Improving the Sourcing Process in a Contact Centre by using Business Process Management.

Pau Frau Domínguez

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Master of Science in Electro-Mechanical Engineering

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ABSTRACT

Nowadays, digital transformation is one of the main challenges that companies must face to stay competitive. This disruptive, and in turn, complex transformation includes Business Process Management (BPM) which is a management discipline that treats business processes as assets. Within this framework, the main goal of this Master Thesis is to improve the sourcing process in a Contact Centre by using BPM.

In order to achieve this goal, the first step in the project consists of a general analysis of the Contact Centre industry and the organization itself. With a more comprehensive understanding of the company's business management, the main problems and bottlenecks affecting the current situation of the sourcing process are identified.

The way to figuring out these issues is based on applying the best practices of BPM to model, design and implement an improved sourcing process. The implementation is done by using a BPM Suite (BPMS), which will integrate and automate the new process in the whole organization. The BPMS will host in a unique database all purchasing data and allow better communication between employees. In addition, the BPMS provides a user interface shaped by forms and ensures the process governance with the business rules

The final aspect of the project is to ensure continuous improvement once the process goes live. To do so, the BPMS allows data monitoring to carry out a supplier evaluation methodology and measure a list of Key Performance Indicators (KPIs). These KPIs are designed to inform and highlight the process performance, identify future inefficiencies, and improve the preparedness for changes within the organization.

KEYWORDS

Business Process Management - Sourcing Process - Contact Centre - Business Process Management Suite - Continuous Improvement

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1. Introduction.

Nowadays, digital transformation is one of the biggest challenges that more and more companies around the world might face to continue being competitive in the market, independent of the sector to which they belong and the location where they are settled. This disruptive and in turn complex transformation includes three main changes; new business model, different goods and services offer, and value chain shift. The latter is mainly driven by Business Process Management (BPM), a management discipline that treats business processes as assets and plays a key role since companies must redesign their business processes as a result of the innovation.

The importance of BPM in the digital transformation was the trigger that sparked the author's interest and led him to start specializing in this field. More than one year ago, after beginning to be involved in BMP projects, the topic for the thesis was already clear, and the motivation to carry out work within this discipline to achieve tangible outcomes in a real company made possible the current thesis.

In particular, the development of the project focuses on applying BPM to improve the sourcing process of a Spanish Contact Centre. Although the headquarter is in Barcelona, Spain, the organization is also present in Colombia and the United States of America, which makes it a large multinational company. Due to the corporation's privacy policy, it was required to keep the anonymity of the firm and it is not going to be mentioned its name, even though all the information and data provided throughout this document is real and the project has been implemented in the same accuracy in real-life.

Among all the business processes the organization is composed of, the sourcing process selection as the first stage of a potential and future scalability of the project is mainly because of the industry sector nature to which the company belongs. The Contact Centre industry is regulated in Spain by the central government as set out in the BOE ("Boletín Oficial del Estado" in Spanish) published on 12 July of 2017 (BOE-A-2017-8140). The main insight from that collective bargaining agreement is the fixed salary for the employees in the sector. A constraint such as this one triggers dreadful competition among all the players in the market to achieve their strategic goals and keep competitive within the market.

With a view to face the latter big challenges in the Contact Centre industry, companies try to implement continuous improvement to increase efficiency by lowering their costs and therefore stay competitive in a fierce environment. It is in this context when the sourcing process becomes even more significant than in another sector and it is included in their strategic plan. In this way, improving its performance will make it possible to achieve a great impact on the whole organization's performance, due to it is the main strategy to decrease costs in such a service company.

The strategic plan of the company includes the digital transformation of the entire organization. Therefore, thanks to apply BMP to the sourcing process, the following stages in this change will have as a reference the outcomes and impact from a strategic process.

2. Problem Statement.

As it is a young company, its major issues have appeared after a fast and disorganized growth, with large-scale decentralisation and a lack of clear lines of communication. Having several subsidiaries in different countries worsens the situation of the organization, which also has no well-established strategic process.

Within the company, there is no clear sourcing process (being implemented), no integrity of information or communication, nor even a clear workflow to carry out a purchase. A good or service can be supplied by two different departments in the company, one located in Barcelona (Spain) and the other in Medellin (Bogotá). In general terms, two independent applications are used to create a purchase request, and afterwards both departments proceed with the purchase orders via an Enterprise Resource Planning (ERP) system.

In the current situation, the main issues that both departments must face are the following:

- **Continuous reception of purchase invoices without an associated purchase request number**. The reason is the lack of process integrity since not all the requests are done within the software; moreover, request tracking is unreliable because of diffuse responsibilities and poor communication.

- **Processing times are excessively long** and even some urgent and critical purchases are not being on time due to long delays between the different stages of the process.

- **Incorrect costs imputation**. Some goods and services are imputed in a different area from where it is supplied, because the employee who processed the application may be different from the requester.

- **Purchases out of budget**. Since the available budget of the cost imputation area is not verified before running a new request, it may happen that when the Department of Finance comes to pay the invoice, the area concerned cannot afford the compensation.

- **No clear approval matrix**. Even though there are different approval levels that take part in the process, the lack of information about the requests causes some of them to be passed by the wrong approval step.

- **Low level of monitoring**. Without any workflow to follow, there is no indicator to assess the performance of the process, and, even worse, as the bottlenecks are not identified there is no possibility either to improve the critical issues or to mitigate the riskiest parts involved in a sourcing process.

- **Purchases by an unapproved supplier**. When it comes to the supplier selection stage, if there is no approved supplier, it must pass through an approval phase, which does not occur in all instances.

All these current problems result in increased sourcing expenses of the company due to lower efficiency in the process, higher prices for the services and goods acquired, and therefore a loss of performance and competitiveness within the Spanish Contact Centre market.

2.1. Scope and Organization of the Work.

The main purpose of the following project is to apply the academic knowledge acquired at university to face and solve complex problems in real life and implement a new sourcing process using BPM, which will help the company to be aligned with the strategic plan to become more efficient, get a higher level of integrity and a better organized to become in the last term more competitive.

In order to solve the identified problems enlisted in the previous point, the proposed solution on which the project is based is going to be the implementation of the sourcing process using a Business Process Management Suite (BPMS), specifically SoftExpert, that will provide an automated, integrated and unique workflow in this platform for the totality of the organization. In this way, the specific goals are to:

- Define, model, and implement the whole process and sub-processes that are required to ensure an efficient sourcing management process.
- Assign clear and unambiguous responsibilities for each one of the stakeholders in the process.
- Improve the communication between all the areas and departments which are involved.
- Provide higher data and information integrity.
- Process monitoring throughout indicators which may measure performance and identify the bottlenecks to carry put a continued improvement.
- Better areas annual budget compliance.

Another important part of the project is how to organise the work that is going to be carried out because the efficiency and the good accomplishment of the established goals rely on a well-planned development. In the current case, since the very beginning is clear that it is going to be followed an Agile methodology, among other reasons because of the lack of a well-defined sourcing process and the impossibility to provide a first unequivocal requirements stage.

Project development work is breaking down into small iterations or sprints and each one works in the main stages such as planning, design, modelling, analysis, and testing. In this way, it is possible to minimise the final risk and enhance adaptability to changes quickly. For instance, if there is a

requirement that is not defined at first, as we are working in small sprints, it is going to be identified in the early stages and not once the project is finished, being adaptability that prevails over predictivity.

Another reason to work in Agile methodology is the time efficiency can be achieved in contrast to other more traditional work methodologies such as waterfall technic. If it has been said that there is not a well-defined sourcing process in the company, and the stakeholders involved in it have neither experience nor knowledge on BMP, there is a big chance that the requirements definition takes too much time as well as a higher risk of failures in the following stages.

In addition, being such a long and complex process, there is also the risk of having big gaps between different project stages which can prolong it in time. However, at this point is important to highlight the problem of ending up in a large number of loops that may hinder the progress of the project. To face this drawback of Agile methodology, it is important to identify the added value to the process of each interaction, because it must be moved on when there is no progress in a loop with too many details and no further added value.
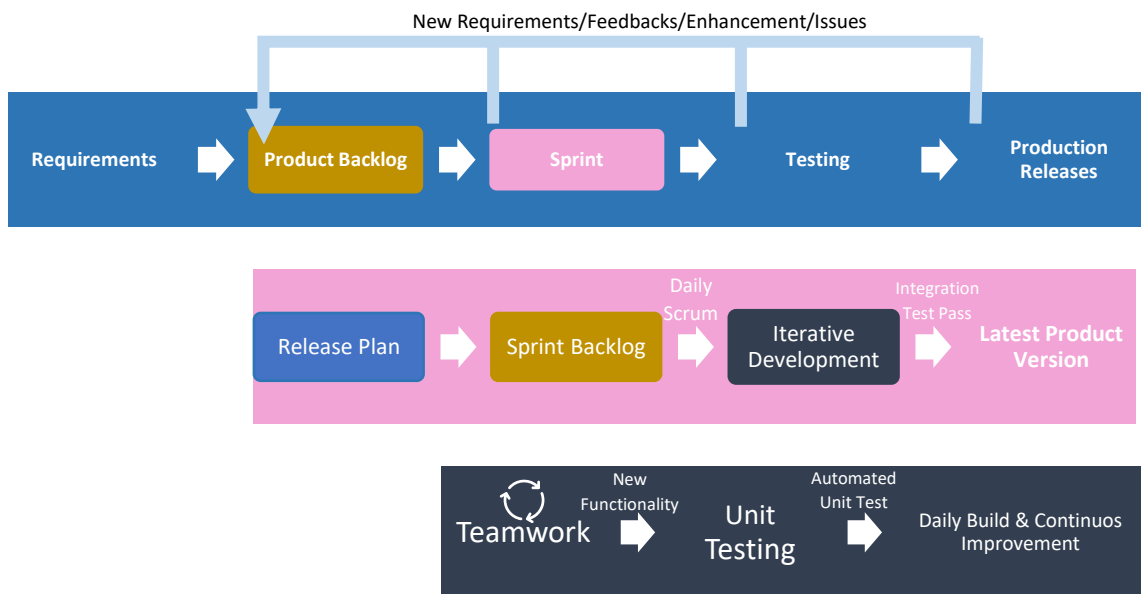
Figure 1: Workflow of an Agile Project Organization.

Once Agile Methodology is defined to be followed by the project development, it is planned a common characterise in this framework, the daily stand-up. During those brief sessions, it is reported to the other stakeholders what has been done the previous day to receive feedback and be able to adapt the work of today according to possible changes.

Finally, within this work methodology, the project is going to follow the points enlisted below:

- **General study**. A first analysis of the current situation about the company and the sourcing management to identify main problems and define the scope of the project.

- **Training in SoftExpert tools**. There is an initial training for main stakeholders on the BPMS SoftExpert to enables a better understanding of the development of the project.

- **Sourcing Process Discovery**. With daily meetings with all the stakeholders, the current procedure to purchase goods and services is analysed, modelled, and all the bottlenecks and possible improvements are identified.

- **TO-BE Sourcing Process**. The new sourcing process is defined, designed, modelled, and tested.

- **Internal testing, improvement identifications and process presentation.** The last step before go-live in the whole organization is to work with just the main stakeholders in the new process for one week. Possible improvements are identified while the new sourcing process is shown to all employees.

- **Go-live.** Finally, the new process starts to be used by all the organization to source any kind of good or service.

3. Business Process Management.

3.1. General Overview.

The book Guide to the Business Process Management Body of Knowledge describes Business Process Management as follow:

"management discipline that treats business processes as assets. It presumes that organizational objectives can be achieved through the definition, engineering, control and dedication to continuous improvement of business processes."

That is, BPM is a discipline whose main goal is to improve the performance of an organization through focused management of the organization's business process. It is not only the implementation of technologies, methodologies, or toolkit but instead an operational change of a company from a functional approach to a process orientation based on best practices.

To successfully implement Business Process Management, there must be a perfect integration between processes, people and technologies that together can provide value to achieve the strategic goals of the organization. Participation of all members in the organization is essential because there is a cultural change that requires the acceptance of the entire staff of the company.

Knowing that a business process is a set of activities whose unique goal is to transform inputs into outputs that can be both services and goods. When that transformation is more complex always requires multiple business functions to be involved. From this reasoning can be extracted the essence of business process management, end-to-end management of business processes where the activities are carried out by different business functions where coordination among them is very important.
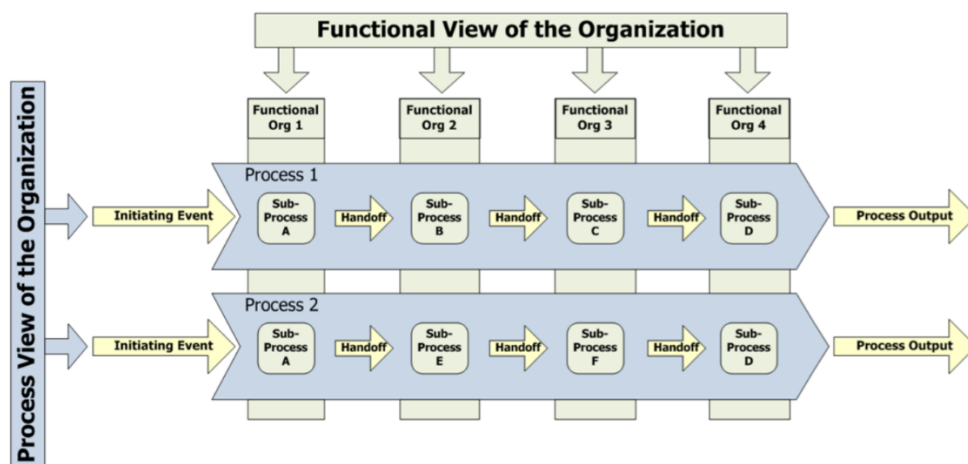

Figure 2: Functional View vs Process View of the Organization.

Once BPM is implemented in an organization, there must be a continuous improvement during the lifecycle, a closed-loop cycle consists of planning, design, implementation, execution, measurement, control, and action to improve the business process. This adaptability to face new changes enables the organization to have a dynamic response to achieve the strategic goals.

3.2. Tools and strategies used by BPM.

Over the years, there has been a change in the markets' driving key, to go from a situation where the seller dominates the market to a nowadays' situation where the business and markets are controlled by customers, that is customer focus. Moreover, globalization and e-commerce require companies to increase their competitiveness and integrate a continuous improvement of their supply chain to face all these new challenges in the markets.

The main values of BPM are a combination of previous features with providing higher service or product quality and a cultural change inside organizations. In addition, this management discipline also incorporates technological tools and strategies to apply its values.

3.2.1. BPM Technologies.

In the early 1980s, the first BPM technology appeared in the market as simple modelling tools. After some years of evolution, those solutions added new functionalities and it was already possible to create application generators and rules engines.

Over the years the technology for BPM has evolved and nowadays there are two main categories in the market. On one hand, there are BPM tools with a single purpose, such as processes and workflows definition. On the other hand, there are integrated groups of tools which are known as Business Process Management Suite (BPMS) and integrates an operating environment where the business runs.

BPMS can be also seen as the joint between IT and business environment, a tool whose goal is not only the automation of business processes but also the platform on which all the components being involved in the process are integrated and ensuring the communication between people and machines to improve the efficiency of the organization and therefore to achieve the strategic goals to be competitive in the market.

The main modules that this suite includes are process modelling, rules definitions, business operation simulation, application generation, business environment, and management performance assessment and reporting.

