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**A trustworthy strategy to incorporate RPA in
Marketing Campaigns**

Tomás Mendes

Master Thesis

presented as partial requirement for obtaining a Master's Degree in Data-Driven Marketing

NOVA Information Management School
Instituto Superior de Estatística e Gestão de Informação

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**A trustworthy strategy to incorporate RPA in
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by

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Master Thesis presented as partial requirement for obtaining the Master's degree in Data-Driven Marketing, with a specialization in Digital Marketing & Analytics

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STATEMENT OF INTEGRITY

I hereby declare having conducted this academic work with integrity. I confirm that I have not used plagiarism, any form of undue use of information or falsification of results along the process leading to its elaboration. I further declare that I have fully acknowledged the Rules of Conduct and Code of Honor from the NOVA Information Management School.

Tomás Mendes

Lisbon, Portugal, July 15th, 2024

ABSTRACT

Robotic Process Automation (RPA) has become a hot topic within companies. Its capabilities benefit them in staying highly competitive in an ever-changing market. Its adoption has rose and companies use it as a solution to reduce time spent with monotonous tasks, allowing employees for a deeper involvement in valuable activities. RPA's recency reflects a lack of trustworthy strategies for its implementation. With the rapid growth of technology, the process of conducting a marketing campaign has changed and marketing teams need to ensure maximum efficiency and productivity to thrive in a complex market. A clear strategy for RPA incorporation in campaign activities can help the company to succeed in that. To achieve this goal, after a detailed literature review is made, a comprehensive model and analysis of a campaign flow will be developed using Business Process Management (BPM) practices. The tasks that are the most suitable for RPA enhancement will be identified, and a final strategy of incorporation will be presented. It is intended to contribute positively to keeping marketing departments updated and competitive.

KEYWORDS

Robotic Process Automation; Marketing Campaigns; Business Process Management; Automation

Sustainable Development Goals (SDG):



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LIST OF ABBREVIATIONS AND ACRONYMS

AMA	American Marketing Association
BPM	Business Process Management
BPMN	Business Process Management Notation
DSR	Design Science Research
FTE	Full-Time Equivalent
RPA	Robotic Process Automation
RDA	Robotic Desktop Automation
SEO	Search Engine Optimization

1. INTRODUCTION

1.1. BACKGROUND AND PROBLEM IDENTIFICATION

In today's highly digitalized and constantly changing enterprise world is pivotal for companies to keep up with the most recent solutions and technologies. In that sense, Robotic Process Automation (RPA) should be considered as one of the digital transformation technologies (Siderska, 2020). RPA rises as an opportunity for increasing productivity by replacing the less glamorous, manual tasks, with automated tools that ensure its completion at a faster pace. These tasks can include simple actions like logging into applications, copying and pasting data, filling forms, among others (Asquith & Horsman, 2019). In that sense it is important for companies to make sure all their processes are extremely optimized both time and productivity wise to stay as competitive as possible in the market.

The adoption of RPA is already at a developed state in areas such as finance, banking, and healthcare (Mehta & Chaher, 2022). Still, we are yet to see its impact on marketing activities, more specifically on marketing campaigns. RPA can represent a powerful tool for marketers to improve their operations, enhance efficiency, and drive more effective campaigns. It is useful for data management and analysis, helping to filter and organize all the information. Furthermore, it can enhance other traditional marketing practices, such as email marketing and social media posting.

Therefore, by integrating RPA into their marketing campaigns, companies are unveiling a powerful asset that will ultimately allow them to enhance their general efficiency and decision-making. Also, it gives marketing teams the ability to play a crucial part in a company's success by assisting it in remaining competitive and customer focused (Lacity & Willcocks, 2016). In that sense, a clearly designed strategy can ensure that RPA is seamlessly implemented on a marketing campaign.

To conclude, the previous assumptions lead to the formulation of the following research questions:

- What are the best ways to use RPA to help the Marketing Department be more efficient in a campaign?
- How can we automate Marketing campaign related activities?

1.2. OBJECTIVES

If incorporated correctly, Robotic Process Automation can certainly enhance the process flow in marketing departments. Therefore, the goal of this research is to propose a trustworthy strategy to incorporate RPA in marketing campaigns.

In order to achieve this goal, the following intermediate objectives were defined:

- Study Process Automation approaches with a particular focus in RPA
- Study the iterations of a marketing campaign.
- Use BPMN 2.0 to model the process flow of a marketing campaign.
- Use the acquired knowledge to propose a strategy for the use of RPA in marketing activities.
- Validate the strategy by interviewing experts in the area.

1.3. IMPORTANCE AND RELEVANCE

The enterprise world is in constant change and the most highly regarded companies are in some way connected to the digital world. Companies are using various digital technologies and data sources in their activities (Woerner & Wixom, 2015). In the marketing scope, this highly digitalized world has an important impact on how the marketeers communicate the product and it is fully present in department activities. The way a campaign is planned and developed has abruptly changed with the constant iteration and development of new technologies. Therefore, RPA comes as a way to, through the use of technology, ensure that the process runs as efficiently as possible.

In that sense, the definition of a clear strategy to incorporate RPA in marketing campaigns will allow companies to make the best decisions on RPA implementation. If followed, the implementation can better contribute to the enhancement of marketing operations within companies. It will improve efficiency and reduce operational costs (Lacity & Willcocks, 2016) by automating repetitive and time-consuming tasks, ultimately allowing marketeers to focus on more complex and valuable tasks.

In addition, it will contribute significantly to the company's development, reducing costs with mundane tasks and increasing revenue through improved marketing effectiveness and customer engagement. The application of RPA will ultimately benefit in terms of productivity, costs, speed and error reduction (Aguirre & Rodriguez, 2017) thus allowing marketing teams to play a crucial part in a company's success.

2. LITERATURE REVIEW

2.1. MARKETING

2.1.1. CONCEPTS

Marketing is an essential principle for every business or company. It delves towards the importance of connecting and satisfying the customer's needs and consequently achieving the proposed business goals. It ensures that the business model keeps a consumer-centric approach assuring that all efforts lead to bringing value to the client.

At this stage it is also pivotal to understand how marketing and marketing departments are defined within an enterprise. Marketing is a very broad area that incorporates a considerable number of subjects. According to American Marketing Association (AMA) (2013), marketing is "the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large". This is the lastly approved official definition and thus the most accurate one. Moreover, it involves understanding what the customer and clients need, creating products or services that match those needs and creating an effective channel of communication for those items. Ultimately, the goal of marketing is to keep the relation with the customer as strong as possible so that the organization can benefit and succeed in the competitive market.

2.1.2. AREAS AND MAIN ACTIVITIES

The marketing department plays a crucial role in every enterprise. It is a driving factor in their success. In that sense, marketing is responsible for devising and implementing new and unique strategies to promote the products or services, enhance brand perception, and ultimately drive sales. So, in order to attain the desired goals, the marketing department must be precisely designed, and the activities performed must be clear.

At present, a structured marketing department should include activities related with market research and segmentation, development of business strategy, strategic planning, advertising, and realization of production (Dubickis & Ginevičius, 2014). Naturally the activities performed may vary from company to company, depending on their context and objectives. Market research, as defined by Burns and Bush (2014), is the process of gathering, analyzing and reporting data that can be used to solve a specific marketing case. This activity's main goal is to ensure an informed decision-making process that enhances organizational strategy. In addition, the department is also responsible for managing the brand identity, keeping its consistency throughout all communication channels and pursuing a strong relationship with the customers. Another key area is advertising and promoting the brand. Marketing teams are tasked with finding the best way to create awareness and generate interest in the products through appealing campaigns.

In recent years, other activities have emerged within the marketing process. With the incorporation of technology in daily life, digital marketing has gained a lot of traction inside organizations. This kind of marketing comprises tasks such as managing social media, Search Engine Optimization (SEO), e-mail communication and other, with the final objective of increasing the reach and engaging with costumers (Chaffey & Smith, 2022). Moreover, besides focusing on marketing activities and to guarantee the good functioning of the organization, teams are in constant interaction with other departments such as Sales, Creative, Communications departments.

2.1.3. THE ROLE OF TECHNOLOGIES

The ever-growing technology world has been straightly connected to the developments in the marketing paradigm. The new technologies play a critical role in companies' marketing departments as they allow the marketeers to conduct their work with different and improved tools and consequently reach the customers through different communication channels. According to Hoffman (2022), these new technologies can impact marketing in four different ways. Technology "(1) supports new forms of interaction among consumers and firms, (2) provides new types of data that enable new analytic methods, (3) creates marketing innovations, and (4) requires new strategic marketing frameworks". New technologies enable new forms of communication between consumers and organizations. Digital channels significantly change the dynamics between brand and customer. As a recent example of that, Nike, has adopted in-store technologies that provide a better customer experience thus empowering the brand-costumer connections (e.g. implementation of treadmills so customers can test their running shoes and use of data analytics to open relevant pop-up stores) (Padua, 2021). At a broader level, technologies like apps, podcasts, websites, chatbots and others are some of the most prolific ways to enhance brand communication. More recently, the use of data analytics is considered to be pivotal for organizations, as Bean and Davenport (2021) reported, around 94% of businesses consider data and analytics to be essential for their digital transformation and growth. Many studies have been recognizing the potential unveiled by technology to create new marketing tools. Personal live streaming to help customer experience is considered to be a tool to keep an eye on in the future (Bharadwaj et al., 2022). Highly capable virtual audio assistants will help companies like Amazon and Apple in customer targeting based on conversation (Oh et al., 2020). In a concluding remark, the new types of technology and data allow marketeers to strengthen and diversify the way that communication is made and to conduct decisions in a more supported manner.

2.1.4. MARKETING CAMPAIGNS

At present, marketing campaigns are seen as very important parts of a company strategy. They have a direct impact on sales and public perception, what makes its planning and coordination a top priority for every marketing department. Because of today's competitive marketplace,

it is difficult for companies to gain advantage and guarantee the loyalty of their customers (Luxton, 2002). In that sense, having a well-designed marketing strategy can represent an initial competitive advantage.

As defined by Kotler (2020), Marketing is “the process which creates, communicates, delivers the value to the consumers, and maintains the relationship with consumers”. Additionally, it acts as a base and is responsible for creating the strategy that supports the way of action of other departments – it helps to define sales techniques, communication paths and business processes. A clear marketing campaign strategy will be one of the main enhancements towards business goals completion.

To develop an effective strategy for marketing campaigns marketers must take into consideration the customer needs and customer trends (Management Association, 2015). Also, according to Zieger (2023), it is recommendable that the strategy is customer-oriented and personalized. The planning must include specific segment targeting and the creation of buyer personas to help envision the path to follow to properly reach the customer. In addition, when designing the foundations of the campaign, considering fundamental marketing elements like the 4Ps of Marketing (Product, Price, Place and Promotion) will end up enhancing its result.

