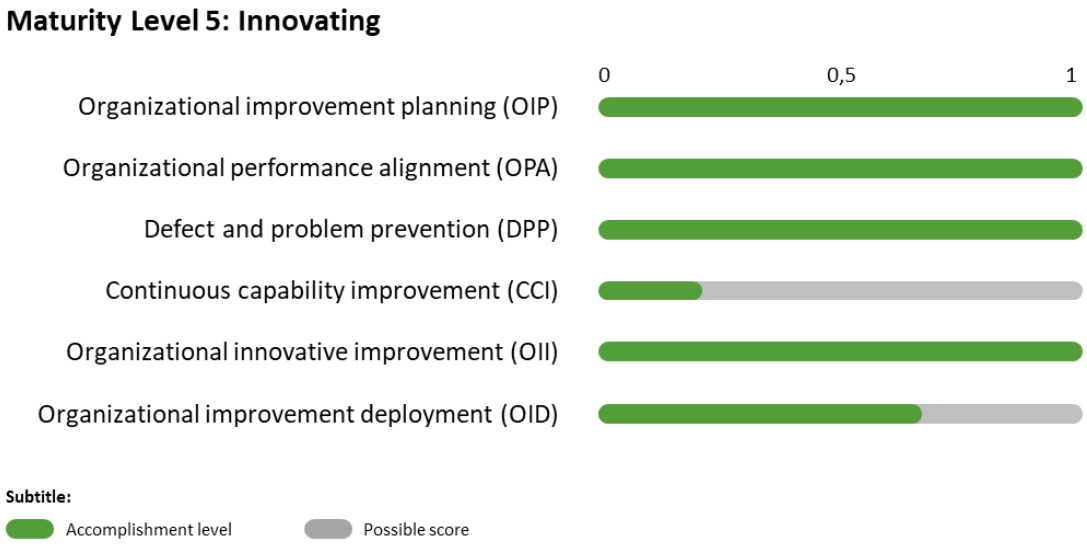


Figure 10 – Summary of results of Maturity Level 5: Innovating

4.3.1.6. Summary of BPM Maturity Results

The assessment of the current BPM maturity level, based on the BPM OMG Maturity Model, allow to portrait the current situation of the organization regarding its process management practices. This can be used to identify constraints and improvement initiatives that can be undertaken to ensure that the organization captures and incorporates the benefits of having a high process orientation.

Results suggest that the first three maturity levels – initial, managed and standardized – are achieved once each process area and its related specific goals are fulfilled.

The fourth maturity level – predictable – is partially achieved with an accomplishment level of 66%. This is mainly due to the fact that the quantitative management of the processes is still done in an incipient way without robust and statistically managed approaches to establish predictable results. In

fact, the process area with lower score (0,33 out of 1,00) is the quantitative process management (QPM), followed by the quantitative product and service management (QPSM) (0,50 out of 1,00).

The fifth and last maturity level – innovating – is also not completely achieved, with an accomplishment level of 82%. Although the organization has established several practices for innovation and continuous improvement, there is still a lack of understanding of which are the direct quantitative impacts of each improvement implemented. These outcomes are comprehensible if we consider the results from the fourth maturity level where one of the least rated areas is associated with the lack of a quantitative management approach.

Also, in spite of the quality management system in place that promotes a high process management maturity, the focus on individual process performance and workgroup process performance is limited as there is no specific practices in place that address these components. This is reflected in the continuous capability improvement area (CCI) that has the lowest score on this maturity level (0,25 out of 1,00).

As a conclusion, it is possible to state that the studied organization has a high BPM maturity level. As the model states that an organization can only achieve a maturity level if it meets the requirements associated with the previous maturity level (Weber, C.; Curtis, B.; Gardiner, 2008), the maturity of the studied organization is established at level 4 – predictable.

These results are possible to be achieved due to a set of systems, approaches, methodologies, methods and tools that the organization has in place such as the quality management system, the work instructions, the internal service agreements with defined KPIs and sustained by business cases, the 8D tool, the FMEA analysis, the performance management program, the capacity planning and the best practice community, among others.

Furthermore, technology plays an important role in the achieved results. Although this is not a direct component of the used maturity model, as mentioned in the chapter 4.2.1., an additional question was included to understand in what extent are the processes supported by information systems and technology.

The analysis shows that there is a high degree of digitalization of the processes within the organization which allows it to have stable and mature processes. Experience shows that organizations with low process digitalization levels are focused on improving the stability of the processes, minimizing its exceptions and non-conformances. With high digitalization levels, organizations can focus on other maturity aspects such as performance management and continuous improvement, which allows them to climb in the maturity ladder. The studied organization is an example on how technology can leverage its process management maturity.

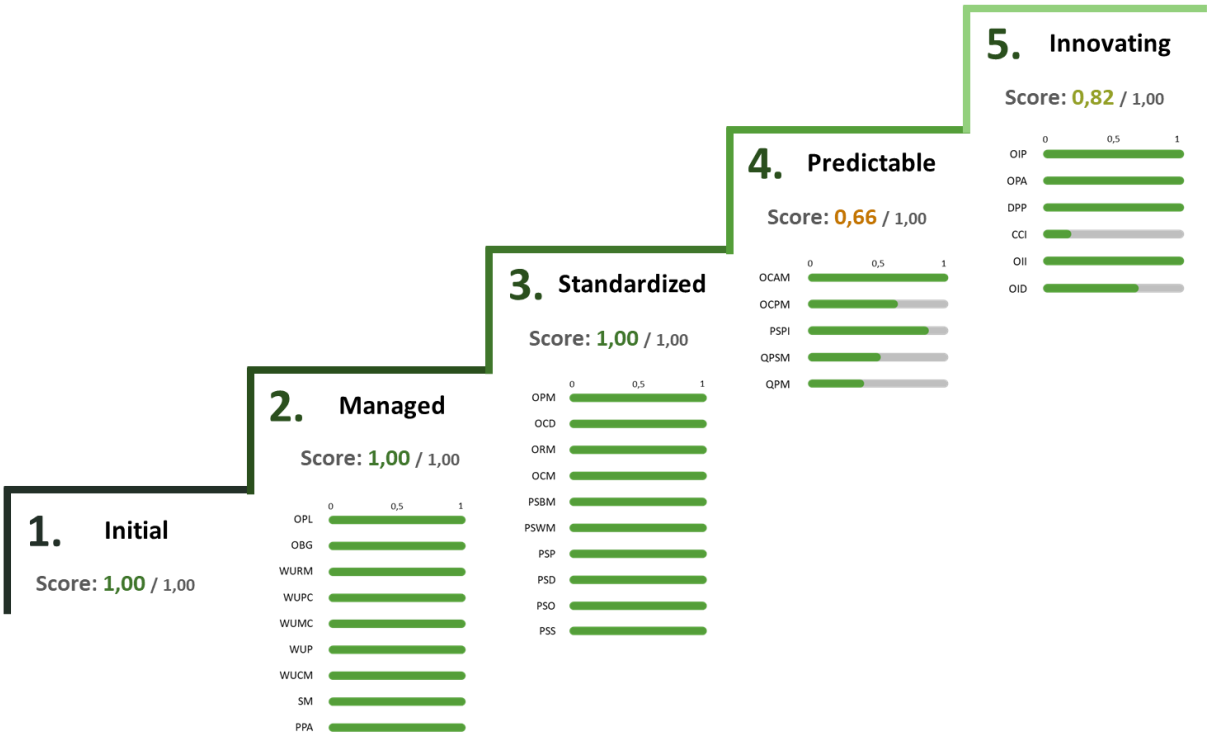


Figure 11 – Summary of Results of BPM Maturity Assessment

4.3.2. Process improvements and impacts

The second area of the study is focused on understanding what improvements have been made on the organization's processes, in the past years, and what were the results of those improvements, in a qualitative and, if possible, quantitative way.

Shared services organizations seek to provide cost savings, increased efficiency and the development of new capabilities in the environment they are established (Fielt et al., 2014). To leverage their ability to fulfil its goals, they have been heavily investing in information systems and technology such as enterprise resource planning (ERP), self-service portals and automation tools (Lacity & Willcocks, 2016). This has been one of the drivers of the organization, that has been investing on the digital transformation of the value chain including areas such as master data, customer order management, purchase to pay and cash management. This is aligned with the trends of the shared service organizations such as digital transformation and service automation as appointed by Lacity & Willcocks (2016).

The analysis conducted allow to collect some practical examples on how the organization has been promoting its transformation process.

In the R2R area, two work streams are established for process improvement. On one hand, there is a process improvement for accountant (PIA), a global program for the southwest region that consider projects with higher investment and potential impact, demanding the approval of a steering committee. On other hand, there are some smaller projects, implemented within the organization that are related with robotic process automation (RPA) and robotic desktop automation (RDA).

On the first workstream, some process automation projects can be highlighted such as the global master data management tool (GMDM) and the fixed asset process workflow (FAM).

The GMDM aims to provide an automated workflow to ensure the creation, modification, blocking and unblocking of master data. It allowed the organization to reduce by 60% the average time to solve tickets, increased the velocity in processing data and promoted a higher data quality through integration and validation, resulting in a reduction of five full time equivalents (FTEs). The first wave of implementation was so successful that was decided to do a world roll out of the tool, which shows the scalability of the solution and its impacts.

The FAM was a project that also aimed the automation of the workflow for the register and management of the fixed assets of the companies to which the organization provides services. It allowed to increase the processing speed of these requests from the customers and improved data quality. It also permitted to obtain statistical data of the processes that are running in the tool, proving information for a better decision making. With the project, the organization reduced 1 FTE.

On the second workstream, there are several projects currently being implemented, with special focus on the RPA and RDA area that have five and two projects in pipeline, respectively. Some examples are: (i) the upload of bank statements, that was automated through RPA, allowing to reduce 1 FTE; (ii) the project regarding bankruptcy and liquidation, that aims to automatize the collection of data from several sources to understand if companies are in risk of bankruptcy; and (iii) the project for the journal and reporting area that aims to automatize and improve the process of reporting in several companies, estimating the reduction of 1 FTE.

The true account reconciliation project is also worth mentioning as it allowed to automatize the way clearings are done within the company, diminishing significantly the manual work associated. For example, an activity that usually took five hours to be conducted, now only requires approximately twenty minutes. With the time savings, people were able to reduce the routine and mechanical work and were reallocated to perform tasks that are more motivating and provide greater value to the organization.

The P2P area has also been working on several projects to improve its process performance. As example, it is possible to highlight the automatic posting of the invoices received by suppliers. With this project, the invoices that a supplier sent are digitalized and read through an optical character recognition system (OCR) that automatically fills in the necessary fields in the ERP system for further processing. This project allowed to have a higher integration of the process, since it started until it is closed, improved the quality of the relationship with the suppliers and allowed the reduction of seven FTEs from which three were redirected to other tasks. It also allowed organization to achieve approximately 40 thousand euros in savings.

Another good example is also the tool for automatic clarification. Some of the processes in place within the company demand some clarifications when differences between the expected and real value are identified. This was done mainly through e-mails which consumes much time and effort from the actors of the process. The new tool implemented allowed to establish some basic rules for the clarification and, if a process is within these rules, it is done automatically through the tool. The appointed impacts refer to an increase in quality as the process is much easier to track than a

collection of emails, the centralization and consolidation of information, as the process is now running in a single tool, and the reduction of the processing time.

In the O2C business line there is a strong focus on the automatization of the processes mainly through the digital order management (DOM) project. With an initial scope of fourteen use cases / processes for the shared services areas in three different locations, the project has now a world roll out with more than 25 processes in scope. The purpose of the tool is to provide an automated workflow for several processes, ensuring an end-to-end integration as it allow the consolidation of all data sources in one tool, as well as ERP integration. This tool allowed organization to overcome challenges related with different processes and tools, unstructured and manual processes and lack of transparency. The tool provided great benefits such as the integration of information, error reduction, less effort to conduct the processes and better organization of work. As the processes are automated, the tool also allowed organization to gather relevant data about their processes such as volume, performance and existing bottlenecks that should be considered within the continuous improvement program. The next steps of the tool, besides scaling up to different use cases, rely on implementing natural processing language and artificial intelligence mechanisms to remove human intervention from the more standardized processes.

The fourth business line studied, H2R, has also been engaging for the past two years in a project to digitalize approximately 60% of the administrative processes in the human resources area. This project included the standardization of these processes from several locations before its digitalization. This provided, in the short term, benefits such as flexibility, as it allowed team members to be allocated to perform similar tasks in times of greater demand, improving the management of existing capacity, and allowed to benchmark organizations as an important input for process improvements.

H2R, as well as other business lines, has a systematic process of continuous improvement of its processes that includes activities outside the scope of digitalization. For example, there was an improvement effort related with the process of admission of new employees. The purpose was to decrease the error, stated at 0,9% to a nearly 0% rate. This included a detailed mapping of the process, identification of actors, understanding of current errors, route-cause analysis and definition and implementation of a roadmap. The error rate decreased to 0,4% after all the changes implemented, allowing the organization to achieve a five-sigma rating, which is extremely positive in a service-related process.

A significative portion of the quantitative impacts of the process improvements activities are quantified in terms of savings achieved by the organization, with direct impact on the profit and losses statements. As stated in chapter 4.3.3.2, in 2019, savings volume reached approximately 750 thousand euros. This is one of the targets defined by executive management which shows an organization that constantly seeks to improve its efficiency and effectiveness.

4.3.3. Characterizing the success of the organization

The third component of the study aims to characterize the success of the organization. This was done according to the proposed model in chapter 3.2. that is structured in five areas: (i) fulfilment of mission, (ii) financial performance, (iii) market performance, (iv) internal performance, and (v) sustainability.

The results presented in this section show an organization that is solid, sustainable, that fulfils its purpose and ensures good results from a financial, market and internal perspective.

4.3.3.1. Fulfilment of Mission

Fulfilment of mission is evaluated through the perception of the manager regarding to which extent is the mission of the organization being accomplished. This input was collected in the interview conducted to the process manager and the result is that it is confirmed that the organization is accomplishing the purpose for what it was created for.

As presented in Figure 4, the mission of the organization is structured in three areas: why, what and how.

The "why" refers to the purpose of the organization that is related to provide business services that address client needs and provide impact. According to the presentation of the organization, as well as the information collected during the study, it is possible to understand that this purpose is verified in the organization through their service portfolio and conducted activities.

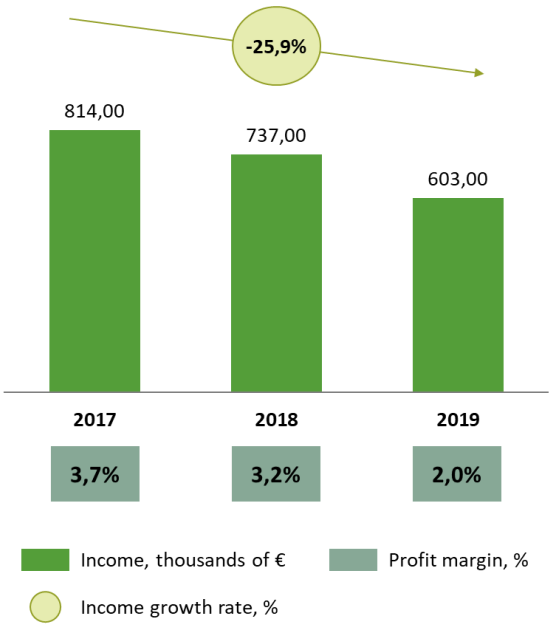
The "what" vector refers to the scope of the work that is provided by the organization and relates with transforming and innovating the way the business services are provided, ensuring its efficiency. This is completely aligned with the services provided by the organization, as well as with the current continuous improvement and innovation practices in place.

The "how" is related with the way organization is ensuring that its scope of work is accomplished. It refers to concepts such as digitalization and end-to-end solutions. As it is possible to understand from chapter 4.3.2., digital transformation is one of the cornerstones of organization's development to ensure a higher efficiency in providing services to their customers.

4.3.3.2. Financial performance

Financial performance is one of the most traditional variables used to evaluate the success of the organization (Crumpton-Young & Ferreras, 2013; Kaplan & Norton, 2001; Keerthika & Alagarsamy, 2018; Leković & Marić, 2015; Maltz et al., 2003). Although a shared service organization does not pursue higher profits but rather efficiency and optimization, this variable could not be disregarded from analysis.

To analyse this area, two key metrics were considered: revenue and net profit margin. Even though the service volume has been increasing positively in the past years (chapter 4.3.3.3), the net income has been diminishing, as well as its profit margin.



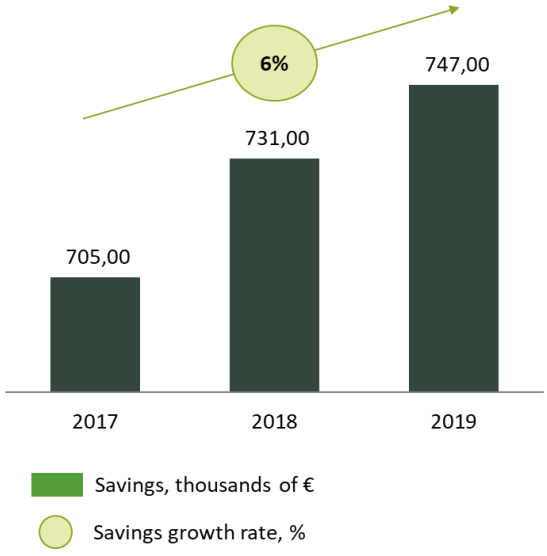
Graphic 1 – Evolution of income and net profit margin, 2017 to 2019

Graphic 1 shows how the income has been evolving in the past three years[1]. In spite of the fact that, in 2019, the organization was able to reach 603 thousand euros of income, this represents a 25,9% decrease since 2017, meaning an average decreasing rate of 9% per year.

This was reflected in terms of profitability, with a net profit margin evolving from 3,7% in 2017 to 2,0% in 2019.

In spite of the fact that financial performance has not been improving, according to growth and profit metrics, the organization is still stable from the financial point of view as it provides a significant income every year. Profit rate is not very high but, if we consider that shared services organization do not pursue profit, these values are as expected.

Two additional metrics for measuring financial performance, with focus on efficiency, were proposed in the model in chapter 3.2.: return on equity and return on assets. However, this data was not possible to obtain from the organization as these indicators are analysed from a global perspective, throughout the company in Portugal. In fact, this is a shared services organization that operates in Portugal within the context of a large company, with several business lines. These metrics are defined for the global company in Portugal and not specifically for the organization that it is being studied. In this context, efficiency metrics needed to be disregarded from analysis.



Graphic 2 – Evolution of savings, 2017 to 2019

On the other hand, if we consider the specific context of the organization, an important metric arises: savings. As previously mentioned, a shared services organization pursues optimization which, in the end, might be reflected as savings. This metric has been evolving positively in the past years, demonstrating the focus on efficiency and optimization. Graphic 2 shows that current savings level reaches 747 thousand euros which represents a 6% increase since 2017.

4.3.3.3. Market performance

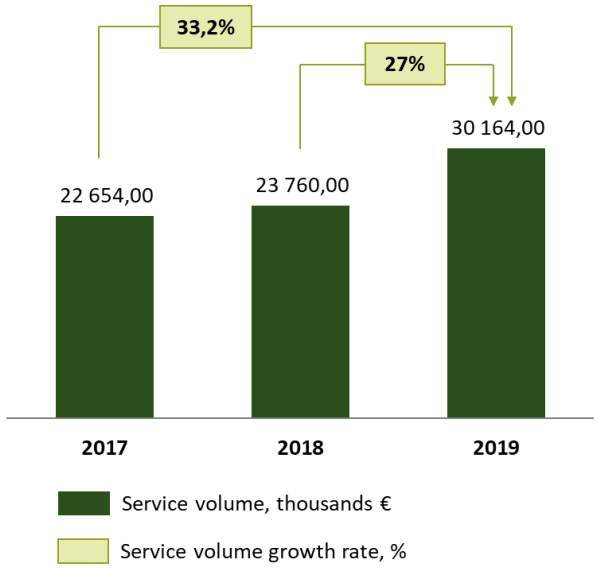
Market performance has also been widely used to measure organizational performance and allow to have an external overview on how the organization behaves in the context it is inserted in (Kaplan & Norton, 2001; Keerthika & Alagarsamy, 2018; Maltz et al., 2003). To asses this variable, two perspectives are appointed in the model: one related with competition and one related with customer satisfaction.