A BPMS usually uses specific standard notations to build the business processes. Once the modelling is done, the processes in the BPMS run in the same way as the workflow models and follow the path defined by the business rules previously established.

There can be communication between the BPMS and other applications to exchange information and data or provoke any other action. The interface that employees use to access is composed of forms.

In addition, BPMS can help to better process governance because provides in a transparent and integrated manner all the needed information about them, from the definition itself until the data associated with the execution, giving the required inputs for a continuous improvement in the BPM lifecycle.

Advantages of BPMS.

An organization may choose the decision to implement BMPS driven by several advantages describes as follow:

- **Automation of activities.** As outcomes of this automation, organizations achieve higher productivity for the business processes and apply the best practices. Moreover, without this solution, the employees who participate in the processes should have a complex knowledge of the processes and carry out the activities manually, increasing the possibility to make more mistakes.

- **Agility**. Maybe the most important challenge for an organization nowadays is to adapt to new business needs more swiftly, and BPMS enables faster response for incidents or problems that may have a negative impact on the organization.

- **Visibility**. BPMS provides the performance of processes in real-time allowing the organizations to take decisions. That is, for example, if there are tasks not giving an added value in the process can be detected or the inefficiency in some of them can be easily reported to be improved.

- **Compliance**. Because of the growing set of government regulations that current organizations must comply with, BPMS can help in the traceability of processes.

- **Process governance**. As BPMS integrates the business processes within a unique system, the best practices to govern them can be applied to ensure the reuse policies and in this way increase the quality of the processes.

3.2.2. Business Process Model and Notation.

Business Process Model and Notation (BPMN) is a standard notation created by the Business Process Management Initiative for modelling business processes. The notation has been more and more accepted until the point that today it is included in several of the most widely BPMS used. It provides a common framework of communication for all users and its main purpose is to be simple enough to enable those users that participate in each phase of the BPM implementation an easy understanding and interpretation of the physical process.

The approach taken to accomplish the standardization has been to classify the graphic elements of this notation in specific categories. Inside those categories of elements, it can be added different variations and information to match the most complex requirements without including big changes in the basic image of the diagram.

The main elements used in the business process diagram are the following:
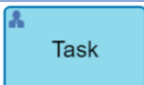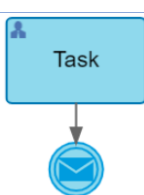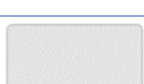
Symbol	Name	Description
Pool / Lane	Lane	It is a sub-partition in a BPMN pool. It indicates which role has the responsibilities of all the workflow elements within the lane.
Pool / Lane 1 / Lane 2	Pool	It describes whole organizations and contain lanes. All BPMN elements are modelled inside the pool.

Table 1: Main elements of BPMN (I).

Symbol	Name	Description
	Start Event	It starts the process or subprocess request.
	Start Timer Event	It starts the process or subprocess request after a specified period.
	Start Message Event	It starts the process or subprocess request after receiving a message.
	Start Condition Event	It starts the process or subprocess when a given condition accomplishes.
	Simple Termination	It terminates the execution of the triggering stream.
	Total Termination	It terminates the execution of both the triggering stream and all other streams in the process.
	End Message Event	It is a simple termination which notify the end of the process.
	Simple Task	It is a unit of work which represents the job to be performed.
	Task with interruptible boundary event	When the associated event occurs, the associated stream activates, and this task finishes to be active.
	Subprocess	It includes one or more simple tasks, and/or one or more subprocesses.
	Non-implemented Subprocess	It is a subprocess without being modelled and implemented.
	AND Gateway	It activates two or more streams at same time.
	XOR Gateway	Exclusive gateway which is connected to two or more streams but will active just one.
	Event-based Gateway	It is connected to two or more streams with an associated event, and the one on which the event is triggered before the event will be activated.

	Start Message Event	The role associated to the lane must send a message.
	End Message Event	The role associated to the lane must wait until receiving a message.
	Timer Event	It enables to wait until a given deadline or date.
	Document	It points out that a document is required to carry out an activity or an activity generates a document.
Text Box	Text Box	It is useful for clarifying any part of the process.

Table 2: Main elements of BPMN (II).

3.2.3. Phases of BPM Implementation.

The main phases that make up the implementation of BPM for the continuous process improvement, that is discovery and documentation, modelling, execution, and process improvement, can be supported by BPMS and are described as follow:

- **Discovery Phase.**

  This phase consists of analysing and documenting the AS-IS business process in the organization. Among the involved participants, the employees who play a role in the process have a big importance in explaining how the process has been until the current moment. That is the initial step to be able to identify which are the main problems, bottlenecks, constraints, politics, business units participating in it and more.

  It is important to highlight that it is not possible to improve business processes without knowing the current situation of them. A firm foundation is essential for any new change, because thanks to an end-to-end view of the business processes, it is possible to understand the scope and impact of the issues and utilizing business disciplines such as Six Sigma and Lean, design and model the new processes.

- **Modelling phase.**

  Once the discovery is finished, and the weakness and constraints are well analysed, the design for the new business process starts. The modelling includes:

  - Design of the TO-BE business process composed of the main workflow and in the case of existing subprocesses, their workflows.
  - Identification of functional groups and responsible users for each activity.

- o Recollection of all data needs such as organization structure, suppliers, or customers information, among others.
- o Business rules that govern the decision-making in the workflow.
- o The desired metrics or KPIs to measure the business processes performance and ensure a continuous improvement.
- o Design the application support and user interface used by all the participants who run the BPMS.
- o Model simulation, testing and acceptance of the new designed business process.

- **Execution phase.**

  At this point, the new business process is ready to run in the organization. All those stakeholders who participate in it must be aware of the new changes because even if the modelling phase has been a success and all the testing as well, it can lead to many dissatisfactions among them.

- **Process improvement.**

  As it has been said, BPM is a continuous process improvement that enables to face new changes and stay always competitive. That is the reason which makes this phase one of the most important ones. When the new business process is modelled and then executed, collecting all important data enables companies to analyse the current situation for improvements.

  The big advantage here is that the organization can work with real data provided by BPMS during run time and not estimations. By reporting historical data, it is possible to elaborate business KPIs to identify bottlenecks, and therefore build new solutions to face them.

  The life-process when BPM is implemented in an organization is never done and there is always a loop of continuous improvement.

3.2.4. BPM Strategies.

Lean is a business strategy whose origin is in the 1990s and derives from Toyota Production Systems. The importance of process management can be observed focusing on one of its claims "Brilliant process management is our strategy. We get brilliant results from average people managing brilliant processes. We observe that our competitors often get average (or worse) results from brilliant people managing broken processes".

The main goal of Lean methodology is getting higher customer value by reducing cycle times to deliver goods or services. To get lower times, it must be eliminated all the "wastes" "overburdening" and "unevenness". All three concepts are linked in an organization because wastes can produce unevenness that can provoke overburdening and then it can cause waste.

The solution that Lean strategy tries to develop consists of identifying the value, sorting all those actions that provide value in the most efficient way, carrying out the activities without interruptions and more and more effectively.

In short, processes improvement that may provide value to the customer whenever they need it is also the main purpose of BPM.

Six Sigma is also a business strategy that was developed by Bill Smith within Motorola Organization in 1985. Unlike Lean strategy, which is focused on eliminating waste, Six Sigma tries to identify the sources of defects variations or faults to eliminate them.

To achieve its main goal, this methodology uses different statistical and data-based tools and techniques that lead to maximise profits and deliver higher value to customers.

The most used technique in Six Sigma is DMAIC (an acronym for Define, Measure, Analyse, Improve and Control), a continuous improvement cycle focused on incremental improvement of existing processes.

The phases of this methodological strategy are the following ones:

- **Define**. It consists of defining the client requirements and constraints and identifying critical business processes in the organization.

- **Measure**. Its goal is to collect necessary data to measure the processes performance to enable continuous improvement.

- **Analyse**. In this phase, it is carried out the analyses of collected information to figure out the issues' origin and improvement opportunities.

- **Improve**. Design, development, and implementation of solutions that solve the roots of identified problems and lead to customer satisfaction.

- **Control**. After testing the improvements, it is necessary to monitor the processes to ensure continuous and sustainable performance.

As it can be concluded from both strategies, they put the emphasis on business processes and process indicators, and it drives to get higher customer satisfaction by supplying quality services or goods on time. However, there are also distinct differences in both types of methodologies. For example, Lean has a more systemic view, it uses several techniques such as value identification and analysis, balancing of workflow and others to decrease cycle times of delivery. In contrast, Six Sigma has a higher analytical approach and problem-solving methodology by using different techniques that provide goods and services which minimum variation and errors.

As a combination of main advantages from both strategies, it appears Lean Six Sigma, which integrates the efficiency and minimum cycle time of Lean with the problem-solving tools and effectiveness of Six Sigma, driving to process excellence, higher customer satisfaction and growth.

The mentioned business strategies in this section are the methodologies that enable a continuous improvement to the BPM implementation in the organization. To stay competitive in the market by achieving a faster transformation of the business, Six Sigma and Lean combine in Lean Six Sigma provide the following list of advantages shown in Figure 3:
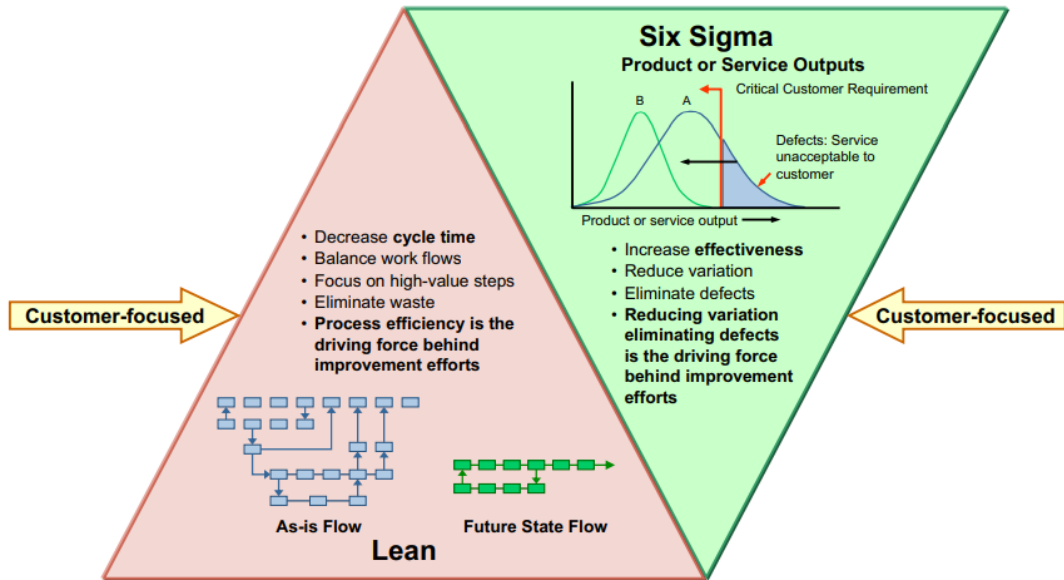
Figure 3: Main features of Lean Six Sigma

4. Contact Centre Industry.

Long before the Contact Centre industry was known as such, there were other terms to refer to this functionality, for instance "phone room". It used to be a specific business area in the organization where a group of telephone operators answered all incoming calls.

Those "phone rooms" may be traced back to the 1950s and even earlier. This business area changed over time and due to the use of computers, the initial functionality was replaced by "telemarketing service", where telephone operators did not only answer inbound calls but also were an extension of the marketing area.

Although there were many companies that had their own customer service centres in the earlier 1970s, it was not until the 1990s when they began to be called "call centres". At that moment, the outsourcing of services started to become more popular in many industries and the customer service centre was one of the first department outsourced, what can be considered the origin of the Contact Centre industry.

For most of the companies that could not afford an internal Contact Centre providing 24/7 support for customers, outsourcing was the way to go. Some reasons made a huge growth in the sector:

- An important development in telecommunications technology and a reduction in their costs.
- Higher level of standardization in technological tools which reduces the employees' specialization across organizations.
- Common language (mainly Spanish- and English-speaking population) in many developing countries which ease an appealing workforce for many companies.
- Huge wage gap between workers in developed countries with workers who have the same skills set in developing countries.

After several years where there was a high growth trend in the Contact Centre industry, in the late 2000s occurred a blockage. It can be observed a decrease in outsourcing these services since consumers demand more personalized customer service, do not like automated systems and prefer to be handled by local employees with same the language variant.

An example of this trend change is Atento, a Spanish Contact Centre company that ended up in serious financial issues in 2016 after more than 7 million losses. The main symptom justifying this failure was lower efficiency and too many complaints. Customers have no confidence in marketing that is reiterative, purely procedural and with voices from other countries.

Focusing on the specific case of the sector in Spain, companies have another particularity to deal with. That is the regularization of the sector. In 2017, a new state-wide collective bargaining agreement for the contact centre sector was published in BOE (in Spanish, "Boletín Oficial del Estado").

It consists of an agreement between both the Spanish Contact Centre Association, representing the companies in the industry, and the trade unions of workers. It establishes a standardization of wage costs, working hours, holidays and most employees working conditions in the sector.

In short, the Contact Centre industry in Spain is nowadays an exigent competitiveness sector where all the companies must implement efficient strategies to face the big current challenges: stagnation in the growth due to increasingly specialised customer demand and regularization of the sector that leads to a lower profitability margin.

5. Contact Centre: The Company.

The company where this project has been carried out was born in 2005, in Hospitalet (Barcelona). It was founded by a group of professionals with many years of experience in the sector. The initial goal was to move away from traditional contact centre models and create a new type of company focused on the final customer.

It had a fast and huge growth until nowadays, opening 10 contact centres in 3 different countries (Spain, Colombia, and the USA) and reaching a total turnover of 96 million € in 2016. More than 7.200 employees are part of the organization and provide services in 9 distinct languages.

Its core business is divided into 4 main services:

- **Interactive contact centre.** It provides a combination of future channels of communications unified in the integrated management with more traditional channels.

- **Business Process Outsourcing (BPO).** The company includes the Business Process Outsourcing related to customer contact within the business line "Interactive Contact Centre".

- **Consulting.** Specialising in collaborative business process consultancy, it offers other organisations extensive and proven know-how in Customer Experience and Contact Centre.

- **Field Marketing.** This business core consists of designing programmes and implementing sales forces and field marketing teams with the aim of improving the end customer experience through appropriate communication, satisfactory service, and profitable relationships. The goal is to attract new customers to the brand, build brand loyalty and increase brand value.

6. Data Gathering and Analysis.

The Contact Centre industry has had a big growth since it was born, but nowadays it must face new challenges due to changes in the demand and the future trend is not always as optimistic as it was in the past. The main reason is an increasingly personalised demand from customers which forces companies in the sector to reinvent and increase the value chain by reviewing the business strategy and all the business processes in the organisation.

In the specific case of the Spanish industry, it must be considered the regularization of the sector, which reduces the manoeuvrability in the companies to compete among them. This fact and the changing trend in the industry growth are part of the causes that trigger the need to carry out the current project. It starts with the need by the Contact Centre to improve its value chain and to get a higher business performance that may enable them to stay competitive in the market.

Since digital transformation is part of their strategic plan, they focused all the efforts to apply new disciplines within that field to achieve the goals mentioned in the previous paragraphs. Namely, they chose to start with BPM implementation in their core business processes and here is when this project comes to the beginning.