In the context of online marketing, Grifoni (2012) outlined the main stages of a campaign as follows: (1) business context and situation analysis, (2) definition of objectives and targets, (3) creation of a strong message and selection of tools and (4) implementation. From a more recent perspective, Chaffey and Smith (2022) propose a slightly different method comprising also of an initial situation analysis and planning phase, followed by the design and strategy, implementation and, lastly, control and monitoring. The first phase involves performing a market analysis and research. According to Chaffey and Smith (2022), situation analysis must incorporate a “thorough analysis of customers, competitors, partners, competencies, performance/results and market trends”. They defend that the customer analysis must clearly answer to the questions “Who?”, “How?” and “Why?” – e.g “Who is the ideal customer?”, “What are the customers’ needs?” and “How do customers buy?”. Regarding the competitor’s analysis, Smith (2016) indicates that is crucial to perform an analysis that states the organization’s strengths and weaknesses (compared to its competitors) and the opportunities and threats – SWOT analysis (Strengths, Weaknesses, Opportunities and Threats). In addition, KPIs (Key Performance Indicators) and current market trends should be included in this first phase. Next, as mentioned above, a clear definition of objectives and targets should be established. For that, it is useful to make sure that they are aligned with the framework proposed by Doran in 1981 – SMART framework (Specific, Measurable, Achievable, Relevant, and Time-bound) (Doran, 1981). The definition of objectives is a key part of the process and directly influences all the other steps. Afterwards, the third phase of the process can be initialized. This involves the development of creative elements that can translate into a successful message appeal. Depending on the nature of the campaign, promotional content

in the form of advertisement can be created. Ensuring that the company values are expressed through the message and that the target is moved by it is the main concern at this point. Subsequently, the tools and channels that allow the message to be transmitted are to be defined. The selection of such tools should be directly based on the identified customer needs and wants (P. Kotler & Keller, 2016). If done correctly, will increase the efficiency and effectiveness of the campaign. The outcome can be presented in different ways ranging from digital marketing to traditional marketing tools. For instance, using social media, e-mail marketing, television advertising, outdoor advertising or direct marketing. Finally, to end the process, the campaign must be launched according to a well delimited action plan. This plan requires attention and concise coordination and cooperation between internal parties (Chaffey & Smith, 2022). After launch, it is also important to control the campaign's performance. This can be achieved by monitoring its evolution using KPIs and defined metrics. The alignment towards those aspects dictates either or not the implementation of corrective measures.

Due to recent breakthroughs in the marketing spectrum, web and technology-based tools have a major preponderance on the way marketers conduct their strategies. As mentioned by Grifoni (2012), the incorporation of web in marketing campaigns enhances the business in a "cost-effective and practical manner". Its use benefits marketers in the research and communication phase of a campaign. It allows a different distribution of the product or service, increases business reach (allowing it to be present in several markets) and benefits communication between marketing partners. Additionally, companies are shifting their attention to social media based approaches because most of their customers are now active on those platforms (Tiago & Veríssimo, 2014).

Most recently, the incorporation of Data Science in the marketing environment has increased (Saura, 2021). Facilitating the initial gathering of data to perform customer and segment analysis as well as enhancing the decision-making process by ensuring a data-anchored approach. The use of analytic and big data tools provides a deeper understanding of customer behavior and trends. It also allows to perform real-time analysis, which further improves the control and monitoring of a campaign.

Today, most of the processes are already conducted in technologically supported environments. If we deepen in the activities performed by a marketing department, it is noticeable a clear presence of web-based processes. For instance, most companies now have dedicated marketers that take care of SEO (Search Engine Optimization) and SEM (Search Engine Marketing) activities in order to improve brand visibility as it is proved to be an essential practice for enhancing online presence (Ologunbe & Taiwo, 2023). There are also text mining derived techniques that end up playing a major role in customer identification. One recent example is Sentiment Analysis which is an area derived from Natural Language Processing (Kauffmann et al., 2020) that has as main objection the identification of the

sentiment, mood or opinion expressed by customers in a social media environment (Bhadane et al., 2015; Medhat et al., 2014).

Overall, it can be said that there is a big range of technology-based tools that can be incorporated in a campaign, from the analysis and preparation phase to the launching and monitoring. Those tools can seamlessly improve the totality of the process.

2.1.5. MARKETING CAMPAIGNS AUTOMATION - CHALLENGES AND OPPORTUNITIES

Digital transformation disrupted the traditional marketing world. It has changed the way organizations strategize and plan business goals and shapeshifted the way that the final product or service is brought up to the audience. Automation now plays a key role in each organization and marketing teams are strengthened by the presence marketing automation in their activities (Zaki & Fernandez, 2023). Certainly, automation and the introduction of digital marketing have contributed heavily to the current state of marketing campaigns. Automation and digital transformation are related and dependable. According to Siderska (2020), automation drives and accelerates the digitalization. Although, automation is only implemented with technologically provided tools.

By automating simple processes, organizations have experienced several positive impacts on their strategic goals, staff productivity, and customer service (Lacity & Willcocks, 2016). The overall efficiency of the campaign increases, and all activities become more accurate and effective. The human error risks become nonexistent, the costs decrease, and the processes can easily be adjusted and scaled up or down. Some examples of automated tasks that are already being implemented are sending emails, posting on social media, and others.

In a data-oriented perspective, automation is appealing to marketers because it helps the handling of large quantities of retrieved data (Silva et al., 2023). There are trained models that can be used to identify patterns in data and retrieve predictions (Kumar et al., 2021), generating valuable knowledge that can help marketers.

Notwithstanding, there are also some considerable drawbacks coming from digitalizing and automating certain processes. To ensure proper integration, companies need to update their existing infrastructure. Predisposition to invest in hardware and software is required. After all this, it is necessary to keep track of the constant change and innovation in technology. The highly competitive markets will demand constant actualization and marketing departments who cannot cope with those requirements will likely be left behind. Other aspect that might be challenging is the possible resistance or lack of ability from the employees to change their processes (Todor, 2016).

Overall, digitalization and automation have considerable potential and can enhance and streamline workflows. Still, it requires effort from both the employees and companies to properly benefit from their advantages.

2.2. BUSINESS PROCESS MANAGEMENT (BPM)

2.2.1. SCOPE

With the constantly changing state of the market, enterprises are always looking for ways to distinguish themselves from others and be as efficient as possible. In that regard, doors are open to embrace new tools brought by new technology. The adoption of Business Process Management comes as an advantage for companies.

To understand the concept of BPM we must first delve into the business process notion. Davenport (1993) defines it as “a set of logically related tasks performed to achieve a defined business outcome for a particular customer or market”. Thus, BPM can be considered as the art that allows to properly manage those processes. By definition, it is the art and science of how work should be performed in an organization to ensure consistent outputs, take advantage of improvement opportunities, and drive operational excellence (Dumas et al., 2023). In today’s companies, regular examples of improvement opportunities can include “reducing costs, reducing execution times, and reducing error rates, but also gaining competitive advantage through innovation” (Dumas et al., 2018b).

The recent demand for BPM is driven by every company’s necessity to be as competitive as possible. Since it is a vast “science” and can be applied to several situations, BPM draws on concepts from numerous fields such as management, information technology, operations research, organizational behavior among others.

Even though BPM’s adoption by companies is fairly recent, the concept has been around for a considerable time. So, in order to fully perceive BPM’s actual paradigm, we must pay close attention to its history. The importance of BPM emerged in the mid-eighties after Porter (1985) defined the concept of value chain. The companies started to acknowledge the concept of business processes (Lizano-Mora et al., 2021). In the early 2000s the notions of Business Process Modeling Language (BPML) and Business Process Execution Language (BPMEL) appeared so that business can model their processes. The second one was pushed by companies like IBM and Microsoft but both languages rapidly repulsed by businesses owners as they were quite complex and faulty. Around 2010, BPM tools started to arise and allowed users to visualize, apply metrics, analyze, and monitor their processes.

2.2.2. LIFE CYCLE

To attain their business objectives, organizations must carefully understand in which way their processes are contributing to the final picture. They must conduct all the business activities in an efficient and effective manner. In that spectrum, the BPM life cycle is the framework that helps them to put that in practice. The life cycle provides an overview of how procedures are implemented and managed within an organization and systematizes them to allow a better comprehension (Macedo de Morais et al., 2014). Its role is to provide the fundamental concepts of process management in a clear and understandable manner for everyone involved in its implementation, whether current or future (Szelągowski, 2018). According to Dumas (2018), as shown in Figure 1, the BPM life cycle can be described as a continuous cycle that comprises six different phases: *Process Identification*, *Process Discovery*, *Process Analysis*, *Process Redesign*, *Process Implementation* and *Process Monitoring*.

The *Process Identification* phase is the crucial initial step that lays the foundation for structuring and optimizing business processes. Here, all the “relevant processes will be identified, delimited and interrelated” (Dumas et al., 2018b). The final result of this phase is a new or updated version of the process architecture which ultimately offers a comprehensive view of the processes within an organization and how they interact between them.

The second phase, *Process Discovery*, is responsible for gathering all the information established in the previous phase so that an As-Is model can be generated. It can be comprised of one or several As-Is process models. The main objective is to understand and define activities and tasks comprising a process and ensure they are properly visible and distributed. It can be done by completing simple activities like gathering teams together and discussing how they perform certain tasks. By doing this, the process will be clearly mapped and assigned. It also can be completed by assessing already available information comprised in the stored data. Event and transaction logs can be analyzed to identify process steps.

Process Analysis involves studying the current state of the organization's business processes, identifying inefficiencies or gaps, and understanding the requirements for improvement. Also, these issues or gaps coming from the As-Is process will be qualified and quantified using several measures. In regard to the qualitative analysis, unnecessary activities will be withdrawn from the process while activities that may negatively impact the process (but are not unnecessary) will be reevaluated using diverse techniques. Some techniques that may be applied at this stage are value-added analysis, root cause analysis, cause-effect diagrams, why-why diagrams, pareto charts and others. Moreover, in later stages, various techniques will be used to assess the process's performance. These performance measures provide important insights into execution time of activities, time wasted and cost.

Further in the cycle, the *Process Redesign* phase, is where we improve what we modeled previously. The objective is to, based on the analysis, identify what can be changed to align

the business process with the organization motivations. Therefore, the analysis and redesign are strictly connected because the proposed improvements are based on the final output of the analysis phase. After assessing what to improve, the usual come out is a To-Be process model.

