Process Improvement Program in a Technology & Software Company

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Abstract

In 2019, 46% of the portuguese CFOs claimed that their organization would benefit from a transformation program in the financial function.[1] This statistic is justified by the increasingly competitive environment felt in the business world. Companies nowadays are forced to work daily in order to improve the efficiency and productivity of its operations to avoid getting left behind by their competitors or, in an extreme scenario, failing to survive in this environment. Business process improvement is one of the globally accepted solutions to guarantee continuous operational improvement and the regular research for cost saving opportunities.

The company approached in this dissertation sees this problematic worsened due to its organic organizational structure, typical of a technological startup. This lack of definition of procedures is important and beneficial in the early stage of development of any company, but it becomes an obstacle when the company wants to fulfill its potential and invest in accelerated growth. Moreover, the company has a clear underutilization of its Entreprise Requirements Planning (ERP) software in the development of its financial processes. Consequently, the production of management information is compromised both in quality and in the delay with which it is delivered to the managers. This delay does not allow data to be used effectively in the decision-making process.

The proposed solution for resolving the opportunities encountered by the company to improve its internal procedures was developing a process improvement program of the client company's financial function. This program was developed according to the Business Process Management (BPM) methodology and the project was divided into the three stages suggested by the *PwC Transform*® framework: diagnostic, conception and implementation.

During the diagnostic, a high level analysis of the company was performed, followed by a deep dive on the financial function, in order to understand what operating methods were being followed. This stage culminated in the design of the current state of processes developed by the Finance Department (*As-Is Model*) and the identification of improvement opportunities. Secondly, the future state of processes dictionary was conceptualized and the business process diagrams (BPD) were designed (*To-Be Model*). This was done according to the best practices available in the market and by directly addressing the issues identified in the diagnostic stage. Finally, the company was provided with guidelines for implementing its new operational model, ensuring the decrease in inertia towards change by the employees while benefitting from the program.

In conclusion, the company is expected to receive, in the mid-term, operational improvements such as the reduction of the processes lead time and the elimination of nonvalue-adding activities. Therefore , the quality of the data produced by the department will increase and the delay will be eliminated or, at least, reduced to acceptable values. Moreover, in the long-term, the implementation of well defined processes will allow the company to invest in the acceleration of its growth, without having to be concerned with the hazardous effect that growth can have in the productivity and efficiency of the business.

Keywords: Business Process Management, BPM, Financial Resources, Finance Transformation, BPD.

[1] Source: *PwC CFO Survey 2019,* in https://www.pwc.pt/pt/publicacoes/pwc-cfo-survey-portugal-2019.pdf , consulted in 12-06-2020.

Programa de Melhoria de Processos numa Empresa Tecnológica

Resumo

Em 2019, 46% dos CFO portugueses consideraram que a sua organização necessitaria de um programa de transformação da sua função financeira.[2] Esta estatística justifica-se pelo ambiente competitivo que se vive no mundo empresarial, que obriga a que uma empresa trabalhe todos os dias para se tornar mais eficiente e produtiva, sob pena de se ver ultrapassada pelos seus concorrentes e, num caso extremo, não sobreviver. O tema da melhoria de processos de negócio é uma das soluções universalmente aceites para garantir a melhoria contínua das operações e a constante procura por oportunidades de redução de custos.

A empresa em questão nesta dissertação vê a problemática de ineficiência operacional agravada pela sua estrutura orgânica típica de uma startup tecnológica. Esta falta de rigidez na estrutura organizativa é importante e benéfica numa fase inicial de desenvolvimento de qualquer empresa, mas torna-se um obstáculo quando a empresa visa investir no seu crescimento acentuado. Esta necessidade de definir procedimentos standardizados para sustentar o crescimento junta-se ao facto de a empresa ter um claro subaproveitamento do seu software de *Entreprise Requirements Planning* (ERP) na realização dos seus processos financeiros. Consequentemente, a produção de informação financeira é comprometida tanto a nível de qualidade de dados como no atraso na sua produção que, dada a velocidade com que é necessário agir nos dias de hoje, se torna comprometedor para a utilização de dados no suporte à tomada de decisão.

A solução proposta para as oportunidades que a empresa identificou para melhorar os seus procedimentos internos foi o desenvolvimento de um programa de melhoria de processos, nomeadamente ligados à função financeira da empresa, seguindo a metodologia *Business Process Management* (BPM). O projeto dividiu-se nas três fases que compõe a *framework PwC Transform®:* diagnóstico, conceção e implementação.

Na fase de diagnóstico, realizou-se uma análise de alto nível à empresa, seguida de um aprofundamento na função financeira, de modo a entender quais os métodos de funcionamento seguidos atualmente. A fase culminou no desenho dos processos atuais do Departamento Financeiro da empresa (*Modelo As-Is*) e na identificação de oportunidades de melhoria. De seguida, conceptualizou-se o dicionário de processos futuros e procedeu-se ao desenho dos mesmos (*Modelo To-Be*), seguindo as melhores práticas de mercado e endereçando as oportunidades identificadas na fase anterior. Por fim, forneceu-se à empresa as linhas orientadoras para a implementação do novo modelo operacional, garantindo a minimização da inércia por parte dos colaboradores e tentando retirar o máximo proveito dos benefícios que este modelo pode trazer à organização.