The first contact with the company is with an internal team composed by different stakeholders and managed by the Chief Financial Officer (CFO). That first meeting is to know the organisation, analyse the business core and get insights to decide where to implement improvements that cause significant impact. The first issue that is identified by a general analysis of the company is a low maturity level in the business processes. There is not any institutionalised corporate process, and the fact that it is a big company with several subsidiaries located in several regions makes it an important problem.

Moreover, the lack of communication is considered another main problem to be solved. As it has been introduced in the previous reasoning, different contact centres in different countries need good communication channels among them and a high level of integrity to avoid variation and low effectiveness in all business processes.

Once the Contact Centre sector has been studied and the internal team has provided all the necessary information to enable an analysis of the company, a strategy is established to identify the first business process to which continuous improvement will be implemented. A series of insights are analysed to take that decision that finally, it is going to be the sourcing process:

- A brief process-orientation maturity study concludes that there is no standardization in the business process. Most of them seem to have low efficiency even though there is not always performance measurement to provide real data.

- Among other constraints, the implementation of this first business process must last between 3 and 5 months to see a measurable impact before moving forward to other processes. Besides, it cannot be involved in audit services otherwise, the stakeholders will find it more difficult to participate in meetings and provide enough support.

- Regarding the strategic goals of the organization and the Spanish industry features, the sourcing process may be considered essential because of the potential impact on the turnover and therefore on the competitiveness of the company.

- Finally, from the first meetings with the company, a clear and common complaint regarding the sourcing process can be identified. The main reasons are low employee's satisfaction, long cycle time, lack of process monitoring and negative impact on the value chain.

Information gathering from the AS-IS process is essential to develop a TO-BE process where all the particularises from the organisation are considered and improved. In this way, a team composed of the main stakeholders involved in the sourcing process is going to be the internal contact in the company during all the project development. Roles and responsibilities occupied by those employees are the following ones:

- Purchasing managers in both Spain and Colombia subsidiaries.

- Head of Purchasing Department at the headquarter in Spain.

- Financial Controller Agent.

- Chief Financial Officer secretary.

- Purchasing assistant.

An Agile Methodology is applied to develop the BPM implementation, and meetings are going to be organised on an often basis in this first stage with all stakeholders to pool all information and identified and defined the current vague sourcing process.

6.1. AS-IS Sourcing Process.

The main goal in this section is to define the AS-IS sourcing process, to ensure the procurement of all kinds of goods, tools, and services, at all levels, countries, and sites of the company. In charge of it, Purchasing Department manages the strategic goods and services supply for the development of the business, as well as those that contribute to supporting the general operation of the company.

6.1.1. Sourcing Process: Overview.

This process includes processing the purchase requests received from all areas of the company, carrying out a preliminary study to optimise the purchase (checking stocks, assessing whether it is

appropriate), choosing the most suitable supplier, sending the order to the selected supplier, receiving the good or service and the requester's satisfaction.

| Purchase Request | Request study (stock, accepted/rejected) | Supplier Selection | Order sent to the supplier | Product/Service Reception | Compliance of purchase |

Figure 4: Sequence of stages of the sourcing process.

Purchases can be divided into the categories detailed below this paragraph, each category has a manager or specialist who is responsible for making the requests. The specialist may request quotations directly from the suppliers.

- IT.
    - Hardware and software.
    - Telecommunications.
- Facilities.
    - Office hardware (printers, photocopiers, etc.).
    - Facilities and maintenance (cleaning, safety, etc.).
    - Constructions (refurbishments, or new projects).
    - Furniture and accessories.
    - Office equipment.
    - Rentals/parking.
    - Supplies (electricity, water, gas).
    - Industrial supplies.
    - Courier and removals services.
    - Transportation services.
- HR.
    - Recruitment, press announcements, temporary work agencies, etc.
- Finance.
    - Insurances.
    - Financial consultancy, legal consultancy, etc.
    - Renting and Leasing.

All invoices must have an order number otherwise, the Department of Finance does not afford the payment. For this purpose, it is essential to first create a request through the purchasing module in the current e-space tool or in the case of IT products and services (hardware, telecommunications, etc.) through a ticket via the helpdesk tool used by this department.

On one hand, Purchasing Department must monitor and control the partial closures of all requests of the purchasing module and keep checkpoints in case of exceeding the annual forecasts.

On the other hand, for IT purchases, once the requests have been submitted by a ticket to the IT helpdesk, this area evaluates whether it is appropriate, there is stock or available solution from another centre, etc. If there is no stock or internal solution, it is the IT Department that submits the request to Purchasing Department, through the purchasing module, so that the external purchase can be carried out.

In any case, IT Department (with the position of Manager such as Administration and Support Manager or Communications and Networking Manager or failing that, CIO) first seeks for suppliers, contacts with them and afterwards must submit the request through the purchasing module.

6.1.2. Sourcing Process: Development.

The sourcing process is initiated when a need to purchase a good or contract a service arises on the part of the requester. This leads to the creation of a purchase request.

To do this, the purchase request module is used, which is accessed through an e-space platform. The requester must complete the corresponding request in the system following the corporate, financial, and purchasing requirements.

All requesters (only staff with a minimum position of Manager can be requester) have a password to access the module. Those employees who do not have a password, and who hold the minimum position of Manager, must request it to IT Department, through the tool accessible in e-space.

All purchases should be managed within the tool and shall be authorised by the Head of the Cost Imputation Area. In addition, according to the Approval Matrix, there are levels of approval according to the amounts.

Current levels of approval for a given purchase are divided into two groups:

1. **Small-amount purchases.**

   Small purchases are those goods or services whose amount is lower than or equal to €10,000. Once the request is initiated in the tool, the small-amount orders should be made with approved suppliers, which means those already in the databases of the organization. To reach this process stage, the request must be approved by an employee whose position is at least one level over the requester.

   Finally, the purchase order is sent to the supplier via email or fax.

2. **Large-amount purchases.**

   This is for purchases over €25,000. Unlike the previous case, before selecting a supplier, there should be a list of several pre-selected suppliers.

   Purchasing Department sends an email to each one of them asking for a quotation. Once the suppliers that want to participate in the tendering process sends the conditions and final prices, Purchasing Department analyses the different choices and select the one that matches better the requirements with a lower budget.

The following diagram illustrates in a generic way the critical points involved in the sourcing of goods and services:
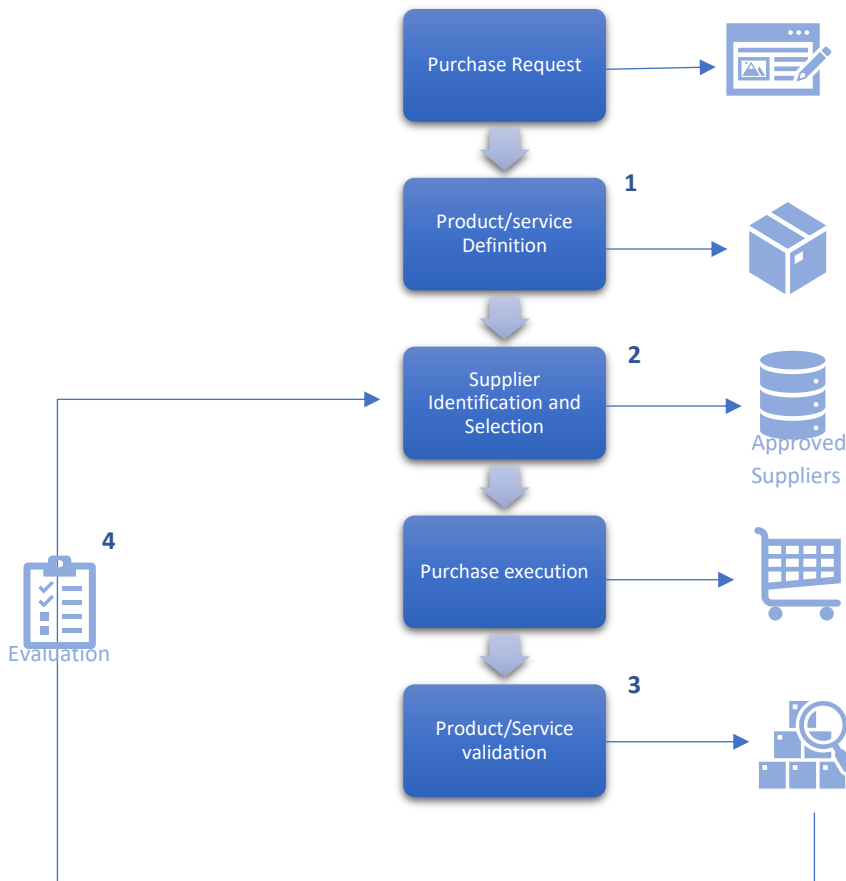
Figure 5: Main activities in the AS-IS sourcing process.

The numbers identify at which points in the sourcing process certain requirements must be fulfilled, as detailed below:

1. When filling in the purchase request, the employee should specify exactly what is needed to be purchased, in order to (before purchase) determine the requirements of the goods or services. If necessary, before submitting the request, it should be sought advice from the

Purchasing Department, who can put the requester in contact with a Specialist Coordinator of the corresponding area.

2. A supplier is selected according to the rating system determined by previous purchases. This system is a fundamental requirement that consists of a ranking of supplier's punctuation that helps the Purchasing Department to select the best option. Even it is an essential task to select the most suitable supplier, there is not any business rule to govern that rating system and the ranking is just based on previous experience.

3. The specialist areas must ensure that the purchased goods and services meet the requirements requested by the employees. When an area other than Purchasing is used for this purpose, that area will be responsible for this task, being the Purchasing Department the ultimately responsible for the management of the order with the chosen supplier. Purchasing Department reserves the right to choose a supplier if it believes it can improve price, delivery conditions or availability.

4. The requester verifies that the good has been correctly delivered or the service has been satisfactorily enjoyed by closing the purchase request, taking responsibility for the quality provided, and finally notifying Department of Finance to proceed with the payment for the supplier.

Once all the data and information about the current sourcing process is collected through the meetings with all the stakeholders from the Contact Centre, the AS-IS has been modelled as it is shown in the Figure 6. Since the organization does not have the workflow either implemented in any tool or documented, the first main problem pointed out is the fact that the modelled process is not followed in the whole company in the same way.
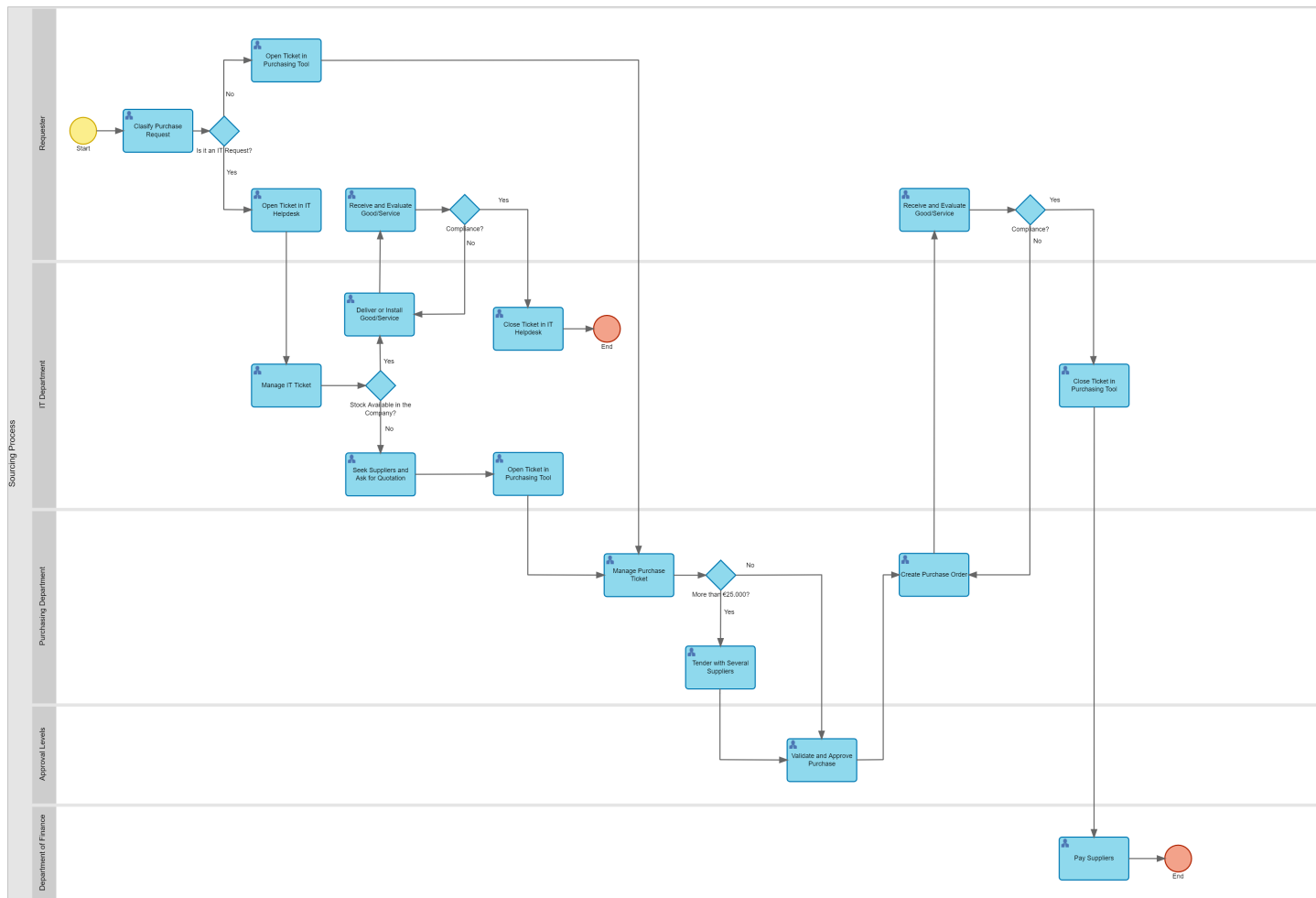
Figure 6: AS-IS Sourcing Process.

To design the TO-BE process which accomplishes with the requirements of the company and cover all its necessities, good data and information gathering, and the AS-IS design are essential stages. Therefore, in the following section, the AS-IS process is going to be analysed, detecting the main problems, identifying bottlenecks, and finding possible improvements.

Following the logical path from the beginning to the end of the modelled process, it is going to be pointed out all those aspects identified to be changed, added, or improved:

- When an employee has a need and starts the sourcing process opening a ticket, in the current process it is required to know in detail weather the good or service belongs to IT Department or it is a general purchase. Apart from the fact that the classification is not documented nor clear in all cases considering the technical skills of the requester, there is a need of integration in one unique tool or platform where all types of purchase request can be created.

- If it is an IT purchase, there are duplicate tasks in the process, because two tickets must be opened in two different tools. Therefore, the traceability of the purchase request is sometimes lost.

- The requester must occupy as a minimum a manager position or higher. This fact forces all employees with a lower position to ask their corresponding superior to open a ticket with all the required specifications. It is a good practice to monitor and validate in the first step all the purchase requests. However, it has the drawback of increasing the workload of managers and other job positions.
  One possible solution may be allowing all employees to start the process, but a first validation of their superior must be included before continuing the workflow.
  Considering the job position of the employee, this validation can be needed or maybe it can go directly to the next task.