In *Process Implementation*, the modifications needed to go from the current process (As-Is model) to the proposed one (To-Be model) are planned and carried out. This stage involves setting up the desired process goals, representing the processes in a schematic view, and automating certain processes (von Rosing et al., 2015). According to Dumas (2018), Process Implementation, covers two essential aspects: *organizational change management* and *automation*. The first one refers to the range of procedures that are necessary to modify how each participant operates in the process. Process automation relates to the creation and implementation of technological systems that improve the to-be process. At the end, this stage might include a set of testing in order to evaluate the integrity of the proposed model.

Ultimately, *Process Monitoring* is crucial to ensure that the process runs as smoothly as possible and that the goals are met. Every piece of data from the To-Be model is assessed with the objective of finding some flaw or error that might have escaped in previous stages. If something arises, it is promptly rectified. This stage is cyclic and continuous to make sure to detect any new deviations. The following figure (figure 1) depicts the BPM lifecycle:

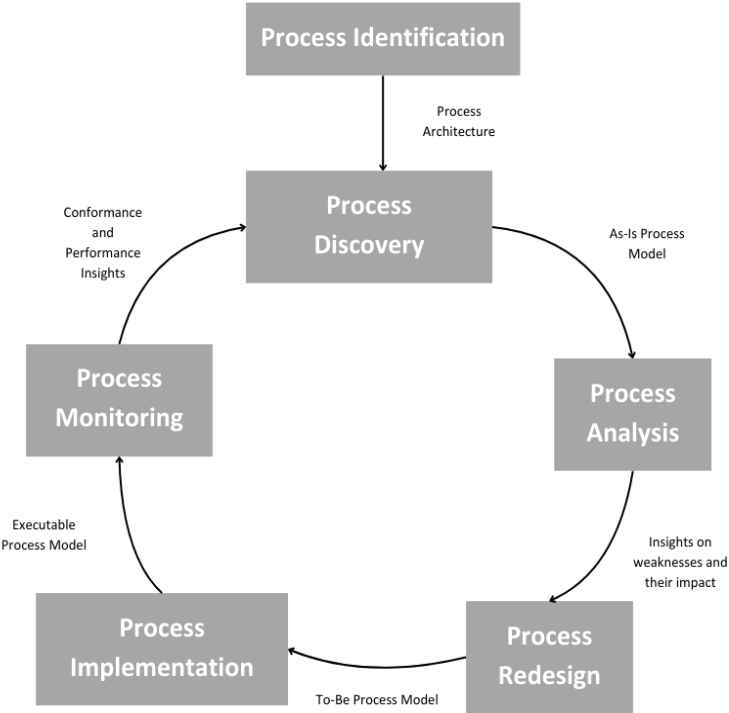


Figure 1 - “The BPM Lifecycle” – adapted from Dumas, 2018

2.2.3. MODELING LANGUAGES

BPM was conceived for modeling organizational processes. To be an understandable tool it needs to have a specific modeling language that describes the processes. In this context, there are many Process Modeling languages, namely IDEF/3, BPMN, UML, SIPOC, LOVEM-M, VSM and others.

Business Process Model and Notation 2.0 (BPMN 2.0) stands as the widely accepted modeling language (Chinosi & Trombetta, 2012). The 2.0 is a revised and improved version of BPMN 1.0 notation where some minor corrections were made (Allweyer, 2016). It was designed to be detailed and to correctly represent every organizational process and its participants, activities, and flow. While some businesses processes can be very complex, this type of notation was idealized to combine detail and ease of read.

BPMN Notation was initially developed by BPMI Notation Group and later joined by Object Management Group (OMG). The addition of OMG allowed the 2.0 version to be created. The notation is comprised of a range of main element categories: *Swimlanes, Flow Objects, Data, and Connecting Object*.

In BPMN, *Swimlanes* are rectangular boxes that represent the people involved in a business process. They are the canvas in which the model is designed. They allow an efficient organization of elements. *Swimlanes* contain flow objects, each one corresponding to a certain lane which corresponds to each participant or entity.

Flow Objects consist of separate objects that together can form a process flow. The connection between them is made by connecting objects (or connectors). This representation allows the readers to acknowledge the dynamics of the business process.

In BPMN there are three types of flow objects, each one with a different purpose and capabilities: *Event, Activity* and *Gateway*.

Events are shown as circles with symbols on the interior that indicate the type of trigger. They represent instances, either internal or external, that directly impact a business process. Events are subdivided into three different types: Start (shows where the process begins), Intermediate (provide additional information within the process) and End (where the process ends).

Activities stand for any kind of work that is done throughout the process. There are two types of activities, the Tasks (utilized to mimic a piece of work that is incapable of being further divided like printing or requesting a document) and the Sub-Processes (non-atomic, complex work that can be further developed into smaller works)(Visual Paradigm, retrieved 16th of January 2024).

Ultimately, gateways are the decision points that regulate the course of a business process. Usually represented as diamond shapes, they split or join the sequence flow (Allweyer, 2016).

Still regarding the main element categories, *Data* elements provide complementary information about the activities.

Further, *Connecting Objects* represent the connections between objects in the process flow and although basic, they are essential for process modeling.

2.3. PROCESS AUTOMATION

2.3.1. CONCEPT

To better understand Process Automation, we must first delve into the simple concept of automation. It refers to a non-manual way to complete a certain task (Kommera, 2019). Through the use of technologic resources and applied to business processes it becomes Process Automation. The final intuit is to facilitate organizational operations by replacing manual processes with new digitally automated ones. Thus, enhancing the process by increasing efficiency and effectiveness, mitigating human errors, and reducing costs. Processes like hiring an employee, producing a product or providing customer services are meaningful examples of process automation.

2.3.2. APPROACHES

Process automation can be approached in different ways and contains several branches that can be leveraged for different contexts.

Workflow Automation is one of them and refers to the application of technology in an organization in order to automate and optimize the completion and movement of tasks, documents, activities and data within work processes. This type of automation is widely implemented in areas such as finance, manufacturing, and travel. It can range from low-level automation to full-level automation depending on how the task is defined and performed and how much human input it has (Zayas-Cabán et al., 2021).

In addition, another branch of automation is industry automation. The last Industrial Revolution shifted the concept of automation within industries. In the Industry 4.0 era, connectivity and digitalization plays a crucial role (Lucizano et al., 2023). Prior to that we had regular automation of manufacturing chains mostly focused on machinery. As of now, it evolved to the use of several technologic systems and bots that enhance a wide range of processes including assembly lines, material handling, quality control, and monitoring.

More recently, and resulting from the late advancements in Artificial Intelligence, Intelligent Process Automation (IPA) comes as a modern automation branch. IPA can be considered an evolution of RPA, because it incorporates advanced technologies and capabilities in already existent automation tools (Siderska et al., 2023). This integration generates end-to-end

processes that are capable of learning and adapting on their own (Kholiya et al., 2021). This allows a different approach towards automation while, instead of following predefined rules (like traditional automation), the system can now make decisions based on data and specific patterns thus resembling certain human capabilities. This ultimately leads to increased efficiency, accuracy and scalability in business processes.

2.3.3. ROBOTIC PROCESS AUTOMATIONS (RPA)

Robotic Process Automation is a subset of Process Automation and refers to the application of technology which is programmed as a “robot” to capture and interface with existing processes (Kommera, 2019). These tasks are usually repetitive, tedious and require little mental effort and, with the use of RPA, the human work can be shifted towards more challenging tasks (Leopold et al., 2018). That may require creative thinking, intellectual judgment, or social skills (Lacity & Willcocks, 2016). On a broader view, and according to a recent research, RPA can be summarized as a recent technology, with very advanced capabilities, that ultimately allows, through the use of software mechanisms, the automation of routine and repetitive tasks that would previously be performed by humans (Moreira et al., 2023).

RPA was first brought up to the organizational world by Patrick Geary at Blue Prism (where he was Marketing Director)(Hindle, 2018). With the constant digitalization of companies, RPA adoption rose tremendously. Despite not being around for that much time, studies show that, by 2022, 85% of large organizations use RPA in their processes (Gartner, 2019). Thus, when adopting RPA for process improvement, organizations experienced improvements in customer service, resource productivity, and strategic goals (Baidya, 2021).

Still, to fully acknowledge RPA it is important to deepen in its history and predecessors. While fairly recent, there is still doubt on whether it should be considered a new development or simply an evolution of previous technologies. Before RPA, organizations relied on other automation tools to simplify their redundant tasks. Data entry and spreadsheet management were among the most affected (Kedziora, 2021). As a developing technology, it still makes use of screen scraping, workflow automation, and artificial intelligence, elevating them and expanding their potential.

Robotic Process Automation is one type of Robotic Automation. The other is Robotic Desktop Automation (RDA). The difference between them is that while RDA consists of using personal robots for every employee, RPA does not need supervision and is capable of fully replicating algorithmic work. In that sense, allows organizations to integrate in a non-intrusive manner (Kommera, 2019). Therefore, presents organizations with very valuable capabilities. It allows to reduce costs. The robot is capable of automating processes and narrowing possible data integration gaps. Also, at the long run, it requires a lower investment cost when compared to an employee that does the same thing thus providing higher efficiency in personnel cost

(Axmann & Harmoko, 2020). Furthermore, it will have direct impact in productivity, as it can speed up the development of associations (Basha et al., 2023). According to Kommera (2019), RPA is typically “two to three times faster than humans” as, besides being faster, it also can work outside of office hours. In addition, efficiency and accuracy is another upside. Robots can perform tasks much faster than humans and, since they are programmed to follow a set of instructions, they will not fail, thus mitigating human error.

2.3.4. USE OF RPA IN MARKETING

As today’s businesses heavily relies on data-driven decisions and technological based processes, RPA emerges as a crucial competitiveness enhancer. In the marketing spectrum, many companies are embracing its capabilities using several automation tools that truly impact their activities. Some examples may include chatbots, email marketing automation, automated forecasting, and others. These solutions are frequently provided by third parties companies like UiPath, Blue Prism or Automation Anywhere. They provide a wide range of tools available for different industries. Their source code is used in millions of machines around different sectors (Issac et al., 2018). Some of these tools can be integrated into already existent software like SaaS or Salesforce. A simple use case of RPA in marketing can be within the field of Search Engine Optimization (SEO). SEO is key to all digital businesses but spending hours researching keywords and monitoring backlinks is unthinkable for most marketers. In that sense, there is automated tools that provide summarized reports and suggest keywords, saving a lot of time and effort to the marketers (Mehta & Chaher, 2022).