Para concluir, é expectável que a empresa sinta, a médio prazo, melhorias operacionais como a diminuição do tempo dispendido na realização de processos e a eliminação de atividades que não geram valor para o negócio. As melhorias operacionais irão permitir, também, aumentar a qualidade dos dados produzidos pelo departmento e fazê-los chegar a quem de respeito dentro do horizonte temporal esperado. Por outro lado, no longo prazo, a implementação de processos bem definidos permitirá que a empresa invista no seu crescimento acelerado, diminuindo os impactos nocivos que este crescimento pode ter na produtividade e eficiência do negócio.

[2] Fonte: *PwC CFO Survey 2019,* in https://www.pwc.pt/pt/publicacoes/pwc-cfo-survey-portugal-2019.pdf , consultado em 12-06-2020.

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Acronyms

AP – Accounts Payables

APQC – American Productivity & Quality Center

AR – Accounts Receivables

BI – Business Intelligence

BP – Business Partner

BPD – Business Process Diagram

BPM – Business Process Management

BPMN – Business Process Management Notation

BPO – Business Process Outsourcing

BPR – Business Process Reengineering

BU – Business Unit

CFO – Chief Financial Officer

CoA – Chart of Accounts

ERP – Enterprise Requirements Planning

KPI – Key Performance Indicatior

LEAP – Leading Enterprise Advisory Playbook

PO – Purchase Order

SAAS – Software as a Service

SLA – Service Level Agreement

VAT – Value Added Tax

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1 Introduction

This dissertation will describe the development of a business process improvement program in a company that operates in the Technology & Software sector related to the Fashion industry.

This chapter will provide a broad overview of the context of the project developed. Firstly, the reasons for the project to occur will be described, followed by a description of the company's current condition and organization. Secondly, the main frameworks used in this dissertation will be presented. The planning of the project, which is related to the frameworks used, is then explained and the chapter concludes with a brief overview of the topics that will be approached in each chapter of the dissertation.

1.1 Motivation of the project

In a growing competitive environment in the business world, it is becoming more and more difficult for an organization to thrive. The only way that a company can deliver a quality product/service meeting customer expectation while remaining profitable, is by being as efficient as possible in its operations. In order to guarantee that there is a continuous improvement of the operational efficiency, all companies should have a clear and thorough structure of processes that conduct the company's operations.

The processes assume a greater importance for companies such as the one that will be approached in this dissertation. High growth businesses can easily become unsustainable if the growth is not supported by a structured backbone of processes that guarantee growth does not eliminate efficiency. If the company is not in the very exclusive group of companies that have a very distinctive, high demand and low competition product/service, this is the only way for long-term success.

The continuous improvement of processes needs to be a focus not only for operational processes but also for the ones that support these operations and that are in most companies the major source of inefficiencies. This project will focus in the support processes of the company, specifically in the finance function.

The finance function is in most companies far from being efficient. This function can be very bureaucratic, and the systems are seldom being used to its fullest to provide automation of tasks and, consequently, efficiency. It is also from this function that most data is provided to support decision making and the information produced is often misleading since its production is not done properly.

The necessity to review the finance function emerged as a result of the due diligence for an equity financing round that concluded that the company lacked the structural organization necessary to sustain its high growth potential.

This dissertation intends to support the CFO of the company in the definition and implementation of a highly efficient operating model. The set of processes to be defined will be supported by the market's best practices.

1.2 The client company

The client company is an UK-based company whose target business is the development of software related to the fashion industry. It is the parent company of a group that acts mainly in Portugal and in the UK.

The company has two distinct business units. The first one is a mature business that will be referred to as Wholesale and their revenue is based on long-term contracts that will pay variable fees depending on sales volume. This business unit is well established in the market and has a low potential for growth. Wholesale accounts to around 85% of the company's current turnover. This business unit is divided in five departments, three of which reporting to the Operations Director referring to operational activities, which are Warehouse, Research & Development and Account Managers. The other departments are the Commercial Department, responsible for sales related activities, and the Finance Department, which is shared by both business units and will be referred to individually in the end of this section. The main responsibilities of each department are stated in the organogram of the Wholesale business unit presented in Figure 1.



Figure 1 - Organogram of the Wholesale business unit

The second business unit is Tech. It is in this BU that the company wants to focus for long-term success. Although it accounts for only around 15% of the company's annual turnover, it is considered by its managers and shareholders as an innovative digital product with high growth potential and highly profitable in the long-term. This business unit is a software development unit that has the goal of becoming a software as a service (SaaS) type business. Currently, Tech is having negative results due to the high level of investment for the development and standardisation of the software and the costs related to installing the software in the customer, that will vanish once the software is fully standardised. However, the project was developed with the assumption that this business unit will sell an innovative SaaS product that can be sold in mass without the need for significant extra costs. Tech is divided into five departments as well: Business Development, Tech, VP Strategy & Growth, VP Ops and Finance. The main responsibilities of each department are stated in the organogram presented in Figure 2.