- Although the Department of Finance is currently participating in the last step of the process, there is a lack of budget monitoring in the first steps. It does not make sense to start a purchase request if the budget of the cost imputation area cannot afford that amount of money.

- Approval levels monitoring is low, there is only a threshold dividing all purchase requests into two groups: total amount lower or higher than €25.000. When it is higher, the procedure to manage the purchase is different due to the tendering process. However, when it is lower than €25.000, all requests have the same approval level, even though it is a small-amount purchase of just several euros.
  Consequently, most of the request's approval are centralised in the same job positions, increasing the workload excessively, and in many cases causing a bottleneck in the workflow.

- If the purchase amount is higher than €25.000, there must be a tendering process, but it is not documented. Therefore, there is not an implemented sub-process that indicates the activities and tasks to carry out to find the most convenient supplier aligned with the organizational strategy and conditions established by the company.

- When Purchasing Department starts its contact with suppliers, it is not well defined the phases that must be followed whether there is one approved supplier, more than one or none.

- Employees' non-compliance should not always lead to executing a new purchase. On this side of the workflow may occur several outcomes depending on the circumstances under which the good or service has been received.

  For instance, if the delivered purchase needs to be changed, it must be done with the same supplier. However, if there is a need for cancellation, it can happen it is required to change the supplier.

- In the company, there are some types of purchases that must be done with the drawing up of a contract. It is the case of all cleaning purchases, where a contract must be signed with the supplier because the service includes outsourced workers and the legislation on labour risk prevention required it.

  Since those contracts are carried out and review by Legal Department, it is also involved in some tasks of the sourcing process that are not considered in the current situation.

- It is also identified a necessity to evaluate suppliers to rank them in a list according to their punctuation. This activity can be considered one of the most significant within the sourcing processes because of the importance to reach the best deal with suppliers. As it has been said in previous sections, a Contact Centre does not have big manoeuvrability to manage offered tariffs and wages. However, having a ranking of all suppliers with all the information and data about them, it is possible to make decisions based on the best conditions for the company and therefore take competitiveness advantage.

  In this way, there must be two different assessment criteria for suppliers. On one hand, there is a necessity to develop an initial assessment to approve a new supplier with whom there has been no previous contact. On the other hand, there should be a continuous assessment of all approved suppliers to identify changes in their conditions or prices, updating the ranking continuously.

- Regarding the link between goods and services with their suppliers, currently there is not any relationship. To implement the previous point in an efficient way, when an employee defines an item to be purchased, this link must be used to help Purchasing Department to choose the best-ranked supplier for this specific product or service.

- There are some recurring purchases that have monthly receptions but annual contracts, for instance, some renting services or the maintenance of facilities such as air conditioning. The identified problem in these cases is a bad practice to impute costs. If an annual renting is paid monthly and it is requested through the purchasing tool month by month as well, all those purchases will be below the pertinent approval level.

  Therefore, once a purchase request is made, it must include the total annual amount of the signed contract. If there are several receptions or periodic payments, the purchase request must not be close until the last reception has been executed.

- The order of activities in the whole process is also important to be efficient. The approval levels can be positioned either after contacting the suppliers or before. There are some advantages and drawbacks in both situations that must be into account.

  If this activity is implemented in the last step before creating the purchase order, the managers, directors, or the job position in charge of the approval task is aware of all purchase tracking and can validate the real prices negotiated with suppliers. The disadvantage, in this case, is when a request is not approved. There has been a big workload for all the roles and stakeholders who participate in the previous process stages that will become waste.

  Another option is to locate the approval levels in the beginning, after verifying the budget of the area. The advantage would be to avoid waste of time when a request ends up disapproved. However, the approval level may have a lack of information or track to make the right decision.

  Finally, the best option is somewhere in the middle, neither in the very beginning after the budget verification nor in the last step before carrying out the purchase order.

  A good solution may be to add the approval activity after the request review by Purchasing Department. In this case, the risk to make a wrong decision and time-consuming are both lower.

- All goods deliveries must always be in the reception centre of each subsidiary. This fact enables to increase the assets monitoring and for the specific case of IT purchases, all goods must be receipt by this department in order to set up the devices when it is required.

  The aim of this point is to avoid purchases from being delivered directly to private households when employees are teleworking.

- Another consideration is the lack of endpoints to provide all possible outputs to the physical workflow. In those points where the sourcing process may be rejected, such as in the approval levels stage, there must appear this choice in the stream.

After being aware of how the organization is working on the current sourcing process, the design of the TO-BE must figure out all those issues pointed out before, or at least try to solve most of them.

The next section tries to develop the TO-BE where the input is all the AS-IS analysis made in the current section, and the output must be an efficient sourcing process that provides higher competitiveness to the Contact Centre.

7. Process Design.

In this part, it is going to be explained how the TO-BE sourcing process has been designed and implemented in the Contact Centre.

Previous sections make it possible to analyse the following main points:

- First of all, the current situation of the Spanish Contact Centre industry, where the most important features have been highlighted, such as the regularization of the sector.

- Secondly, it has been analysed the organization, the main challenges that it must face, strategic plan, structure organization and background.

- Then, focusing on the business process management, the sourcing process has been selected to be modelled due to several criteria, such as its impact on the strategic plan.

- Finally, after data and information gathering, the AS-IS source process has been modelled and analysed. It has been enabled for identifying all the problems, constraints and necessary improvements which cause among other disadvantages; inefficiency, wastes, lack of communication, lack of data and information integrity, low process monitoring and in the last term loss of competitiveness.

Since the methodology applied to design the TO-BE status is based on agile technics, after each iteration, where new changes in the sourcing process are designed and modelled, there are meetings with main stakeholders to present those changes and identify other ones. In this way, it is possible to identify constraints, new requirements or possible improvements aligned with their strategic plan or other factors that are not defined in the initial requirements.

This methodology causes closer contact with the client and thanks to developing several loops within the main project, the changes and issues identified in the process are easier to figure out.

To achieve the highest sourcing process performance, the Lean-Six Sigma strategy has been followed in BPM implementation. The path followed from AS-IS to TO-BE, in terms of process management, consists of trying to figure out the problems identified from the analysis of the current situation. To do so, it must be applied the best practices and all the knowledge provided by the Lean-Six Sigma strategy.

The points below sum up the key principles considered to design the TO-BE sourcing process:

- Decrease cycle time for each activity.

- Balance workflows. Implementing a new process with a BPM Suite, employees know clearly which are their responsibilities and workload can be efficiently balanced.

- Focus on those activities that provide high value.

- Eliminate waste, that is to avoid those activities without any impact on the value chain.

- Reduce variation. Create a standard process for the whole organization and integrate it into the same BPM Suite.

- Eliminate those actions that end up provoking errors.

- Increase effectiveness.

In the following, the rest of this section is divided into two parts. On one hand, it will be shown the modelled TO-BE sourcing process, with a detailed explanation about each activity, decision task, subprocess, responsibility for each role involved, and a general overview of the workflow.

On the other hand, the forms that shape the user interface will be presented together with the business rules that govern the workflow of the new sourcing process.

7.1. TO-BE Sourcing Process.

The main process is itself composed of other subprocesses that are modelled separately. In this way, the whole sourcing process is going to be presented following an orderly explanation of each element of the main workflow, and then proceed in the same manner with the subprocesses that constitute it.

7.1.1. Sourcing Process: Overview.

This is the main overview of the sourcing process. It includes all the roles involved in the workflow. Each one has been assigned activities to be carried out according to responsibilities and scope of their job position.

For a better understanding, the main duties of each role are explained below:

- **Requester**.

   This role can be assigned to all permanent employees. It means that all those employees with a corporate user in the database can start a purchase request. If there is a person who has a purchasing need but is not a permanent employee, such as an intern or an outsourced employee, that person has to ask another employee able to start the sourcing request. That means the requester is not always the employee who has the need, but it is the person who initiates the workflow.

- **Supervisor**.

   A supervisor is the higher hierarchical level next to the requester. This role must verify in the first stage the purchase request.

- **Department of Finance**

   Mainly, budget verification and final payment are both activities belonging to Department of Finance responsibility.

- **Expert.**

  When a product or service requires special specifications, a department of the organization specialized in the given matter must be contacted to provide advice. For instance, if there is a department that needs a new server, the IT Department must identify the requirements and technical specifications.

- **Legal Department.**

  Employees from this department have the responsibility to approve the Bid Specifications and manage sourcing contracts.

- **Purchasing Department.**

  This is the core role in the process. It is in charge of searching suppliers, managing Bid Specifications, contacting an expert in case of necessity, creating the purchasing order and managing non-compliance purchases situations.

- **Approval Levels.**

  To validate a sourcing process, it has been designed an approval matrix in the whole organization. It is composed of several thresholds depending on the total purchase amount. For each one of them, there is a different assigned position that has the responsibility to approve the purchases within its threshold, and it varies on the department to which the requester belongs.

- **Reception.**

  Every good must be received at the reception point of each subsidiary. Employees working in those places have the responsibility to manage all receptions and hand them over to the employees concerned.

- **Evaluation.**

  This role is always the final user who receives the good or enjoy the service. It does not have to be always the requester. Even though all permanent employees have access to create a new request, it may happen that the final user is another person. Therefore, the end-user is the one who must evaluate the final good or service.

Besides, according to best practices on BPM, the whole process is not modelled in one unique workflow but there are some subprocesses that are modelled independently. Those subprocesses are the following ones:

- Approve Sourcing Process.
- Manage Bid Specifications.
- Receive Good or Service.
- Manage Non-Compliance.

Once responsibilities from each role in the process are explained and subprocesses enumerated, it is going to be describe in detail the sourcing process, following the workflows modelled with BPMN. At this point, it is important to explain that the BPMS used (SofExpert) in the project does not strictly employ the standard notation but it slightly differs. For this reason, TO-BE process is modelled in a BPM modeller called *Bizagi* and afterwards it is implemented in the BPMS.

Below, the process implemented in the BPMS is exposed and all the activities involved are explained in detail following a logical workflow. For a better clarity in the report, the workflows modelled with standard notation BPMN are presented in the annex. The differences between both workflows are not significant, and the process itself does not change, it is just a matter of notation.
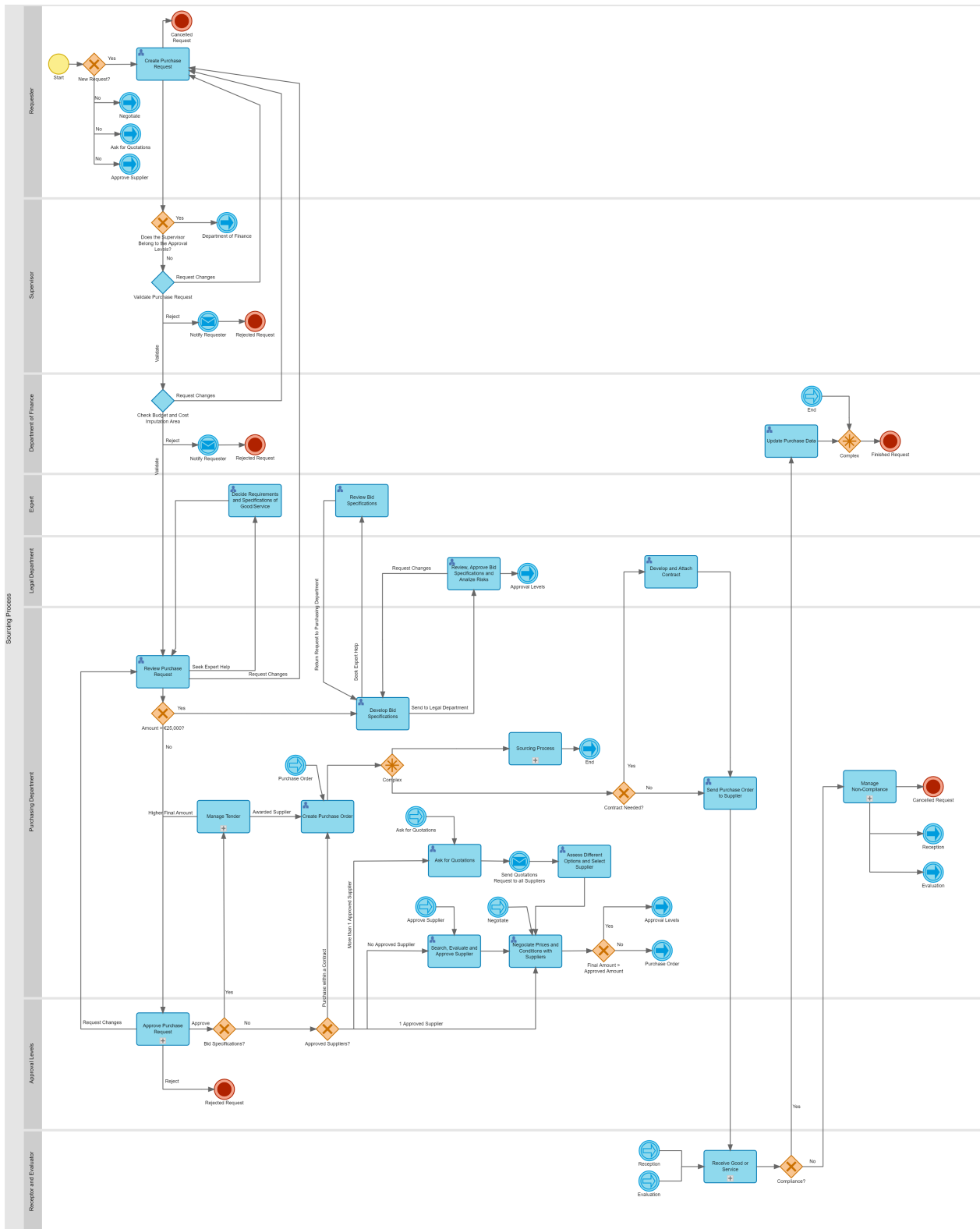
Figure 7: TO-BE Sourcing Process.

- When a requester starts a new instance, this employee must complete all the required fields from the purchase request.

If a new instance is created as a consequence of a subprocess from the main one, the first gateway *New Request?* enables the workflow to jump first activities and go directly to one of the following tasks:

- ✓ *Ask for Quotations*.
- ✓ *Search, Evaluate and Approve Supplier*.
- ✓ *Negotiate Prices and Conditions with Suppliers*.

That subprocess is created when the goods or services from the request must be sourced by more than one different supplier. In this way, in the purchase order creation, it can be as many instances from the main process as different suppliers required.

- After creating the purchase request, it can be cancelled or just sent to the supervisor following the normal path.

- In case the supervisor does not belong to the Approval Levels, this is the first validation to avoid non-sense requests, wrong initial data and ensure monitoring for all requesters. When the supervisor does belong to the approval levels, the workflow jumps this task.
  This role can ask for changes in the initial information, reject the request and finish the process or just validate it and send it to the following step.

- When the workflow is in the Department of Finance, this role must check if there is enough budget to afford the new sourcing. In addition, they must also assign the Cost Imputation Area to which the employee belongs.
  According to the previous decision, the purchase request can be returned to the requester to be modified, can be rejected in case of low budget or, continuing the normal path, send to the Purchasing Department.

- First activity carried out by Purchasing Department consists of analysing the purchase request to decide one of the following outputs:
  - ✓ To seek help from an expert when the initial information is not enough to execute the purchase. When that is the situation, the workflow moves to a specific department that is closely related to the good or service requested. After deciding the requirements and specifications, the request returns to Purchasing Department.
  - ✓ To request changes in the initial information.
  - ✓ To send the request to the following steps.