Despite being widely used in rule-based and easily reproducible processes, RPA is yet to unleash its full potential. This comes with the integration of Artificial Intelligence mechanisms. This integration is still at an early stage of development (Schmitz et al., 2019). The aim is to have an autonomous system with reaction power to different scenarios thus resembling human capabilities. In a Marketing point of view, this solution its already being applied to data analysis and decision-making processes. A recent example of successful implementation is the e-commerce company Otto. According to Perret and Heitkamp (2021), the company uses artificial intelligence algorithms and deep learning systems to make predictions to understand which products the clients will buy based on their buying behavior. This further allows to order the desired products beforehand, thus reducing potential delays. The algorithm predicts with 90 percent accuracy which products will be sold in the next 30 days.

It is pivotal to understand that RPA is a fairly recent technology and its research and development are still ongoing. Due to the constant change in the marketing and corporate world, RPA is predicted to increase its preponderance and further developments.

3. METHODOLOGY

The objective of this dissertation is to develop a clear strategy for the implementation and incorporation of automation within a marketing campaign. In that sense, it is important to choose an adequate methodology that ensures the viability of the proposed solution. Once the strategy can be seen as an artifact that can translate itself to practical applications, Design Science Research (DSR) methodology is the one that better fulfils the final goal.

3.1. DESIGN SCIENCE RESEARCH

DSR is a widely accepted research approach and paradigm in the Information Systems spectrum. As mentioned by (vom Brocke (2020), DSR seeks to improve human knowledge by creating innovative artifacts and generate more design knowledge (Hevner et al., 2004a) using new solutions to real-world problems. In that sense, DSR includes key concepts such as artifacts. As defined by Hevner, an artifact is "a thing that has, or can be transformed into, a material existence as an artificially made object or process" (Gregor & Hevner, 2013). They can present themselves in different ways including models, theories or even frameworks (vom Brocke et al., 2020) and must produce practical value or an opportunity for innovation (Herselman & Botha, 2015). Furthermore, the artifact must be human made (not naturally made) and designed following rigorous methods (Hevner & Chatterjee, 2010). Additionally, Design Science is technology-oriented and aims towards the creation of things that can serve individual or organizational purposes. It can come as an answer to questions like "How can we develop this?"; "Does it work?"; "Is it an improvement." (Aparicio et al., 2023).

The trustfulness of such artifact has got to be evaluated throughout a series of stages. The evaluation phase is described as a way of assessing the utility and quality of the proposed artifact (Venable et al., 2016). Hevner (2004) states that such evaluation must be made following a rigorous and methodical approach that clearly measures, both quantitatively and qualitatively, the functionality and reliability of the proposed artifact. Additionally, it must be noted that it may be an external or internal evaluation (Herselman & Botha, 2015). As mentioned by Peffers (2007), these evaluation methods may consist of observational methods (as case studies), testing models, analytical methods, and experimental methods. The method used to evaluate will directly depend on the nature of the artifact and its objectives.

In 2007, Peffers (2007) created a new method of properly conducting, presenting, and evaluating DSR (shown in figure 2). He described it as a six-phase process: problem identification and motivation, definition of the objectives for a solution, design and development, demonstration, evaluation, and communication. He believes that, by following these steps, the research is rigorous, representative and that the outcome is valuable to the public.

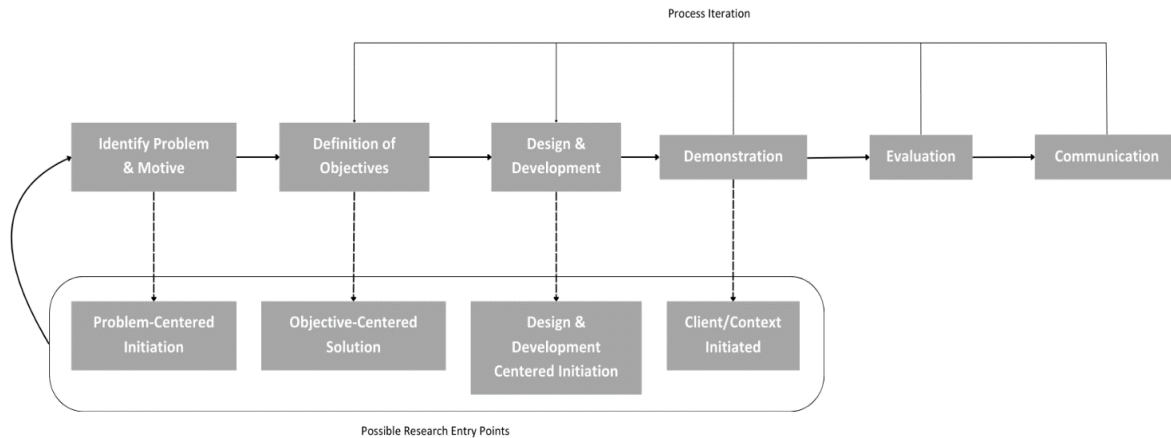


Figure 2 - “Design Science Research (DSR) Phases” - adapted from Peffers, Tuunanen, Rothenberger, & Chatterjee, 2007

1. Problem Identification and Motivation – The first step of the process comprises the identification of a given problem. It is pivotal to ensure the relevance of the problem, or its relevance once solved (Rosemann & Vessey, 2008). It also includes the understanding of the problem principles and context as well as gathering knowledge of its current state and the importance of its solution (Peffers et al., 2007). This phase includes performing a literature review to understand the deepness of the theme and what already exists regarding previous research. It is also vital to identify possible gaps and exploration points in the research. This step is the foundation of the whole process as it points the direction of the project (Ali Khan et al., 2023).

2. Objective(s) Definition – This stage completes the previous one as it helps better define the path to follow. It involves envisioning what the perfect solution would be and defining its core components. A clear definition of the objectives and restrictions is crucial for the success of the project. The outcome serves as an initial guidance for the research.

3. Design and Development – The researcher is tasked with the creation of the artifact that will ultimately solve the identified problem. This artifact can be a model, a method, a piece of software or any other designed solution. Additionally, as mentioned above, other existing solutions and state of the art must be taken into consideration (Offermann et al., 2009). The process can be depicted as iterative and repeatable, as it can involve multiple phases of prototyping, testing, and tweaking (Peffers et al., 2007).

4. Demonstration – At this stage, a case study or an experimentation occurs. The artifact will be used to demonstrate formal proof of viability towards the problem. To complete the

demonstration is necessary to have solid knowledge of how the artifact is used to solve the problem. Finally, it is possible to gather feedback in order to improve the artifact.

5. Evaluation – This phase comprises a complete assessment of the artifact. A rigorous examination must be made to assess the effectiveness of the proposed solution. Methods used may include surveys, experiments or case studies and they will be pivotal to ensure that trustworthy feedback is obtained.

6. Communication and Deployment – Finally, the results are published and presented to the community. This can be done through publications, presentations or other means and it contributes to generating more knowledge in the area.

Each of these steps have preponderance in the research and help to develop and evaluate a new solution for the identified problem. This methodical approach improves the overall quality and rigor of the research and enables the production of trustworthy and viable artifacts that ultimately generate a solution.

3.2. DESIGN SCIENCE RESEARCH IMPLEMENTATION

The present research is conducted to follow the steps present in the DSRM proposed by Peffers (and explained above). In that sense, it will include: (1) the identification of a relevant problem, (2) the definition of clear objectives that ensure an adequate solution, (3) the design and development of an artifact that incorporates the objectives defined previously, (4) a demonstration of the solution, (5) an evaluation phase and (6) the communication of the findings.

In order to present a viable and trustworthy strategy to incorporate RPA in Marketing Activities, all the previous steps were followed as described further:

1. **Problem Definition:** At this first stage, the problem is defined – the lack of a clear and viable plan to incorporate RPA tools in Marketing activities. Additionally, key information is gathered to prepare for the next phases.
2. **Objectives Definition / Literature Review:** The main objectives of the possible solution are defined – develop a framework that clearly defines the activities and tasks performed within a marketing campaign, use BPMN 2.0 to model those tasks, study Process Automation approaches and use the acquired knowledge to propose the final strategy. This definition provides a clear view of what is to be made and how it will be reached. Moreover, by developing a concise literature review about the covered topics, a clearer basis is defined for subsequent steps.

3. Design and Development: In this phase, the modeling starts. The process of developing a marketing campaign will be designed using BPMN 2.0 and Bizagi Modeling tool. This will guarantee a better visual understanding of how processes and activities are performed within the department.
4. Identification of improvement: After developing the final models, it is necessary to observe them. Their effectiveness and efficiency will be analyzed for further improvement. A set of suggestions/recommendations will be proposed.
5. Evaluation of the recommendations – The artifact will be tested and evaluated regarding its efficiency and viability. The evaluation will be conducted by relevant sources in the areas of BPM, RPA and Marketing. The objective is to gather a final opinion on what was proposed. Any anomalies or inefficiencies may be pointed out by experts or recurring to scientific articles.
6. Conclusions and future work – In this final stage, a set of conclusions will be presented and discussed. Suggestions regarding future research will be presented.

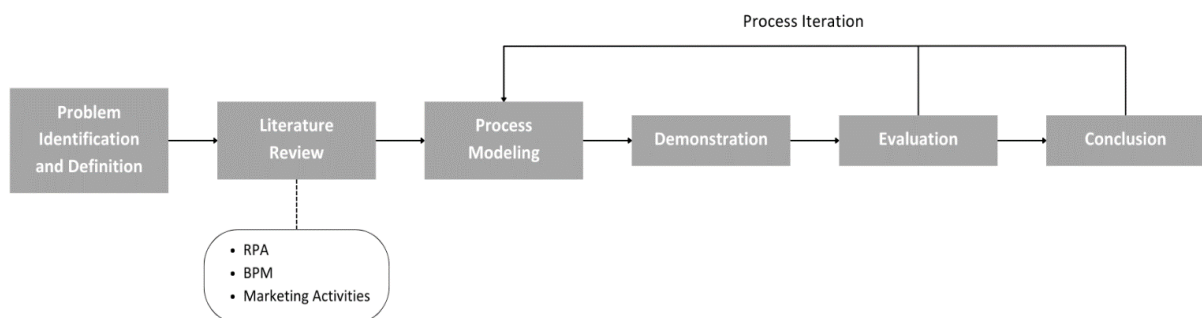


Figure 3 - Research Phases

3.3. MODELING TOOLS

Towards the creation of a solid model that properly depicts the reality of a Marketing department and its activities, it is pivotal to ensure that the modeling tool selection is carefully thought out. There are many available modeling tools that can be used in this context – Bizagi Process Modeler, Oracle BPM studio and iFlowBPM. Each of them has its own valences and it is important to analyze and compare their characteristics. Bizagi Process Modeler is a free tool and is characterized by its user-friendly interface, allowing an intuitive construction of the model. Oracle BPM is a paid tool and suited for medium and big companies as it allows high volumes of data, real-time simulation and integration with Oracle and third-party software. IFlowBPM is cloud-based and designed to be simple to use. Was developed to allow a quick implementation and to minimize resource consumption. However, it still involves costs, despite being usually more affordable than the previous modeling tool, Oracle BPM.