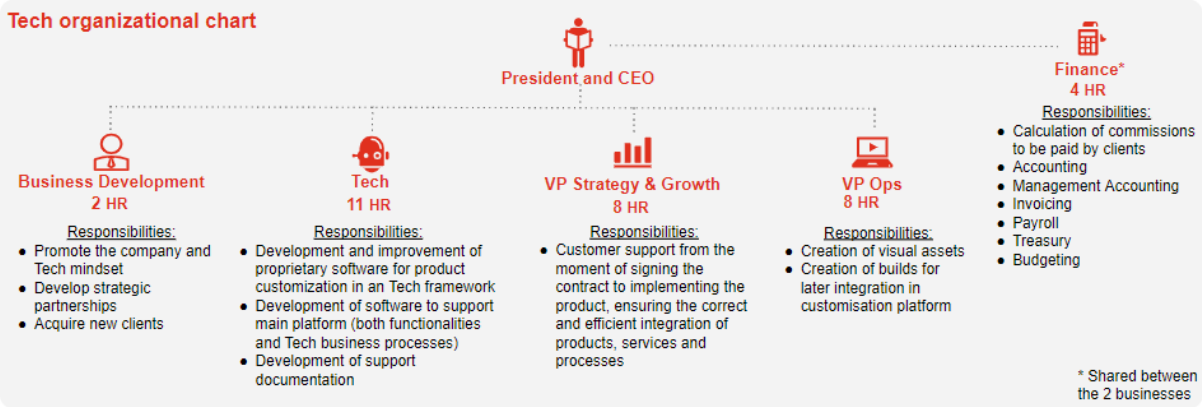


Figure 2 - Organogram of the Tech business unit

This dissertation will focus on the Finance Department and the functions it is responsible for. The Finance Department is a shared department between the two business units, and it is run by the CFO. The Finance Department is responsible for the finance function of the company, including, among many other activities, managing accounts payable (AP) and accounts receivables (AR), invoicing and collecting payments, managing general and analytical accounting, managing cash and liquidity, developing and tracking the budget, producing management information and guaranteeing that the company meets its legal obligations.

The company is privately held by several investors and has already entered two distinct financing rounds. The second one was concluded in December 2019 and, during the due diligences performed by the new investors, it was found that the financial function of the company had margin for performance improvement. The investors were worried that the inefficiencies of the department's activity led to errors in the production of management information. By turn, these errors caused a lack of control of the company's performance by the managers and shareholders.

This dissertation will serve as a support in the improvement of the department's performance by redefining the financial processes of the company, as mentioned in section 1.1.

1.3 Methodology followed during the project

Every PwC project has the main goal of implementing in every client the best practices in the market that improve as much as possible the client's company, aiming for long-term sustainable success. In order to do that, PwC's global network has produced thousands of methodologies, approaches, frameworks, etc., over the years that provide guidelines for accomplishing almost any project.

In this specific project, several different methodologies were used, adjusted and adapted to produce the best possible outcome for the customer. The first one worth mentioning is *PwC Transform*®. The methodology is represented in Figure 3.

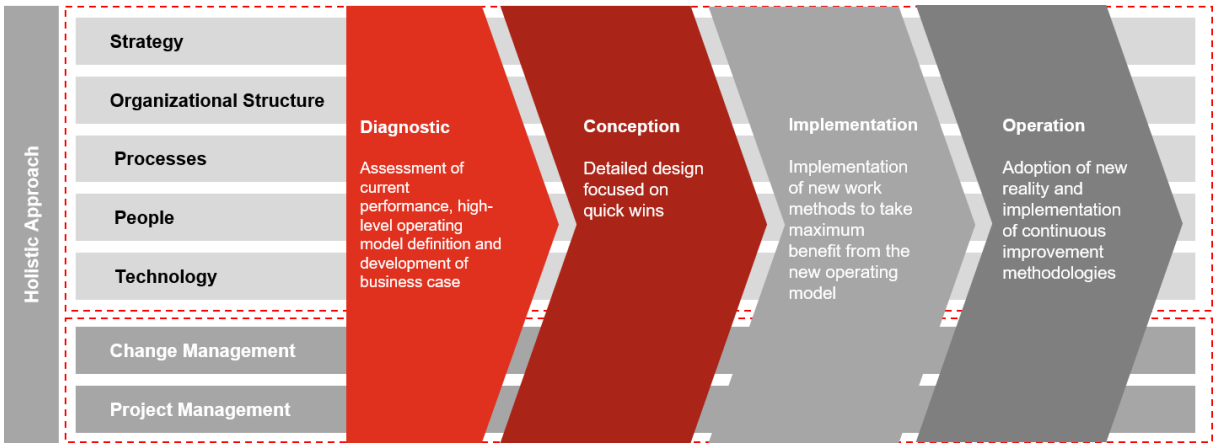


Figure 3 - Diagram of the *PwC Transform*® framework

This methodology was conceptualised to support companies to design and implement new operating models. In this project, the Diagnostic and Conception stages were the focus. For the Implementation only some steps and some support documents to guide the client through the implementation of the new operating model were developed. Operationalising is a responsibility of the client company.