- There is a gateway to check if the total amount is higher or lower than €25,000. If it is higher, there are Bid Specifications development. When it is lower, the process flows towards the *Approve Sourcing Request* subprocess.

- *Develop Bid Specifications*. The previous threshold, apart from being used as an approval level, is designed to ensure that big amount purchases follow a tendering process. This process enables choosing the best supplier that matches the initial requirements, considering their conditions and quotations.

  This activity has two possible outputs that lead to getting Bid Specifications with clear and conscience technical and economic conditions, thanks to consider all possible risks:

    ✓ *Seek expert help*: To develop Bid Specifications, most of the times it is necessary to consult a department in the company specialized in the given matter. Hence, experts review, complete and correct the document before returning it to Purchasing Department.

      This is a loop to ensure Bid Specifications achieve the maximum level of detail in the conditions of the purchased good or service to be more efficient in downstream activities.

    ✓ *Send to Legal Department*: once Bid Specifications are developed, they are sent to Legal Department. This activity consists of reviewing legal terms, analysing possible risks, and finally, if everything is right, the workflow jumps to Approval Levels. Otherwise, it returns to Purchasing Department to be corrected.

- *Approve Purchase Request*. This is a subprocess designed and modelled independently in other pool and will be explained later in the section.

  Considering all possible paths in this subprocess one of the following outputs can occur:

    ✓ On one hand, when a request accomplishes all the requirements to be aligned with the strategic plan of the organization, it turns on to be approved. That is only possible after being review and approved by all the roles occupying the approval levels.

    ✓ On the other hand, it can happen that one of the approval levels thinks that a purchase request does not match the strategic plan or another criterion, and it must be rejected. The sourcing process finishes at this point as a rejected request, with information justifying the requester why it has not been approved.

    ✓ Finally, if there is a need to have further information about the request in order to make an approval decision, the workflow returns to Purchasing Department which must provide the required data and/or do the required changes. In this way, it is possible that not only further information is required but also changes in the sourcing conditions to be accepted.

- *Bid Specifications?* gateway. Once a purchase request passes by the approval matrix, this gateway divides the workflow into two different ways:

    ✓ In cases where the initial amount is higher than €25,000 and there are Bid Specifications attached to the request.

    ✓ In cases where the initial amount is lower than €25,000, there are not Bid Specifications and, the process flows to the next gateway *Approved Suppliers?*

- When there are Bid Specifications, the following activity carried out is a subprocess of tendering. This subprocess, like all the others in the main process, will be shown in the next points.

  In general terms, this activity consists of searching for the most suitable supplier that matches the conditions established in Bid Specifications, within a competitive budget. Two possible outputs may occur:

  - ✓ *Awarded Supplier:* the tendering subprocess has made it possible to find the most suitable supplier, and the final amount is equal to or lower than the approved budget. Therefore, the purchase request is awarded, and the order created.

  - ✓ *Higher final amount:* if the awarded supplier turns on a final amount higher than the approved one, the request must return to be approved throughout the approval levels.

- *Approved Suppliers?* gateway. This automatic decision has 4 different outputs. It has an important outcome in the whole sourcing process because it provides a link between goods and services with their best approved suppliers. If there is not an approved supplier, the process requires searching and evaluating it before allowing to execute a purchase.

  Here below, the four mentioned paths are going to be explained:

  - ✓ *Purchase within a Contract*. There are some services or goods which require a contractual relationship with suppliers due to the policy of the company.

    It is the case of some software licences. When an employee requires a new license to work in a given software, if there is already a contract with a supplier, the purchase will be automatically awarded to that one.

    The organization understands that critical suppliers are those whose services or goods are used to manage the services of their core businesses. Therefore, a contractual relationship is required in the following cases:

    - Communications: Telephony, Internet, and Data Operators.
    - Implementation and/or maintenance of networks.
    - Electricity suppliers.
    - Electricity contingency systems.
    - Servers (new or maintenance) internal or external or in the cloud.
    - Applications used in the management of end user services/goods.

  - ✓ *One approved supplier*. For each specific item, the system database provides all those suppliers which have already been approved in the past. When there is only one for a service or product, the workflow jumps to the next activity, *Negotiate Prices and Conditions with Supplier*.

This decision is more efficient than searching for new suppliers because of a lower cycle time. Besides, the fact that there has been previous sourcing by that supplier enables having enough data and information to make a good purchase.

✓ *No approved supplier*. In case there is not a supplier in the database for the desired service or good, a new one must be searched, evaluated, and approved to carry out the purchase. Since the conditions to do an initial evaluation must be clearly documented and unified for all cases, a criterion to do it will be presented and explained in the next sections.

After this activity, it comes to the same task of negotiating prices and conditions with the selected supplier.

✓ *More than one approved supplier*. Even though the BPMS provides a ranking list of all approved suppliers when there is more than one, it is always to be ask for quotations.

Then, among all quotations received by interested suppliers, there is an analysis made by Purchasing Department to assess different options and select the most suitable one.

Finally, it comes again the same task of negotiation with the supplier to decide final conditions.

- *Final Amount > Approved Amount?* gateway: Once negotiation with the supplier provides the final cost, this decision made by the system ensures the right assessment when the final amount increases. Two different outcomes:

  ✓ The final amount is higher than the approved one. The workflow comes back to the approval levels. The process must follow again all the activities downstream.

  ✓ Th final amount does not change or is even smaller. The next stage is to create the purchase order.

- *Create Purchase Order.* This activity consists of creating the purchase order in the ERP used by the company (*Microsoft Dynamics NAV*). Even though all the data and information related to the process is hosted in Softexpert databases, this activity must be done on another platform. The main reason is that mainly all financial data is hosted in the ERP and all purchase orders have to be copied in that tool.

A purchase order may include one or more purchase requests. The reason is that two different employees can start two different processes in a short period of time, and both cases can be supplied by the same supplier. This way, both requests have the same order number.

Trying to figure out the best solution for this lack of integration, a massive export of data is applied. The copy task of data from one side to the other is not going to be made instance by instance, but weekly with all the instances. That means every Friday, an export datasheet is downloaded from the BPMS and imported to Navision with all order numbers made during the week.

- *Complex* gateway: When an order is created, if there is not a unique supplier to provide the initial request but more than one, the main process triggers as many subprocesses or instances as different suppliers there are required. This subprocesses is just an instance of the main process and enables to repeat the supplier award as many times as needed.

  If there is only one supplier to provide the desired goods or services, the workflow continues towards the next gateway *Contract Necessity?*

- *Contract necessity?* gateway: according to the type of purchase, the process requires to draw up a contract or does not. For instance, cleaning and maintenance services are two types of purchase that need a contractual frame. If there is not a necessity of contract to carry out the purchase, this gateway moves workflow on, and the order is directly sent to the awarded supplier.

- *Draw up and Attach Contract.* Legal Department must draw up the contract with all conditions, specifications, and necessary data before attaching it in the BPMS. Afterwards, process continues to the next step, *Send Purchase Order to Supplier*.

- *Send Purchase Order to Supplier*: Purchasing Department sends the order to the supplier and waits to receive the goods or services.

- *Receive Good or Service.* This is not a simple activity but another subprocess that will be dealt with later. From this subprocess, two different outcomes can occur:

  - ✓ Goods or services are received without any complaint. Two roles are involved. On one hand, the employees in the reception sides, and on the other hand the final user whose necessity triggered all the sourcing process. Subprocess finishes as *Compliance*.

  - ✓ There are two ways to end up in a *Non-compliance* situation:

    - ▪ Due to whatever issues with the supplier, the delivery never takes place. In this case, the process finishes in this step as *Purchase not Received*. The purchase receptor role is the one that triggers the *Non-compliance* situation.

    - ▪ When the evaluator complains about the delivered good or service, the subprocess finishes as *Non-compliance* and in this case, the evaluator is who triggers the *Non-compliance* situation.

- *Compliance?* gateway: within the *Receive Good or Service* subprocess, there is an evaluation activity. According to the outcomes from that evaluation, the system makes an automatic decision to continues the process either to the *Non-Compliance* subprocess or to the last task in the sourcing process.

- *Manage Non-Compliance*: last subprocess that will be described at the end of this section. For an unsatisfied outcome from the employee who evaluates the good or service, there must be a *Non-compliance* management which may finish in one of the following situations:

✓ *Evaluation*. When there is no added value in putting effort to figure out the *Non-compliance* situation, or there is not another possible solution to deal with the issues regarding the sourcing process, the workflow must return to the *Evaluation* step.

✓ *Reception*. Due to the same reason as exposed just before, the workflow goes back but this time to the *Reception* step. It also may happen a substitution of goods or services and returns to the *Reception* stage as well.

✓ End of the sourcing process. When a purchase is cancelled, another instance from the main process is created and the present workflow must finish at this point.

- *Update Purchase Data*. Finally, the last activity from the main process is to update the final data from the sourcing process in the ERP. As it has already been mentioned after creating the purchase order, this is made by a weekly massive export.

- Last gateway is just a synchronized element that waits for all subprocess or instances triggered from the main process to finish the request at the same time.

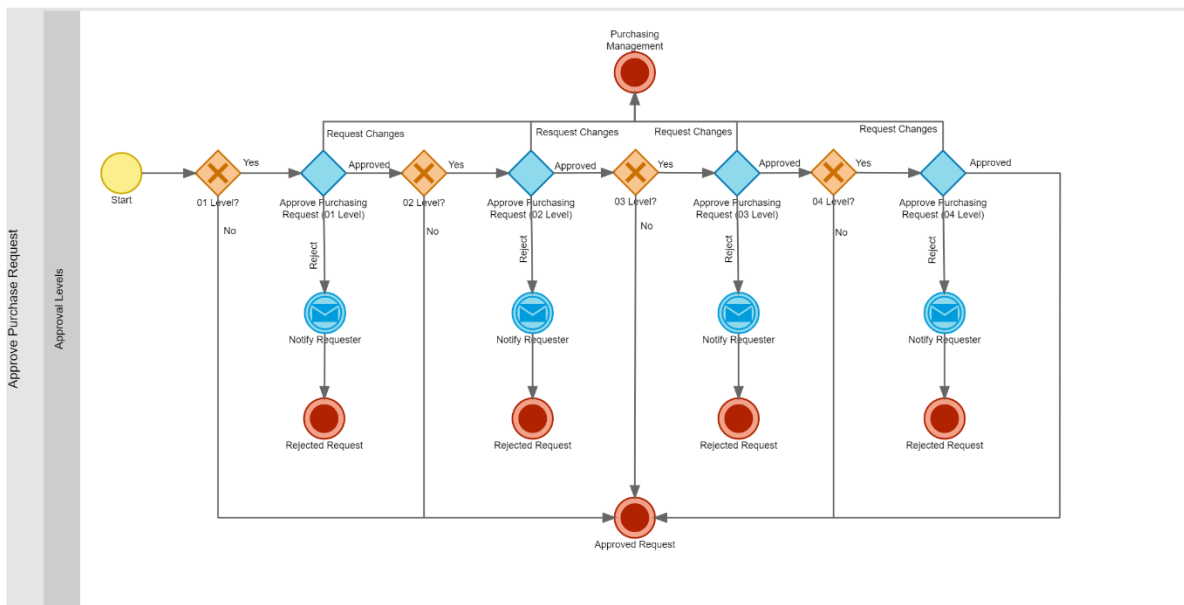### 7.1.2. *Approve Purchase Request* Subprocess.

Figure 8: Approve Purchase Request Subprocess.

This subprocess has been developed mainly to increase monitoring on big purchases, which means the monitoring depends on the total amount required to supply the desired good or service. The higher the total costs are, the more approval levels required to overcome. In this context, it has been defined four thresholds:

- Level 1: Purchases from 0 to €3000.
- Level 2: Purchases from 3,001 to €10,000.

- Level 3: Purchases from 10,000 to €25,000.

- Level 4: Purchases higher than €25,000.

For example, there is a purchase request whose total costs amount to €15,000. When it comes to being approved by the previous matrix, it must be approved by three different hierarchical positions until the third level. Each role has the decision to:

- Approve the request after analysing it.

- Return it to Purchasing Department asking for changes or more information to make the right decision.

- Reject the request, notifying the initial requester about the main reasons and finishing the sourcing process as *Rejected Request*.

7.1.3. *Manage Tender* Subprocess.
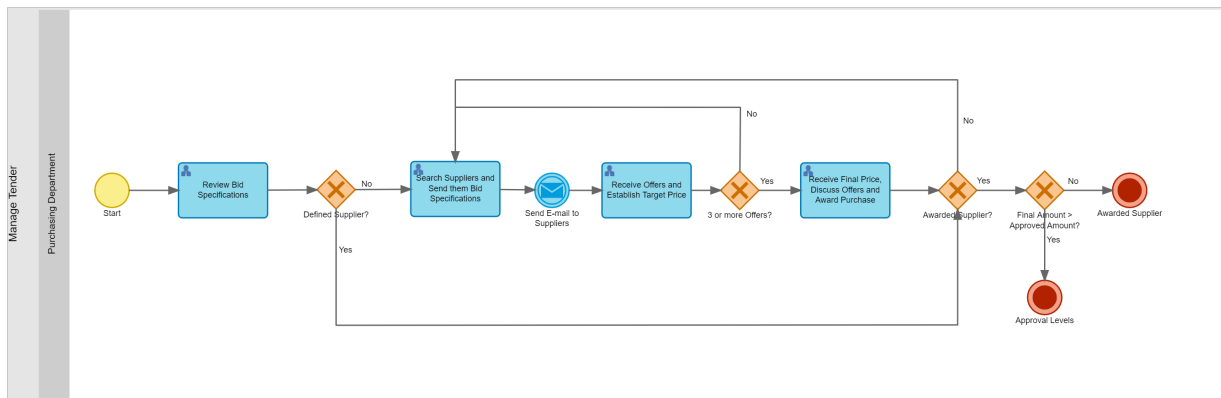
Figure 9: Manage Tender Subprocess.

An important subprocess from the main sourcing process is tendering. The company did not apply this subprocess for big purchases. This lack involves risks that may have too many negative impacts on its competitiveness.

- First step required to manage a purchase whose cost is higher than €25,000 consists of carrying out Bid Specifications. This activity has already been described in the main process. The workflow above starts by reviewing that document. Then, there is an automatic decision to start a tendering subprocess or not (a supplier has been already defined in the Bid Specifications).

- If there is not any defined supplier, it comes to search potential suppliers and send them the Bid Specifications. This activity is always open to all suppliers willing to participate in the subprocess.

- Next, all offers are received and analysed. It can happen that none of them meets the conditions and requirements (*Void Tender*). Therefore, the subprocess must come back to the

activity of searching for more suppliers. If there are at least one that meet the requirements, the workflow moves forward.

- To the suppliers whose offers meet the Bid Specifications, there is close contact with all of them to negotiate final prices and award the purchase to the most suitable one.

- *Awarded Supplier*? Gateway. After the previous activity, it is possible that no supplier has been awarded and workflow comes back to start the tendering subprocess again. If there is finally an awarded supplier, the next activity checks final costs.

- *Final Amount > Approved Amount* gateway. Two outcomes can occur. On one side, if the final costs do not go beyond the approved initial amount, the subprocess finishes as *Awarded Supplier*. On the other side, the workflow must come back to the approval levels.