After thoughtful consideration, the solution that can best serve this project is Bizagi Process Modeler as the project does not require any integration with external software nor modeling high-volume processes. The ease of use and the fact that it is a free tool also play an important role in the final decision. It is also important to note capabilities such as the incorporated error checker, that allows a quick validation of the model to ensure that it is being represented according to BPMN notation standards, and the exporting capabilities that allow users to export the diagram in different formats (.pdf, .png, .xpdl, and others).

4. GENERAL RPA FOR MARKETING CAMPAIGN ACTIVITIES

As stated before, the ultimate goal is to produce a strategy for the implementation and use of RPA in marketing campaigns. Thus, the purpose of this chapter is to develop a BPM model that truthfully describes the processes and tasks in a marketing campaign.

The adequate representation of the activities is pivotal to evaluate and improve the state of the art of the department. Process modeling will contribute to a better understanding of the processes and will help to identify issues and improvement points (Dumas et al., 2018).

This part of the research follows the first steps of the BPM lifecycle proposed by Dumas (2018). First, the process identification includes the understanding of the crucial processes contained in the marketing campaign. Based on the literature research, the processes are defined, and a comprehensive overview of the campaign flow is obtained. After, information about those processes is gathered to create a detailed version. At this stage, the flow and roles involved in the process are identified, as well as the possible inputs and outputs. This results in an As-Is model of the process.

4.1. MARKETING CAMPAIGN MODELLING

The campaign is modeled according to the research done previously in the Literature Review chapter. The process flow followed was an adaptation of the one proposed by (Chaffey & Smith, 2022) in their book Digital Marketing Excellence. The reasoning behind this choice is derived from the recency and integrity of the research.

The process starts (shown in figure 4) with the reception of a Marketing Campaign request and is divided into four subprocesses:

1. Situation Analysis & Planning.
2. Design & Strategy.
3. Implementation.
4. Control & Monitoring.

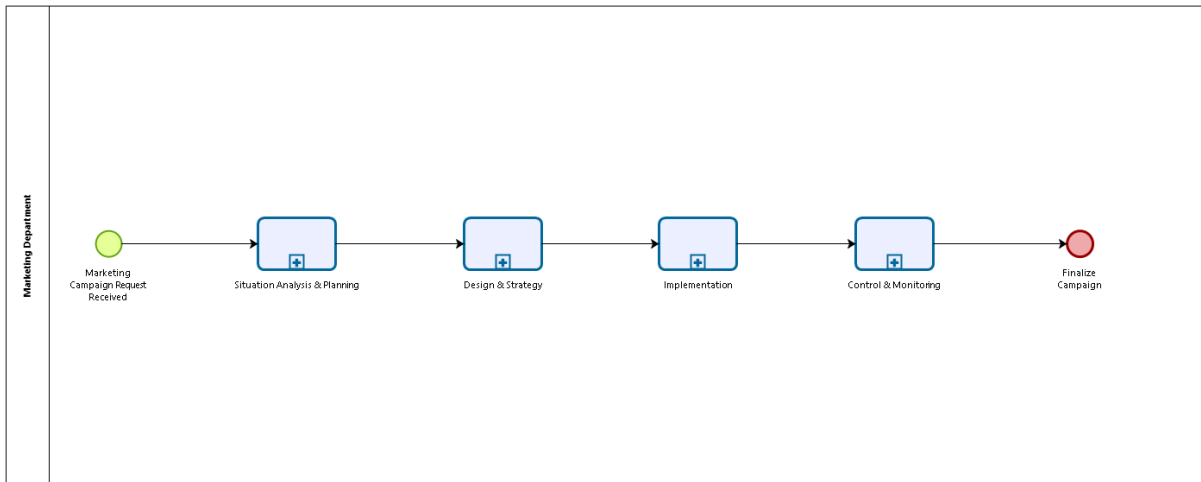
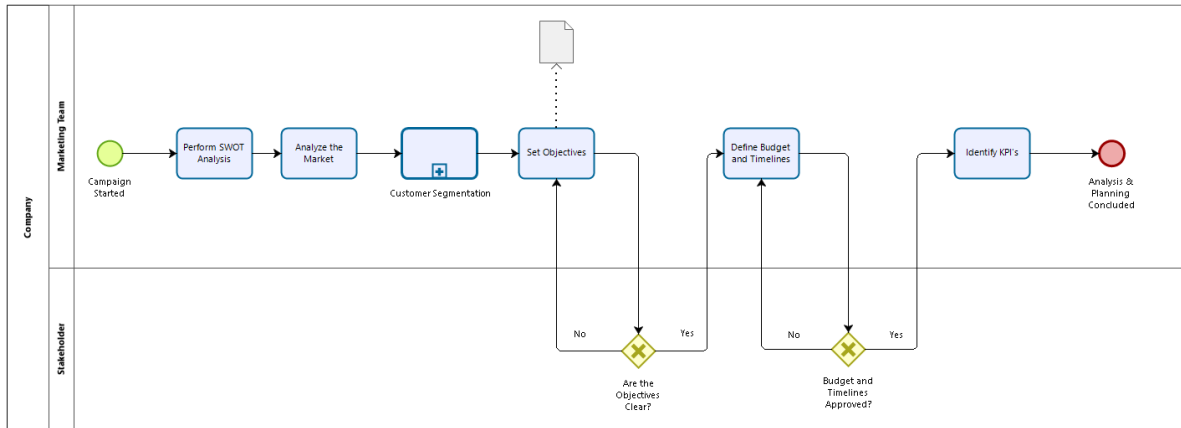


Figure 4 - Marketing Campaign Model

4.1.1. SITUATION ANALYSIS & PLANNING

This is the first stage of the campaign. It is where the marketing team will analyze its positioning in the market, its competitors and how to leverage with the campaign.

The phase starts with the campaign kickoff event that indicates that the campaign has started. Then the team is responsible for performing a SWOT Analysis followed by a market analysis. After that, the Customer Segmentation subprocess starts (figure 6). Once concluded, it allows the team to define the objectives for the campaign. Those objectives must be reviewed by the campaign manager or relevant stakeholders as they set the motto for the remainder of the process. Consequently, the budget and timeline must be decided. That process usually requires consent from the heads of the company. Finally, it is crucial to identify the KPI's so that the Analysis & Planning phase can be concluded.



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Figure 5 - Situation Analysis and Planning Phase Model

The subprocess below represents the flow of the Customer Segmentation where tasks such as identifying target segments and analyzing customer needs are performed.

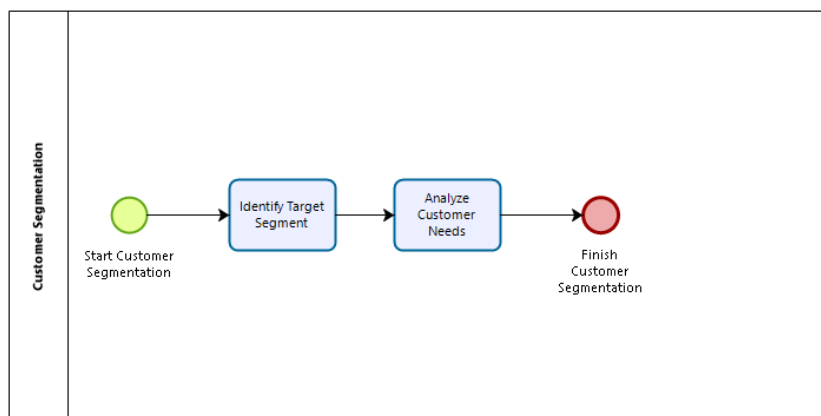


Figure 6 - Customer Segmentation Subprocess

4.1.2. DESIGN & STRATEGY

This phase has two responsible lanes (Design & Strategy team and Creative team) and initiates with the start event. Then the Design & Strategy team is tasked with developing a marketing strategy while taking into consideration the analysis made in the previous stage (figure 8).

Next, if needed, the Creative team is responsible by a set of tasks: creation of a content plan, development of a creative brief and finally the creation of creative assets (which can be done with the help of different department or third-party services and is presented as a billboard, social media post, TV or radio Ad, etc.). After that, the Design & Strategy team has the task of

choosing which marketing channel is to be used (considering previous analysis and form of content created). Afterwards, the campaign launch is planned and submitted to approval. Once approved, this phase is completed.

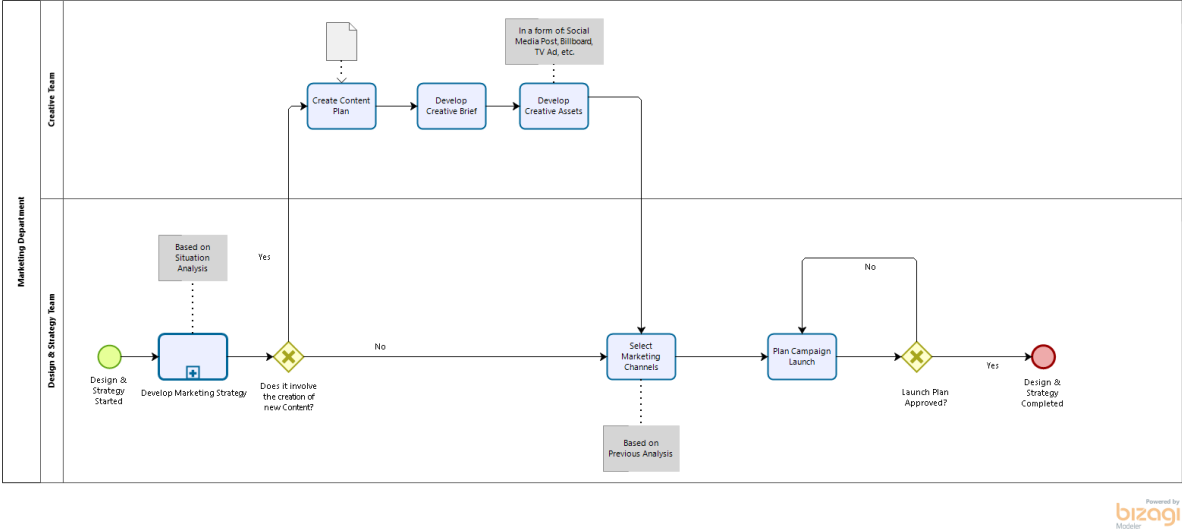


Figure 7 - Design and Strategy Phase Model

The Strategy Development subprocess is conducted by part of the marketing team. First, consists of developing a value proposition for the campaign. Subsequently, the team creates customer personas and identifies key messages simultaneously (represented in BPMN 2.0 by a parallel gateway). Once finished, the strategy can be delivered.