Diagnostic

The diagnostic stage is essential for any consultancy project. It is impossible to try to improve a business that the consultants do not fully understand. Therefore, the first part of the project was the study of the client company. First, the target was to understand how the company runs its business and what value it creates for its customers. In this part it was also studied the company's long-term vision. For the development of this stage the company provided relevant documents and was available for responding to any inquiries.

As soon as the company was deeply studied and understood, the focus was redirected for the scope of this project, specifically the financial function of the company. In order to understand the financial function current operating model, the main intervenients were interviewed and the relevant documents were delivered by the company. The diagnostic stage culminated with the design of the *As-Is Model*, i.e., the current state of financial processes, and the identification of the improvement opportunities that should be addressed in the design of the future operating model.

Conception

The conception stage starts where the diagnostic finishes. The planning of the future operating model is done according to the issues encountered while developing the *As-Is Model.* Briefly, this stage consisted of benchmarking the market's best practices and develop a set of processes that were, simultaneously, adjusted to the company's reality and following the best practices. In the development of the future model all the issues encountered in the diagnostic stage were taken into consideration to ensure that all inefficiencies are minimised as much as possible.

Finally, the conception stage culminates in the *To-Be Model*, i.e., the future state of processes. In this model all the future processes were designed and detailed to provide the client with all the tools necessary to implement new work methods and procedures to improve its performance.

Implementation

As mentioned above, this stage was not the focus of the project. However, the guidelines for implementation were briefly described to provide the client with some orientation on the next steps it must perform in order to take the most out of the project.

Operation (out of scope of the project)

The last stage of the *PwC Transform*® is the operationalisation of what was idealized in the previous three stages. This stage was not included in the scope of the project since it is a responsibility of the company to guarantee that the new processes are adopted as part of the company's routine. One relevant step in operationalising a new state of processes is to implement mechanisms that make sure that the processes are analysed and updated constantly in order to keep up with best practices in the market and with the internal changes of the company. As will be explained further in this document, a Business Process Management project does not end since there is the need to constantly review it from times to times.

Moreover, the project was directed to improve the company's financial function, and therefore there were some frameworks related to improving this business area that were considered during this project. One of the frameworks considered was the *PwC Finance Framework.*

As finance functions serve the ever-increasing demands placed on their resources, an appropriate balance of insight, compliance and control and efficiency is required. High performing functions must continually look to refine this balance, either through targeted change or a more holistic review of the Finance Operating Model.

The *PwC Finance Framework* (also known as the "Finance Triangle") shows the relationship and balance between the three competing objectives of Finance: insight, efficiency and compliance and control:

- Business Insight: relevant, accurate and timely KPIs to support business managers in decision making;
- Efficiency: elimination, standardisation and automation to free up resources for value added activities;
- Compliance and control: sustainable, flexible embedded controls to meet current and future regulations.

This framework, as well as the one presented above, considers Organization, People and Technology as the drivers for performance improvement. The representation of this framework is presented in Figure 4.

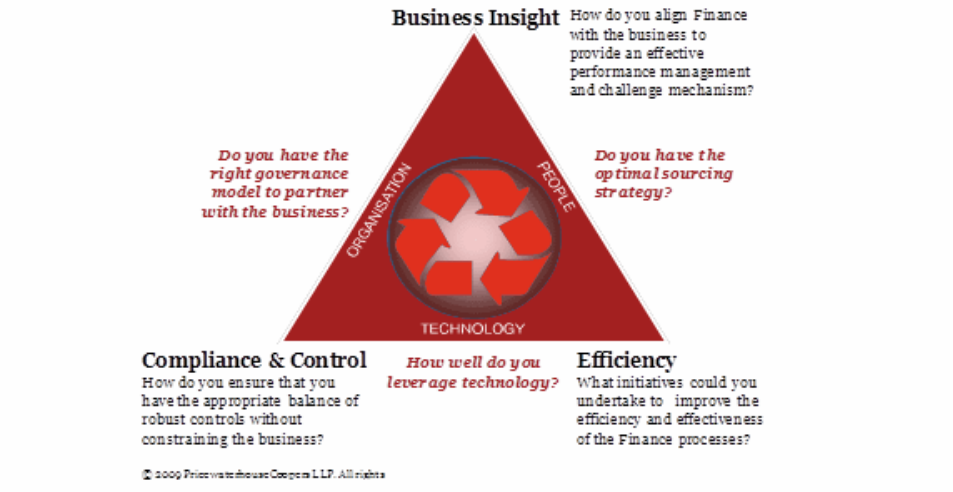


Figure 4 - Representation of the *PwC Finance Framework*

1.4 Planning of the project

The project followed the *PwC Transform*® framework, and consequently was divided in the three phases mentioned in the previous section.

Firstly, the diagnostic of the current operating model was addressed by mapping the current financial processes (*As-Is Model*). In this stage the focus was understanding exactly how the company operates and attributing the responsibilities to the correct people. The target of this stage was to deeply understand the company's operations in order to be able to identify and systematize the opportunities for improvement.