The studied organization does not operate in an intensive competitive market. The shared service area provides business services to other organizations within the same business group. The studied organization is located in Portugal but there are similar organizations, providing the same scope of services, in other locations. In a simplistic view, these can be considered as their direct competitors.

[1] Information is presented per fiscal year. Company's fiscal year starts in October and ends in September.

Also, some companies in the group also provide their services internally so they can be seen as indirect competitors. However, they are not actively competing among each other and, therefore, market share is not a relevant metric in the context of the organization.

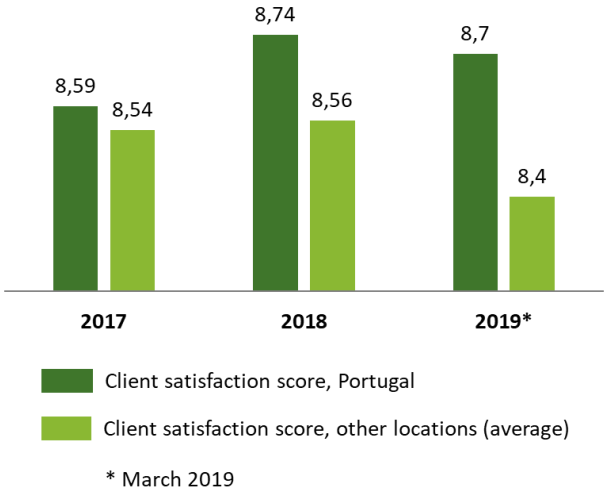
On the other hand, sales growth metric allows to understand how the organization has been evolving in terms of providing more or new services to its customers. In the specific context of the organization, sales can be understood as the service volume provided to the customers. According to the data provided, this has been evolving positively in the last years, which shows a positive trend regarding service provision to customers. As shown in Graphic 3, in 2019, the total amount of service volume reached approximately thirty (30) million euros which represents an increase of 33,2% since 2017. The greatest variation was between 2018 and 2019, when service volume increased 27%. This was somehow reflected in the number of employees that also suffered a high increase between 2018 and 2019 (33%).



Graphic 3 – Evolution of service volume (sales), 2017 to 2019

Customer satisfaction is also a very important metric in the context of the organization. As referred before, there are several processes in place to ensure customer feedback, alignment and satisfaction. Customer satisfaction is measured in a scale of one to ten, on a monthly basis and for each business line. Based on these inputs, a final score is computed for the complete organization in a monthly, quarterly and annual perspective.

The results show a high level of customer satisfaction throughout the time, with the lowest score of 8,59 out of 10 achieved in 2017. The score has been consistently higher in the Portuguese organization when comparing to other locations that provide similar services.



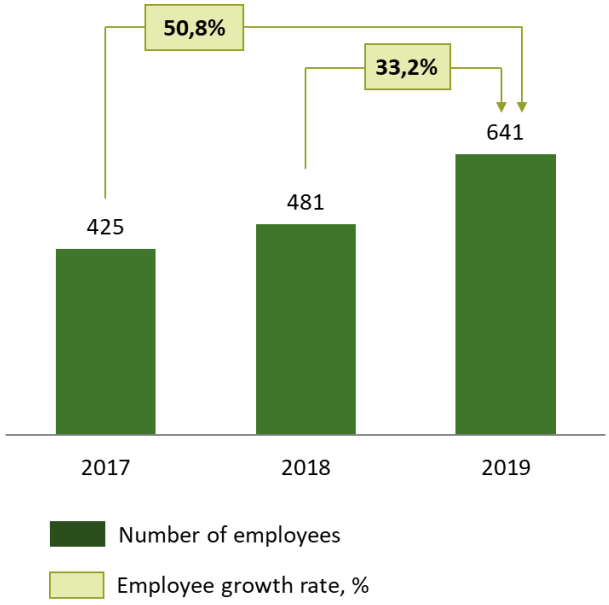
Graphic 4 – Evolution of customer satisfaction score, 2017 to 2019

4.3.3.4. Internal performance

The defined model to measure the success of the organization also considers the internal perspective concerning human capital, corporate culture and quality management practices.

The first metric, turnover rate, relates with the capacity of the organization to retain their employees. The information provided shows that the turnover rate, internally defined as attrition rate, was 16% in 2019, 11% in 2018 and 10% in 2017. According to the Global Shared Services Report (Deloitte, 2017), the average turnover for the respondents is 10%, with 57% of centres sustaining turnover of 10% or greater. In fact, the number of shared service centres experiencing turnover of 20% or higher has more than tripled since 2015. In this context, it is possible to understand that the current value is aligned with the industry practices.

In the human capital scope, the number of employees and employee growth rate is also important to provide an understanding of internal performance. The number of employees has been increasing in the past years, with special attention between 2018 and 2019 where a 50,8% increase was verified. This is aligned with the increase of the service volume, as presented in chapter 4.3.3.3.



Graphic 5 – Evolution of the number of employees, 2017 to 2019

Organizational culture was evaluated through the perception of manager regarding on how strong the culture is. This was one of the topics in the interview conducted with the quality manager that reported the organizational culture as strong. In fact, the organization has a well-established culture, with a set of principles, values and guidelines transmitted to the employees that ensure their implementation in their day-to-day work.

Regarding quality, two metrics were analysed: the implementation of internal audits and the implementation of risk management procedures. Both of them are visible in the company.

As mentioned in chapter 4.3.1., the organization has established a quality management system that contains a regular audit process. The results of the quality assessments are considered as one of the main performance targets of the organization which demonstrates the importance of this topic to management.

The organization has also established an enterprise risk management process that includes risk identification and analysis of risks, as well as definition and implementation of risk response strategies.

4.3.3.5. Sustainability

This component, along with the internal performance, allows to complement the traditional perspective on the success of an organization, providing insights on how the company lives in an increasingly complex environment.

The first indicator of sustainability is the longevity of the organization, meaning the number of years that it is performing its business. The studied organization started to operate in Portugal in 2008 which means it has more than a decade in business. It has been growing significantly during this period in terms of clients, employees and business model which shows its consolidation as a shared service organization.

The second indicator refers to the capacity of the organization to give back to the community and is focused on the investment in corporate social responsibility initiatives. Corporate social responsibility has been an area of importance in the organization which can be seen by the investment done in the past years. In 2019, the total amount spent in corporate social responsibility was 43 thousand euros, 19 thousand euros less than in the previous year. The investment also needs to be considered from the time perspective as each employee is entitled to have one day of volunteer work per year which represented an investment of 191 days (approximately 1.500 hours) in 2018 and 133 days (approximately 1.000 hours) in 2019.

The third indicator is related with the investment in R&D and self-innovation. Due to the specificity of the organization and its governance, it was not possible to obtain this information focused only in the shared services organization.

4.4. DISCUSSION

The results from the BPM maturity assessment allow to understand that the organization has established itself on the maturity level 4, even though it had already accomplished some process areas from maturity level 5.

Although the organization does not have implemented a BPM model, it is able to achieve a good BPM maturity level due to the existence of a high focus on quality management. In fact, through the analysis conducted, it is possible to conclude that the high level of BPM maturity is based on nine cornerstones:

1. The existence of a solid and consolidated quality management system – the nine mandatory elements (9MEs) that was implemented since the organization was established. The quality management system includes a systematic assessment and auditing process to ensure the compliance with the defined guidelines. The assessment provides a score that reflects the maturity of the quality management practices which allows organization to define and implement a roadmap, as well as to compare itself with other similar organizations within the same business group. To show the importance of this quality management system to executive management, one of the annual performance targets defined by the organization is the score achieved in the 9MEs assessments.

2. The implementation, within the scope of the quality management system, of several approaches and methodologies to identify and treat the non-conformances as well as to establish process improvement initiatives. In this context it is important to highlight the 8D tool and FMEA analysis. 8D tool allows the organization to have a reactive response to non-conformances and issues that arise in their operation, allowing it to be registered, tracked, solved and communicated. FMEA analysis, on the other hand, allows the organization to have a proactive response to potential risks, as well as to identify and implement improvement activities in the processes.

3. The fact that processes and work instructions are documented and available for all members of the organization, reflecting the work that needs to be conducted by each work unit according to the requirements established in the internal service agreements (ISAs).

4. The establishment of internal service agreements (ISAs) with the customers that reflect the requirements for the service, as well as the key performance indicators (KPIs) that represent the performance agreements. They are also an important instrument to conduct the capacity planning process to ensure the alignment between demand and resources.

5. The application of a change request process that documents the changes that are requested to a service, analyses them with the support from a business case and an impact analysis and implements them in a structured way, agreed by the relevant stakeholders.

6. The definition of organizational targets, drilled down to the different organizational levels, from top management to individuals, through the performance management program, that promote the alignment of business activities and drives the implementation of improvement activities.

7. The promotion of an open error culture, where errors are accepted and treated with a positive approach, as well as a continuous improvement system, that promotes innovation, best practice sharing and the implementation of improvement measures.

8. The recent transformation to an organization focused on end-to-end processes that promote coordination, alignment and synergies throughout the work units and organizational levels.

9. The high technological maturity, once most of the processes are supported by information systems and technology to promote efficiency and accountability.

This is aligned with the findings from Feldbacher, Suppan, Schweiger, & Singer (2016) that establish that service companies reach an high maturity level than manufacturer ones. Also, companies that are active in the IT sector were shown to have a higher maturity level than companies from other industries.

The next steps to climb in the maturity ladder, according to the BPM OMG maturity model (Weber, C.; Curtis, B.; Gardiner, 2008) are related with increasing the focus on managing the individual processes and workgroup processes in a more quantitative and statistically way, in order to achieve predictable results.

In fact, although the high maturity arises from the above-mentioned cornerstones, there is still a strong focus on prevention, detection and correction of errors that are the drivers of process improvements. However, the focus should be shifted to the processes itself, in an approach where they are continuously analysed, qualitatively and quantitatively, in order to be improved and to leverage organization' results, according to the BPM lifecycle.

The organization is aware of the steps to be done and has already started to implement some tools to improve the maturity level as it recognizes that it will allow to increase efficiency, reduce costs and improve client satisfaction. This is aligned with the findings from several authors that refer that organizations constantly seek to improve their maturity level as they believe greater maturity will lead to greater performance (Fisher, 2004; Rohloff, 2009; Rosemann & Bruin, 2005).

It is also conscious of the importance of technology as a catalyst to promote their process management maturity. Although the technology maturity can be perceived as high, there is still a path to pursue towards a digital transformation of the operations. In this context, the organization has been highly investing in projects that focus on process automation, robotization and data analytics solutions.

The projects already implemented, referred in chapter 4.3.2., have been providing significant results in terms of improved productivity, end-to-end integration, increased data quality, manual effort reduction with impact in the occurrence of errors, cycle time reduction and increased customer satisfaction. It also allowed the organization to improve its monitoring activities, establishing a more robust and accountable continuous improvement system, as well as to implement workforce upskilling programs. This was key to establish the organization as a successful shared service provider and is coherent with the appointed benefits of adopting a business process management approach as referred in the literature review in chapter 2.1.3.

If we look to the dimensions defined to characterize the success of the organization, as presented in chapter 3.2 and further analysed in chapter 4.3.3., it is possible to understand that they can be impacted by some of the appointed benefits from a high BPM maturity.

The main benefits from a high BPM maturity, leveraged by the usage of information systems and technology, that were identified through the study, can be grouped in six building blocks: (i) improve productivity; (ii) reduce costs; (iii) error and risk prevention; (iv) upskilling; (v) high agility; and (vi) knowledge retention.

As presented in the literature review, a high BPM maturity allow organizations to increase productivity and efficiency which can reflect one of two options: (i) the organization is able to produce more with the same input or (ii) the organization is able to produce the same with less input. Both of these situations will be reflected positively in the net profit margin once organizations can spend less to deliver the same service at the agreed price.

If the organization improves productivity, this might lead to customer satisfaction, especially in a shared services organization where the customers pursue an increase in efficiency. Higher customer satisfaction will promote the consolidation of the organization in the market as it will allow a growth of sales. It is also a driver of growth as higher customer satisfaction might lead to income increase.

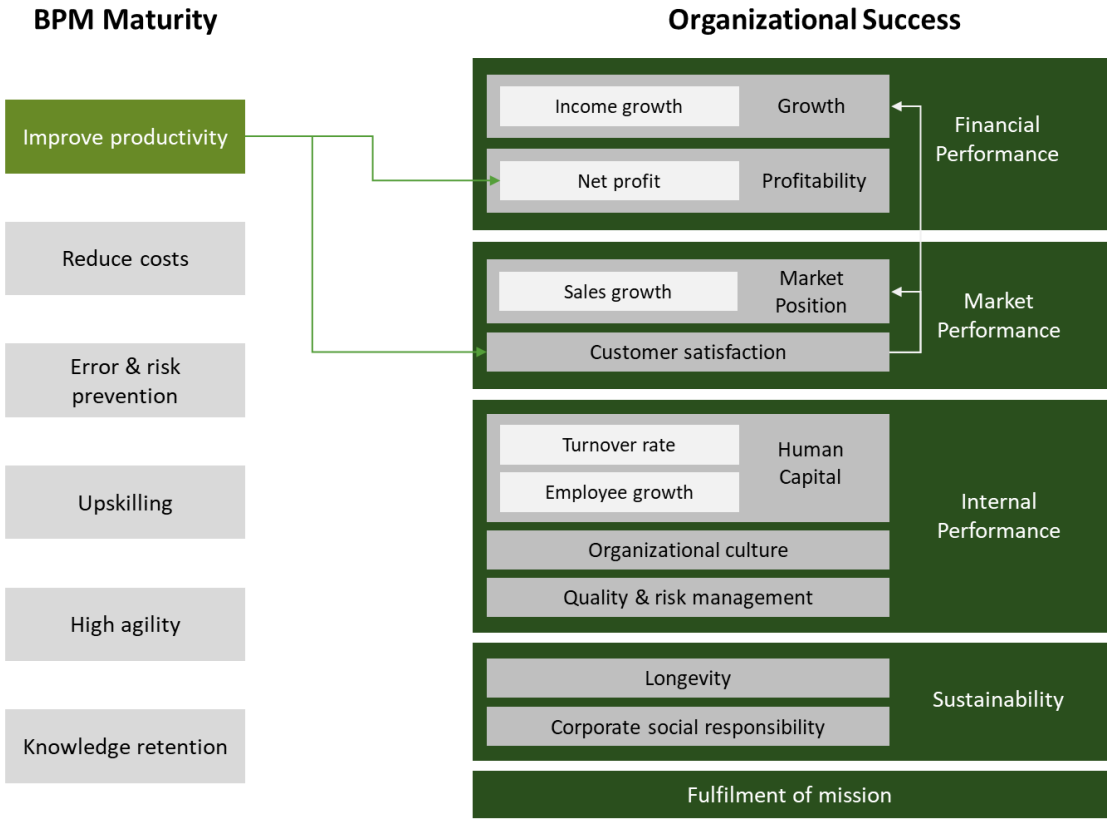


Figure 12 – Relationship between BPM maturity and organizational success: improve productivity

One of the impacts noted from a high BPM maturity is also cost reduction. This might influence several dimensions of the success of the organization. If we reduce costs, we are able to increase our net profit margin. On the other hand, as shared services organizations aim to provide cost effectiveness to their customers, this will also impact the customer satisfaction, hence contributing to strengthen the market position and possible revenue increase. Although this relationship is not always possible to verify from the literature review, this was pointed as a consequence of the investment of the organization in several process improvement projects, especially due to the context it operates.

Also, with cost reduction, organizations might have higher availability to invest in corporate social responsibility activities hence contributing to the sustainability component of the success of an organization.

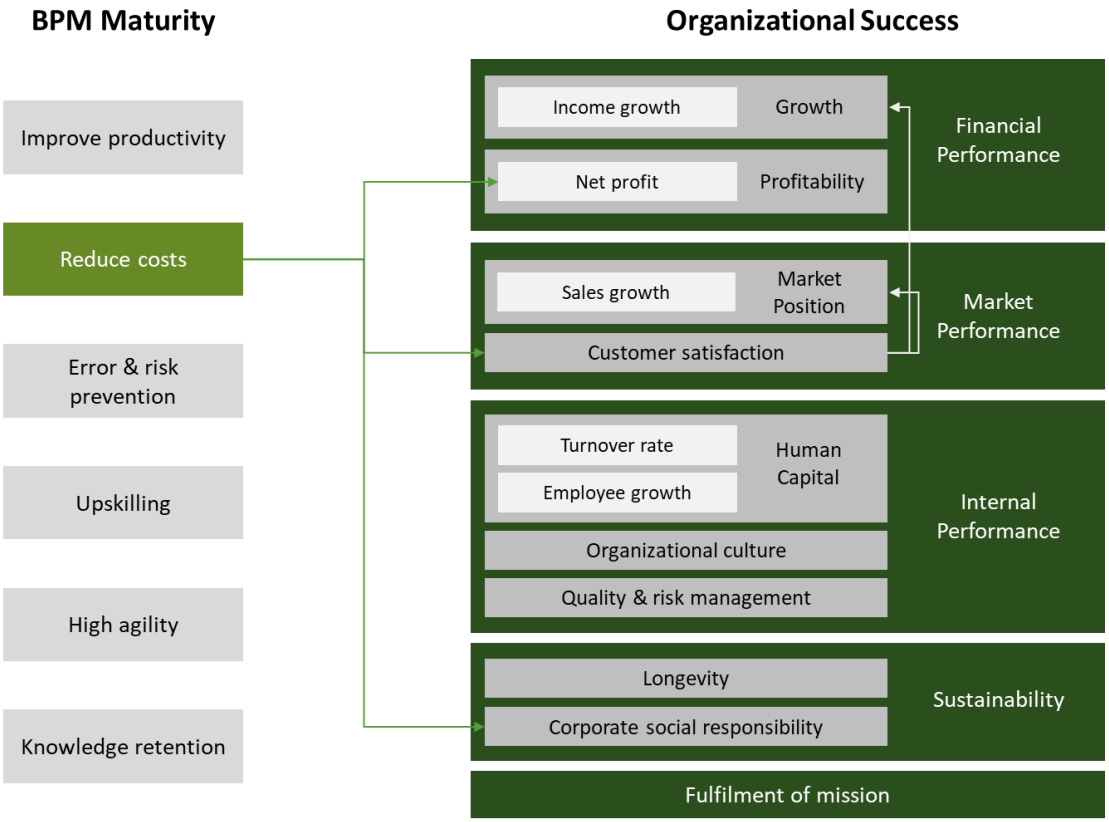


Figure 13 – Relationship between BPM maturity and organizational success: reduce costs

Error and risk prevention are also appointed as impacts from a high BPM maturity. In fact, if the organization has a process-oriented culture in terms of people, processes and technology, it is more likely to have a proactive posture towards risk and potential errors. This directly impacts the quality of the delivered products and services hence influencing customer satisfaction in a positive way. Customer satisfaction, on the other hand, might lead to a stronger market position and revenue growth. Also, if the organization manages issues and risks properly, the negative impact of unwanted events might diminish, helping the organization deal with unexpected costs hence impacting profit.