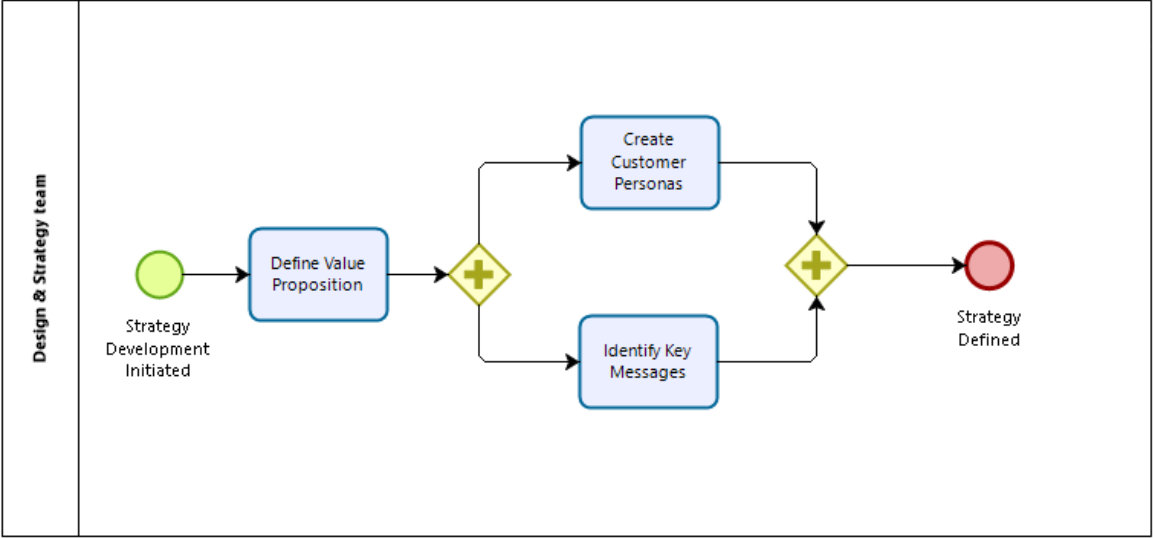
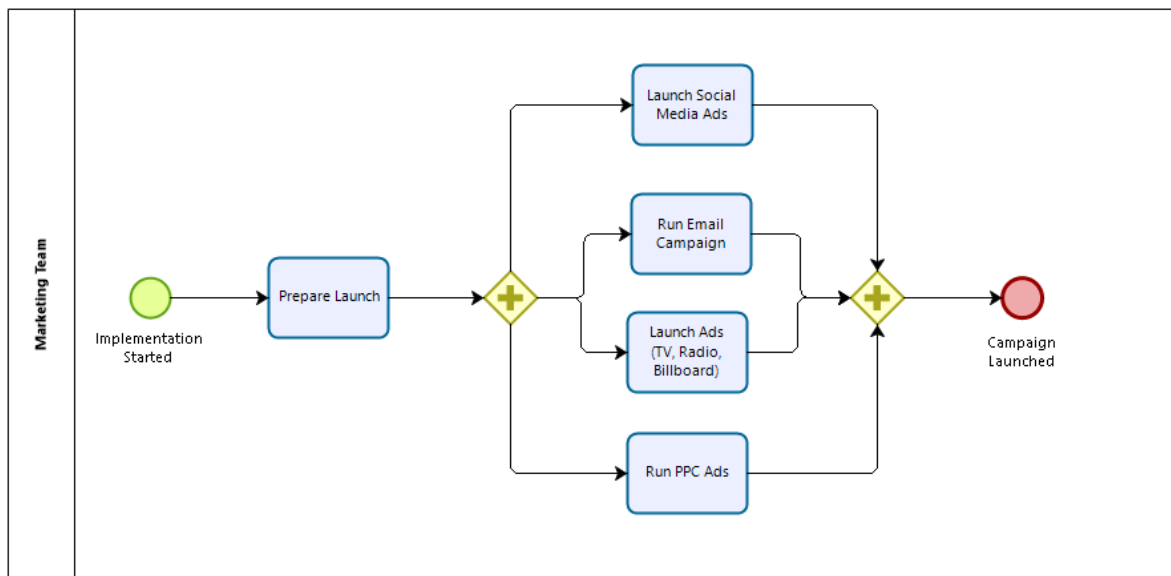


Figure 8 - Strategy Subprocess

4.1.3. IMPLEMENTATION

The Implementation phase starts with the Campaign Implementation Started event. The Launch Preparation task ensures everything is set for the marketing campaign to go live. Following that, there is a parallel gateway that simultaneously deploys the tasks: Launch Social Media Ads, Run Email Campaign, Run Ads and Run PPC Ads. After that the campaign is successfully launched.

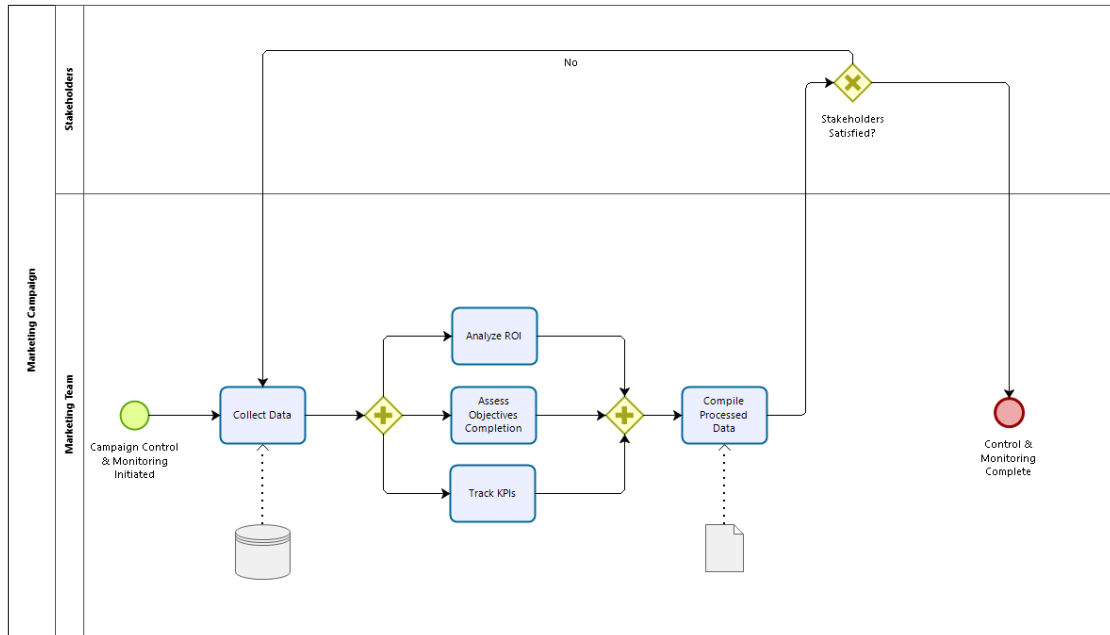


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Figure 9 - Implementation Phase Model

4.1.4. CONTROL & MONITORING

The final phase begins with the collection of data associated with the performance of the campaign. Then, a parallel gateway is used to simultaneously represent the Return on Investment (ROI) analysis, assessment of objectives and KPI tracking tasks. After that, the analyzed data is compiled in a report that is then delivered to the stakeholders to assess their view on the campaign results. Finally, the Control & Monitoring phase is complete and thus the marketing campaign.



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Figure 10 - Control & Monitoring Phase Model

5. ANALYSIS AND IMPROVEMENT PROPOSAL

5.1. CRITICAL ANALYSIS

To better understand how a process can be improved it is necessary to establish an overall comprehension of its state and evaluate its performance towards the business objectives. In this research, this was made possible by implementing the first stages of a BPM lifecycle – Process Identification and Process Discovery. With the processes already modeled, it is now possible to start the Process Analysis. This step is responsible for the evaluation of the current model and aims to identify any deficiencies and opportunities for improvement.

The marketing area requires constant adaptation to the state of the market and the customer's needs. Teams have to shift their efforts into analyzing the best ways to emerge in the market and improve the bond with the client. Due to constant changes in the technology required to perform such analysis, difficulties arise for marketeers to delineate a proper strategy that envisions the enhancement of the process of creating a campaign. These difficulties are also caused by the lack of a clear definition of the tasks within the campaign process and their automation potential. In that sense, the work done in previous phases allows the creation of a solid analysis. Regarding the structure of the marketing campaign, its key elements were already defined: (1) Situation Analysis and Planning, (2) Design and Strategy, (3) Implementation and (4) Control and Monitoring.

To understand which tasks can be improved in the process, a Value-Added Analysis will be conducted, assigning value to each task. As described by Dumas (2013), the VA analysis is a strategic approach that has as its main objective to understand in which way are the tasks contributing to the success of the process. It focuses on value creation and waste elimination.

The analysis helps to classify each task according to three different categories:

- **Value-Adding (VA) Activities:** If a task or activity is classified as VA It means that it provides value or satisfaction to the customer. They are core activities in the process as they are recognized by the users/customers as key. Dumas (2018) suggests that, in order to determine whether or not the activity is VA, it helps to consider the following questions: "Would the customer be willing to pay for this step? Does the customer value this step enough to keep conducting business with us? If we remove this step, would the customer perceive that the outcome of the process is less valuable?"
- **Business Value-Adding (BVA) Activities:** These are tasks that do not directly contribute to the value addition but, in the business context, are indispensable. They are essential to ensure regulatory compliance, business operation and revenue collection. Dumas (2018) considers that, to be BVA, the activity must answer positively to the following questions: "Is this step essential for revenue collection, business improvement, or growth? Will removing this step negatively impact the firm in the long term? Does it

lessen the risk of business losses? Is this action necessary to comply with regulatory requirements?”.

- **Non-Value-Adding (NVA) Activities:** The task does not classify as any of the other two categories. It does not bring any value to the process.

Since the marketing campaign operates on a different logic, one that aims to connect with the audience, the way of evaluating the type of activity slightly changes. The driving factor to decide if the activity is VA is its direct connection to the generation of customer engagement. On the other hand, to address the BVA activities, it is to understand if the task indirectly affects the process and its essential to ensure the completion of VA tasks. Regarding the NVA classification, as the marketing campaigns are already advanced processes in the sense that they improved a lot due to digital transformation, the driving factor is to understand if the task can be completely optimized.