Secondly, the improvement of the financial processes was performed by developing a new state of processes adequate to the company's business and according to the best practices. This stage culminated in the design of the processes and the development of support documents that guarantee that all employees of the company have the necessary tools to fully understand the new working methods and procedures.

Finally, the third stage consisted of looking into the future and planning the best way for the client to operationalise the new state of processes. This stage culminated in guidelines for the next steps that the company needs to perform to correctly implement the processes. This correct implementation includes a focus in managing change in the organization and minimising inertia. The summary of the three phases of the project and its main activities is provided in Figure 5.

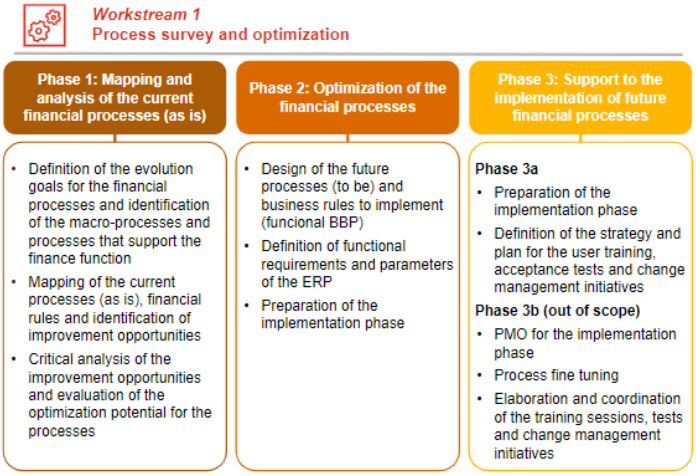


Figure 5 - Planning of the project

1.5 Structure of the dissertation

The dissertation is divided into five chapters.

This first chapter was the introductory part providing a brief overview of what will be presented in the next four chapters. It included the definition of the motivation and scope of the project, a brief overview of the client company, a presentation of the main frameworks considered and, finally, a description of the way the project was developed.

The second chapter presents the literature review performed to understand what the main theoretical basis on the topic of the dissertation are. The focus of this analysis was tools and methodologies for managing business process improvement, with a highlight on Business Process Management (BPM). Another important subject approached was the management of financial resources in organizations.

The third chapter provides a description of the methodologies and results of the first stage of the project – Diagnostic. In this project a step-by-step description of the development of the *As-Is Model* is presented, culminating in the current state of processes presented in Appendixes B to N. Moreover, this chapter presents the ultimate result of the first stage – the identification of the improvement opportunities.

The fourth chapter relates to the second phase of the project. In a similar way as the third chapter, it provides a step-by-step description of the development of the future model (*To-Be Model).* In this chapter a deeper analysis of each process is provided since this was the most important deliverable of the project. The chapter is concluded with the presentation of the Implementation stage. In this part there is a description of the next steps planned for the client and a strategy for managing change in the organization.

Finally, the last chapter will provide a wrap up of the entire project developed during this dissertation, while highlighting the key take-aways from each stage of the project and the benefits that the company is expected to take from implementing the project developed. Moreover, this chapter will provide some insights into the future, providing some topics that the company should consider to further improve its performance in the long-term.

2 Literature Review

The subject of improving business processes has been a recurring subject of study by the academic and corporate community. Consequently, it is paramount to understand what are the studies that have been published by experts that portray this important theme.

Therefore, this chapter will encompass a deep analysis of the literature related to the topics that are going to be approached during this dissertation.

Firstly, it will be presented Business Process Management as the main framework to be followed throughout this dissertation, along with a characterization of a project that follows this framework.

Secondly, it will be analysed what the most important databases for business insights consider to be the best practices when managing financial processes.

Finally, it will be studied the most correct way to design business processes, which includes defining and classifying business processes, understanding standardised notation in the design of business process diagrams and a brief overview of the tools that can support this activity.

2.1 Business Process Management

The business process improvement program presented in this dissertation followed some principles of the BPM approach. This section will provide an overview of this approach, by explaining its history,

2.1.1 History of Business Process Management

Using processes in organizations' and performance management is not a recent topic. It has been around for more than a century and has suffered a lot of twists and turns before transforming into the overall approved and deeply studied tool that BPM is today.

Although its origin cannot be traced to a specific moment, Jeston & Nelis (2006) identified Fredrik Taylor as the pioneer in this subject. The *Taylorist* approaches of modern industrial engineering and process management were highly popular in 1900s. During the 20th century process management was a constant focus of study and several theories were presented with the focus of improving organizational performance through process analysis and optimization.

The first major breakthrough was the work of Deming (1953) on statistical process control. Some years before, Shewart (1940) had also contributed to the study of the useof statistical techniques for quality control purposes. The combination of process management introduced by Taylor and the work of Deming, Shewart and others were the basis for Total Quality Management. This theory was made famous for its extensive use in Japan's automotive industry, specially by Toyota.