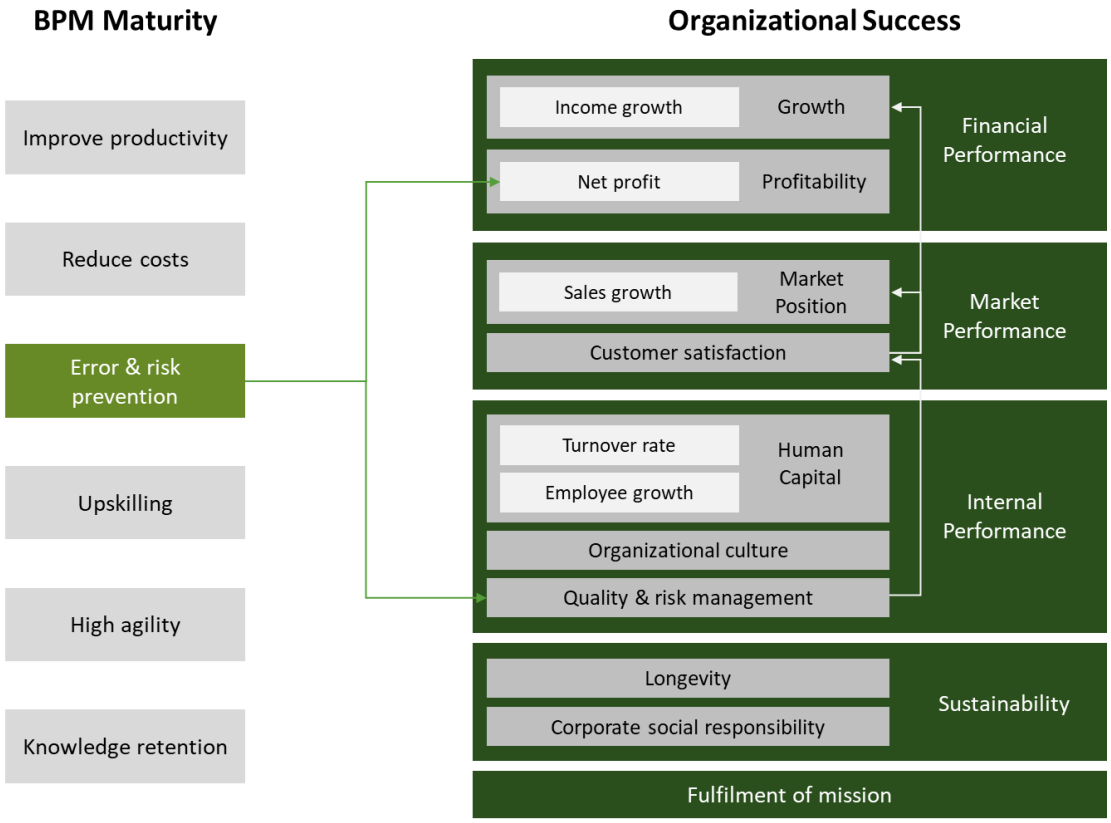


Figure 14 – Relationship between BPM maturity and organizational success: error & risk prevention

Another appointed benefit relates with the upskilling of employees. With process improvements focused on automation, employees do not need to perform routine tasks on a regular basis, which allow them to conduct higher value activities. This might represent an increase in the available capacity that could allow organization to gather new customers and increase its revenue.

Also, the available capacity could be shifted to conduct new tasks, more challenging and rewarding, that might lead to higher employee retention and commitment or even employee growth, hence lower turnover rate. Companies with less employee rotation have shown to have strengthen organizational cultures (Bosomtwe & Obeng, 2018; Mutua & Simba, 2017) so it is possible to consider that lower turnover rate impacts positively the organizational culture. Employee turnover, on the other hand, is shown to affect growth, profitability and customer satisfaction (Mutua & Simba, 2017).

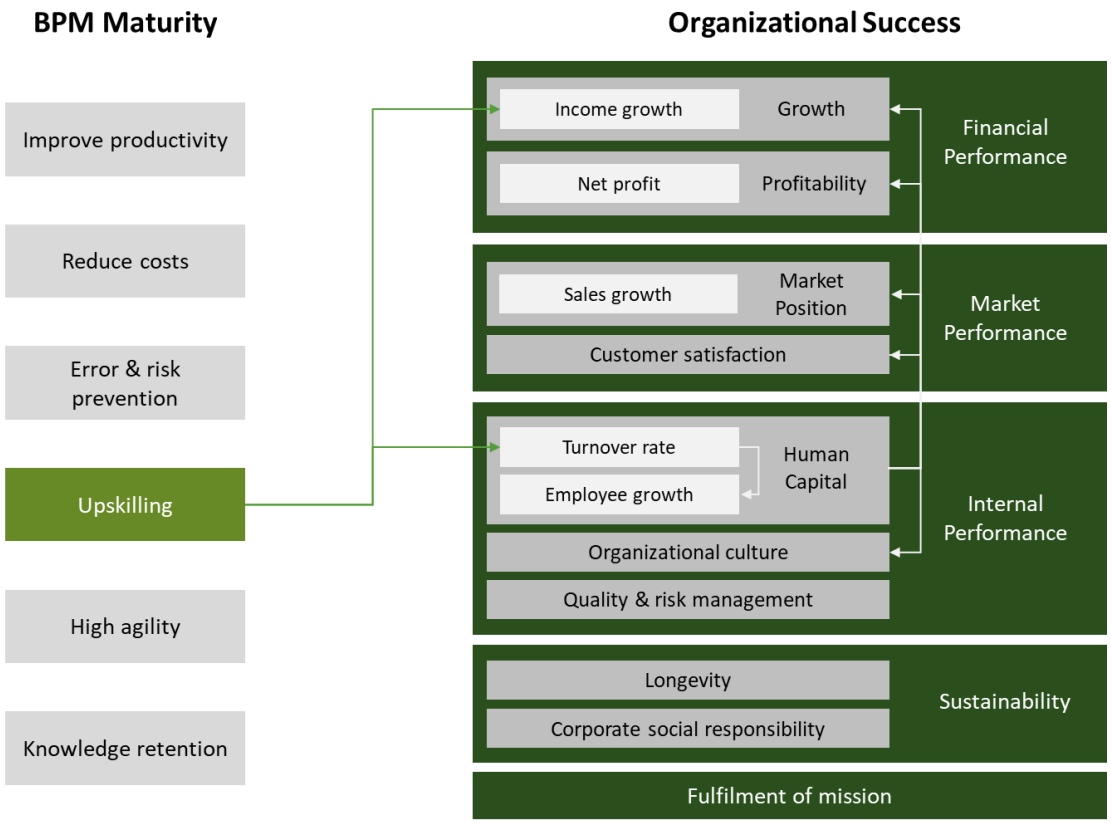


Figure 15 – Relationship between BPM maturity and organizational success: upskilling

High agility is also appointed as one of the benefits of a high BPM maturity has streamlined processes and less efforts on error detection and solving allow organizations to respond faster to customer needs. This improves customer satisfaction, strengthen market position, as well as increase potential income.

Knowledge retention is also an important point when it comes to BPM maturity. With documented processes, requirements and changes, the organization is promoting its knowledge retention which leads to a strengthened organizational culture and employee retention. A lower turnover rate, on the other hand, has impacts related with growth, profitability and customer satisfaction.

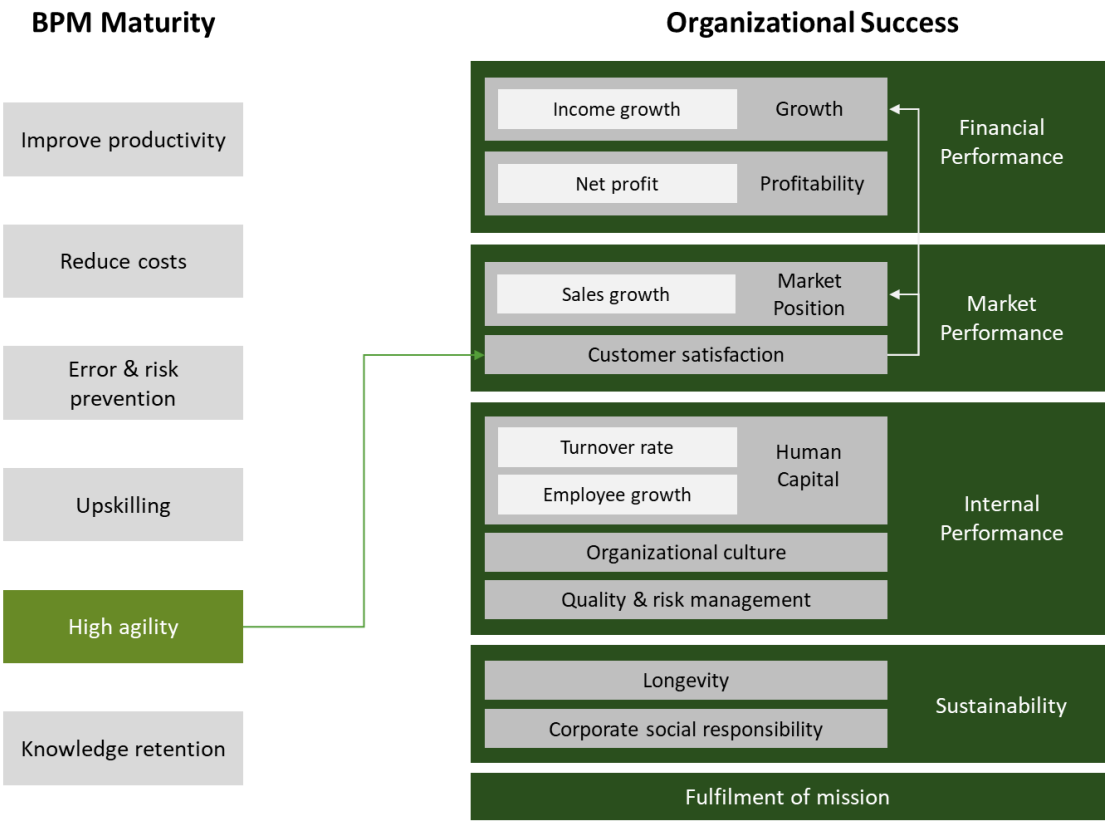


Figure 16 – Relationship between BPM maturity and organizational success: high agility

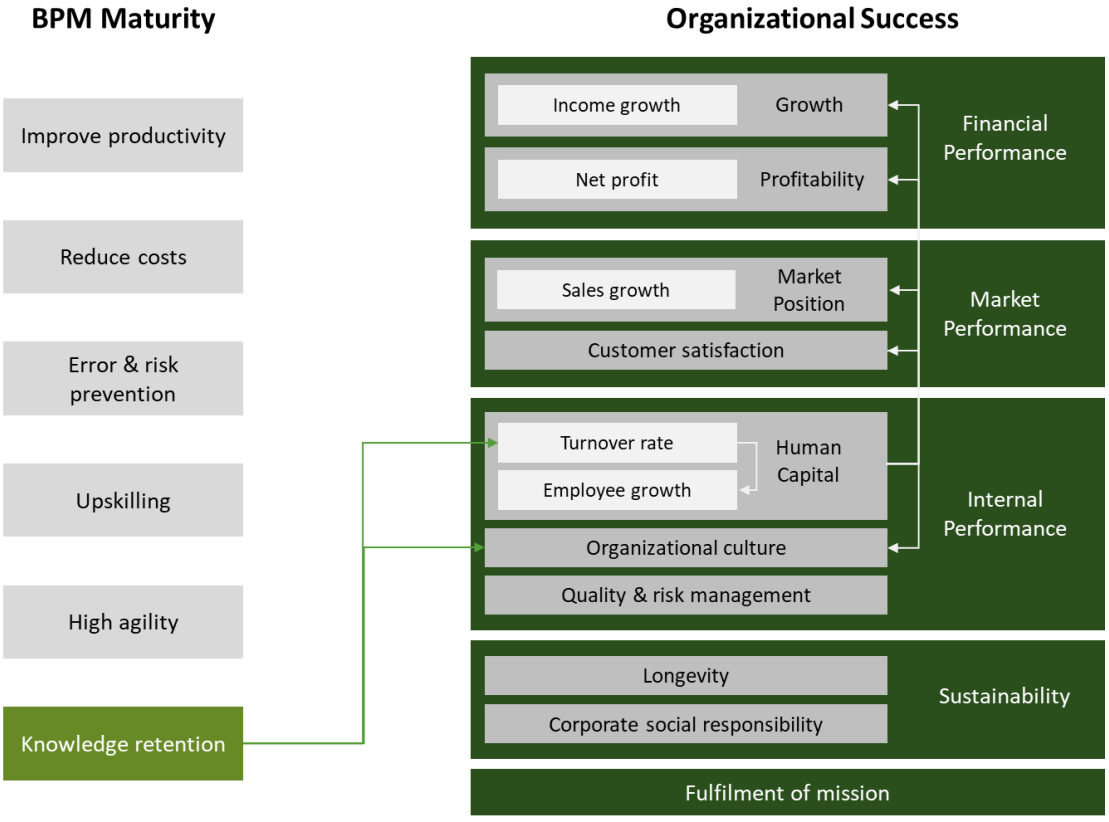


Figure 17 – Relationship between BPM maturity and organizational success: knowledge retention

Besides the direct relations between the BPM maturity benefits and the success of the organization, other relationships should be highlighted in a broader sense. Experience shows that an organization that is growing, that is profitable and that has a well-established position in the market is likely to be sustainable and have greater longevity. This will impact the fulfilment of the mission as an organization, to accomplish the purpose for which was created, needs to have these four pillars well established and solid. These relationships are summarized in Figure 18.

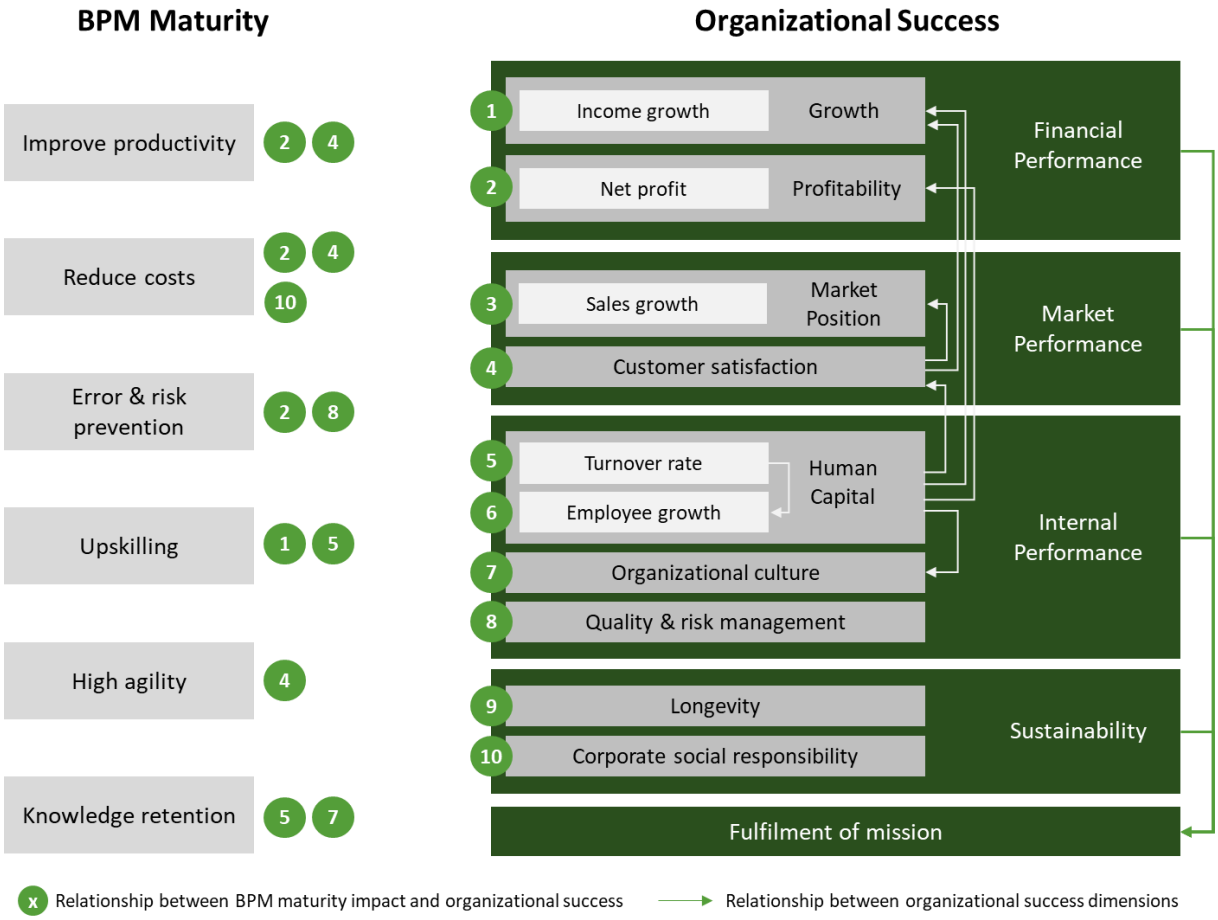


Figure 18 – Established relationships between BPM maturity and organizational success

In fact, the benefits from a high BPM maturity influence, in a positive way, the key dimensions of growth, profitability, market position, customer satisfaction, human capital, organizational culture, quality & risk management and corporate social responsibility that, on their turn, contribute to the longevity of the organization and, consequently, to the fulfilment of its mission. On the other hand, the success of an organization is something complex and cannot be explained only by the high BPM maturity as there are other variables, internal and externals, that influence the ability of an organization to be successful.

5. CONCLUSION

In this chapter, a summary of the research is presented, highlighting the process of conducting the study and its results. It also presents the limitations of the study and recommendations for future research.

5.1. SUMMARY OF THE RESEARCH

Business process management has been assuming greater importance in the past years, as organizations continuously seek to achieve greater efficiency and effectiveness to leverage its competitive advantage in an increasingly complex environment.

The purpose of the study was to understand if there is a relationship between the level of business process management maturity and the success of an organization. More specifically, the research aimed to assess the current BPM maturity level, understanding its evolution and impacts, as well as to characterize the drivers of success of the organization. These inputs were the basis to explore if there is a relationship between these two key areas.

The research started with a literature review to understand the key concepts related with business process management, business process management maturity and success of an organization.

Once there are many BPM maturity models that can be applied to assess the BPM maturity level of the organizations, a selection of one model was done. For that, an analysis of the existing BPM maturity models and its level of coverage of BPM core areas was conducted.

Along with that, and based on the literature review, a conceptual model to measure the success of the organization was defined.

These two inputs were the basis to conduct a qualitative research, implemented through a case study, grounded on in-depth interviews and documentation analysis, within a shared services organization of an international company who operates in Portugal and has a high perceived process maturity level. The case study was structured in three areas: (i) assessment of the current BPM maturity level, based on the BPM OMG maturity model; (ii) process improvements and its impacts; and (iii) characterization of the success of the organization.

The results from the BPM maturity assessment allow to understand that the organization has established itself on the maturity level 4, even though it already had fully accomplished some process areas from maturity level 5. Although the organization does not have implemented a BPM model, it is able to achieve a good BPM maturity level due to the existence of a strong focus on quality management and a high technological maturity.

The organization is aware of the steps to be done to climb the maturity ladder as it recognizes that it will allow to increase efficiency, reduce costs and improve client satisfaction. It is also conscious of the importance of technology as a catalyst to promote their process management maturity. In this context, the organization have been highly investing in projects that focus on process automation, robotization and data analytics solutions.

The projects already implemented, have been providing significant results can be grouped in six building blocks: (i) improve productivity; (ii) reduce costs; (iii) error and risk prevention; (iv) upskilling; (v) high agility; and (vi) knowledge retention.

This building blocks were shown to affect some dimensions of organizational success such as customer satisfaction, net profit, turnover, innovation, quality & risk management, income growth, organizational culture, among others. Those dimensions are key to establish a good financial, market and internal performance, as well as to promote the sustainability of the organization allowing it to fulfil its mission.

In this context, results suggest a positive relationship between the BPM maturity and the success of the organization, from a qualitative perspective. In fact, the research shows that an organization that has a high BPM maturity and has a high focus on process improvement is able to incorporate several benefits that leverage its ability to be more successful. However, the success of an organization is something complex and cannot be explained only by the high BPM maturity as there are other variables, internal and externals, that influence the ability of an organization to be successful.

Nevertheless, the research provides insights on how the relationship between process maturity and performance and success of an organization might be established which is important for the decision-making process of organizations when it comes to invest in BPM projects.

5.2. LIMITATIONS OF THE STUDY AND RECOMMENDATIONS FOR FURTHER RESEARCH

In spite of the fact that the research goals were achieved, there are some limitations of the study that should be pointed out, along with some recommendations for future research.

As presented in chapter 3., the research was conducted through a case study within a shared service organization. Although this methodology provides deep insights on how organization has established its BPM practices, it lacks on comparability with other organizations. A suggestion for further research could be to expand the range of studied organizations. This could include a study of high BPM maturity organizations and low BPM maturity organizations to compare practices and lessons learned, as well as to understand what might be preventing organizations to achieve higher BPM maturity levels. Other suggestion could be to study, with a quantitative approach, several organizations that operate in different business sectors allowing to collect statistical data that could corroborate the assumption that higher maturity levels lead to greater success.