The goal of this analysis is to find which activities are the most important to enhance. Since VA tasks are the ones that directly add value to the process, it is important to enhance their resources and tools. Regarding BVA tasks, since they are necessary to the good functioning of the process, it is also important to streamline them and ensure that they are as efficient as possible and have minimal manual effort. Finally, it is critical to ensure that the resources and time spent on NVA tasks are minimal.

Table 1 – Value-Added Analysis

Task	Type	Reason/Description
1. Situation Analysis and Planning		
Perform SWOT Analysis	BVA	Required for completing other steps and strategy development. Adds indirect value.
Analyze the Market	BVA	It is essential for assessing the market state and to develop a strategy later.
Customer Segmentation	VA	This task directly adds value to the customer. It improves the targeting and consequently the relevance for customers.
Set Objectives	BVA	Brings indirect customer value because it guides the campaign.
Define Budget and Timelines	BVA	It is necessary to the process, but customers do not see the direct impact.

Identify KPIs	BVA	Also brings indirect customer value to the campaign.
2. Design and Strategy		
Develop Marketing Strategy	VA	Defines the way that customers get and perceive the campaign.
Create Content Plan	BVA	It is necessary for the creation of future content.
Develop Creative Brief	BVA	It is necessary for the creation of future content.
Develop Creative Assets	VA	Produces assets that will directly engage with the customer.
Select Marketing Channels	VA	It is crucial to ensure proper reach and engagement.
Plan Campaign Launch	BVA	Essential for organizational purposes.
3. Implementation		
Prepare Launch	BVA	Essential for organizational and structural purposes.
Launch Social Media Ads	VA	It adds value to the customer because it provides direct communication. Directly impacts the audience and generates traffic, engagement and conversions.
Run Email Campaign	VA	
Launch Ads (TV, Radio, Billboard)	VA	
Run PPC Ads	VA	

4. Control and Monitoring		
Collect Data	BVA	It is necessary to the process because the data is used for further analysis.
Analyze ROI	BVA	Internal task that does not influence the customer perception.
Assess Objective Completion	BVA	
Track KPIs	BVA	
Compile Processed Data	BVA	Necessary to ensure that the information is fully communicated and stored.

Through this analysis it is noticeable the inexistence of NVA tasks. This indicates that the process is well-designed and does not contain waste points. However, it demonstrates that automation tools are challenging to incorporate because of the detail and importance involved in VA and BVA tasks. Hence, the incorporation of automation must be precisely designed to avoid conflict with the process flow.

Considering that most of the tasks are valuable to the process, either adding organizational or customer value, the strategy must be focused on the enhancement of those tasks and not its permanent substitution. Only the “Generation of Reports” task can be reformed in its essence.

5.2. POSSIBLE RPA IMPROVEMENTS – IDENTIFY AUTOMATION CANDIDATES

To solidify what was concluded in the previous analysis, and still within the BPM lifecycle’s process analysis step, a task-based approach on RPA potential will be conducted.

The objective is to understand what the tasks are with the most potential to be replaced by RPA tools. This identification is based on the tasks modeled and the knowledge obtained throughout the literature review.

RPA allows companies to shift personnel from highly repetitive office jobs to more valuable ones (Axmann & Harmoko, 2022). It is useful to automate tasks like reading emails, opening attachments, data entry, report generation, order processing, inventory management, and more. In that sense it is the goal to identify which of the modeled tasks correspond to that characterization.

To summarize, in this table, and according to information gathered, these are the tasks with their respective potential for automation:

Table 5 – RPA Candidate Tasks

Task		RPA Potential	Description
1. Situation Analysis and Planning			
Perform SWOT Analysis		Low	Involves strategic thinking and capacity of interpretation. Also includes human-centric elements like brainstorming and discussions between the team. Still there is a possibility to incorporate automation (e.g. AI powered analysis to find similar competitors)
Analyze the Market		Medium	Should involve the knowledge and experience already obtained by the team but can be enhanced with data gathering tools.
Customer Segmentation (Subprocess)	Identify Target Segment	High	Automation of data collection can be very useful in this process as it is necessary to retrieve data from several sources (CRM systems, social media). It can also enhance the segmentation of customers based on certain criteria.
	Analyze Customer Needs	Low	Customer preferences can be highly influenced by subjective factors like trends and cultural background. Again, the collection and pattern identification in data can help a lot but, to gather valuable insights, human knowledge and experience is required. Therefore, teams have reasons to tend towards rejection on the full automation of the task.
Set Objectives		Low	Requires human interpretation and decision. Also, profound knowledge of the company and the market. This task is rarely repetitive and can have several nuances.

Define Budget and Timelines	Low	Requires human judgement, experience and constant communication with stakeholders. Additionally, it can depend on various external conditions.	
Identify KPIs	Medium	RPA can streamline data gathering and analysis, but the task still requires a high level of strategic thinking.	
2. Design & Strategy			
Develop Marketing Strategy (Subprocess)	Define Value Proposition	Low	This task requires strategic thinking and a certain amount of creativity therefore it goes beyond RPA's capability.
	Create Customer Personas	Medium	As mentioned before, RPA can assist in data gathering and pattern recognition, but creative insight will always be pivotal in tasks like this.
	Identify Key Messages	Low	Requires significant human oversight and experience thus not suitable for the capabilities presented by RPA.
Create Content Plan	Low	This task involves a considerable amount of creativity and human experience.	
Develop Creative Brief	Low	This task involves a considerable amount of creativity and human experience.	
Develop Creative Assets	Low	This task involves a considerable amount of creativity and human experience.	
Select Marketing Channels	Medium	The selection process can be enhanced by using historical performance data but will always require human interpretation.	
Plan Campaign Launch	Medium	Since it is still the planning phase, will require strategic thinking and decision-making (which can only be enhanced by RPA tools).	

3. Implementation		
Prepare Launch	Low	Involves setting everything before launch. Due to the specificities of every campaign, it is a task that requires human act.
Launch Social Media Ads	High	These tasks can benefit from RPA's use. The scheduling and publishing of the campaign is a task that does not involve great complexity and it is simple and rule based.
Run Email Campaign	High	
Launch Ads	High	
Run PPC Ads	High	
4. Control & Monitoring		
Collect Data	High	Already highly automatized on the majority of the cases.
Analyze ROI	Medium	The data collection, integration and initial analysis can be performed using RPA tools. However, the part that really adds the value to the task is the interpretation of results (which requires human judgement).
Assess Objectives Completion	Low	RPA struggles with the interpretation of qualitative data. This assessment may include context-specific nuances which require human interpretation.
Track KPIs	High	Monitoring and reporting is one of the tasks that RPA excels at.
Compile Processed Data	High	The generation and distribution of a final report can be easily automated as it is a simple and repetitive task.

As a conclusion, it is noticed that, at some level, RPA can enhance all tasks that are related with new technologies. It is also noticeable that its potential increases in tasks that do not require any kind of creative input nor are subject to human interpretation. This evaluation table confirms what was mentioned previously in the literature review – that RPA is oriented to rule-based and simple tasks.

5.3. STRATEGY PROPOSAL

To achieve a successful and coherent RPA incorporation in a marketing campaign, an overall strategy must be followed. This strategy is believed to lead to improved efficiency, reduce general activity costs and enhance the overall process of conducting a campaign. The strategy is divided into three phases as presented in Figure 11.

The strategy starts with an assessment and identification of the current process, followed by a pilot implementation and finally a full-scale implementation.

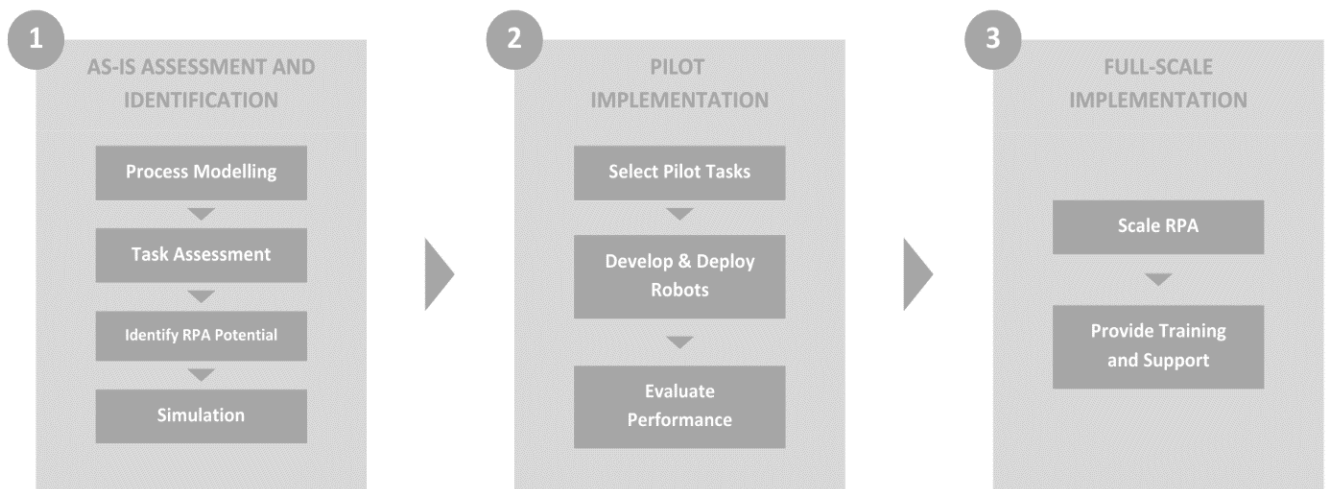


Figure 11 - Strategy for RPA implementation in Marketing Campaign

5.3.1. PHASE 1 - AS-IS ASSESSMENT AND IDENTIFICATION

Phase 1 is composed of the following activities: Process Modelling, Task Assessment, Identify RPA Potential and Simulation.

First, phase one of the process contains the representation of processes present in the campaign. This is done by following the same approach made in the modelling part of the research and as stated before, aims for an accurate perception and representation of the campaign processes' current state. In this context, any BPMN tool such as Bizagi, Visio or Jira might be used. If there is a desire from the company to use the model as a standpoint for the creation of RPA tools, solutions such as Oracle Business Process Management might be adequate as they allow for better connectivity with developing tools. Still in phase one, the team must assess the nature and importance of the tasks. That can be approached in several ways depending on the context of the company. Dumas (2018) suggests using approaches such as Value-Added Analysis, Waste Analysis or Issue Register Analysis, each one with

different capabilities. In addition, it is recommended to perform an identification of potential tasks to be automated by RPA and its feasibility. The aim is to have a prioritized list of which tasks are the most suitable to be enhanced. Finally, to conclude the first phase, a Simulation can be performed to assess the impact of incorporating RPA tools on the identified tasks. This step is highly dependable on the specific state of the marketing campaign within the company. Factors such as FTEs allocation, process cost and workforce performance play a pivotal role in the outcome of the simulation. If done correctly, it provides insights into the potential impact of RPA, thus allowing an informed decision-making process.