Focusing specifically on the origin of BPM, Hammer (2010) identified its two most relevant antecedents. The first one was Statistical Process Control, as mentioned above, and its most

modern version, Six Sigma. The second one was the earlier work of Hammer (1990) on Business Process Reengineering (BPR). BPR is a radical process improvement technique that suggests not considering existing processes as the basis for work, but instead suggests developing new processes from scratch.

2.1.2 What is BPM?

The definition of BPM is not as straight-forward as expected. Jeston & Nelis (2006) advert to the fact that BPM is a broad technique with multiple possible applications. And, consequently, with each application comes a different definition. However, they identify the consensus of every definition of BPM as being a tool that focuses on management, improvement and control of critical business processes to meet the organization's objectives, and ultimately, reach organizational success.

The book "Fundamentals of Business Process Management" cuts to the chase and defines BPM in its first sentence as "the art and science of overseeing how work is performed in an organization to ensure consistent outcomes and to take advantage of improvement opportunities" (Dumas et al., 2013).

Furthermore, Zairi (2009) states that BPM "is a structured approach to analyse and continually improve fundamental activities such as manufacturing, marketing, communications and other major elements of a company's operation".

Finally, the Association of Business Process Management Professionals (2013) also gives a definition. In the "Guide to the Business Process Management Common Body of Knowledge" the definition given is that "Business Process Management is a 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".

To conclude, all the definitions point to BPM being a management approach oriented to customers that use management, improvement and control of critical business processes as the motor to optimizing organizational performance. A doubt remains between researchers if BPM should be considered a technology or, due to its broader scope, a management approach that could or could not use technology to achieve its objectives. However, most researchers point out that, although BPM could be used to improve processes without using technology, in today's digitalized society organizational performance optimization cannot be achieved without the correct use of technological tools.

2.1.3 Main stages of a BPM project

Dumas (2013) describes a project of process improvement using BPM as a cycle, rather than a process with a clear beginning and end. The purpose of this cycle is keeping the processes at all time optimized and updated. The world is constantly changing and evolving, and companies must be able to quickly adapt and adjust to new conditions in order to maximize efficiency. The main stages of the cycle are presented below:

- Process identification: Every BPM project starts with the identification of the critical activities of the organization and, consequently, of the critical processes. This stage allows a better understanding of the activities that create value for the stakeholders and understand how they are performed.
- Process discovery (*As-Is Model*): This stage has the purpose of designing the current state processes as identified in the previous stage. The *As-Is Model* will, therefore, be a map of the current processes of the company and the relationships between them.

- Process analysis: The improvement part of the project appears in this stage. In a summarized way, this stage aims to critically look at the *As-Is Model* and identify and register opportunities of improvement, as well as performance measures to evaluate these opportunities. Typically, this stage also includes a measurement of the impact that each improvement opportunity will have in the performance of the process.
- Process redesign (*To-Be Model*): After identifying what improvements can be made in the current processes, the goal of this stage is to redesign the processes according to the results of the analysis performed in the previous stage. The outcome of this stage is a map of the new state of business processes, also called the *To-Be Model*.
- Process implementation: The *To-Be Model* is worthless if it is not correctly implemented and used in the everyday tasks of the organization. This stage can be divided in two main challenges: organizational change management and process automation. The first one concerns with educating the company's employees to the changes in the way tasks are performed. Process automation is the series of steps required to adapt the IT resources and develop new ones, if needed, in order to be adequate to the new state of processes.
- Process monitoring and controlling: the final stage of the cycle before it restarts is everytime checking if the processes are performing as expected and in the more efficient way possible. This can be done by monitoring the performance measurements defined for each process, as well as by implementing reporting mechanisms to enable top management control of the processes.

The representation of the cycle as presented in the book "Fundamentals of Business Process Management" is shown in Figure 6.

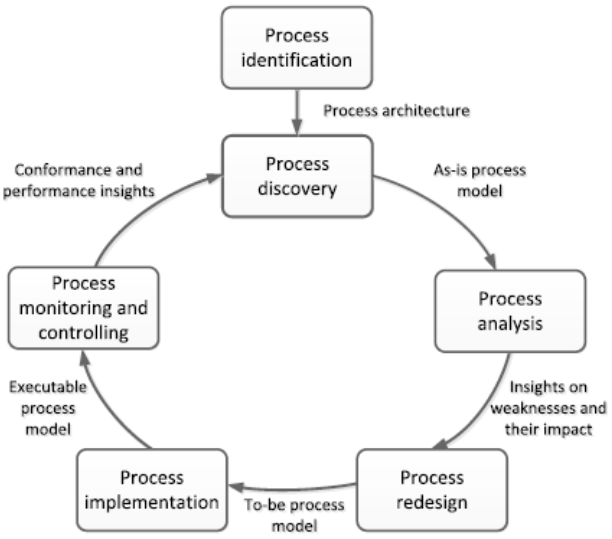


Figure 6 - Cycle of a BPM project (Dumas et al., 2013)

The cycle periodically restarts in order to keep it updated and optimized.