Still under the BPM maturity assessment scope, it is important to highlight that the conducted assessment can be considered as a starter appraisal as it has been never done before in the organization. The BPMMMOMG suggests other assessment types such as progress appraisals, suppliers appraisals and confirmatory appraisals (Weber, C.; Curtis, B.; Gardiner, 2008). In this context, a suggestion for further research relies on conducting a longitudinal study that would allow to understand how the BPM maturity has been evolving through time and its impacts, focusing on the success components.

The BPM maturity assessment itself also has some limitations to be pointed. As referred in chapter 4.2., the assessment was designed to ensure the willingness to participate from the organization. In this context, it was only conducted up to the level of the specific goals within each process area and

did not include the specific practices. This can be seen as a limitation once the assessment was not delivered using all the components of the model.

The fact that the BPM assessment was done through in-depth interviews also presents a limitation. By collecting data through interviews, we are, in some extent, exposed to the subjectivity of the answers from our interviewed. Although this risk was reduced by conducting a documentation analysis, some subjectivity might still exist. To minimize this limitation, the same interview should have been conducted to several people, collecting different perspectives and creating a more consistent result.

The process established to compute the BPM maturity level through the score of each process area was defined using a simple average of factors. This approach considers that all specific goals and process areas have equal contribution towards the BPM maturity of the organization. However, this might not be completely accurate. In fact, depending on the business of the studied organization, some areas might have greater relevance in terms of process maturity. For example, industrialized organizations usually have a greater focus on requirements management, defect prevention and quantitative process management so these areas could have higher importance in computing the total maturity score.

Regarding definition of success, the framework that was established was intended to be the most generic as possible, in order to be applied to different organizations regardless of their business and context. However, by doing this, some of the specificities of the organization might have been disregarded. As the study was focused on a shared service organization, that are usually established with specific goals regarding efficiency and effectiveness, some additional variables could be considered to characterize the success of the organization. In further researches it is recommended that the specificities of the studied organization could be incorporated in the framework.

Concerning the results of the study, two major limitations are ought to be appointed. First, the established relationship between BPM maturity and the success of the organization is qualitative and lacks quantitative data to corroborate the findings. Furthermore, it does not allow to establish the strength of the identified relationships. Future research should rely on establishing a quantitative relationship between these two dimensions in order to validate the achieved results. Second, the established relationships only consider the dimensions of success that were possible to analyse within the company. Additional measures related with efficiency and market position should be considered in further researches.

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APPENDIX

A. DETAIL ON THE ANALYSIS OF BPM MATURITY MODELS THROUGH BPM CORE AREAS

		BPM Core Areas								
		Process Perspective							Enterprise Perspective	
Model	**Author**	**Modelling**	**Analysis**	**Design**	**Implementation**	**Performance Management**	**Transformation**	**IT/IS**	**Organization**	**EPM**
BPM Maturity Model (BPMMM)	Rosemann, M. & de Bruin, T.	Covers. It is included within the perspective "align".	Covers. It is included within the perspective "align".	Covers. It is a perspective of the model (design).	Covers. It is a perspective of the model (execute).	Covers. It is a maturity dimension of the model (performance). It is also a perspective of the model (control).	Covers. It is a perspective of the model (improve).	Covers. It is a maturity dimension of the model (IT/IS).	Covers. There are two maturity dimensions that support organization: culture and accountability.	No cover.
Business Process Maturity Model (BPMMFisher)	Fisher, D. M.	No cover.	No cover.	No cover.	No cover.	Covers. Controls is one of the five levers of change.	No cover.	Covers. Technology is one of the five levers of change.	Partially covers. People is one of the five levers of change. However, the organization core area as a wider scope than people.	Covers. Strategy is one of the five levers of change. Also, one of the maturity levels refers to the "optimized enterprise" that evolves to "intelligent operating network" level that represents the higher stage of maturity.
Process Management Maturity Assessment (PMMA)	Rohloff, M.	Covers. It is one of the categories of the model (process documentation).	No cover.	Covers. The category of "Methods & Tools" addresses the specific activities related with the design of the processes.	No cover.	Covers. It is one of the categories of the model (process performance controlling).	Covers. It is one of the categories of the model (process optimization).	Covers. It is one of the categories of the model (IT-Architecture).	Covers. It is one of the categories of the model (process management organization).	Partially Covers. One of the categories is process portfolio and target setting. Also, there is a category of program management,

		BPM Core Areas								
		Process Perspective							Enterprise Perspective	
Model	Author	Modelling	Analysis	Design	Implementation	Performance Management	Transformation	IT/IS	Organization	EPM
										qualification and communication. However, this does not fully address the EPM scope.
Process and Enterprise Maturity Model (PEMM)	Hammer, M.	Covers. There is a process enabler called design, with subcategory of documentation.	Covers. There is a process enabler called metrics, with two subcategories: definition and uses.	Covers. There is a process enabler called design with three subcategories: purpose, context and documentation.	No cover.	Covers. There is a process enabler called metrics, with two subcategories: definition and uses.	No cover.	Covers. There is a process enabler called infrastructure that has a subcategory of information systems.	Covers. The enterprise capability of governance (subcategory of accountability) and expertise (subcategory of people) address organization issues. Also, within process maturity assessment, several references are made to the process owners, process performers and other organizational levels.	Covers. All the enterprise capabilities (leadership, expertise, governance and culture) refer to aspects related with EPM.
Process Maturity Ladder (PML)	Harmon, P.	Partially covers. Some maturity levels refer to the absence of process structure and documentation. However, it is not straightforward.	No cover.	Partially covers. Some maturity levels highlight the need to have the processes designed and refer to some tools but is not straightforward.	No cover.	Covers. Reference are made to metrics and performance measurement on both level 3 and 4. There is also a dedicated area to process control.	Covers. The highest maturity level refers to the optimization of processes.	No cover.	Partially covers. There are some references to the roles within process management, although in a limited way.	No cover.

		BPM Core Areas								
		Process Perspective							Enterprise Perspective	
Model	**Author**	**Modelling**	**Analysis**	**Design**	**Implementation**	**Performance Management**	**Transformation**	**IT/IS**	**Organization**	**EPM**
BPO Maturity Model (BPOMM)	McCormack, K.	Covers. Process view is one of the eight BPO domains.	No cover.	No cover.	No cover.	Covers. Process performance is one of the eight BPO domains.	No cover.	Covers. Information technology is one of the eight BPO domains.	Covers. One of the eight BPO domains is organizational structure. There is also a domain related with people management and other related with culture, values and beliefs.	No cover.
Business Process Maturity Model (BPMMOMG)	Weber, C., Curtis, B. and Gardiner, T.	Covers. Process area Work Unit Configuration Management, Organizational Configuration Management	Covers. There are several process areas that relate with the monitoring of the process's performance such as Work Unit Planning and Commitment and Work Unit Monitoring and Control.	Covers. The process areas of Product and Service Work Management and Product and Service Preparation address the issues related with (re) design of the processes.	Covers. The process area of Product and Service Deployment refers to the implementation issues of the processes to deliver products / services.	Covers. There are several process areas that relate with the monitoring of the process's performance such as Work Unit Planning and Commitment, Work Unit Monitoring and Control, Work Unit Performance, Process and Product Assurance, Quantitative Product and Service Management, Quantitative Process Management	Covers. There are several process areas that address process transformation such as Organizational Improvement Planning, Continuous Capability Improvement, Organizational Innovative Improvement, etc.	No cover.	Covers. There are several process areas that relate with organizational issues such as governance, leadership, process management, among others.	Covers. There are several process areas that relate with the foundations of EPM such as organizational improvement planning, organizational performance alignment, continuous capability improvement, Product and Service Process Integration, etc.

B. INTERVIEW SCRIPT: PROCESS MANAGER

Introduction

Dear Sir,

First, I would like to thank you for your availability to provide this interview.

My name is Joana Pinto and, as a part of my master's degree in information management systems in Universidade Nova de Lisboa, I am currently conducting a study that aims to assess the relationship between Business Process Management (BPM) Maturity and the success of the organizations.

This research has a qualitative approach and is being conducted through a case study that intends to study in depth an organization that has a perceived high process orientation maturity, trying to relate is process maturity level with the achieved success. The case study will also focus on understanding what were the impacts of introducing improvements in the processes and the results of the evolution of the maturity level. The interviews will be conducted in three areas:

1. **Assessment of the current maturity level of the organization**
   The first part aims to assess what is the current BPM maturity level of the organization. The assessment will be done using the BPM OMG Maturity model as this was the selected maturity model for the study.

2. **Analysis of the evolution of process maturity and its impacts**
   The second part will be focused on understanding what key improvements have been made on the processes in the past years – e.g. robotization, optimization, automation, etc. – and what were the results of those improvements, in a qualitative and, if possible, quantitative way.

3. **Collection of data to characterize the success of the organization**
   The third and last part aims to collect information to characterize the key variables for organizational success. Based on a defined model, a set of information will be collected that can be complemented with the organizational KPIs currently used.

This interview will be focused on the **first area – assessment of the current maturity model** – as well as in the **third area – collection of data –** as I would like to collect some information to define some KPIs value. I would also like to start with some introductory questions to provide a context and an overview of the company.

The data collected within this interview, as well as additional elements that you might provide for the research, will only be used for the purpose of this research.

I would also like to request to record this interview so I can use its content during my analysis. I will ensure the compliance with the data protection regulations and use this recording only for the purpose of this study.

Do you have any questions regarding the research and its process?

Introductory questions:

1. Before starting with the questions, I would like you to introduce yourself and explain in brief what is your role within the organization.
2. Can you please give a short context of the organization's operation in Portugal? When did it start operating in the shared services area, how many areas and people and how it evolved until the current situation?
3. Is there any process maturity model implemented in the organization? If yes, can you please give a brief description?
4. Is the assessment of the process maturity conducted on a regular basis?
5. Who is in charge of conducting this maturity assessment?
6. How have the results evolved in the past years? Is the level of maturity improving, stable or decreasing?
7. Are those scenarios consistent throughout all the areas within the organization? If no, please highlight the main differences.
8. What do you believe are the main reasons for the current scenario?

Assessment of the current BPM maturity level of the organization

As mentioned before, the assessment of the current BPM maturity level of the organization will be done using the BPM OMG Maturity Model. This model was selected during the literature review conducted for the purpose of this research as it presents a higher coverage of the BPM areas comparing to other BPM maturity models.

The BPM OMG Maturity model is aligned with Humphrey's Process Maturity Framework, as well as the CMMI principles and is composed by 5 maturity levels - (1) Initial, (2) Managed, (3) Standardized, (4) Predictable, (5) Innovating.

Each maturity level, excepting level 1, have a set of defined process areas in a total of 30 process areas.

The maturity level is achieved when the goals of that process areas area accomplished.

During this part of the interview I will be doing several questions that will allow me to characterize the current maturity level.

For each question, I would like to ask you that first you can provide a global answer regarding the shared services area and, if there are some differences within areas, if they could be highlighted. When possible, please provide some evidences or examples of your statement.

If you have no further questions I would like to start.

1. Are the process improvement activities sponsored by the executive management? Is the executive management accountable for the performance of process improvement activities?

   Checklist:

   - *process improvement activities are sponsored by executive management*
   - *management systems are aligned with process improvement goals and strategies.*

2. Is the executive management accountable for the organization's work and results?

   Checklist:

   - *business activities are aligned with organization's business goals*
   - *business workflows are managed - Executive management approves, measures, and manages the business activities of the organization's units.*

3. The requirements for each work unit are defined, agreed, documented and maintained by the work unit?

   Checklist:

   - *requirements are identified and evaluated*
   - *requirements baseline is maintained*

4. Does each work unit have a plan and a commitment of the work to be performed that is agreed by the work unit itself and other relevant stakeholders?

   Checklist:

   - *work is estimated*
   - *commitments and agreements are approved*
   - *plans are documented and consistent*

5. Does the work unit monitors its performance in order to keep it in line with the requirements and plans?

   Checklist:

   - *work assignments are managed*
   - *performance and results are tracked*
   - *corrective actions are performed*

6. Does the work unit establishes work agreements for the individuals and workgroups? Are the work agreements measured and improved?

   Checklist:

   - *work assignments are accepted*
   - *work is performed and delivered*
   - *work is measured and improved*

7. Are the configurations of the work unit identified, managed and controlled regarding its changes to the product or service baseline? Is this information reported to relevant stakeholders?

   Checklist:

   - *configurations are identified*

- *contents of configurations are controlled*
- *configuration management information is reported*

8. Is the acquisition of products and services from external suppliers managed by a specific unit, with defined sourcing agreements?

   Checklist:
   - *sourcing agreements are approved*
   - *sourcing agreements are satisfied*
   - *acquired products and services are incorporated*

9. Is there an assurance process that ensures the evaluation of the conformance to the applicable laws, regulations, standards and organizational policies, business rules, process description and work procedures? Are the nonconformance issues tracked and resolved?

   Checklist:
   - *activities and results are objectively evaluated*
   - *non-conformance issues are resolved*

10. Are the organizational processes defined, evaluated in terms of their weaknesses and strengths and improved?

    Checklist:
    - *appraisal-based improvements are incorporated*
    - *process assets are created and deployed*
    - *experience-based improvements are incorporated*

11. Is there a competency development system in place that identifies and develops the competence needs for the workforce to perform the processes?

    Checklist:
    - *competency development is planned*
    - *workforce competencies are developed*

12. Is there an organizational resource management system in practice that plans and manages the acquisition, allocation, and reassignment of people and other resources needed to develop, prepare, deploy, operate, and support the organization's products and services?

    Checklist:
    - *organization resources are aligned with the portfolio*
    - *resources are balanced with capacity plans*

13. Are the configurations of the organization identified, managed and controlled regarding its changes to the product and service offering? Is this information reported to relevant stakeholders?

    Checklist:
    - *configurations are identified*
    - *contents of configurations are controlled*
    - *configuration management information is reported*

14. Is the product and service offering defined and managed based on customer's needs and market positioning and sustained by a business case?

    Checklist:
    - *offering features and strategy are defined*
    - *offering business case is available*
    - *offering business aspects are managed*

15. Is the necessary work to fulfil the product and service offering planned, monitored and improved using the organization's processes?

    Checklist:
    - *product and service work is planned*
    - *product and service work is monitored*
    - *product and service work corrections are made*

16. Are the requirements for a product and service offering established, documented, and prepared for deployment and use?

    Checklist:
    - *offering requirements are specified*
    - *offering is constructed*
    - *offering is demonstrated*

17. Is the deployment of a product or service offering planned, documented, agreed to and implemented if it is demonstrated to be ready for operations?

    Checklist:
    - *offering deployment is planned*
    - *offering is deployed*
    - *deployed offering is demonstrated*

18. Is the information regarding the offering of products and services, including capabilities, features, transactions and results, provided to the customer and other relevant stakeholders?

    Checklist:
    - *offering resources and information are provided*
    - *offering transactions are performed*
    - *results of offering transactions are finalized*

19. Is the offering of products and services maintained regarding its infrastructure's supplies, and other resources needed to sustain the operations and availability? Are the problems identified and solved?

    Checklist:
    - *offering components are maintained*
    - *offering disruptions are managed*
    - *offering support is provided*

20. Are the common characteristics of current and future products or services of the organization identified and exploited to improve the performance, quality, cycle time, throughput, and predictability of the organization's processes?

    Checklist:

    - *common assets are developed*
    - *common assets are deployed*

21. Is the capability of the current standard processes quantitatively identified? Is there capability data, baselines and models provided to manage the organization's products and services and associated work efforts?

    Checklist:

    - *goals and capabilities are quantified*
    - *baselines and quantitative models are available*
    - *organization capability is quantified*

22. Is the integration of processes promoted and implemented between the different disciplines and roles involved in a product or service offering in order to improve the efficiency and effectiveness of interdependent work?

    Checklist:

    - *interdependent processes are integrated*
    - *integrated processes are used*

23. Are the products or services planned and managed from a quantitative perspective regarding performance and quality goals?

    Checklist:

    - *goals and management mechanisms are defined*
    - *achievement of goals is managed*

24. Is the work effort associated to the processes quantitatively planned and managed from a statistical point of view?

    Checklist:

    - *work effort is quantitatively planned*
    - *process variation is statistically managed*
    - *work effort is statistically managed*

25. Does the organization have quantitative improvement goals based on the organization's business issues, goals, and strategies?

    Checklist:

    - *organizational systems and improvement strategies are aligned*
    - *improvement needs are defined*
    - *improvement work is aligned with objectives*

26. Are the organization quantitative goals aligned throughout all organizational levels and across the offering of products and services, both from the planning as well as from the performance and results perspective?

    Checklist:

    - *strategy and goals are aligned*
    - *performance and results are aligned*

27. Are the root causes of the problems and issues that represent primary obstacles identified and addressed, identifying quantitative improvement goals? Is this information disseminated through stakeholders to promote its prevention?

    Checklist:

    - *root causes are determined*
    - *root causes are addressed*
    - *prevention information is disseminated*

28. Are the individual processes and workgroup of processes continually and measurably improved by identifying and deploying incremental improvements?

    Checklist:

    - *individual processes are improved*
    - *workgroup processes are improved*

29. Are the improvement solutions identified, developed and deployed to achieve specific quantitative improvement goals?

    Checklist:

    - *improvements are identified to address specific quantitative improvement goals assigned to a planned improvement effort.*
    - *improvement solution is developed*
    - *improvement solution is prepared for deployment*

30. Is the organization's performance and quality continually improved and improved in a systematic manner?

    Checklist:

    - *deployment of improvements is planned*
    - *improvements are deployed*
    - *improvement program is improved*

31. In what extent are the processes of the organization supported by information technology and systems?

    Understand the level of automation and robotization of the main processes of the organization.

Collection of data to characterize the success of the organization

The last part of the interview aims to collect data to characterize the level of success of the organization both internally and in its environment.

The answers to these questions will be complemented with information regarding KPIs that will be collected in a posterior phase.

1. Considering the mission of the organization, what do you think is the level of fulfilment of that mission?
   Very low, low, medium, high, very high

2. How would you characterize the organizational culture regarding its strength?
   Very weak, weak, moderated, strong or very strong

3. What is the level of satisfaction of your clients?
   Very low, low, medium, high, very high

4. Does the organization has defined and implemented a process for operational audits?

5. Does the organization has defined and implemented a process for risk management?

6. How many years does the organization operates in the market?

To finalize I would like to thank you once again for your collaboration with this study.

C. INTERVIEW SCRIPT: BUSINESS MANAGER

Introduction

Dear Sir,

First, I would like to thank you for your availability to provide this interview.

My name is Joana Pinto and, as a part of my master's degree in information management systems in Universidade Nova de Lisboa, I am currently conducting a study that aims to assess the relationship between Business Process Management (BPM) Maturity and the success of the organizations.

This research has a qualitative approach and is being conducted through a case study that intends to study in depth an organization that has a perceived high process orientation maturity, trying to relate is process maturity level with the achieved success. The case study will also focus on understanding what were the impacts of introducing improvements in the processes and the results of the evolution of the maturity level. The interviews will be conducted in three areas:

1. **Assessment of the current maturity level of the organization**
   The first part aims to assess what is the current BPM maturity level of the organization. The assessment will be done using the BPM OMG Maturity model as this was the selected maturity model for the study.

2. **Analysis of the evolution of process maturity and its impacts**
   The second part will be focused on understanding what key improvements have been made on the processes in the past years – e.g. robotization, optimization, automation, etc. – and what were the results of those improvements, in a qualitative and, if possible, quantitative way.

3. **Collection of data to characterize the success of the organization**
   The third and last part aims to collect information to characterize the key variables for organizational success. Based on a defined model, a set of information will be collected that can be complemented with the organizational KPIs currently used.

This interview will be focused on the second area as I would like to collect information regarding process improvement initiatives that you have implemented in the past three years, as well as information about the impacts of those initiatives.

The data collected within this interview, as well as additional elements that you might provide for the research, will only be used for the purpose of this research.

I would also like to request to record this interview so I can use its content during my analysis. I will ensure the compliance with the data protection regulations and use this recording only for the purpose of this study.

Do you have any questions regarding the research and its process?

Questions

1. For each area, what were the key improvements introduced in the processes that provided good results for the organization? As improvements we can consider activities such as process redesign, reengineering, optimization, automation, robotization of processes, etc. As a time frame, please consider the last 3 years.