7.1.4. *Receive Good or Service* Subprocess.
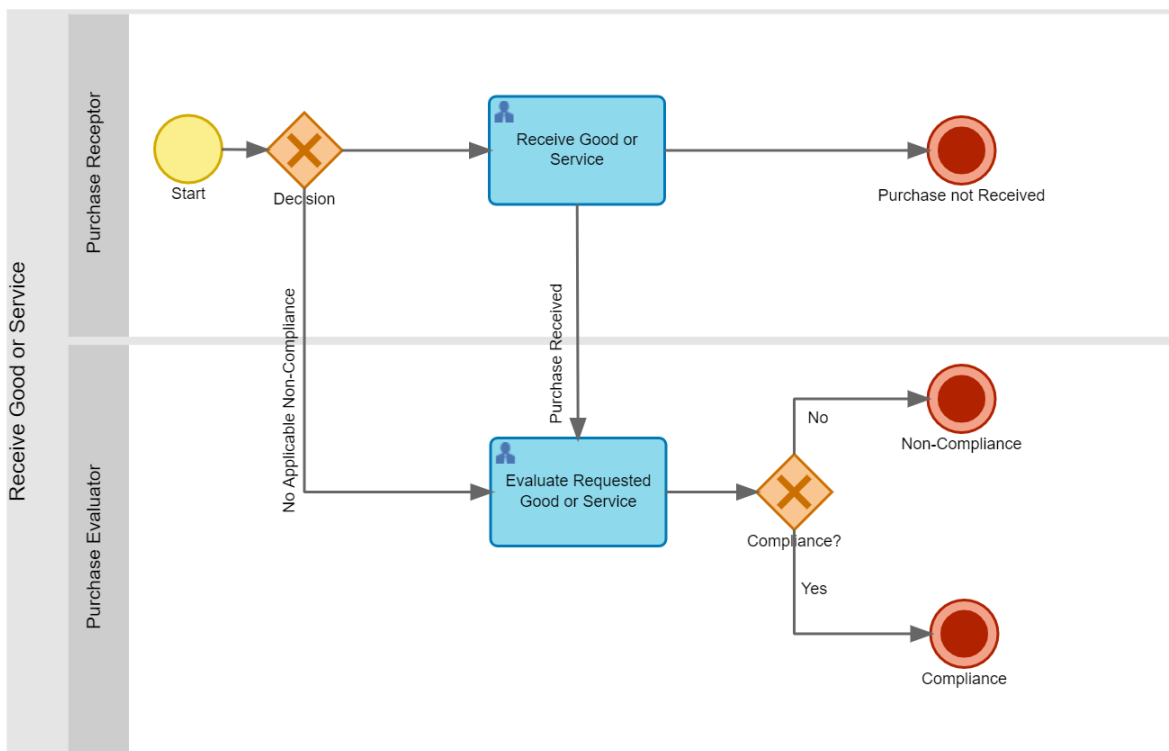
Figure 10: Receive Good or Service Subprocess.

Reception and Evaluation subprocess involves two different roles as has been said before. Since the same purchase order can be done by partial deliveries, this subprocess occurs as many times as delivers by suppliers.

- It can happen that this workflow is triggered by a *Non-Compliance* outcome. That is the reason for the first decision gateway, to distinguish those cases where the evaluation is not the first time for a given good or service but has already received and evaluated previously.

- Following a normal workflow, the first activity is the reception of the purchase order. It must be centralized only in reception sites to increase the monitoring. Considering the exception that delays can always happen, when it turns to be a major issue and the good or service is never delivered, the subprocess finishes as *Purchase Not Received*.

- After the reception, the employee, who is going to use the good or service, must evaluate it. Among other important data comes from that review, one important decision is to accept the good or do not. According to that decision, workflow in the main process follows different paths.

  In addition, in the following section, there will be an explanation of that evaluation, which is a key factor to ensure measurement of main indicators and continuous improvement of the process.

7.1.5. *Manage Non-Compliance* Subprocess.
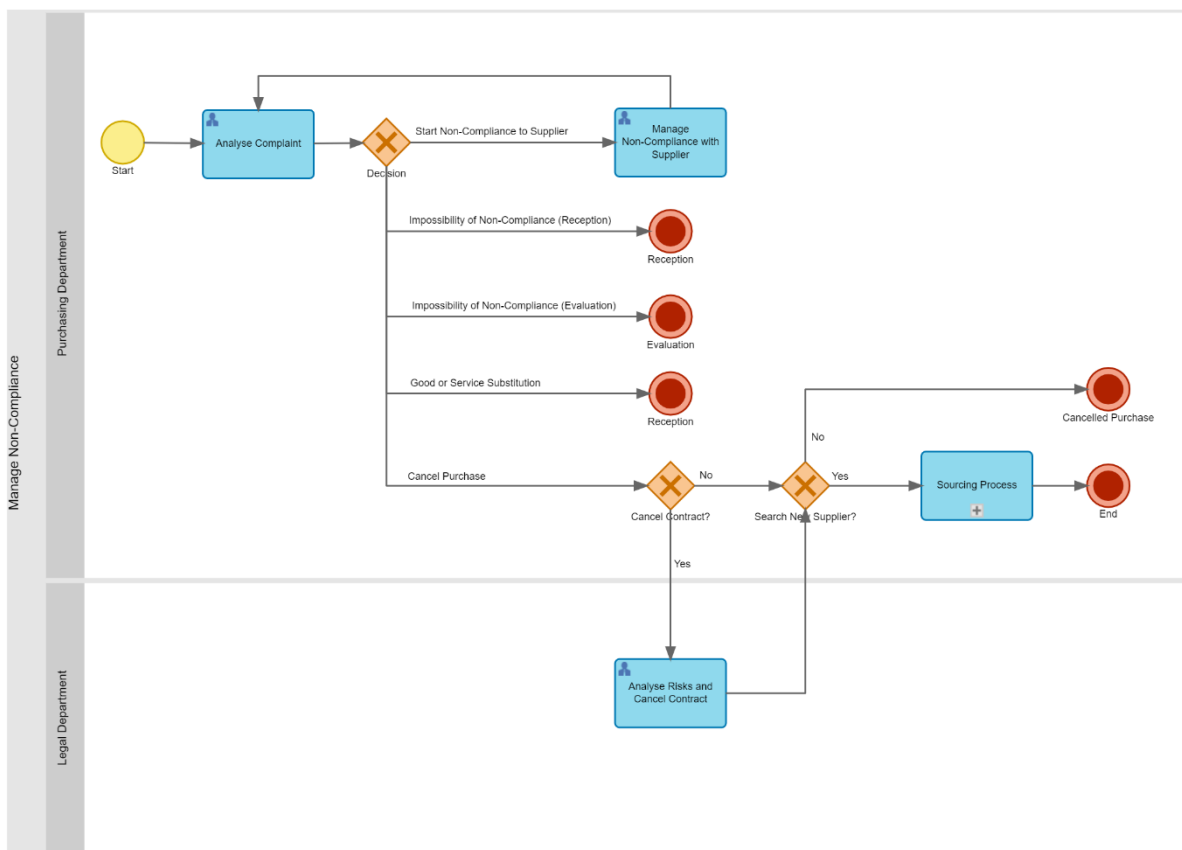
Figure 11: Manage Non-Compliance Subprocess.

A *Non-compliance* situation must be always solved by Purchasing and Legal Department. The main reason is that the decision to trigger a *Non-compliance* subprocess cannot be assigned to reception or evaluation roles because there are always risks that must be analysed by experts in the field.

The previous subprocess only may occur due to either a *Non-compliance* evaluation or a *Purchase not Received* status. It is important because ensures to manage efficiently circumstances where the supplier does not provide a good service or good. Besides, it increases satisfaction among employees thanks to offering solutions to their complaints.

- The first task consists of analysing which are the causes of the complaint. From that analysis, Purchasing Department makes a decision based on possible impacts, risks and the information provided by the *Non-compliance* justification. There are five possible outcomes:
  - *Start Non-compliance to Supplier*. When a complaint is important and serious, it triggers this activity. After contacting and negotiating the best solution with the supplier, the workflow returns to the activity of analysing the new situation.
    It is again Purchasing Department which must decide to finish the *Non-compliance* subprocess.
  - *Impossibility of Non-Compliance (Reception).* It can occur that the *Receptor* starts a *Non-compliance* management because of a delivery delay, but there is a justification for it. For instance, if there is a problem with the supplier and only Purchasing Department is aware of that, the previous subprocess would finish as *Reception*.
  - *Impossibility of Non-compliance (Evaluator).* The causes that may provoke this situation are more varied. An employee who receives the good or service can complain due to lower quality than expected, wrong items, purchase with different specifications, conditions differ from the ones negotiated, etc.
    After analysing those causes, Purchasing Department can decide to not proceed with a *Non-compliance* activity due to the risk of more negative impacts or just lack of the right justification.
  - *Good or service substituted.* This decision may happen after finishing a *Non-compliance* activity with the supplier. It consists of changing a delivered good or service by another one. The subprocess finishes as *Reception* and the workflow in the main process comes back to *Reception*.
    This outcome does not involve any change in supplier. When it does require a change, the sourcing process must be cancelled.
  - *Purchase cancelled.* It is the case when after carrying out a *Non-compliance* process and analysing the complaint, good or service must be ordered to another supplier. It is not only a substitution but a change in the items. In addition, the subprocess can also finish without any other sourcing process.
    This decision may entail risks for the company in case of being an active contract.

- *Cancel contract?* gateway. If a *Non-compliance* management turns out in a contract cancellation, Legal Department must analyse all risks before cancelling the contract. On the contrary, when it is not required to be cancelled or if there is no contract associated with the purchase, Legal Department is not involved in the process.

   For example, the organization may have a contract of cleaning material with a given supplier. If a specific delivery cannot be done on time, the company must cancel the purchase and seek another supplier on an ad hoc basis, without being required to cancel the present contract.

- *Search new supplier?* gateway. In this last decision, the workflow may continuous two different paths depending on which way is chosen to figure out the subprocess. If there is a necessity to seek another supplier, it creates a new instance of the main process. If the purchase is cancelled without any substitution or new instance in the main process, the subprocess finishes at this point.

8. User Interface.

After having explained the TO-BE sourcing process, the interface and business rules that govern its management are going to be presented in this section. The whole interface, through which roles involved in the process work, is implemented by forms in the same BPMS.

The set of forms includes management of all activities and their possible outcomes, trying to simplify as much as possible the tasks for employees and ensuring fast and easy communication between them. It is also very important data integrity from process to monitor it. In this way, the interface has those necessary fields to ensure all data collection and to host it in the database of the system.

By using the BPMS to carry out the process, each role is notified of their pending tasks, aware of their involved process status and informed of each important decision regarding their requests. Therefore, new process implementation ensures a higher level of communication which, in turn, reduce delays and waiting times between activities. As a result, it is possible to get a lower cycle time in the whole sourcing process.

Following this introduction, it is going to be shown those forms have just been mentioned. It is important to design an interface that makes up both all data and different workflow possibilities. Each role has different fields available according to its functionality. To ensure the highest process performance, some fields marked with a red dot are identified as mandatory in order to avoid a lack of information collection.

8.1. Purchase Request.

Figure 12: Interface for the purchase request and budget evaluation.

This form is filled by the requester to start a sourcing process. On it, there is general information about the employee and the good or service to be supplied.

- Some fields are automatically filled by the system to ensure a request identification. Those ones are *Requester, Requester's Area, Request Number, Request Date, Request Time. Employee* field is also automatic, but it can be edited in the case where the requester is not the employee with the need.

- There is a check box to control inventory, which must be marked to proceed with the request. Since the Contact Centre is a service company, more than 90% of purchase requests are services. There is not a necessity to increase the inventory monitoring in this step because it would become a waste.

- According to which *Cost Imputation Area for the purchase* is selected, *Department* and *Dept. Code* are automatically filled.
    - If the *Cost Imputation Area for the purchase* is a business unit, the *Department* field is filled with the name of the business area and the *Dept. Code* field with the code of the business unit.
    - If the *Cost Imputation Area for the purchase* is not a business unit, the *Department* field is filled with the name of the superior area of the organisational structure and the *Dept. code* with the code of the superior area.
- *Company* field identifies the subsidiary country, whether it is Colombia, USA, or Spain.
- *Classification* field refers to CAPEX or OPEX and *Purchase Type* to Cleaning Service, IT, Consultancy, Maintenance, Renting, etc.
- *Cost Centre* is only available when *Service Cost?* is marked as *yes* in case of a being business unit. That ensures higher financial monitoring because when it is a big area such as a business unit, supplied services should be allocated to a specific Centre.
- There is a check box to give priority in case of urgent purchase. It requires a justification in case of being marked.
- *Items* grid enables to include the requested goods or services. It has the following required information:
    - *Item Type.*
    - *Item Name.*
    - *Unite Price.*
    - *Quantity.*
    - *Measure Unit.*
    - *Total Price.*
    - *Currency.*
    - *Reception Centre.*

Department of Finance

Department of Finance must check the annual budget for the cost imputation area and verify that the purchase can move on.

8.2. Items Grid.

Figure 13: Interface to add specifications and requirements for goods and services.

The previous form is to manage goods and services selection. First decision is to indicate whether it is a new item, or it already exists in the database. When it is selected as the first choice, data previously saved in the system fill all the fields. Even if the main information is completed, all fields can be edited to make changes and add more specified information.

When there is any document about specifications or technical data sheet, requester can check it without possibility to edit it. *Quantity* and *Reception centre* are both fields empty because they depend on each request.

For new items, all fields and data related to the good or service must be filled manually. There is another specific form to complete that information and is going to be shown afterwards.

Finally, the *Reception* and *Evaluation* roles are automatically filled by the same requester name. However, Purchasing Department may modify it, because as it has been already mentioned, both roles are not always the same employee.

8.3. New Item Registration.

To enter new items in the database, the previous form is divided into two parts:

- First one is about item information. Even though there are only some mandatory fields, the other ones are available to enable the requester to provide as much information as they have to help other roles finding the right items. Once new item information is completed, it is hosted in the BPMS database for future processes.

  Technical datasheet can be attached in the same record.

- Second one refers to supplier information. At least one supplier hosted in the database must be selected to provide the new item. Field *Evaluation* is automatically completed according to historical supplier punctuation. Furthermore, supplier type can be one of the following list:

  - *Approved.*
  - *Conditioned.*
  - *Framework contract.*

o   *Recurring service.*

8.4. Supplier Information.

Figure 15: Interface to manage supplier information.

Supplier ranking is a table that provides for each item a list of approved suppliers hosted in the database. This ranking sorts suppliers by higher evaluation according to previous evaluations. If there is only one approved supplier, it is selected automatically to start the negotiation. When there is more than one, Purchasing Department must ask for a quotation to the first ones, starting always with the first three.

BPMS hosts all the documents drawn up during negotiation with suppliers. Moreover, the quotations are mandatory to be attached to the system.