Jeston & Nelis (2006) present a different set of stages, that ultimately have the same outcome as the ones presented above. This stages are:

- Organization strategy: clearly understand the organization's vision and mission;
- Process architecture (*As-Is Model*): identify and design current state of business processes;
- Launch pad: defining the starting point of the BPM project;

- Understand: deep study of the critical activities and the value drivers of the business;
- Innovate: identify and register improvement opportunities and their impact on the process performance;
- Develop (*To-Be Model*): redesign the processes according to the analysis made in the previous stages;
- People: making sure that everyone in the organization undertands the importance of changing and constantly improving in order to facilitate change management;
- Implement: implementing the new set of processes;
- Realize value: evaluating the impact of the project in the performance of the company;
- Sustainable performance: ensuring long-term process monitoring and control in order to constantly find improvements and update the processes.

2.2 Best practices in process definition

The definition of the business processes to implement in a company is a complex decision and a very difficult one to perform effectively. Although the definition of a company's process dictionary is specific and needs to be adjusted to its specifications, looking at the market's best practices as the basis to build around is a method to achieve good results.

Therefore, this section will focus in the market's best practices in business process selection provided by two benchmarks: the American Productivity & Quality Center (APQC) and PwC's Leading Enterprise Advisory Playbook (LEAP).

2.2.1 The American Productivity & Quality Center (APQC)

"APQC is the most comprehensive source of best practices and research to develop tools and methodologies that improve the productivity and quality of an organization." (American Productivity & Quality Center - APQC, 2016).

As Nathalie de Preux states, the American Productivity & Quality Center is an institution that provides a benchmark of the overall best practices in the field of productivity and quality improvement for all industries.

For that reason, APQC is a reliable source in order to understand what the most effective way to define the processes of an organization is. APQC developed the "Cross-Industry Process Clarification Framework" to provide a benchmark of best practices that companies can build around to find their optimized process dictionary (American Productivity & Quality Center - APQC, 2014).

In this document, APQC divide organizations' business processes in two types: operating processes and management support processes.

The first type is market-oriented and therefore the processes are relevant for the organization to serve its customers. The processes go from the definition of the strategy of the company to managing customer service, while addressing all issues regarding products or services.

The second type are internal processes that are crucial to give the organization the required tools to be able to perform its operational processes. These processes include HR management and the focus of this document: Managing Financial Resources.

Reading further on the "Cross-Industry Process Clarification Framework" it is possible to find the overall perspective of the financial processes that are going to be addressed in this sector (American Productivity & Quality Center - APQC, 2014).

A more detailed description of point 8.0 – Managing financial resources is provided in the document "Manage Financial Resources Definitions and Measures". Before looking specifically at processes, it is important to understand that Finance Departments have the responsibility of planning and managing both financial accounting and management accounting, manage fixed assets, performing payroll operations, managing accounts payable and accounts receivable, as well as many other relevant activities that are paramount for the success of any business (American Productivity & Quality Center - APQC, 2016).

These functions reflect the following list of processes:

1. Perform planning and management accounting: This process aims to organize and perform all accounting activities that will be the basis for financial information production and decision making;
2. Perform revenue accounting: A company's ultimate goal is to make profit, and this is only possible by focusing on revenue and making sure that revenue targets are being achieved;
3. Perform general accounting and reporting: Meeting legal standards is one of the most important parts of accounting, since there are strict rules that establish how a company's accounts should be treated; it is also the basis for developing the financial statements that provide an overall view of the financial performance;
4. Manage fixed-assets project accounting: Evaluating and managing investment in assets is important to achieve sustainable growth and long-term success;
5. Process payroll. Every company has employees that are one of the most important agents for the success of an organization and therefore making sure that they are getting a retribution for their work is also one important part of financial resources management.
6. Process accounts payable and reimbursements: This process makes sure that all bills and reimbursements are being payed; managing the relationship with suppliers is also another task performed in this process;
7. Manage treasury operations: Optimizing liquidity, managing cash and other equivalents and reduce financial risks;
8. Manage internal controls: Making sure that the right control about the financial items of the firm is being made, by defining board of trustees;
9. Manage taxes: Every company has the obligation to participate with some of its profits to public entities;
10. Manage international funds/consolidation: Managing operations between subsidiaries of international groups and making sure that a common basis for reporting exists between same group subsidiary companies;
11. Perform global trade services: Controlling payments for products/services and making sure they are delivered to the end customer.

This list provides an overall picture of how financial resources should be managed to achieve long-term success. The customization of this list according to specific aspects of an organization is the way to find the optimized process list.

2.2.2 Leading Enterprise Advisory Playbook (LEAP)

Along with APQC, there are several benchmarks available that provide interesting insights on the definition of business processes. The second database worth mentioning is the Leading Enterprise Advisory Playbook (LEAP). This database was developed by PwC and it is for internal use of its Advisory Line of Service.

This database includes a comprehensive analysis of the best practices on business process management, that encompasses the design of the business process diagrams, the definition of controls and KPIs and more relevant information. For the scope of this dissertation, it was considered only the part of this database that relates to the design of financial processes.

LEAP divides the financial function of the company in seven macroprocesses:

1. Procure to Pay;
2. Acquire to Retire;
3. Order to Cash;
4. Record to Report;
5. Plan and Analyse Financial Information;
6. Manage Taxes;
7. Manage Treasury.