2. For each improvement, what were the main impacts achieved, both qualitative – according to your perception – and quantitative – visible through the measured KPIs?
   For each improvement highlighted, map the results. Validate if some of those benefits were achieved:
   - *Clear ownership and responsibility for continuous improvement, allowing to create a commitment to the process improvement;*
   - *Agile response to deviations in measured performance;*
   - *Performance measurement benefits costs and quality control, achieving optimal performance;*
   - *Monitoring processes improves compliance and diminishes risks;*
   - *Visibility, understanding and change readiness improves agility, allowing organizations to be better positioned in the market;*
   - *Access to useful information simplifies process improvement and an effective response to the changing environment;*
   - *Assessing costs of processes facilitates cost control and reduction, delivering better priced products and services;*
   - *Competence, consistency and adequacy;*
   - *Documenting operations and sustaining the knowledge, ensuring organization's sustainability.*

3. How do you see the maturity of the processes evolving within the organization? What do you think are the key areas that should be considered to improve the maturity in the future?

To finalize I would like to thank you once again for your collaboration with this study.

D. CHECKLIST OF DATA TO BE COLLECTED TO CHARACTERIZE THE SUCCESS OF THE COMPANY

Dear Sir/Madam,

My name is Joana Pinto and, as a part of my master's degree in information management systems in Universidade Nova de Lisboa, I am currently conducting a study that aims to assess the relationship between Business Process Management (BPM) Maturity and the success of the organizations.

This research has a qualitative approach and is being conducted through a case study that intends to study in depth an organization that has a perceived high process orientation maturity, trying to relate is process maturity level with the achieved success. The case study will also focus on understanding what were the impacts of introducing improvements in the processes and the results of the evolution of the maturity level.

As a part of the study, and to characterize the success of the organization, I would like to collect some financial data from the past years.

Information	2017	2018	2019
Income (€)			
Net income (€)			
Return on Sales			
Net profit margin (%)			
Return on equity			
Return on assets			
Market share (%)			
Number of employees			
Turnover rate			
Value spent in corporate social responsibility (€)			
Investment in innovation, research & development (€)			

To finalize I would like to thank you once again for your collaboration with this study.

E. INTERVIEW RESULTS: PROCESS MANAGER

Introductory questions:

1. **Before starting with the questions, I would like you to introduce yourself and explain in brief what is your role within the organization.**

   I am currently the quality manager for the company in the shared services area. I've joined this organization in 2011 and, starting from 2012, we started to implement our quality management system.

2. **Can you please give a short context of the organization's operation in Portugal? When did it start operating in the shared services area, how many areas and people and how it evolved until the current situation?**

   Currently, shared services are an internal area. They provide services to clients who are companies that are within the group or have some participation or history with the group.

   The organization is divided into end-to-end business-oriented areas:

   - Opportunity to cash (O2C) that has a full working range in client relationship management. The opportunity includes from a client acquisition, product promotion, going to the market, among other activities. The client places an order and the entire order management component is done by this area. The provision of the service / project, an invoicing and receipt including allocation.
   - Purchase to pay (P2P) is related to the purchase of goods and services. It is not a procurement area, but once a supply agreement is established. It addresses issues related to purchase orders, receipt of goods and services, invoice receipt and commitments.
   - Record to report (R2R) is a larger area with many different activities. Includes a master data component, accounting, financial records, month-end activities, tax and export control, real estate services that manages corporate facilities.
   - Hire to Retire (H2R) performs procedures from hiring employees, including recruitment, to leaving the organization, generating the entire life cycle of the same organization.

   There is also a business solutions and services area where more personalized and specific services are worked out.

   There is also an operations area, which includes delivery management components, project management, among others. Here you can enter topics such as quality, continuous improvement, prevent compliance, business continuity management, and more.

3. **Is there any process maturity model implemented in the organization? If yes, can you please give a brief description?**

   No, currently we don't have a process maturity model implemented. However, we have our quality management system that, in some extent, addresses the issues related with processes.

4. **Is the assessment of the process maturity conducted on a regular basis?**

   As there is no process maturity model in place, we don't conduct regular assessments. However, we do implement regular assessments within our quality management system. We also plan to implement process auditing starting from fiscal year 2029.

5. **Who is in charge of conducting this maturity assessment?**

   Not applicable.

6. **How have the results evolved in the past years? Is the level of maturity improving, stable or decreasing?**

   Not applicable.

7. **Are those scenarios consistent throughout all the areas within the organization? If no, please highlight the main differences.**

   Not applicable.

8. **What do you believe are the main reasons for the current scenario?**

   Not applicable.

Assessment of the current BPM maturity level of the organization

Before starting with the assessment, I would like to provide you an overview of the approaches, methods and tools we have in place in the organization and that I will refer afterwards during the assessment.

9MEs

The quality system implementation strategy adopted as the basis of the 9 mandatory elements.

It is a framework that helps to implement a quality system and it is exclusive of the company.

Attempts to ensure or comply with the requirements of ISO 9001, which is a quality system reference standard

9MEs are an adaptation that the company built that helps monitor and implement this system. Has associated a process of assessment and score, that is, with the model application we can have a numeric score that indicates the level of maturity of the implementation of the quality system.

The 9Mes was started in Portugal in 2012. A first initial assessment was made to create a baseline. From the first evaluation, an action plan on how to make progress in the implementation of a quality system was defined. A score was selected, the support of a colleague was granted in the first assessments and then given the continuity.

From 2012 until now, there have been regular evaluations to the organization. Assessments are made at the service line level. Periodicity has varied over time according to good practice, or evaluations should be made on a periodic basis - the longer the maturity, the less the need for regular evaluations. At the beginning of the evaluations, they were monthly, then evolved to quarterly and later semi-annually. In recent periods, internal evaluations have already been carried out annually, but in some exceptional cases, there might be the need to carry out intercalary assessments.

Business lines have a division by service lines. Assessments are made at the service line level. H2R is a line of business that has no divisions in service lines, is followed by countries. P2P has a service line that is Processing Services. The O2C has four service lines, etc.

9MEs will be finished this year. They will be replaced by a new framework already underway - Continuous Improvement Maturity Model - CIMM. The 7 principles of quality were launched 2 years ago. Based on these principles, a checklist and a process of assessments are being created. It is about issues such as quality being experienced by everyone and not just quality people, check and test earlier, agile solution testing cycles and a very strong risk assessment prevention component, FMEAs, among others.

It is not yet defined what the level of scores will be but at the beginning will be percentage.

The maturity model has several levels that will be incremental. Before moving to level 4, you must complete level 3.

ISAs

Regarding the client, our clients are internal clients with whom we have a service contract. It is an internal contract, called ISA - Internal Service Agreement - and is managed on its own by the financial area. They monitor the signing of contracts. All of our internal clients have an ISA.

ISA is negotiated, the capacity study is done, a business case is developed and all the necessary analysis are made until the moment a client proposal is made. Based on this proposal and upon client acceptance, the service is then implemented.

In addition to ISAs, a change request process is in place. That is, a client who wants to make a change to the way the service is provided, or if they want to add a service, there is an established process that must be followed. Under each change an impact analysis is always made and a proposal made to

the client which, if accepted, will then be implemented as agreed. If you need to add resources, they are made under these changes and their ISA.

Within ISAs, there are 2 main attachments:

- Service description - is what is called client requirements. This is where the services that are expected to be performed are described in detail.
- KPIs - this is where performance indicators are to be assessed.

We are internal clients; the contractual relationship is not as rigid as in the case of an external market that has traditionally associated a set of penalties and mechanisms.

The performance level is communicated to the client with whom it is discussed and proposed improvement actions.

Work Instructions (WI)

Regarding processes, our processes are designed, maintained and monitored through working instructions. For a given process, for a given country, working instructions are prepared that describe in detail what needs to be done and, at the end of the document, a visio flow chart is presented. This is an important and constituent part of working instruction.

Document control is carried out in accordance with the requirements of ISO 9001. Document control is called the activity where the organization must ensure that documents are issued by those who have the ability to prepare them, are reviewed in their content, are approved by who have to approve and are released to the organization. Whenever there is a change to this document, this process has to be repeated.

Changes to the processes have to be reflected in terms of documentation, notably working instructions.

The processes are managed and maintained by the quality system in working instructions.

We are currently launching a sharepoint-based tool for managing documentation more effectively. The previous method allowed to achieve this but not in the best way.

BPM Model

We do not have a BPM model. We have not implemented it, we are not doing process audits. We have a momentum of improvement through various instruments, but not through a BPM model.

Through the 9MEs tool we have a set of mechanisms to ensure that processes are dynamic and improved.

In the coming fiscal year, a mechanism for process audits, operational audits, or a similar term is envisaged. The goal is to assess if the processes are being implemented as designed.

Currently only 9ME audits are performed. We have to evaluate the advantages of a quality system and use it to our advantage to enable the development of organizations.

1. **Are the process improvement activities sponsored by the executive management? Is the executive management accountable for the performance of process improvement activities?**

   Initially it is important to clarify what is meant by executive management: is it top management or the people who lead teams directly to the level of team leads?

   We have 3 levels: Business Line Head, Service Line Manager and Team Leader.

   For the purposes of the analysis we will consider the business line head and the service line managers.

   Nevertheless, the approach is implemented across the 3 levels. Everyone has responsibility for the performance of the processes. Team Leaders are directly responsible for their processes and consequently, due to their hierarchy, also the service line and business line heads are responsible for their improvement.

   Clarified the issue, it can be said that Executive management (Business Line Heads, Service Line Managers and Team Leaders) sponsor and promote process improvement activities. Executive managers are accountable for the process improvement activities performance (KPI´s).

   Here I launch the theme of KPIs which is our great indicator of performance. This is what we base our improvements on.

   KPIs are centrally defined by headquarters for all areas of the group's shared services that are then tailored to each location. This allows benchmarking between the various locations.

   The group's objectives, globally, and after the organization of shared services, in more specific terms, are further detailed in terms of process improvement.

   Targets are usually associated with major indicators: the 9 mandatory elements, client survey indicators and savings.

   If we improve the process towards the client, the indicator is expected to improve as well.

2. **Is the executive management accountable for the organization’s work and results?**

   Executive management is accountable for the organization´s work and results. Organizational KPIs / targets are defined, documented, monitored, evaluated.

   The definition of targets itself is important to highlight since organizational targets are defined as well as individual targets, monitored at the performance review level. These targets reflect the organization's strategy and, in turn, the activities performed are aligned with these targets.

   In fact, there is a strategic orientation on the part of the group board that is made to reach each of the business units. These business unit targets are then detailed in the organization.

3. **The requirements for each work unit are defined, agreed, documented and maintained by the work unit?**

   The requirements for each work unit are defined, agreed, documented and maintained by the work unit in Procedures and Working Instructions.

   Requirements from the client and all applicable specifications and standards (internal regulations, legal, tax, EU Intrastat, Export Control, etc). In addition to the requirements set by the client, it is necessary to ensure compliance with internal regulations (e.g. relating to group norms) and external legal and regulatory requirements. That is, when we talk about requirements, we can not only rely solely on client requirements but consider other variables.

   There is also a change request process in place - all client, vendor, legal, etc. changes are handled as part of a change request process. There is a tool for this management, being performed an impact analysis and made a proposal to the client that can be approved or not.

   A very common example of non-client changes is the release of a new version of our ERP. This is a change from a supplier that has a significant impact on the way our business is carried out, also affecting our client.

   The requirements baseline for each work unit is set out in the Internal Service Agreement (ISAs), which reflects the contract with our (internal) clients. These ISAs contain an attachment that defines the scope of work to be performed.

   Then you need to check with the client if there are any country-specific requirements that need to be taken into account - for example in tax terms.

4. **Does each work unit have a plan and a commitment of the work to be performed that is agreed by the work unit itself and other relevant stakeholders?**

   Each work unit plan the work to be performed according ISA´s (Internal Service Agreements) signed with Clients.

   Workload is quantified to estimate resources together with the client and relevant stakeholders. This is an input for defining the baseline and capacity planning that is worked out for each work unit.

   This is done whenever there is a new client or a new service. In addition, the company's dynamics also require a resource forecast, which requires this estimate of the work to be done.

   This forecast requires each area to review the associated ISAs to validate whether the number of FTEs, workload, and other estimates will occur next year.

5. **Does the work unit monitors its performance in order to keep it in line with the requirements and plans?**

   Work unit monitors performance and quality levels to ensure fulfilment requirements and KPIs agreed with Clients. Our regular monitoring and client meetings - serving reviews - are based on this. Monthly service review meetings are held with the client, where the results of the KPIs are presented and other operational issues related to the service itself are discussed. However, the basis of these meetings is always the KPIs and the results of the satisfaction questionnaires. Corrective actions are also defined at these meetings and an action tracker is established.

   A meeting should be viewed as means of continuous improvement.

   These service reviews are performed at various levels. The first level is the country to which the reports are presented and discussed with the client. The second level is at management level - the so-called performance reviews - where results are presented on the same indicators but more globally, with a group of clients designated to represent a geographical region. Comparisons of indicators at country level are made here. It is also done at team level.

6. **Does the work unit establishes work agreements for the individuals and workgroups? Are the work agreements measured and improved?**

   In addition to ISAs, all processes are documented at working instructions level.

   Performance objectives are defined for each person and systematized at the PMP - performance management program level. These objectives are aligned with the team objectives and are defined, documented, evaluated and monitored under the PMP.

   This is a theme that is also foreseen in the 9MEs. Team targets should be monitored at team meetings systematically. Monitoring of individual targets should be done at 1: 1 meetings between the worker and his / her manager. Team meetings are monthly and individual meetings are quarterly.

7. **Are the configurations of the work unit identified, managed and controlled regarding its changes to the product or service baseline? Is this information reported to relevant stakeholders?**

   The above applies: Change Request management process is in place, to control and monitor all changes to services, including information to relevant stakeholders.

   There is a tool that helps to manage this process and this dynamic is already about 5 years old. Any changes we receive from the various stakeholders we deal with, especially clients, follow this process.

   The organization of teams takes into account the way the work is performed. When we establish the structure of a team and its positioning, we consider the type of activities to be developed and the best strategy to do so.

For example, a team that provides services to a country, has 10 people and provides diversified activities. There are two options: a first consisting of having specialists segmenting the team, or a second consisting of having multidisciplinary people, with rotation between people. This second option has become the trend as it allows for better management since the work requested by the client is not constant and continuous. This multitasking makes it possible to better manage client needs, particularly at peak times. However, multitasking has to be evaluated as it is not always the best performance solution. The combination of both turns out to be the best approach.

8. **Is the acquisition of products and services from external suppliers managed by a specific unit, with defined sourcing agreements?**

   The acquisition of products and services from external suppliers are managed by a specific unit (SOP SCM - Supply Chain Management) with defined sourcing agreements.

   However, it is important to highlight that this theme within the group is broken down into two areas: the procurement area, which is related to assessing the market, existing alternatives, collecting proposals and evaluating them; and the area of purchase, which involves the existence of a purchase order, the receipt of goods and services, and payment for the service.

   Procurement, addressed by this question, is done by an autonomous unit that purchases all companies and units of the group in order to achieve economies of scale.

   There is an established supplier qualification process.

   All products purchased are incorporated into the activity of the organization.

9. **Is there an assurance process that ensures the evaluation of the conformance to the applicable laws, regulations, standards and organizational policies, business rules, process description and work procedures? Are the nonconformance issues tracked and resolved?**

   Procedures and Working Instructions (including detailed process descriptions and flowchart) are released and maintained to ensure compliance with applicable laws, standards and organizational regulations, policies, business rules. Document management is ensured in accordance with the requirements required by the standard.

   Process Audits and Controls are maintained through regular audits (9MEs) and compliance controls - called PCMB (see acronym). There are controls that prevent errors from occurring - for example, in the logistics flow, it is natural for the purchase order to be placed before receiving the supplier invoice. One of the controls that exists is whether there are situations where the invoice has a date prior to the purchase order.

   There is a large catalogue of controls that are performed in the field of error prevention.

   These controls consider legal, tax, internal and compliance concepts.

FMEAs plans are defined to ensure proactive approach to non-conformance.

FMEA is a methodology: failure mode and effect analysis. It is a risk assessment methodology for processes but is currently also used as a baseline for process review.

A team that is normally allocated to implement the processes is assembled. At each step of the process the same question always arises: what can go wrong? Hence the fact that it is a risk assessment process.

The team starts by checking whether the process is appropriate or not. Then, in each of the questions, the answers are identified and categorized into 3 indicators: severity, reoccurrence, existence of controls. The combination of the classification of these factors allows the calculation of the RPN - risk priority number.

At the end you can get a list of the priority items to work on.

This is the most detailed process analysis methodology of all. By using FMEA we are taking a precautionary approach while compliance controls are a reactive approach.

All areas have a defined FMEA plan and it is a recurring practice.

Addressing nonconformities is a reactive approach. It is intended to implement an open error culture. For this, the 8D tool is used, which is problem solving and incident management. It is a systematic approach to how non-conformity and incidents can be handled.

A team is assembled, a tool log is opened, a problem is identified, who is needed, root cause analysis is performed, corrective and preventive actions are defined, implemented and then the incident is closed. Afterwards it is necessary to evaluate if there were any recurrences. If so, it is necessary to review the process as it means that the root-cause analysis process was not properly developed.

10. Are the organizational processes defined, evaluated in terms of their weaknesses and strengths and improved?

Procedures and Working Instructions defined processes (process descriptions and flowchart). Continuous Improvement framework using Lean methodologies for process improvements (5S, VSM, PDCA, etc) and FMEA plans for defined processes proactive risk analysis and process review.

These are the approaches we use to manage process improvement.

The lean concept was launched 4 years ago and was trained around 80 people within the organization. The concept of continuous improvement requires that it be applied throughout the organization, even to teams, thus reversing the improvement cycle: instead of improvements being proposed by management, they are made by teams. For this there are the idea fishing processes applied throughout the organization, e.g. any employee with improvement ideas can submit them, and these are then accompanied by a designated team.

On the one hand we have FMEAs and other methodologies underway and on the other we have a set of improvement projects proposed by the teams through idea fishing.

11. **Is there a competency development system in place that identifies and develops the competence needs for the workforce to perform the processes?**

    Employees skills and competencies are mapped against the existing job profiles and gap analysis (skills vs. job role) are performed to define improvement actions. This gap analysis is done continuously, either by the leadership or by the person himself.

    A consolidated training plan on location level (including names of employees) is in place for each FY including all types of training. Training Plan systematically reviewed. Areas have training needs that are collected, consolidated into a training plan for budgeting and planning issues. From the moment the training plan is issued, it must be executed.

    Competency assessment and gap analysis are performed under the Performance Management Program.

12. **Is there an organizational resource management system in practice that plans and manages the acquisition, allocation, and reassignment of people and other resources needed to develop, prepare, deploy, operate, and support the organization's products and services?**

    Capacity planning for service delivery to clients is performed during the budget planning and reviewed on a regular basis.

    Capacity planning is demonstrated from budget planning, i.e. the allocation of FTE to services and clients. During the FY, the capacity planning may be adjusted, when volumes are changing and changes are requested (arising from the change request management process), e.g. BVI reporting and FTE reporting, additional FTE due to carve-in projects, reduction of FTE due to carve-out projects, effort estimation in change requests.

    The review dynamic is mandatory every year. In addition, as a result of change requests, this capacity planning can also be adjusted.

    A time management and tracking tool is currently being implemented, although this is already being done by each of the team leads.

13. **Are the configurations of the organization identified, managed and controlled regarding its changes to the product and service offering? Is this information reported to relevant stakeholders?**

    The change request process (as mentioned in question 7) is applied to the various organizational levels - work unit to organization.

14. **Is the product and service offering defined and managed based on client's needs and market positioning and sustained by a business case?**

    Services and pricing are agreed with all clients and always documented in the ISA (Internal Service Agreement).

    Business Case (Impact analysis in relation to the change requests) is performed and documented. Example: for new services, change request, …, always demand the realization of a business case / impact analysis. The estimates used to carry out the business case consider the past estimates so that the defined assumptions are as close as possible to reality.

    Each service is financially reviewed on a regular basis, including monthly, to assess the rate of return on each service.