All sourcing processes must be done with an approved supplier. However, in case of urgency or other extraordinary reasons, there must be a possible output to provide continuity in the business processes. For those cases, the *Justification* field is mandatory and enables the approval levels to make the right decision before proceeding with the process or rejecting it.
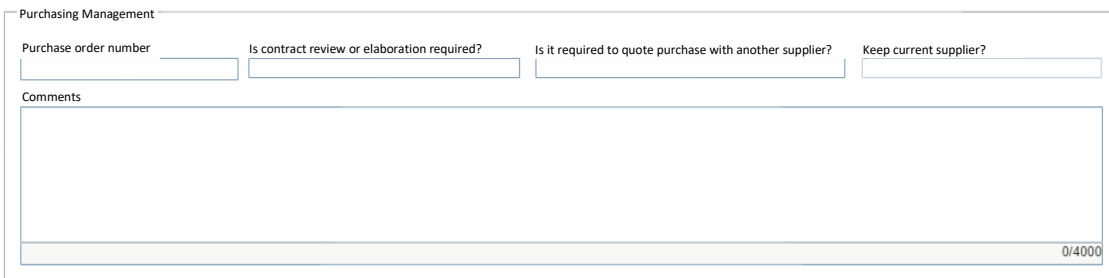
8.5. Advisory Department.

Figure 16: Interface for the experts in the purchasing matter.

Lastly, the interface for the expert is composed of comments and attached fields. Comments are mandatory to ease Purchasing Department on the specifications and requirements of the items. The Name and Area fields of the expert employee are automatically filled in.

8.6. Purchase Order Management.

Figure 17: Interface to add the purchase order data.

- *Purchase order number*. As mentioned before, the purchase order is done through another tool, specifically the ERP. However, to integrate all sourcing process data in the BPMS, it is necessary at this step to fill the *Purchase order number* field. That number is provided by the ERP after creating the order.

- *Is contract review or elaboration required?* This field can be edited but at first, it is automatically filled depending on type of purchase. In this way, a business rule is applied to define when a contractual relationship is required. It is necessary for those suppliers whose nature belongs to any of the following points:

  ➢ Essential for a suitable provision of main services offered by the Contact Centre to its clients and whose lack or serious customers deterioration can damage the interests of the company. For instance, telephony, network maintenance, electricity supply, etc.

> ➢ Aimed at guaranteeing the safety of the installations and the wellbeing of the company workers, complying among others with the legislation on labour risk prevention. For example, general maintenance, air conditioning, cleaning, facilities' safety, etc.

- *Is it required to quote purchase with another supplier?* This field is mandatory to start another negotiation. In case it is selected *yes*, the following field *Keep current supplier?* becomes available to decide whether to continue with the same supplier or to negotiate with a new one.
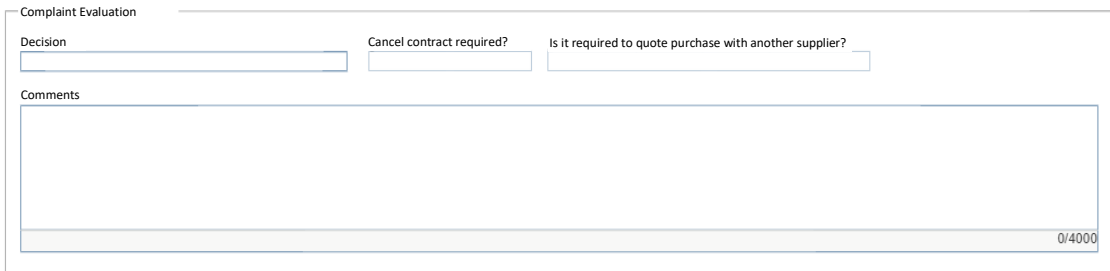
8.7. Reception and Evaluation.

Figure 18: Interface to manage reception and evaluation.

- *Reception details* has only a textbox to add comments if it is needed when goods are received.
- In the evaluation section, the *Evaluator* must indicate whether there is *Compliance* or *Non-Compliance* with the reception*.* The *Comments* field is mandatory and very important for *Non-compliance* outcomes, because depending on the reasons exposed, Purchasing Department will make the decision to proceed with the complaint.

8.8. Non-Compliance Evaluation.

Figure 19: Interface to evaluate a Non-Compliance situation.

To manage a complaint after receiving a good or service, it is mandatory to indicate which decision has been taken after analysing the *Non-compliance* situation. Possible options to be chosen are the following ones:

- *Impossibility of Non-Compliance (Reception).*

- *Impossibility of Non-Compliance (Evaluation).*

- *Good or Service Substitution.*

- *Cancel Purchase.*

- *Start Non-Compliance to supplier.*

When Purchasing Department decides that a *Non-compliance* situation does not proceed, the option selected in the form is either *Impossibility of Non-Compliance (Reception)* or *Impossibility of Non-Compliance (Evaluation)*. There is the possibility to write a comment explaining the causes for that decision.

To proceed with a *Non-compliance* request, it is mandatory to indicate if there is a contract to be cancelled and necessity to seek a new supplier. Substitution or cancellation are selected depending on the *Non-compliance* outcome.

9. Evaluation and Data Monitoring.

One of the most sought-after goals in the remodelling sourcing process is to develop continuous improvement. Based on Lean Six Sigma strategies, to achieve a continuous improvement is necessary to collect data from the process, and then analyse it to make the right decisions.

BPMS does not only automatize the process but also enables to measure, collect, and store data from process performance and process activities. Collected data is used to create KPIs that provide important insight, helping to continuously improve sourcing process outcomes.

To define main KPIs, it is necessary to determine what is going to be measured, why it is important and how data is going to be collected. All previous analysis from the company, industry and sourcing process help to carry out this section.

Monitoring scheme must be simple because the more complex it is, the more difficult is to be followed by employees. Therefore, a complex scheme is less likely to be effective. Following this line of reasoning, an attempt has been made to define the minimum number of indicators and the easiest way to measure them.

9.1. Supplier Evaluation.

As explained in previous sections, due to the regularization of the Contact Centre industry, the main goal of the company to stay competitive in the market consists of reducing costs thanks to an efficient sourcing process management. In this way, suppliers' evaluation is a key driver to reach this goal.

The evaluation to assess a supplier performance is divided into an initial approval evaluation and a follow-up evaluation to monitor it over the time. Both evaluations are presented here below:

9.1.1. Initial Evaluation.

When there is a new purchase request but no supplier in the database can provide the desired goods or services, an initial evaluation is carried out to approve a new supplier. This task is based on the following criteria:

- Prices and payment conditions. (P)
- Delivery times. (DT)
- Geographical scope. (GS)
- Quality and post-sale service. (Q)
- Accreditations and Certifications. (AC)

Each of the previous criteria must be punctuated from 1 to 5 (being 1 bad, 2 regular, 3 normal, 4 good and 5 very good). The punctuation must be aligned to the strategic plan of the company and should be done after comparing the supplier's conditions with its market's conditions.

- **Approved supplier**: after analysing and evaluating a supplier, depending on the punctuations of each criterion, there are two different ways to become approved:

$$P, DT \text{ and } Q => 4$$

$$P, DT, GS, Q \text{ and } AC => 3$$

P, DT and Q are considered critical criteria because of their impact on the organization performance. Low prices enable the reduction of costs within the regularized sector, becoming an essential point to be considered. Long delivery times are an important issue because most of the times trigger delays in the core business. Finally, quality is also a critical criterion because of the importance within the value chain.

Once the supplier is approved, its data and final mean score are added to the BPMS database.

- **Non-Approved supplier**: a supplier whose initial evaluation does not reach the threshold to become approved, cannot be added to the system. However, there is an exception. When initial evaluation turns out to have any critical criteria below 4, approval may be given in case of a supplier is in a monopoly situation. The final decision depends on the senior management committee.

9.1.2. Follow-up Evaluation.

Once the supplier is approved, there is a follow-up evaluation to measure its performance and update its ranking score punctuation. This evaluation must be done quarterly, a trade-off between time spent in monitoring and data collected value. The KPIs to evaluate it are the following ones:

- Goods and services performance (GSP).

Even though many metrics can be monitored in this point, it has been chosen just four representative KPIs to avoid complexity and high monitoring costs. The goal is to know the quality, security, and availability of goods and services:

- o Compliance Rate (CR).

It measures the quality provided by suppliers. A *Purchase with Compliance* means that the delivered good or service meets the requirements and specifications. It also signifies that there is no other complaint regarding the purchasing conditions or the relationship with the supplier.

$$Compliance\ Rate\ (\%) = \frac{\#\ Purchases\ with\ Compliance}{\#\ Total\ Purchases}$$

This KPI is measured on percentage, per supplier and on a quarterly basis.

       o   Cancellation Rate (CANR).

It measures the rate of cancelled purchases. Among all causes for purchases with non-compliance, cancellation is the most critical. It must be carefully monitored because may negatively impact the core business of the company.

$$Cancelation\ Rate\ (\%) = \frac{\#\ Cancelled\ Purchases}{\#\ Total\ Purchases}$$

This KPI is measured on percentage, per supplier and on a quarterly basis.

       o   Delivery (D).

It is the ratio between purchases delivered within the supplier lead-time over the total number of purchases. This metric enables to identify how suppliers is meeting the deadlines.

$$Delivery\ (\%) = \frac{\#\ On-time\ deliveries}{Total\ number\ of\ deliveries}$$

This KPI is measured on percentage, per supplier and on a quarterly basis.

Lastly, to integrate all three KPIs in one, it must be considered whether they have to be maximized or minimized. *Cancellation Rate* is the only one to be minimized so the inverse of the sum is applied. Afterwards, since they are measured in percentage, they must be normalized to integers from 1 to 5:

$$Good\ and\ Service\ Performance = \frac{CR + (1 - CANR) + D}{3} * 0.05$$

- Contractual conditions satisfaction (CCS).

To measure contractual conditions satisfaction, Purchasing Department scores the service provided by suppliers. It is a general assessment punctuated from 1 to 5 based on the level of compliance with the contract conditions.

$$Contractual\ Conditions\ Satisfaction = \frac{\sum_{i=1}^{N} Score}{N}\ (N = \#\ Total\ of\ purchases)$$

This KPI is measured with integers from 1 to 5, per supplier and on a quarterly basis. For purchases without contract framework, this evaluation does not apply.

Finally, the meta-KPI that enables to rank all suppliers is calculated as follow:

$$Ranking\ Score = 0.3 * (Initial\ Evaluation) + 0.7 * (Follow - up\ Evaluation)$$

Where:

$$Follow - up\ evaluation = 0.7 * GSP + 0.3 * CCS$$

$$Initial\ evaluation = \frac{P\ +\ DT\ +\ GS\ +\ Q\ +\ AC}{5}$$

Exceptions

Even the supplier selection is governed by the previous evaluation, Purchasing Department can make independent decisions in the following cases:

1. The existence of a monopoly in the market or limited supply in the geographical area of sourcing.
2. Corporate commitments through preferential commercial agreements with a global supplier.
3. Urgent needs in an area or sector for which no approved suppliers are available and whose evaluation would mean an unjustifiable delay resulting in loss of value.
4. Requirements of Contact Centre customers.

The cases in which these exceptions are applied imply non initial evaluation, but in no case the omission of the subsequent follow-up evaluation.

Finally, a supplier may be withdrawn from the database of approved suppliers for committing serious misconduct. The reasons considered by Purchasing Department are as follows:

1. Contractual violation. Supplier defaults on the contract conditions which have been signed.
2. Errors detrimental to the interests of the organization or its business clients.
3. Unwarranted decrease in the quality of goods or services and/or after-sales service provided.
4. Default of the Service-level agreement (SLA).
5. Non-compliance of the evaluator due to contractual default.

9.2. Sourcing Process Evaluation.

Once suppliers' performance is monitored, the process itself must be evaluated as well. Knowing which are the critical points in the sourcing process and having the tools enable to measure those metrics that provide added value in the process, five KPIs are presented as follow:

*   Non-Approved Supplier Rate.

Exceptionally, when there is an emergency purchase but there is no approved supplier in the database, the process can be carried out with a non-approved supplier. This KPI measures the percentage of purchases without a ranked supplier.

$$Non - Approved\ Supplier\ Rate\ (\%) = \frac{\#\ Purchases\ by\ Non - Approved\ Supplier}{\#\ Total\ Purchases}$$

This KPI is measured on a trimester basis and must be reduced at maximum because can leads to risk suppliers for the organization, with corresponding negative impacts on the sourcing process performance.

- Purchases Growth.

To know how the increase in purchases impact the financial results of the company, this KPI indicates the growth ratio between purchases and company profits.

$$Purchases\ Growth\ (\%) = \frac{\%\ Purchases\ Value\ Growth}{\%\ Total\ Revenues\ Growth}$$

This KPI is measured annually, and it should be paid special attention to those values over 100% because it means that costs on purchases have increased more than the turnover in the company.

- Return over Investment.

This KPI indicates that the investments were made wisely when it is positive. On the contrary, when the ratio takes negative values means that the company is not earning money with the sourcing process.

It has two important parameters, *Cost Avoidance* and *Cost Saving*. The former indicates the difference between the lowest price for a given good or service among all the possible suppliers. The latter helps to measure how much the company is saving after buying a given good or service, from the same supplier for the second time.

$$ROI = \frac{Cost\ Saving\ +\ Cost\ Avoidance}{Cost\ of\ Purchasing\ Operation}$$

$$Cost\ Avoidance = Actual\ Purchasing\ Price - Lowest\ Price\ Quoted$$

$$Cost\ Saving = Actual\ Purchasing\ Price - Last\ Price\ Paid$$

- Cycle time.

This KPI measures the average amount of time between the moment when the goods or services are delivered and the submission of the request. That is, the time the sourcing process takes to fulfil the needs of employees.

$$Cycle\ Time = Moment\ of\ Delivery - Moment\ of\ Request\ Submission$$

This KPI is measured in days.

10.   Results and Limitations

The last stage in the project is going on-live. When the sourcing process has been developed and tested, all employees in the Contact Centre have access to the BPMS to submit the new purchase requests. At this point, it comes to analyse the results and limitations.

First aspect analysed is the sourcing process integration. All employees involved in the process have a user account with the corresponding permissions depending on the role. Since the very beginning, it brings higher efficiency and satisfaction to the company because each worker is notified of the pending tasks, find it easy to adapt to the use of the new BPMS, and repetitive tasks have been automated.

Purchasing Department has become more efficient in sourcing goods and services because the new process ensures to find the best supplier for each request. Costs and risks have been mitigated by creating a process where the management of suppliers is based on a ranking system created by gathering important data and assess previous outcomes.

It has been established closer and more transparent relationships with the suppliers. Purchasing Department has been able to develop the following actions:

- Fluid contact, establishing a relationship of mutual trust and collaboration.
- Communications to make the supplier participate in suggestions for improvements, with the aim of contributing to help them to accomplish more effectively with the requirements of the goods or services supplied.
- In accordance with the supplier evaluation and ranking system, the Purchasing Department monitors the most critical suppliers and keeps all of them informed of its evaluation methodology.
- Non-approved suppliers are not an important risk for the company anymore, because this kind of purchases limit itself to urgent cases where a justification is required, and the approval levels must agree.

It has also been achieved budget monitoring by the Department of Finance. This activity avoids overcoming the annual budget of a specific area, and the consequent problems that previously arose in the payments of these invoices.

Goods and services quality is higher thanks to the *Non-compliance* subprocess. An evaluation after each purchase makes it possible to manage efficiently complaints made by employees and figure out the issues due to conditions, specifications, or requirements unfulfillment.

Considering the cycle time to fulfil a purchase request, there is a range of values depending on mainly one feature: the approval level. In this way, there is an average number of days for each case as shown below:

Approval Level	Average Cycle Time (days)
01 Level	5
02 Level	6
03 Level	10
04 Level	15

Table 3: Sourcing process cycle time.

Although most of the results show the improvements achieved by remodelling the sourcing process in the Contact Centre, it has also been identified some limitations to be figured out in the future.