5.3.2. PHASE 2 - PILOT IMPLEMENTATION

Phase 2 is composed by the following activities: Select Pilot Tasks, Develop and Deploy Robots and Evaluate Performance.

The second phase is respectively split into three points: selection of pilot tasks, development and deployment of RPA robots and assessment of performance. Its aim is to convert the proposition into an effective solution and validate it by making a pilot test. Primarily, it is necessary to choose the tasks based on prior assessment. It is recommendable that they have a high impact in the process and provide clear metrics that allow for further evaluation. Once defined, it is time for the development of RPA robots. This activity can be achieved through internal (with the help of a specialized department) or external resources (third-party solutions). After ensuring that the robots are properly tested and integrated in the systems, their performance can be assessed in the same way that the simulation was – by tracking and comparing metrics such as cost, time and efficiency. This phase intends to provide a comprehensive assessment of RPA's capabilities and its possible impacts so that the scalability of the solution can be properly evaluated by the stakeholders.

5.3.3. PHASE 3 - FULL-SCALE IMPLEMENTATION

This final phase contains the following activities: Scale RPA and Provide Training and Support.

Ultimately, if approved by the responsible, the solution can be scaled up and deployed across different tasks. For a seamless result the integration must be iterative until it reaches the desired state. In addition, the employees must be equipped with the necessary skillset to make sure everything runs as expected and avoid any inconveniences.

It is believed that by implementing this strategy, a team or company can effectively integrate RPA in its processes and take advantage of its full potential.

5.4. USE CASE – STRATEGY IMPLEMENTATION

With the identification of the most suitable tasks to be automated, it is important to show the value of the research with a tangible campaign example. This demonstrates the application of the findings in a possible situation. Also, it is important to note that only the first steps of the strategy will be represented. This is because the other steps require case-specific information thus not being suitable for demonstration purposes. For that reason, only an As-Is and To-be model will be developed (without simulation). This example aims to show the impact and importance of incorporating RPA in the campaign.

Table 2 - Use-Case (Campaign Scenario)

Campaign Scenario
<p>Company X wants to launch and promote their new product, a smart watch. Stakeholders believe that this is a winning product and that it can help the company to highlight itself in the market. Therefore, the marketing team must create a flawless campaign and exceed expectations. In that sense, the company decided to implement RPA tools to streamline the campaign process. In addition, the board decided that the product will only be launched and promoted via e-mail marketing, PPC ads, and affiliate marketing in social media.</p>

The following model depicts how the campaign is conducted without any RPA enhancements. It serves the purpose of understanding the overall process flow.

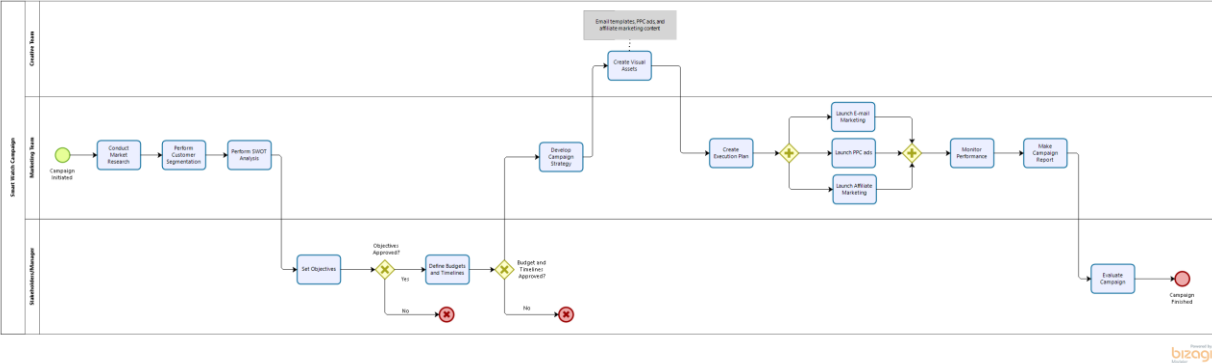


Figure 12 – As-Is model (Use-Case)

The campaign starts with an initial analysis containing market research, customer segmentation and SWOT analysis. The following steps involve an assessment of objectives, budgets and timings by managerial roles. The marketing team outlines a strategy for the launch and the creative team is tasked with the creation of visual assets. Finally, it is time to launch in the predefined communication channels. After that, the campaign performance is

By implementing RPA it is possible to note that the overall process is enhanced and that the team core activities now involves more critical decisions. The marketeers become free to interpret and deepen in on value creation activities.

6. EVALUATION

Evaluation is one of the phases of Design Science Research methodology and it is its purpose to validate the research. Two semi structured interviews were conducted with experts in the areas of BPM and Marketing. One expert is a university professor and researcher, and the other is a marketing employee for a retail multinational company. The background differences allow for a complete evaluation both on theoretical and practical levels. Ultimately, it is intended to assess the utility and viability of the developed artifact and understand if its value can be translated to real-world applications.

Despite sharing the same overall purpose, the intermediate objectives were different for each interview: the BPM scope was to evaluate the correctness of the model and on the marketing scope, to evaluate the flow of the campaign.

The interview was conducted by following an iterative approach where the first step was to present the research questions and the work developed, and then proceed to the interview questions. The first interview was with the BPM expert (Expert 1). This allowed to review and validate the modelling and strategy before presenting it to the Marketing expert (Expert 2). The questions were as follows:

- Q1: Do you consider the research/strategy as useful and why? If not, why do you believe it is not?
- Q2: Do you have any criticism towards the proposed artifact?
- Q3: Is BPMN 2.0 the most adequate notation for the modeling of a marketing campaign?
- Q4: Do you consider that the representation of the campaign is correct?
- Q5: Do you have any recommendation or suggestions for further improvements?

Regarding the first question, there was a consensus between both parties, recognizing that the research was meaningful. Expert 1 mentioned that, given the reality of some medium sized companies, many of the operations conducted are made by request and not properly mapped, so they can have some type of resistance to the adoption of the proposed strategy. Moreover, as mentioned by Expert 2, in a multinational company, given that the platforms and solutions to conduct marketing campaigns are already standardized in several geographies, it is very difficult to implement an improvement plan. The implementation decision must come from the top-level positions and be precisely tested before a full-scale approach because any alteration in the current process can seriously affect all geographies. Regarding the artifact, it was pointed the inexistence of a clear case simulation where it can be proved that the implementation objectively improves the process. Still, it was recognized that such simulation would be very difficult to obtain as it is necessary to allocate costs, time, and people, making it very case specific.

After a careful review of the model presented, it was concluded that it contained a small imprecision regarding the modeling of one of the campaign phases. That was not an error but rather a representation that could influence a possible simulation. As for the adequation of BPMN 2.0 for the representation of a marketing campaign, Expert 1 mentioned that it is an industry standard and highlighted the importance of being perceptible by every company in the world (despite differences in the processes). Consequently, it was concluded that it was the most accurate tool to represent this kind of model. As for the representation of activities, Expert 2 noted that some tasks were not applicable for the retail marketing scope. Adding that there are crucial retail-specific activities that were not present in the model such as the analysis of competitors' prices. In addition, it was also mentioned that, in the ads launch part, one of the main concerns in retail was to communicate the changing of prices because the campaigns conducted are often tied to promotions. Also, in the control and monitoring phase, usually the feedback was also gathered through personal perception (delivery workers and store managers perception). Overall, it was acknowledged that such activities were very retail oriented and thus not mapped in the final model. Finally, recommendations for future work involved the simulation of a specific process with real metrics to quantitatively assess the impacts. In addition, other suggestion was to increase the scope of the marketing team in the model, meaning that extra BPM swim lanes could be added according to the particular function of each marketeer within the team. For instance, if there is team member that is a data analytics expert and other that is a UI/UX designer, it makes sense to split them in the representation and clearly state which one performs which tasks. Another suggestion of future work was to study the possibility of AI and machine learning incorporation.

7. CONCLUSIONS AND FUTURE RESEARCH

The aim of this dissertation was to provide a solid strategy for companies to implement RPA tools in their marketing campaign. The initial stage allowed for a deeper understanding of Marketing Campaigns, RPA and BPM. The knowledge was used to model and analyze a comprehensive campaign process flow in Bizagi Modeler and then propose a final incorporation strategy. The overall objective was achieved using the Design Research Science Methodology.

Given the constant iterations in technological development and the highly competitive market, it is challenging for companies to keep their processes at maximum productivity. This dissertation provides a comprehensive approach on how to enhance overall performance of marketing campaigns. It is believed that by implementing the suggested solutions, companies can reduce their operational costs, increase efficiency and overall improve the quality of their marketing campaigns.

Even though, as for any research in any scope, there are always some opportunities for improvement. To model the activities within a campaign can be very challenging as each campaign has its own specificities, goals and strategies. The reality within the company also plays a key role. In that regard, to ensure a seamless RPA implementation, companies must be precise in the simulation of its models and thoroughly allocate its metrics. Otherwise, the result will not be as meaningful. In that sense, every implementation must be case specific and targeted to the scope of the company.

Therefore, for future work, it is recommended to perform a case specific simulation of the campaign and create a To-Be model based on several measured what-if scenarios. Additionally, it can be useful to deepen in the possible incorporation of AI and machine learning based tools. Assess if it is possible and doable to enhance the RPA capabilities with these kinds of technologies to allow for an intelligent process.

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APPENDIX A



This is to certify that

Project No.: **DDMKT2024-7-102791**

Project Title: **A trustworthy strategy to incorporate RPA in Marketing Campaigns**

Principal Researcher: **Tomás Mendes**

according to the regulations of the Ethics Committee of NOVA IMS and MagIC Research Center this project was considered to meet the requirements of the NOVA IMS Internal Review Board, being considered **APPROVED** on 7/10/2024.

It is the Principal Researcher's responsibility to ensure that all researchers and stakeholders associated with this project are aware of the conditions of approval and which documents have been approved.

The Principal Researcher is required to notify the Ethics Committee, via amendment or progress report, of

- Any significant change to the project and the reason for that change;
- Any unforeseen events or unexpected developments that merit notification;
- The inability of the Principal Researcher to continue in that role or any other change in research personnel involved in the project.

Lisbon, 7/10/2024

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NOVA Information Management School
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Universidade Nova de Lisboa