15. **Is the necessary work to fulfil the product and service offering planned, monitored and improved using the organization's processes?**

    An important part of evaluating new clients or change requests is ensuring that the organization is able to provide the service requested. Normally the requirements are standardized but there are exceptions (e.g. carve-ins) for which skills, processes, etc. have to be adapted.

16. **Are the requirements for a product and service offering established, documented, and prepared for deployment and use?**

    An ISA must include at least the service scope for all services provided to the client and respective pricing/charging.

    Clients requirements and KPIs are documented in ISA and communicated to relevant stakeholders.

    It is under ISA that you have the guide regarding the requirements associated with each service, which are agreed with the client.

    The way the service is provided is mapped at the level of processes and work instructions.

    It is necessary to ensure the preparation of the persons who will perform the service as well as the date on which the service will start.

17. **Is the deployment of a product or service offering planned, documented, agreed to and implemented if it is demonstrated to be ready for operations?**

    Services and pricing are agreed with all clients and always documented in the ISA. Capacity planning for service delivery to clients is performed during the budget planning and reviewed on a regular basis. All change requests are logged in SharePoint or similar tool in order to manage

them in an efficient way. The global procedure is fully implemented and followed for all clients/ operations.

18. **Is the information regarding the offering of products and services, including capabilities, features, transactions and results, provided to the client and other relevant stakeholders?**

    Portfolio of services available and provided to the client and other relevant stakeholders.

    Communication with the client during service delivery is based on service reviews where there is a systematic routine for presenting KPIs, discussing problems and defining improvement actions.

19. **Is the offering of products and services maintained regarding its infrastructure's supplies, and other resources needed to sustain the operations and availability? Are the problems identified and solved?**

    Business Continuity Model (BCM) established several years ago that defines what needs to be done to ensure business continuity. This plan is defined and validated with each of the areas. The specifics of each service are considered and the recovery time (RTO) is defined. This recovery time objective (RTO) is communicated to the client.

    For example, one of the policies implemented under BCM was to ensure that all employees are able to work from home so that in the event of events where work facilities are not available, thus ensuring continuity of service.

    In terms of client support (helpdesk), each area agrees with clients on ways of communicating and ordering. The most common form is email, through team mailbox. It has a limitation in terms of quantifying the response time of requests.

    The human resources area has its own tool for receiving orders. In the financial area there has also been a test for an order management tool.

    However, each client's order volume is checked. Several KPIs are also calculated using information provided by the support system (namely the ERP).

    Some areas have a business process management tool with the dematerialization of the order management process namely the Master Data, Cash Collection & Order Management areas.

20. **Are the common characteristics of current and future products or services of the organization identified and exploited to improve the performance, quality, cycle time, throughput, and predictability of the organization's processes?**

    There is a best Practice Community in place. representatives from each area locally meeting with an OPE person to promote the exchange of good practices. meet regularly and streamline various initiatives. The goal, in line with one of the 9MEs requirements, is to bring good practice and bring good practice. This is done at several levels, notably at the process level. It is done not

only at the level of the local shared services area, but also at the level of the various countries with shared services. The best practices sharing coordinator leads the global community with the various shared services locations where the results of this community are presented.

There are already several examples of best practice implementation coming from this forum - for example, the approach taken in Portugal for the implementation of FMEAs was considered as a best practice and implemented in other locations.

21. **Is the capability of the current standard processes quantitatively identified? Is there capability data, baselines and models provided to manage the organization's products and services and associated work efforts?**

    Capacity planning is done at the work unit level, as well as at the various organizational levels, and is a common and widespread practice in the organization. The operational areas already have it because they have to know how to respond to new requests and change requests. The same is happening in cross-service areas as well.

22. **Is the integration of processes promoted and implemented between the different disciplines and roles involved in a product or service offering in order to improve the efficiency and effectiveness of interdependent work?**

    Process integration is the big challenge of this shared services organization.

    The history of the organization reflects an earlier organization that was quite vertical, with a departure from the solutions of each area. There was no care in the horizontal view of the subjects.

    The recent reorganization has changed this approach to an end-to-end (E2E) view of processes. For example: purchase to pay.

    Management of this change is currently being implemented to foster greater collaboration across areas, identifying what can be improved in terms of processes.

    I also believe that this new organization will foster reciprocal knowledge of processes.

23. **Are the products or services planned and managed from a quantitative perspective regarding performance and quality goals?**

    KPIs defined to all Services in ISA´s, in a quantitative way. Service reviews are regularly performed with all clients. Service reviews include the following minimum content: KPIs related to service delivery performance as requested by the client, Complaints/ escalation/ issues, USI surveys

24. **Is the work effort associated to the processes quantitatively planned and managed from a statistical point of view?**

    Capacity planning is done from a quantitative point of view as mentioned above.

    Statistical analysis of process variations is not yet done systematically and in quantitative terms. The analysis is mostly done at the workload level and not necessarily the process.

    There are established metrics but no information gathering and subsequent statistical analysis are done.

    Some cycle KPIs are analysed: e.g. how long it takes from sales order to client receipt.

25. **Does the organization have quantitative improvement goals based on the organization's business issues, goals, and strategies?**

    Organization's business strategies are reflected in quantitative Targets improvements. the board's strategic objectives are translated and translated into the organization's targets, defined by the executive management. These targets are usually related to KPI's, USI, Savings, etc.

26. **Are the organization quantitative goals aligned throughout all organizational levels and across the offering of products and services, both from the planning as well as from the performance and results perspective?**

    Organization's business quantitative Targets improvements (KPI's, USI, Savings, etc.) are defined both in terms of ISA and organizational level. KPIs are defined at ISA level. Additionally, there are always organizational objectives related to client satisfaction, savings and others.

    These targets are monitored monthly.

27. **Are the root causes of the problems and issues that represent primary obstacles identified and addressed, identifying quantitative improvement goals? Is this information disseminated through stakeholders to promote its prevention?**

    FMEAs plans are defined to assure proactive approach to non-conformance. The vision is to have a proactive stance in the fight against nonconformities. And this is where the FMEA is framed. It is a methodology we use to review our processes and is mandatory in terms of the 9 mandatory elements. FMEA identifies improvement actions that are included in the continuous improvement pipeline.

    In addition, there are also 9ME's assessments, non-conformance management and PCMB controls.

    Reactive terms are intended to promote open error culture as errors must be visible and transparent in order for them to be corrected.

It is necessary to ensure training and good preparation of people for this type of methodologies and tools used to perform root-cause analysis such as brainstorming, ishikawa diagram, among others.

Non-conformance issues are recorded and processed using 8D methodology (Root Cause Analysis with Corrective and Preventive Actions) Problem Solving and Incident Management. Process Audits and Controls are maintained to prevent non-performances.

What is intended is that if the error recurs, it is always dealt with under the 8D methodology. that is, the 8D methodology should be triggered in situations where: the problem is serious (e.g. client complaint), recurrence, among others.

The methodology has 8 steps: building the team, analysing what happened, notifying who is needed, etc.

Notification assumes particular importance in this organization given its complexity and size.

Changes or improvement actions are not usually quantitative activities. They are only defined qualitatively. This could be a good practice to implement.

All 8D methodology has a communication process associated with various stakeholders.

There is also a monitoring of the various open records in the team, both on their content and on the possibility of re-occurrence. For this purpose, a quantitative and qualitative analysis protocol is defined. Quarterly reports are issued from the 8D tool which have quantitative and qualitative information on the various incidents to be analysed by the areas.

The first analysis to perform is the reoccurrence analysis. See if there are recurring incidents. If we have a team and root cause analysis is done and improvement actions are implemented but these incidents continue to occur, it is important to understand why. The second analysis refers to its overall content in a critical way to understand if the problem description and action definition is correctly performed.

Additionally, started 2 years ago, there is a cross location review meeting. It is currently being done in three locations. Each location leads to 2 examples of incidents that have been resolved to share best practices. This dynamic has recently been seen as good practice and will be extended to all shared services locations.

28. Are the individual processes and workgroup of processes continually and measurably improved by identifying and deploying incremental improvements?

There is no performance-oriented approach to the process. This is done indirectly for example through the KPIs. When KPIs are not on target, it means that processes are not performing properly. Regarding the processes themselves there is no such focus.

This is a theme that may relate to the next step for FMEAs. These are also process analysis methodologies and have a quantitative assessment using the risk priority number (RPN). In the future it is intended that, at the appropriate time (e.g. 1 year after FMEA), the same group will

meet and reassess the RPN. Reassessing the RPN and modifying it - e.g. improve - means that there has been a quantitative improvement of the process. However here we are just focusing on the subject of risk.

In terms of performance, the focus remains on the KPIs. There are no specific process KPIs but defined KPIs are linked to processes.

With regard to processes, we intend to initiate a systematic process audit process to evaluate process performance.

They already know some basic tools for starting process analysis and defining their maturity - for example, process audit templates, etc. However, a team needs to be assembled for this purpose.

KPIs are reflected in a Quality Cockpit that is used for monitoring. [demo of quality cockpit]

The macro process KPIs are already mapped but there is not yet the detail of the process and subprocess.

Processes that do not have manual intervention - for example, that run on ERP - can already generate quantitative metrics.

There is already a tool - in testing - for process simulations and their exceptions, online, as well as for quantifying process metrics. It is information extracted directly from the systems (e.g. ERP) and presented in a visually intuitive form, enabling process metrics to be obtained.

29. Are the improvement solutions identified, developed and deployed to achieve specific quantitative improvement goals?

It is not done systematically. Improvements are identified and implemented but not evaluated quantitatively.

The starting point is to evaluate the current performance of the process - which is not yet done - and then evaluate.

Let's evaluate how it's done, let's do kick-off audits and, based on that, set process-level improvement goals.

I believe we are already well supported by data and tools that allow us to have indicators and proper reporting. Now the next step is defining the strategy for BPM.

There is already management alignment for the need for FMEAs and other process improvement measures, but the loop is not closed yet.

The quality allows us to have processes, be analysed and improved but still needs a more dynamic directed to the process itself.

Of course, when analysing the process, one must also look at the component of people - knowledge and training are key. People must be prepared to use what is most effective. Technology is important but technology-related impediments are getting smaller and smaller.

30. Is the organization's performance and quality continually improved and improved in a systematic manner?

The deployment of the best is monitored indirectly through 9MEs audits - especially elements 2 (processes) and 7 (continuous improvement). Element 2 refers to the issues of having the processes designed, working instructions updated, processes improved, FMEAs, etc. On the other hand, no continuous improvement indicates how to prepare the organization so that it can improve.

First, we need to define the working framework - here it was decided to use lean: people were formed, idea fishing was created, root-cause analysis was trained in FMEAs…

These two components come together. This means that our 9ME score indicators have translated a continuous improvement. KPIs and targets have improved, we just have to go down to the process level and their quantification.

The savings dynamics are very strong which translates into a need for gradual process improvement.

31. In what extent are the processes of the organization supported by information technology and systems?

Most processes supported by ERP and automated to some extent.

Here it is important to reflect on the true meaning of digitization.

We already have virtually every process with minimal paper. From the moment we have the digitization of the processes we have the first step to the next phase which is RDA automation.

Team leaders must work together to harmonize processes across countries.

The next step is robotization, which is already in our future priorities.

With the tool currently being implemented for process analysis it will be possible to obtain relevant information to understand if it is possible to robotize. For example, a process with few exceptions is a strong candidate for robotization.

Collection of data to characterize the success of the organization

1. **Considering the mission of the organization, what do you think is the level of fulfilment of that mission?**
   High.

2. **How would you characterize the organizational culture regarding its strength?**
   Strong.

3. **What is the level of satisfaction of your clients?**
   High as it is possible to see by the user satisfaction index.

4. **Does the organization has defined and implemented a process for operational audits?**
   Auditing are only implemented within the quality management system. Process audits will be implemented next fiscal year.

5. **Does the organization has defined and implemented a process for risk management?**
   Yes. Enterprise risk management is implemented.

6. **How many years does the organization operates in the market?**
   Shared Services activities in Portugal started in 2008.

F. INTERVIEW RESULTS: BUSINESS MANAGER H2R

Just to introduce: since December 2017 we have been working hard to implement the workday tool that works most of the HR administrative processes. Since then, we have been in freeze to make significant changes in these processes. We should not significantly change processes when they are already undergoing a transformation process. However, as workday is a global tool, our processes are also improving as they are being uniformed with other locations. The aim is to standardize processes and ensure that they are as lean as possible. There are regional and local factors that impact but that does not mean we cannot standardize them to the fullest.

We have already made, in the past, significant process changes to H2R: for example, reducing the number of process steps, improving process quality, eliminating or minimizing errors, reducing the time taken to complete a process, and so on. A critical analysis of the processes was made from an improvement perspective. The strongest year was 2017, where it achieved savings of 40,000 euros. And this with simple initiatives such as macro implementation, process review, etc. These were always small projects lasting less than 3 months and were implemented by the people undertaking the processes.

We have the so-called expert communities. In expert communities we put the experts from different teams and share ideas and suggestions for process improvements. The idea was to generate brainstorming that could lead to process improvements. During these expert communities, all you had to do was capture ideas, get people to work on their ideas and give them some project support - such as structuring what you want to do, quantifying savings, among others. This is something we always ask teams to do: quantify what they are doing; what are we measuring? Reduce time, increase quality? Why are we going to make this change? And how do we measure? Let's look at the status quo and define what we want to improve, how we implement the solution. We then measure again to validate whether the intended effect has been provided.

An important issue is the savings. Small improvements have no impact on the company's profit and losses. However, we have situations where changes have a greater impact and we have been able to demonstrate the benefit in terms of savings, impacting profit and loss.

We can have two types of savings: OPL - own profit and loss - or CPL - customer profit and loss. The latter means that if I implement any changes to my processes, my client will have some benefit.

We can have the other savings – the ones that comes from initiatives that have no impact on profit and loss; we can have value added measures (VAM), which impacts profit and loss; and there is another type that is material related.

If I make an improvement in my process, I have to be able to demonstrate that I reduced FTE occupancy to receive new services or eventually reduced an FTE. The former also has a direct impact on profit and loss.

This is a very dynamic activity and there are many ways to prove that saving has been achieved.

An example I can give is the admission process. We had an error rate in the admission process that was less than 1%. But for the customer, this value was considered high because it is a process that defines the employee's entire life in the company. For example, an error in completing tax data or in

the proposal made could have a serious impact. It was necessary to realize where the errors were. The first step was to map the whole process in detail, identify the agents who intervene in the process and how many errors they had in the previous 1-year period. We realized that most errors were minor but had an impact - for example, misreporting the employee name in the system. So, we tried to understand why mistakes happen. It would be inattention, ignorance of the process…?

A set of measures was identified to reduce the number of errors. At the end of the implementation of the measures we were able to reduce from 0.9% to 0.4%. The project was implemented based on the six-sigma methodology and for this process we were able to get a score of 5 sigma which is very good for this kind of service processes. The savings we reported were small and mainly concerned reprocessing. The impacts were mainly on customer satisfaction and data quality.

Then we have other smaller things: for example, when an employee exits the company, we have to prepare a file that took about one hour to prepare. After implementing a macro, it takes seconds. This brought a significant improvement in the quality of the team's work. This is not necessarily quantified in terms of savings but is reflected in terms of people's motivation. We can call it positive collateral damage.

We are still in the process of stabilizing the workday, with about 60% of our processes, that is having a major impact on the area. In terms of advantages, from a process point of view, we have greater flexibility in terms of resource allocation. For example, if you have a peak in admissions, we can more easily allocate teams to perform certain processes. We have better management of available capacity. We can also more easily make process comparisons between country, regions… for example, if I take an hour and some similar organization takes 30 seconds, I have to realize how I can get this result, what kind of things we can do to improve.

We also had processes that were robotized. The Portugal team had 5 processes that were robotized. That way you don't have to do a task that doesn't add value, freeing people to other jobs that require more thinking. We can do process automation, we have new processes to be robotized. But not all process improvement goes through this, sometimes it's about having a critical view and trying to figure out why the process is useful. At some point it might be necessary to do certain tasks because there was a specific need but it may no longer make sense.

With regard to RPAs, they had a significant impact in terms of time spent executing the processes.

G. INTERVIEW RESULTS: BUSINESS MANAGER O2C

Digital Order management (DOM) is a more comprehensive tool than O2C. Although started in O2C, it involves a number of other projects and use cases that are indirectly related to O2C.

The project was started 2 years ago to implement 14 use cases of the shared services area of Portugal, India and Malaysia. From the moment deliveries began and the impact of the tool became visible, there was an interest from other areas in the application. We are currently rolling out to a number of businesses worldwide.

The tool automates a series of processes. There are a number of streams that have been defined, which have a use case. It started with 14 use cases and we currently have over 25.

The purpose of the tool is to standardize processes, limit user errors and provide statistical and analytical information to improve processes in the future.

Most of the processes that were being handled in the DOM were done via email. Users placed an order by email - for example, the date of delivery of the order, it was seen in SAP by which date and was answered by email. These orders were managed manually, with a range of tools - word, SAP, excel, outlook. All information has been consolidated in the DOM; We have established, defined and implemented a series of interfaces to automatically communicate with SAP - integration with dozens of SAPs; integration with shipping partners so we can, after the order leave the factory, communicate with carriers and obtain data online to provide information to customers (internal and external) as soon as possible. The process, instead of going to Outlook, goes to this tool where each team has the process typologies defined. Depending on the typology, the tool groups the requests.

When you open a request, you need to sort it so that you can get statistical information and know what kind of requests to work on the most - e.g. if it comes to the end of the year and most of my requests are order changes, then means I have a problem with the ordering process. From the moment the user classifies, the process may have either one or other flow. Each of the streams has processes that can be completely independent. For example, I may have a flow where I just need to fetch an interface from SAP and send it to the customer; I can have a flow that requires me to have an approval process with one, two or three levels… depending on the process itself, the flows are different. It also has an associated alert system if it is not answered within the defined SLAs. In the tool I can have the history of all processes. The goal is to be able to hack with the email.

The tickets generated can have 4 sources: 1) received by email, 2) received by an SAP interface (e.g. periodic), 3) RPA in SAP which generates .csv file which is sent to a mail box which is read automatically and is generated cases; and 4) manual creation of a case.

The structure of requests may also vary. We have 2 different structures, depending on the business. One is a linear structure, where the request has a unique flow from start to finish, may have clarifications, approvals, etc., but is unique. Or we can have several sub-cases in a single case: for example, in a single email we can have three requests. This translates into a single case with multiple subcases.

In terms of platform structure, I can also view my work as a user, or my team's work. I can assign cases to some people on the team. There is also a pool with cases that are not yet assigned.

Depending on the customer, we have two situations: or we have an order manager that serves a particular customer, and the system does the automatic routing by customer; or all requests go to the unassigned bucket and users can fetch the orders and assign them to you, and you can define rules for this process.

The tool initially had a two-tier structure: company and region. However, due to requests, a change of region was made for the team.

In terms of evolution, we are working on two aspects: NPL - natural processing language - which involves automating some processes based on the understanding of the customer request, e.g. by reading the body of the email, the system can automatically classify the request; another is artificial intelligence where it is intended to implement, for a series of processes, some tickets that are automatically generated, answered and closed.

We are currently serving two business units and negotiating with two additional areas to implement this tool.

There are two feedbacks of the tool: There are people who were very used to Outlook, that the implementation of this tool involves a transformation process and greater customization of the tool to minimize resistance to change; For teams that are starting up and not working with Outlook, joining was quite simple.

The great advantages: First, the use of a unique tool by users; The organization of work is extremely simple, the tool has all the processes that need to be addressed; error minimization - having the flow perfectly defined, with less manual labour, the probability of error decreases; the automation of processes; obtaining detailed information on the teams' work, where they are performing poorly, which processes need to be improved, which orders have the highest volume, among others, allowing better adjustment of service levels, defining lines of action to improve the process, among others. You can also implement a predictive component and better manage resources.

There are disadvantages for users who have greater resistance to change, which requires more work. For customers it can have some negative impact, however initial, because they have to comply with certain rules and sometimes are not ready to change. There is a higher demand for the customer but that later translates into a better level of service.

H. INTERVIEW RESULTS: BUSINESS MANAGER P2P

In P2P we defined a roadmap, especially for larger projects, which has been in place since 2015, and includes the various optimization projects.

Within this roadmap we have a large project which is the automatic posting of third-party invoices. It was a complex process, already spoken since 2007. When the invoice arrives in the SAP system, it is released without human intervention.