Even though integrity is one of the main goals achieved in the new process, there is an issue regarding integrity when it comes to purchasing order creation. Since it is submitted via the ERP, it is necessary to carry out this activity outside of the BPMS. Moreover, the payment to the suppliers is also through the ERP and the communication between both software consists of data updating made by exporting and importing a datasheet.

In both steps mentioned before, there is an important future improvement that may be figured out by connecting the BPMS with the ERP and enabling an automatic communication flow. In this way, there would not be non-value tasks of data copying and pasting and the whole integrity of the process would be reached.

11. Conclusion

The goal of this project was to implement a new sourcing process in a Contact Centre applying BPM tools and strategies. With this approach, the company wants to increase the efficiency of the process, implement a continuous improvement methodology, and get a competitive advantage in the market.

First of all, a general overview of the organization and the Spanish Contact Centre industry has helped to identify the main features of this sector, and specifically helped to get more insight from the company. Afterwards, the sourcing process has been selected because of the current challenges of the industry and the great impact that its improvements can provoke on the whole organization's performance.

A detailed analysis of the current sourcing process enabled the identification of the main problems that the company was facing due to the lack of management in the business processes. The AS-IS situation was modelled by data and information gathering provided by stakeholders. Having the workflow modelled was important to point out the bottlenecks, critical points and other issues that lower the efficiency of the process.

Within an agile methodology, the design and development of the TO-BE were highly efficient. Indeed, the main roles involved in the process participated in daily meetings to check what had been done the day before and discuss the new changes. This close contact with the internal team enabled it to be always aligned with the organization culture, to receive constant feedback, and therefore to mitigate time spent on changes during the development of the new process.

Using BPM tools, such as a BPMS, allowed the integration and automation of the sourcing process, provided data monitoring, and eased the adaptability to new business requirements. In addition, this software also provided the advantage to model and test the new workflow. In this way, the variations on the process were tested and presented to the stakeholders before moving on.

The new process has been designed trying to solve all the problems pointed out during the AS-IS analysis by using the best practices in BPM. To do so, the main insights from Lean Six Sigma strategy has been followed to provide value to the Contact Centre value chain.

The forms shaping the user interface also provide the workflow governance by applying business rules behind each action taken in the form. That is, depending on the action made in an activity, the workflow is automated to follow the corresponding path.

Then, the evaluation and data monitoring are essential to ensure continuous improvement. After going on-live, the sourcing process must be monitored, and a ranking system has been established for the

new suppliers' management. These activities can only be done after carrying out the project due to the organization's impossibility to collect the required data.

Finally, the outcomes of the project are totally satisfactory. The sourcing process is currently used in the whole organization to manage all the purchases of goods and services. With that, the Contact Centre has achieved the aim of solving the problems identified in the analysis stage and ensured integrity and communication in the process. Therefore, the roles involved in it will gain in terms of productivity.

12.   Bibliography

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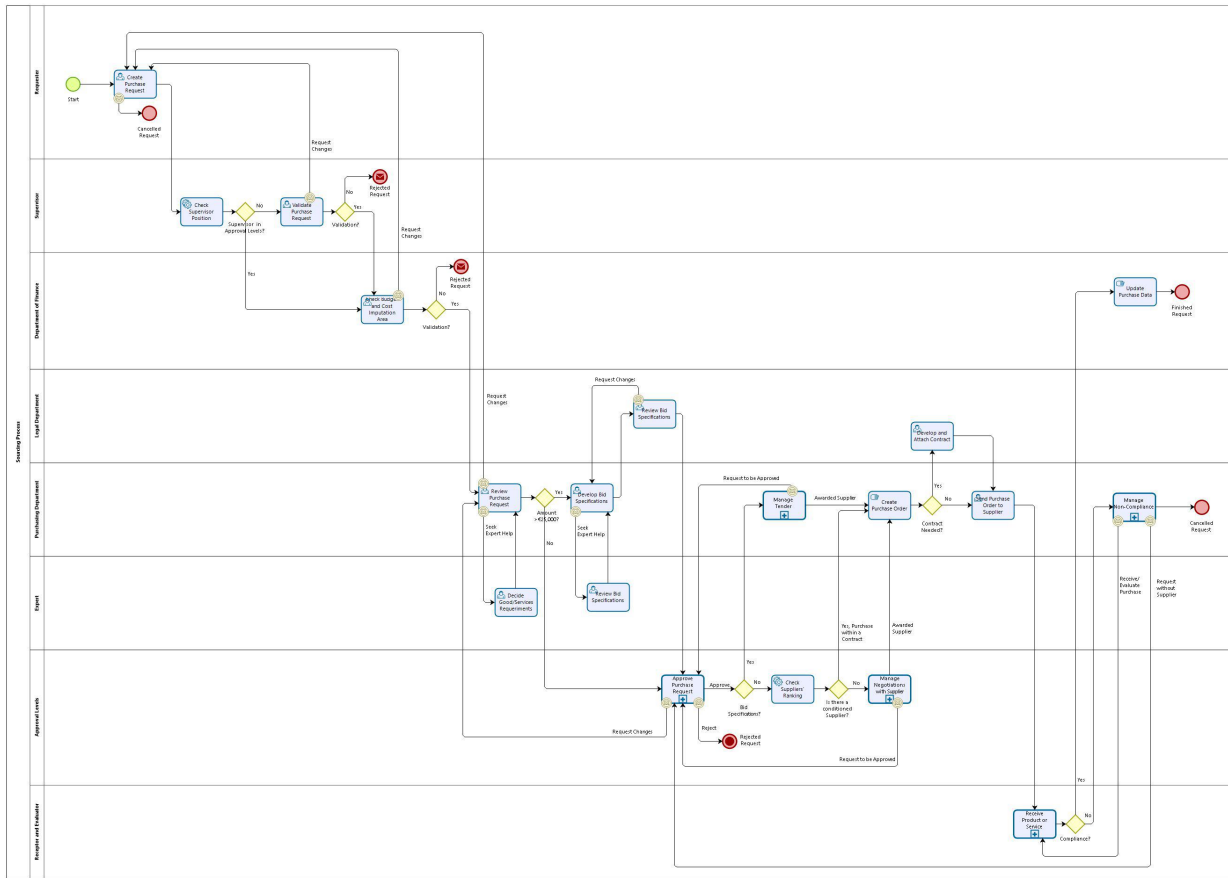
Annexes.

- Sourcing process.

Figure 20: Sourcing process modelled by standard BPMN.

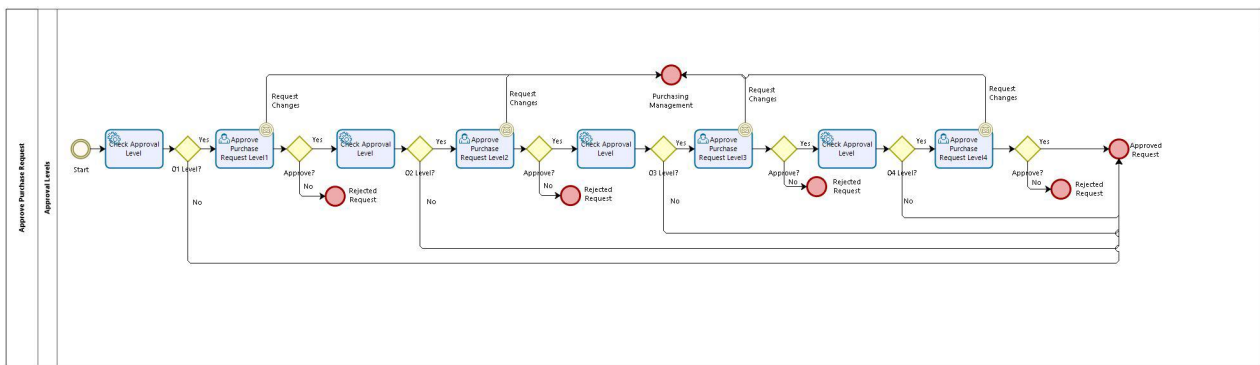- *Approve Purchase Request* subprocess.

Figure 21: Approve Purchase Request subprocess modelled by standard BPMN.
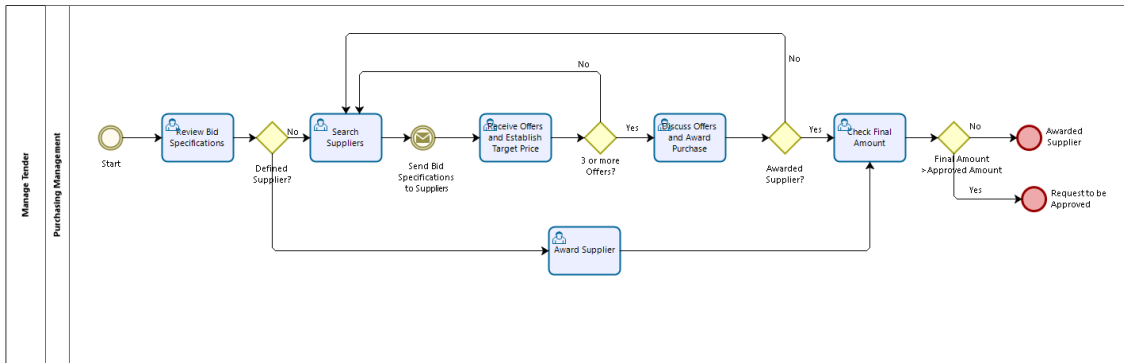
- *Manage Tender* subprocess.

Figure 22: Manage Tender subprocess modelled by standard BPMN.
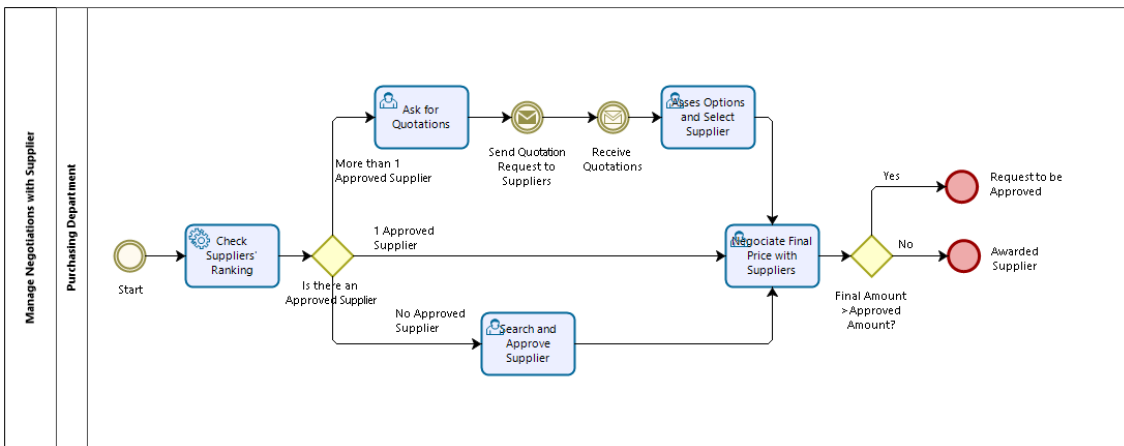
- *Manage Negotiation with Supplier* subprocess.

Figure 23: Manage Negotiation with Supplier subprocess modelled by standard BPMN.
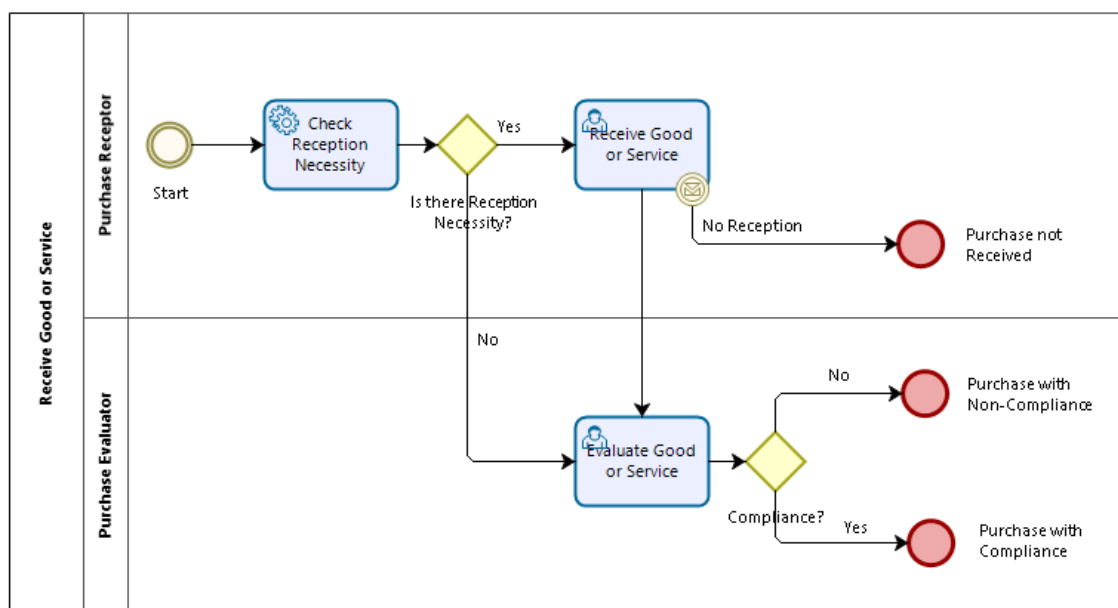
- *Receive Good or Service* subprocess.

Figure 24: Receive Good or Service subprocess modelled by standard BPMN.
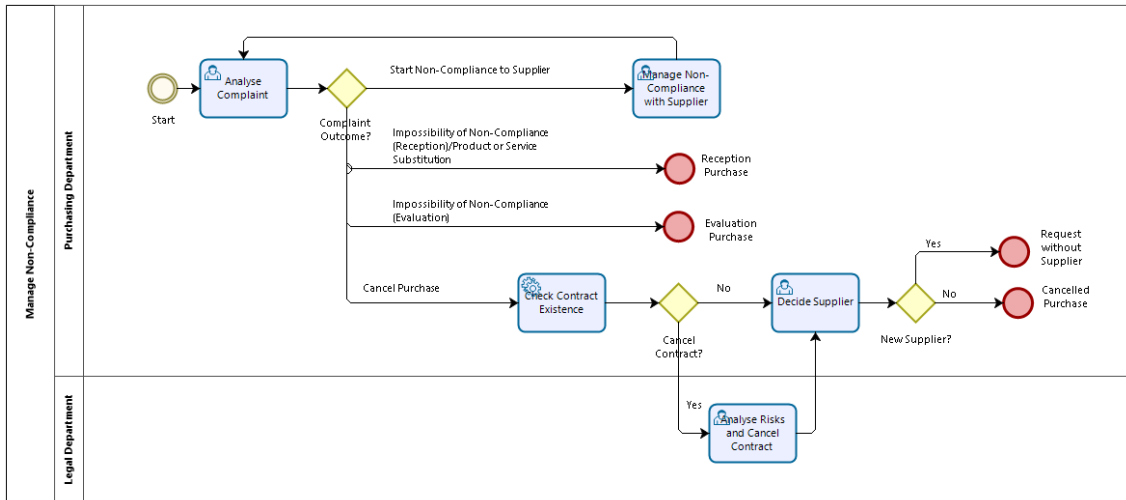
- Manage Non-Compliance subprocess.

Figure 25: Manage Non-Compliance subprocess modelled by standard BPMN.