In an accounts payable process, the vendor sends the invoice by email or paper. There is a scan site that scans the invoice and sends it to an OCR provider that scans the information. This provider was previously external but now it is internal. Automatic invoice posting is then done - the invoice is associated with a purchase order and when the invoice enters the system the match must be made. In the past this was not possible but with new software this is possible: OCR reads the invoice fields, sends the information to the system and, with the software, can analyse the purchase order information and match the invoice. If a match exists, the invoice is then posted automatically without any human intervention. Currently we have about 30% of invoices with automatic posting, corresponding to 100-150 thousand invoices per year.

In general, invoice posting activity is not considered as value added. With this system, we were able to reduce the capacity of resources allocated to these tasks.

The project was started in June 2018 and was completed in March 2019.

Our future goal is to reach 40% automatic launch.

We will not be able to reach a higher value due to the complexity associated with the VAT rate. Depending on the items, the percentage of deductible VAT varies greatly. This requires further training of the automatic system. We currently have a set of vendor or item type exceptions that make posting not automatic. There is also the complexity regarding foreign VAT rates. Some of these restrictions have already been implemented on one of our largest systems and will be extended to other systems.

In terms of impacts, it's an automatic process from A to Z. We're taking people off tasks they don't normally enjoy, giving them room to do other things they enjoy most. It brings quality improvement in the relationship with suppliers as people have time to devote to more relevant tasks with higher added value. It also had a relevant financial impact of around 40-50 thousand euros, and a reduction of 7 FTEs of which 4 were allocated for verification - overall, we are talking about a reduction of 3 FTEs.

We also have a project to implement an automatic clarification tool. Within SAP, there is a workflow with a clarification tool. Clarification is needed when incoming invoices differ from what was expected: for example, we ordered 10 units but the supplier only sent 5; or we ordered 10 at a cost of 100 and he sent 10 at a cost of 150. These differences require communication to the requester to clarify what's going on. In the past it was done by email, and it's very easy to lose track of what happened - for example, in one company (client) we have about 4000 invoices per month.

The tool lets you clarify differences through workflow: by posting the invoice, if it spot differences, it automatically blocks the invoice and triggers communication for clarification by the requester.

The implementation of the tool involves a consolidation of processes, ensuring that all rules are well defined and implemented. Define issues such as people, payment rules, etc.

The clarification tool was implemented in Portugal in 2014 and we are now expanding to other companies - e.g. Switzerland.

In terms of impacts, these tools provide historical tracking, all information can be centralized on a single platform. We are also extending a standard process to other organizations, harmonizing the way work is done in the southwest. It is also a more automatic process, allowing you to reduce processing time.

It also has another advantage which is: previously, the invoice, if it had any problems was not posted. In this case, the invoice is always posted but is blocked. Which meant that previously, in accounting terms, there were many invoices in transit. This way you can have more transparent and accurate accounts.

Not all project impacts are quantitative, some even translate into quality and error reduction. For example, centralizing information, preventing people from having multiple scattered excel files, is also an advantage.

Another project that we also have, although smaller, was the creation of a web application for reports. We had several reports, all made in excel and worked in excel. What we did was join all these reports in the online tool, which are automatically fed with a set of scripts, becoming visible online. People gained quality because the processing time of each file was about 2-3h and now it is automatically generated.

We also have in our pipeline other improvement projects such as the Group Entity Clearance project, which is intended to be 100% automatic.

Looking ahead, there is a major challenge of monitoring automation and ensuring its maintenance. For example, in the first month we can get 40-50% but then it can go down as we have to constantly be feeding with more rules, evaluate what's going on and act quickly. Currently, the time spent on monitoring automation is still limited. Fortunately, we are already working in the reporting area to understand where tool failures are occurring.

Another challenge is also the quality of the posting. We have not had many problems, it is a fairly stable and rigorous process, but errors can still occur. For example, when OCR software cannot identify all fields, there is a team that enters the fields into the system. This manual introduction generates some errors.

I. INTERVIEW RESULTS: BUSINESS MANAGER R2R

Within BPM, we have two workflows: one that is associated with a collaboration with the southwest hub that is called process improvement for accounting - PIA @ southwest. All of the initiatives that are running here are relevant, are approved by a steering committee, are business case-based initiatives and are generally related to heavy investments. If the main investments are smaller, these are usually managed locally.

The other workflow is a more internal one that is automatically generated by the home business line. In our case, we have two types of initiatives: RPA - robotic process automation and RDA - remote desktop automation.

One workflow is focused on more relevant projects, which can expect savings but also require larger investment, and smaller internal ones that will later be translated into RPA, RDA or winshuttle initiatives.

Regarding PIAS, cross-sectional projects, we invest a lot in the BPM area using a pre-selected PEGA technology.

With this, we have several initiatives and, particularly in R2R, we highlight two most relevant:

- Global Master Data Management Tool (GMDM)

  There was a workflow tool for all southwest that managed all orders for creating, modifying, blocking and unblocking suppliers in SAP. The tool was developed on an old Microsoft platform that generated a lot of problems.

  With this, an alternative was sought in the southwest, talking to a set of stakeholders that supported the design of the tool. It was then decided that a PEGA-based tool could be developed by creating our own workflow. The concept was so good and so well accepted that other organizations were interested and it was decided to roll out worldwide.

  The global data master management tool has reduced the average ticket handling time by 60%. It also allowed for faster processing.

  One of the biggest advantages was as follows: the previous tool required many manual validations, required to consult various tools to validate the recorded data; The current tool is integrated and allows you to make these validations more automatically. Integration was clearly one of the biggest advantages, enabling us to ensure validations more efficiently and thus better data quality.

  In quantitative terms, it allowed to reduce 5 FTEs.

- Fixed Asset Process workflow (FAM)

  Prior to this project there was an initial project involving the harmonization of the registration of fixed assets in all southwestern countries. Based on this process, PEGA was implemented to automate the process. With this, the client can put the data automatically, it is parked, in the back office they do the validation and posting of fixed assets.

Here we still need to improve the reporting component by producing some dashboards to avoid manual work. It is already planned as a request.

We also have a tool about to Go live for the real estate area, also based on PEGA. It was an adaptation of digital order management (DOM) for the real estate area.

Fixed Asset Process workflow allowed a 1 FTE reduction which translates into a significant quantitative impact. Automation has also allowed for faster processing, improved data quality and process-related statistical data.

In the second workstream we have other projects such as:

- AIC Test Module

  All processes that are in accounting have a closing cockpit. Some processes are already automated, others are manual processes. There is still some bureaucracy and complexity in the PCMB controls part. In the financial area there are a large number of controls which increases the complexity of this process.

  What has been done is to implement the AIC Test Module, which is focused on controls.

  In the past, people placed controls on another platform, and when internal and external audit processes took place, the volume of requests for information was very high and these were mostly email based. This was even more striking because it occurred in closing periods where the workload is higher.

  With the implementation of this tool, assessments and audits are planned in advance. We set up the tool so that when assessors come, they can check all the necessary evidence through the AIC Test Module.

  We have here a gain of time and a centralization of information which increases efficiency.

  It is still a way to go. There are currently 12 controls introduced and this year we expect to introduce 15 more controls.

  The implementation of this tool implied the redesign of some processes in a perspective of improvement and optimization. The assessors themselves, when using the tool, are also identifying other opportunities for tool improvement that will be considered in future developments.

  Whenever we implement the tools, we make an analysis of lessons learned. Lessons learned from the previous year will be implemented later.

  Here we always think about process improvement continuously. For example, every month, in monthly closings, a set of lessons learned is identified to identify opportunities for improvement. Optimizing is always in our thinking.

  The fear of automation is shrinking and people increasingly see its value.

  The impacts were more qualitative. In the next wave, we will try to estimate quantitative impacts.

- True Account reconciliation

  All SAP systems have a set of open items in various areas and there are areas that are dedicated a long time to clear these open items.

  What this tool does is make these clearings. The tool is set up and rules are set so that these clearings can be done automatically. Items that meet certain rules are placed in a bucket and handled in bulk. There are items that go straight to clearing, others need BUs response and others need analysis. Ideally, this analysis was not necessary but is still necessary and will always be necessary.

  When the project was completed it was recommended to evaluate quarterly the KPIs in which the decrease of open items is seen.

  Qualitatively there were time savings and it was possible to relocate people from routine tasks to higher value tasks. This has allowed people to be allocated to new challenges while also optimizing the most operative work.

  For example, one person used to take 5 hours to do an open item clearing activity and now the result was within 20 minutes.

- RPAs

  We also have projects in the area of RPAs.

  One main project was the upload of bank statements in the cash & banks area. The tool automatically collects bank statements and uploads them to SAP. This allowed us to reduce 1 FTE across the team.

  We have also implemented projects in the winshuttle area to import data more automatically.

  Under development, we have two use cases:

    - A use case in the master data area called bankruptcy and liquidation. Basically, it is intended to automatically and quickly feed into SAP information about companies that may be in these situations.
    - A use case for Journal & Reporting which consists in optimizing the reporting performed. There are reports made in the general layer. Our regional companies have their own workflow. But in small businesses there is no solution, it is still done by email. Currently information is being consumed through a sharepoint, having two dedicated people. It is intended to be done by a robot, estimating the reduction of 1 FTE.

  Another 5 RPAs are also being evaluated and we have 2 pipeline RDAs associated with accounts payable.

  We are also working at ESPRI automation. This is a reporting tool that ensures that accounting principles and guidelines are met. The system has a set of validations that allow us to assess whether the records are being well accounted for. Previously this was

done in two tools. This tool is intended to make these validations automatic without human intervention. This will also allow automating error analysis.

Finally, we can also highlight the one source tool, from the tax area, that allows making the necessary VAT corrections, translating the local specificities. We are looking to improve the tool, benchmark other tools on the market.

Next steps

We are always looking for new technologies but we need to further harmonize processes. Also find ways with customers to stimulate the redesign and optimization of processes. Many of the optimizations are not possible because we have multiple customer-specific systems and processes that are complex to change.

We also want to further explore the data analysis component that has been allowed through process automation.

We use a motto a lot which is: we make core what is support to others. For example, in most organizations, this focus on automating and digitizing these processes is not the focus. In our organization, this is our DNA.

We are also able to ensure the sharing of best practices and synergies with other customer initiatives, improving customer satisfaction, making us more efficient, etc.

J. DETAIL RESULTS OF THE BPM MATURITY ASSESSMENT

Mat. Level	#	Process Area	Purpose statement	Overall Score	Specific Goals / Institutionalization Goals	Achieve-ment score	Justification
2	1	**Organizational Process Leadership (OPL)**	Organizational Process Leadership establishes the executive sponsorship and accountability for the management and performance of the organization's process improvement activities.	1,00	**SG1 - Process improvement is sponsored** The organization's process improvement activities are sponsored by executive management.	1,00	Executive management in all the different levels (business line heads, service line managers and team leaders) sponsor the improvement of the organization's process and related activities. They are also accountable for it through the defined key performance indicators (KPIs).
					SG2 - Management systems and improvements are aligned The organization's management systems and activities are aligned with the organization's process improvement goals and strategies.	1,00	Through the definition of KPIs, that establish the desired levels of performance, the company ensures the alignment between the management systems. The achievement of the KPIs is done through several improvement activities and strategies that might impact organization's processes.
2	2	**Organizational Business Governance (OBG)**	Organizational Business Governance establishes executive accountability for the management and performance of the organization's work and results.	1,00	**SG1 - Business activities are aligned** Executive management aligns the business activities involved in the organization's product and service work with the organization's business goals.	1,00	There is a strategic orientation from the executive board that is implemented throughout the business units. This is done through the definition of several targets that have a drill down until the individual level.
					SG2 - Business workflows are managed Executive management approves, measures, and manages the business activities of the organization's units.	1,00	The governance model established allows executive management - business line heads, service line managers and team leaders - to manage the business activities of the organization with different levels of responsibility and accountability.
2	3	**Work Unit Requirements Management (WURM)**	Work Unit Requirements Management establishes and maintains the documented and agreed-to requirements for the work that a work unit or project performs.	1,00	**SG1 - Requirements are identified and evaluated** The requirements and requirements changes for a work unit and the impact of these requirements on the work unit are identified and evaluated.	1,00	The requirements for each work unit are defined, agreed, documented and maintained by the work unit in Procedures and Working Instructions. They are supported by a change management process that considers impact analysis and an agreement from the customer.
					SG2 - Requirements baseline is maintained The requirements baseline for a work unit is documented, maintained, and agreed to by the work unit.	1,00	The requirements baseline is done through the Internal Service Agreements (ISAs) that establish the scope of work that need to be performed by the work unit. This is documented and maintained according to the defined process.
2	4	**Work Unit Planning and Commitment (WUPC)**	Work Unit Planning and Commitment establishes and maintains the plans	1,00	**SG1 - Work is estimated** Quantitative estimates of the planning parameters are derived and documented to describe the magnitude of the work to be done	1,00	The definition of the Internal Service Agreements demands a quantification of the work to be performed and the resources needed to perform that work. These assumptions are documented in the business impact analysis and in the

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			and commitments for performing and managing the work required of a work unit or project.		by a work unit.		agreement itself.
					SG2 - Commitments and agreements are approved The commitments a work unit needs to perform its work are identified, planned, documented, and agreed to by relevant stakeholders.	1,00	The commitments are established through the Internal Service Agreements (ISAs) that is agreed by the client, the service provider and other relevant stakeholders.
					SG3 - Plans are documented and consistent Plans that describe how a work unit will perform its work are documented and kept consistent with its requirements, its commitments, and related plans.	1,00	The work to be delivered by the work unit is defined according to the ISAs in place and, therefore, consistent with the requirements and commitments established between the organization and its stakeholders.
2	5	**Work Unit Monitoring and Control (WUMC)**	Work Unit Monitoring and Control measures, monitors, and adjusts the work assignments, resources, and other work factors for the individuals and workgroups in the work unit or project and keeps performance and results in line with the requirements and plans.	1,00	**SG1 - Work assignments are managed** Work assignments and work activities for a work unit are managed against its requirements, estimates, plans, and commitments.	1,00	The definition of the activities to be conducted by each work unit considers the ISA that establish the requirements, estimates, performance targets and other related commitments.
					SG2 - Performance and results are tracked The actual performance and results of a work unit are monitored against its requirements, estimates, plans, and commitments.	1,00	Through the definition of KPIs, the performance results are tracked and monitored against its baselines. The results are presented in service review meetings - that have different levels of implementation.
					SG3 - Corrective actions are performed Corrective actions are performed when the performance or results of a work unit deviate significantly from its requirements, plans, or commitments.	1,00	The service review meetings, mentioned above, result in the definition of several improvement activities that are implemented in order to achieve the desired outcomes regarding work developed and performance.
2	6	**Work Unit Performance (WUP)**	Work Unit Performance establishes work agreements for the individuals and workgroups with the work unit manager and performs the work to produce the agreed-to results.	1,00	**SG1 - Work assignments are accepted** Individuals and workgroups within a work unit understand their work assignments and are provided with the resources needed to perform the work.	1,00	Work instructions detail the work to be performed within each process and by each individual. The capacity planning developed by the organization ensures that everyone is provided with the resources needed to perform the work.
					SG2 - Work is performed and delivered The work performed and work products and services delivered by the individuals and workgroups within a work unit satisfy their plans and commitments.	1,00	The work to be conducted by a work unit and the individuals is aligned with the scope of the work established in the ISA that reflect the plans and commitments with the stakeholders.

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					SG3 - Work is measured and improved Individuals and workgroups within a work unit measure and improve the performance of their work activities.	1,00	Each individual has specific targets that are defined within the performance management program. This demands for a constant monitoring of the performance of their work. Also, through the target definition process, each work unit is assigned with several targets that should be achieved and are measured regularly.
2	7	**Work Unit Configuration Management (WUCM)**	Work Unit Configuration Management identifies, manages, and controls the content and changes to a work unit's configuration management (CM) product baselines.	1,00	**SG1 - Configurations are identified** A work unit's CM product baselines and their configuration items are identified.	1,00	Each work unit has clearly assigned the services it needs to provide and the correspondent requirements in the form of work instructions.
					SG2 - Contents of configurations are controlled The content of a work unit's CM product baselines and their configuration items are managed and controlled.	1,00	Changes to each work unit are included in the change management process to be evaluated. If approved, they will be implemented. The monitoring processes and routines in place such as auditing and controlling activities consider items related with work unit's configuration.
					SG3 - Configuration management information is reported Information that describes the content and status of a work unit's CM product baselines and their configuration items is maintained and reported to relevant stakeholders.	1,00	The content of each work unit regarding its structure, processes, procedures, services provided, resources, etc. is communicated to the relevant stakeholders through regular team meetings, business lines meetings, service reviews, and other communication actions.
2	8	**Sourcing Management (SM)**	Sourcing Management manages the acquisition of products and services from suppliers external to the organization.	1,00	**SG1 - Sourcing agreements are approved** Commitments with a qualified supplier to provide selected products and services for a work unit are agreed to by relevant stakeholders.	1,00	There is a process established for the qualification of suppliers and the process to select the products / services to be purchased is established and done by an autonomous work unit.
					SG2 - Sourcing agreements are satisfied The sourcing agreements and work agreements between a work unit and supplier are satisfied by the supplier and work unit.	1,00	The sourcing agreements are established between the supplier and the procurement organization and are approved by the beneficiary of the products and services to be provided.
					SG3 - Acquired products and services are incorporated The acquired products and services are accepted and incorporated into a work unit's infrastructure, processes, products, and services.	1,00	The acquired products and services are incorporated into the work unit and are consumed to deliver the work performed that includes the implementation of the processes to generate the agreed services.

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2	9	**Process and Product Assurance (PPA)**	Process and Product Assurance provides appropriate conformance guidance and objectively reviews the activities and work products of work efforts within the organization to ensure they conform with applicable laws, regulations, standards, organizational policies, business rules, process descriptions, and work procedures.	1,00	**SG1 - Activities and results are objectively evaluated** Activities and work products are objectively evaluated for conformance to the applicable laws, regulations, standards, organizational policies, business rules, process descriptions, and work procedures.	1,00	The work is implemented according to the regulations, standards, organizational policies, business rules, processes and work instructions. There is a regular and systematic process of auditing and ensure the compliance. This is done in a reactive - through the identification of non-conformances - and proactive way - through the implementation of FMEA methodology.
					SG2 - Non-conformance issues are resolved Non-conformance issues are tracked, communicated, and resolved.	1,00	There is a process implemented for the identification and resolution of the non-conformances. This is supported by 8D tool, a framework for problem solving and incident management that aims to promote an open error culture. Through this tool, incidents are registered and notified. Root-cause analysis is also performed, defining corrective measures that are implemented. Special attention is done to recurrent incidents.
3	10	**Organizational Process Management (OPM)**	Organizational Process Management develops usable standard processes and related process assets for the organization, deploys them for use, and improves them based on understanding their strengths and weaknesses.	1,00	**SG1 - Appraisal-based improvements are incorporated** The strengths and weaknesses of the organization's processes and process assets are understood and improvements are made.	1,00	The identification of process strengths and weaknesses is done through a continuous improvement framework that includes several lean methodologies for process improvement (5S, VSM, PDCA, etc.). It is also one of the aspects included in the FMEA methodology as it is heavily used to identify improvements in the processes.
					SG2 - Process assets are created and deployed The organization's standard processes and process assets are established and made available for developing, preparing, deploying, operating, and supporting the organization's products and services.	1,00	All processes and work instructions are documented and available for all members of the organization and are the basis to provide the service agreed with the client. The common processes are identified and reflect, along with the other processes in place, the process assets of the organization.
					SG3 - Experience-based improvements are incorporated The organization's processes and process assets are analysed and improved based on developing and using them.	1,00	Through the FMEA methodology, implemented on a regular basis, each deployed process is analysed based on the results of its implementation. A risk assessment is conducted and each identified risk is scored with a risk priority number (RPN), computed based on the parameters of severity, reoccurrence and existence of controls. This RPN defined the priorities for process improvement and is the baseline for the activities to be implemented in this context.

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3	11	**Organizational Competency Development (OCD)**	Organizational Competency Development develops the competencies within the organization's workforce that are needed to perform the organization's work using the organization's standard processes.	1,00	**SG1 - Competency development is planned** The development of the workforce competencies needed to perform the organization's standard processes and support the organization's strategic goals is planned.	1,00	It is established a competence development framework. This is done through a gap analysis between the skills of the individuals and the demand required to perform the job.
					SG2 - Workforce competencies are developed Individuals develop the knowledge, skills, and process abilities needed to perform their roles in the organization's standard processes	1,00	The results of the conducted gap analysis, as well as the results from the performance appraisals, are an input for the individual development plans of each individual, as well as the training plan. Both of them are key tools to ensure the development of knowledge, skills and process capabilities of the labour workforce.
3	12	**Organizational Resource Management (ORM)**	Organizational Resource Management plans and manages the acquisition, allocation, and reassignment of people and other resources needed to develop, prepare, deploy, operate, and support the organization's products and services.	1,00	**SG1 - Organization resources are aligned with the portfolio** The organization's available resources are aligned with the resources needed for the organization's product and service portfolio.	1,00	There is a capacity planning for service delivery to customers, aligned with the organization's portfolio, that is performed during the budget planning and reviewed on a regular basis.
					SG2 - Resources are balanced with capacity plans The resources provided for the product and service offerings are sustained and balanced with the capacity plans of the offerings.	1,00	The capacity planning is done according to the quantification of the work to be done, established in the internal service agreements (ISA) and the capacity available (specially FTEs). During the FY, the capacity planning may be adjusted, when volumes are changing and changes are requested (arising from the change request management process.
3	13	**Organizational Configuration Management (OCM)**	Organizational Configuration Management identifies, manages, and controls the content and changes to the organization's configuration management (CM) product baselines that compose and support the organization's product and service offerings.	1,00	**SG1 - Configurations are identified** The organization's CM product baselines and their configuration items that will be controlled are identified.	1,00	The configuration of the organization is clear in all the organizational levels with the identification of its configuration items.
					SG2 - Contents of configurations are controlled The content of the organization's CM product baselines and their configuration items are managed and controlled.	1,00	Changes to the configuration of the organization arise from the change management process, as well as from corporate guidelines. The auditing and control processes in place allow to monitor and control configurations.
					SG3 - Configuration management information is reported Information that describes the content and status of the organization's CM product baselines and their configuration items is maintained and reported to relevant stakeholders.	1,00	Information regarding organization such as structure, processes, procedures, services provided, resources, etc. is communicated to the relevant stakeholders through regular team meetings, business lines meetings, service reviews, and other communication actions.

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3	14	**Product and Service Business Management (PSBM)**	Product and Service Business Management plans and manages the business and financial aspects of a product and service offering.	1,00	**SG1 - Offering features and strategy are defined** Capabilities and features of a product and service offering are defined based on the needs of the customers and it's positioning in the market.	1,00	The internal service agreements established between the organization and its customers are defined along with the customers and include their needs in terms of service offering.
					SG2 - Offering business case is available The business case for including a product and service offering in the organization's portfolio is available for making business and management decisions.	1,00	The establishment of the internal service agreement as associated a business case where the feasibility of providing that services is studied and the cost benefit and impact is analysed. The results of this business case are incorporated into the pricing defined for the service.
					SG3 - Offering business aspects are managed The business and financial aspects of a product and service offering are managed.	1,00	During the service lifecycle, financial analysis is conducted to ensure that the assumptions from the business case are realized, as well as to ensure that the return rate is as expected.
3	15	**Product and Service Work Management (PSWM)**	Product and Service Work Management plans and manages the work and results for a product and service offering using the organization's process assets and defined processes that are tailored from the organization's standard processes.	1,00	**SG1 - Product and service work is planned** The product and service work for an offering is estimated and planned using defined processes and organizational process assets.	1,00	When providing a new service, or implementing a change request, estimation of the work to be conducted is done, as well as the business case and impact analysis. This is done with the information obtained from the current processes in place.
					SG2 - Product and service work is monitored The actual work activities, performance, and results for a product and service offering are monitored against the defined processes, plans, and commitments.	1,00	Internal service agreements establish several KPIs related with the service offering that are measured and reported periodically to the relevant stakeholders. This is done through periodic service reviews.
					SG3 - Product and service work corrections are made Corrective actions are performed when the work activities, performance, or results for a product and service offering deviate significantly from the requirements, plans, and commitments.	1,00	Service reviews include the following minimum content: KPIs related to service delivery performance as requested by the customer, Complaints/ escalation/ issues, USI surveys. In these service reviews, deviations are analysed and improvement measures are proposed. Corrective actions also arise from other internal processes such as non-conformances identification (through 8D tool) and FMEA analysis, among others.
3	16	**Product and Service Preparation (PSP)**	Product and Service Preparation establishes the requirements for a product and service offering and develops and prepares the offering so that it is ready for deployment	1,00	**SG1 - Offering requirements are specified** The requirements for a product and service offering are defined and documented.	1,00	The Internal service agreements describe the requirements of the customer. They are documented and have the agreement from the organization and its customer.
					SG2 - Offering is constructed A product and service offering is designed, developed, constructed, and documented to satisfy its requirements.	1,00	Service provision considers the requirements defined in the ISA, as well as the performance agreement established through the KPIs. They are the input for the offering of a service that is designed and documented, in detail, through the work instructions.

Mat. Level	#	Process Area	Purpose statement	Overall Score	Specific Goals / Institutionalization Goals	Achieve-ment score	Justification
			and use.		**SG3 - Offering is demonstrated** A product and service offering is demonstrated to be ready to be deployed, operated, and supported.	1,00	Before a release of a new service, or a change to a current service, the organization implement the necessary tests to ensure that it can be performed as expected.
3	17	**Product and Service Deployment (PSD)**	Product and Service Deployment installs, modifies, replaces, and removes the people, equipment, computing and communication infrastructure, supplies, and other resources used in operating and supporting a product and service offering.	1,00	**SG1 - Offering deployment is planned** The plans for deploying a product and service offering are defined, documented, and agreed to.	1,00	Before a new service is provided by the organization, a plan is defined that includes, among other aspects, a business case and impact analysis. This is documented and agreed with the customer through the internal service agreement.
					SG2 - Offering is deployed A product and service offering is deployed to support the needed capacity.	1,00	Capacity planning for service delivery to customers is performed during the budget planning and reviewed on a regular basis.
					SG3 - Deployed offering is demonstrated When a product and service offering is deployed, that offering and the other affected offerings are demonstrated to be ready for operations.	1,00	The availability to provide the new service is one of the components of the business case and impact analysis conducted. The processes and procedures to offer the service are fully implemented and followed for all customers/ operations. The offer only is deployed when it is demonstrated to be ready.
3	18	**Product and Service Operations (PSO)**	Product and Service Operations provides the customers of a product and service offering with the capabilities and features of the offering.	1,00	**SG1 - Offering resources and information are provided** Resources, information, and support for a product and service offering are provided, as needed, to the customers.	1,00	A portfolio of services available is established and provided to the customer and other relevant stakeholders. When requested, information about the services is provided to the customers.
					SG2 - Offering transactions are performed The transactions for a product and service offering are performed and intermediate and final results are verified and communicated to relevant stakeholders.	1,00	During service provision it is established regular communication with the customer and relevant stakeholders to provide information about intermediary results.
					SG3 - Results of offering transactions are finalized Results of the transactions for a product and service offering are assembled, verified, stored, and communicated to relevant stakeholders.	1,00	The results of the service offering are reported through the defined KPIs in the regular service reviews conducted with the customers. They are also communicated to the relevant stakeholders.
3	19	**Product and Service Support (PSS)**	Product and Service Support maintains the infrastructure, supplies, and other resources	1,00	**SG 1 - Offering components are maintained** The offering infrastructure, supplies, and other resources needed to operate and support a product and service offering are maintained over the life of the offering.	1,00	The service and its support infrastructure are ensured during the timeframe established in the internal service agreement.

Mat. Level	#	Process Area	Purpose statement	Overall Score	Specific Goals / Institutionalization Goals	Achieve-ment score	Justification
			needed to sustain the operations and availability of a deployed product and service offering.		**SG2 - Offering disruptions are managed** The offering infrastructure, supplies, resources, mechanisms, data, and information are managed to be able to operate a product and service offering during and following disruptive events.	1,00	Business Continuity Model (BCM) is established to ensure that the services are provided during and following disruptive events. The recovery time objective (RTO) is established and communicated to the customer.
					SG3 - Offering support is provided Problems and issues identified in deploying, operating, and supporting a product and service offering are resolved.	1,00	Support is provided to the client through the agreed methods such as email, ticketing tools, etc. Incidents are reported, documented and resolved through the incident management process in place. This is also a point of the regular service review meetings with the customers.
4	20	**Organizational Common Asset Management (OCAM)**	Organizational Common Asset Management determines the common characteristics of the organization's current and future products and services and exploits this commonality to improve the performance, quality, cycle time, throughput, and predictability of the organization's processes.	1,00	**SG1 - Common assets are developed** Work products, lessons, knowledge, and other results from performing the organization's processes are captured and developed into common assets.	1,00	There is a best practice community in place that identifies lessons learned, best practices and other relevant knowledge to share within the organization and with other similar organizations within the same group.
					SG2 - Common assets are deployed Common assets are deployed for use across the organization.	1,00	The lessons learned, best practices and knowledge are documented and implemented across the organization.
4	21	**Organizational Capability and Performance Management (OCPM)**	Organizational Capability and Performance Management quantitatively characterizes the capability of the organization's standard processes, and develops and provides the capability data, baselines, and models to quantitatively manage	0,58	**SG1 - Goals and capabilities are quantified** Quantitative performance and quality goals for the organization's products and services, and quantitative methods for managing the capability of the processes for the product and service work are defined.	1,00	Quantitative performance and quality goals are established through the KPIs defined in the internal service agreement established with each customer. The capacity available is considered in the capacity planning conducted on a regular basis, as well as in the business case and impact analysis conducted upon a new service offering or a change request to current services.
					SG2 - Baselines and quantitative models are available Capability baselines and quantitative predictive models are developed and made available for use in quantitatively managing the organization's product and service work.	0,25	The capacity planning allows the organization to quantitatively measure the capacity of the organization and set up the baseline. Currently it is not implemented predictive models to quantitatively manage the work to be performed by the organization.

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			the organization's products and services and associated work efforts.		**SG3 - Organization capability is quantified** The capability of the organization's standard processes is understood in quantitative terms.	0,5	In spite of the capacity planning conducted on a regular basis, this is focused on the service offering and not yet focused on the process level.
4	22	**Product and Service Process Integration (PSPI)**	Product and Service Process Integration interweaves the work processes of the different disciplines and roles involved in the product and service offering to improve the efficiency and effectiveness of interdependent work.	0,875	**SG1 - Interdependent processes are integrated** The processes of the disciplines involved in a product and service offering are integrated to improve the efficiency and effectiveness of interdependent work.	1,00	The recent reorganization has been focusing on implementing an end-to-end vision of the processes. This allows more integration between related processes to improve its work and performance.
					SG2 - Integrated processes are used Integrated product and service processes are used in planning, managing, and performing the work involved in a product and service offering.	0,75	The service offering is done from an end-to-end perspective, aligned the recent reorganization. They are considered in the planning, management and delivery of the work done. Due to the recent implementation of this approach, this could be done in a more systematized and extensive way.
4	23	**Quantitative Product and Service Management (QPSM)**	Quantitative Product and Service Management plans and manages the work involved in a product or service so that the product or service achieves its quantitative performance and quality goals.	0,50	**SG1 - Goals and management mechanisms are defined** Quantitative performance and quality goals for a product or service and the defined processes, plans, models, and methods needed to achieve these goals are defined.	1,00	The KPIs defined in the internal service agreements (ISA) establish the quantitative performance and quality goals. Through the quality management system in place, that includes several models and methodologies as FMEAs, 8D, etc., plans are defined to improve the processes and, ultimately, to achieve the proposed goals.
					SG2 - Achievement of goals is managed The product and service work is statistically managed to achieve the defined quantitative goals.	0,00	There is not a statistical process to manage work in order to achieve the proposed goals.
4	24	**Quantitative Process Management (QPM)**	Quantitative Process Management statistically manages the performance of a work effort that performs work for developing, preparing, deploying, operating, or supporting a product or service so that the performance and quality goals assigned to that work	0,33	**SG1 - Work effort is quantitatively planned** A work effort is planned to achieve its quantitative goals.	1,00	The work effort necessary to provide the service and achieve the defined KPIs (quantitative) is planned through the capacity planning process.
					SG2 - Process variation is statistically managed Variation in the performance of the work processes for a work effort is understood and managed to support achieving its quantitative goals.	0,00	Although there is an understanding of the deviations between the work effort estimated and the actual work effort, this is done in a subjective and qualitative way and not statistically managed.
					SG3 - Work effort is statistically managed A work effort is statistically managed to achieve its quantitative goals.	0,00	Work effort is managed to achieve the defined goals but it is not done in a statistically way.

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			effort are achieved.				
5	25	**Organizational Improvement Planning (OIP)**	Organizational Improvement Planning establishes the organization's quantitative improvement goals (based on the organization's business issues, goals, and strategies), establishes the infrastructure for systematically pursuing improvements, and defines the strategy for achieving the goals.	1,00	**SG1 - Organizational systems and improvement strategies are aligned** The organizational infrastructure and management systems are aligned to support the organization's strategies for continuous and measurable improvement of its performance and quality.	1,00	One of the targets of the organization is related with the score achieved in the quality management system (9MEs). This shows a clear concern of the management in improving the maturity level of the organization towards quality, performance and continuous improvement. The management systems in place are aligned with the continuous improvement strategy and there are several approaches, methods and tools in place to promote the achievement of the defined targets.
					SG2 - Improvement needs are defined The organization's improvement goals are defined in quantitative terms.	1,00	Organizational targets are defined in quantitative terms and assume an improvement regarding previous year. This improvement target can be quantified.
					SG3 - Improvement work is aligned with objectives The organization's improvement activities and results are kept consistent with the organization's improvement strategies and quantitative improvement goals.	1,00	The defined targets are the NorthStar of the organization activities which means that the improvement activities undertaken by the teams always have in mind the defined improved targets. These targets, as mentioned before, are possible to be quantified.
5	26	**Organizational Performance Alignment (OPA)**	Organizational Performance Alignment maintains proper alignment of the organization's business strategies and the organization's quantitative business goals up and down the organizational levels and across the organization's product and service offerings.	1,00	**SG1 - Strategy and goals are aligned** The plans, commitments and quantitative goals for the product and service offerings, units, workgroups, and individuals are aligned with the organization's business strategies and quantitative business goals.	1,00	The target definition process follows a top-down approach. The board defines high level targets that are drilled down to the business units, service lines, teams and, in the end, to the individuals. These targets are quantitative. When creating the plans for each FY, the organization aligns the activities to be performed with the defined targets and expected results.
					SG2 - Performance and results are aligned The performance and results of the individuals, workgroups, units, product and service offerings, and organization are adjusted to address the organization's business strategies and achieve the organization's quantitative business goals.	1,00	Performance and results of all organizational levels are measured against the defined targets, according to the process mentioned above. As the target definition process is aligned with the business strategy and result in the definition of quantitative goals, it is possible to conclude that performance and results are aligned with strategy and business goals.

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5	27	**Defect and Problem Prevention (DPP)**	Defect and Problem Prevention identifies and addresses the causes of defects and other problems that are the primary obstacles to achieving a work unit's or workgroup's plans and quantitative improvement goals so these defects and problems do not recur.	1,00	**SG1 - Root causes are determined** Root causes of defects and other problems that are the primary obstacles to achieving the plans and quantitative improvement goals of a work unit or workgroup are systematically determined.	1,00	Root causes are systematically determined in a reactive and proactive way. The non-conformance issues are recorded and processed using 8D methodology that includes root cause analysis with corrective and Preventive Actions. FMEA methodology, although more focused on the risk assessment and process improvement, also addresses, in a proactive and indirect way, potential root causes for the identified issues.
					SG2 - Root causes are addressed Root causes of defects and other problems that are the primary obstacles to achieving the plans and quantitative improvement goals of a work unit or workgroup are systematically addressed to prevent them from recurring.	1,00	Root causes are the basis for identification of process improvements. Through the 8D tool, reoccurrence is possible to be evaluated and addressed. Also, one important piece is the monitoring of this process. Every 3 months, the tools releases quantitative and qualitative reports that are analysed from the teams. One of the key indicators is the recurrence of the issue which gathers special attention and should be addressed again in terms of root cause identification and improvement solutions. This is key to prevent the same error to occur.
					SG3 - Prevention information is disseminated Information from the work unit's or workgroup's defect and problem prevention activities of a work unit or workgroup that is useful in other improvement activities is disseminated to relevant stakeholders.	1,00	There are several communication routines that support a proactive approach towards errors. Some examples are: i) every time an incident is registered in the 8D tool, a notification to relevant stakeholders is released; ii) non-conformances and issues are addressed in the internal team meetings, as well as in the service review meetings held with the clients; iii) information about lessons learned and best practices is shared through teams in different locations.
5	28	**Continuous Capability Improvement (CCI)**	Continuous Capability Improvement continually and measurably improves the performance of the organization's processes by identifying and deploying incremental improvements.	0,25	**SG1 - Individual processes are improved** The performance and results of the individuals' personal work processes are continually and measurably improved.	0,25	The organization has not yet in place an approached towards individual process performance. For example, there is not a process auditing approach yet. This is done currently in an indirect way through the definition of KPIs. If the KPIs are not being fulfilled, this means the process is not performing as expected, thus needs improvement measures.
					SG2 - Workgroup processes are improved The performance and results of the workgroup's work processes are adjusted for the workgroup characteristics and continually and measurably improved.	0,25	The absence of an approach towards process performance is also applicable to workgroup processes. Similar to the individual processes, this is done in an indirect way through all the mechanisms in place for quality and performance improvement.
5	29	**Organizational Innovative Improvement (OII)**	Organizational Innovative Improvement formulates a complete	1,00	**SG1 - Improvements are identified** Improvements are identified to address specific quantitative improvement goals assigned to a	1,00	Improvement actions are identified as a result of the approaches, methods & tools in place. They are implemented with the purpose to improve the business goals and the KPIs established with the customers that are defined in quantitative

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			improvement solution that, when deployed, will achieve specific assigned quantitative improvement goals.		planned improvement effort.		terms.
					SG2 - Improvement solution is developed A complete improvement solution that, when deployed, will achieve specific quantitative improvement goals, is developed and verified.	1,00	Improvement activities and solutions are developed and verified to be deployed in order to achieve quantitative improvement goals.
					SG3 - Improvement solution is prepared for deployment A complete improvement solution that, when deployed, will achieve specific quantitative improvement goals, is prepared for deployment.	1,00	The improvement activities implemented are followed by several key activities such as communication, trainings, etc. according to the identified needs.
5	30	**Organizational Improvement Deployment (OID)**	Organizational Improvement Deployment continually and measurably improves the organization's performance and quality by transitioning improvements into use in a systematic manner.	0,67	**SG1 - Deployment of improvements is planned** Deployment of improvements that contribute to meeting the organization's quantitative improvement goals is planned, and the results are predicted in quantitative terms.	0,5	The improvement actions are identified and planned for implementation in order to improve the quantitative targets defined by the organization. However, the improvement actions are not quantified in terms of its impact in the defined goals.
					SG2 - Improvements are deployed Improvements are deployed that continually and measurably improve the organization's performance and quality.	0,5	Improvement solutions are deployed but they don't have associated a quantitative improvement target. There is an assumption that the implemented actions will improve the quality and performance of the processes and, ultimately, the KPIs and there is a subjective opinion if the process was improved or not after to the implemented actions. However, it is not possible to understand in what extent each action contributed to the improvement and it is not possible to understand it in a quantitative way.
					SG3 - Improvement program is improved Information on the organization's process improvement activities and results is recorded, analysed, and communicated to improve the organization's improvement program.	1,00	The improvement activities are communicated, as well as their results, although they are perceived in a qualitative way. The current tools implemented within the organization (e.g. 8D tool) allow to have a record of the improvement actions, their results and be the basis to be communicated to relevant stakeholders. Results are also visible through the 9MEs score that has a specific communication process. Additionally, the specific forums for sharing improvement activities, lessons learned and best practices within and among locations are an important communication activity about the organization's improvement program.