Each of the macroprocesses drills down into several processes that, by turn, divide into several subprocesses. This database provides a very thorough analysis of the financial function, considering every detailed aspect of a Finance Department's responsibilities.

During the development of this dissertation, this database was consulted to support the definition of the future state of processes, focusing mainly on the macroprocesses 1, 2, 3 and 4, which constitute an end-to-end approach to business process design that will be explained later in section 4.3.

The combination of these two databases provided an useful overview of what is considered to be the best approach for managing financial processes and was, therefore, of paramount importance for the definition of the new state of improved processes (PwC, 2019).

2.3 Business process identification

The design of a set of business processes is not possible without having a deep understanding of what a business process is and which are its main characteristics. The capability of identifying and organizing the processes in an effective manner facilitates the development of the business process diagrams afterwards.

This section will focus on the basic notion of what a business process is, how to classify it and how to characterise each of the activities that form the business process.

2.3.1 What is a business process?

"If you can´t describe what you are doing as a process, you don't know what you're doing."

This quote by W. Edwards Deming reflects what Harrington (1991) stated: no product/service would exist if it would not be for a process. Harrington defines a process as a group of activities that add value into an input to turn it into an output that will serve an internal or external customer. After this definition, the book splits the definition of process into business processes, which are the ones that directly influence the final product/service that will be delivered to the customer, and support processes, which are all the tasks or activities logically linked that use the company's resources in order to support the production processes.

Davenport (2016), one of the pioneers of BPR, explains that a business process is related with the focus on how work is done instead of focusing on what is done, i.e., the focus of business processes should be in defining how something should be done in order to be done effectively

instead of focusing only on the final result. He defines a business process as an ordering of activities, with a beginning, an end, inputs and outputs: “a strategy for action”.

2.3.2 Classification of business processes

A business process is complex, and therefore it is important to define how to classify each item of the process according to its level of detail. There are several different ways to do this, but in order to understand what the best practice is, it is important to analyse the *Process Classification Framework*, developed by APQC (2014).

The different levels are presented now, from the least detailed to the most detailed:

- Level 1 – Category

Higher level of process in an organization. An example is Manage Enterprise Risk, Compliance, Remediation and Resiliency.

- Level 2 – Process Group

The next level is a group of processes. An example is Manage enterprise risk.

- Level 3 – Process

A process is the level after of disaggregation. An example is Manage business unit and function risk.

- Level 4 – Activity

Key activities performed while doing a process. An example is Develop mitigation plans for risks.

- Level 5 – Task

The last hierarchical level is the task. An example is Assess adequacy of insurance cover.

This hierarchization of the business process can be represented as a pyramid. At the top are the most general processes and it gets more detailed when going from the top to the bottom of the pyramid.

2.3.3 The Five Whys Technique

Having a deep understanding of the functioning of processes from an outside perspective is not an easy task. Sakichi Toyoda of Toyota Industries Corporation created *The Five Whys* technique to use in the development of manufacturing methodologies. The technique consisted of asking the question “Why is that?” every time some error was encountered. This question would be repeated until a non-controllable event was encountered. In this way, the source of the malfunction would be found, and a more effective way is developed to eliminate it (Serrat, 2017).

More recently, the technique was updated and modified in order to allow a deeper study of activities. The technique is known as 5W2H and consists of asking the following 7 questions:

- What? – Description of the activity being performed.
- Why? – Why is the activity important?
- Where? – What information system is the activity performed in?
- Who? – Who is responsible for performing this activity?
- When? – What is the trigger that initiates the activity?
- How? – How is the activity performed?

- How much? – How much time does it take to perform the task?

The answers to these questions will serve as a basis for mapping the processes (Nagyova et al., 2015).

2.4 Process design

As was mentioned previously, a process is a group of activities that transforms inputs into outputs. Sharp & McDermott (2001) identify six enablers of any process: workflow design, information technology, motivation and measurement, human resources, policies and rules and facilities or other. In this section, the first enabler will be the focus.

In the book "Workflow Modelling", the authors describe a process workflow design as the "sequence of steps, decisions, and handoffs carried out by the process's actors between the initial event and the final result" (Sharp & McDermott, 2001).

This section will describe the main topics related to process workflow design, which are process characterization, types of business process representations, standardised notation for designing processes and, finally, digital tools that enable business process design

2.4.1 Process characterization

Sharp & McDermott (2001) state that the first step when modelling a process is its framing. In order to fully characterise a business process, the authors select some components that are important to define the scope:

- Process name;
- Event that triggers the start of the process (Trigger);
- Result of the process;
- Customer and other stakeholders;
- A succinct number of major steps/activities;
- Actor(s) of the process;
- Systems that support the realization of the process;
- Frequency of the process;
- Processes related to the process analysed (for example, subsequent and precedent processes);
- Key Performance Indicators (KPIs) specific for the process.

The list provided by the authors is extensive and covers the main components identified by most of the authors. Faria (2020a) provides a shorter list of components in order to provide a complete overview of the process, which are the process name, trigger, inputs and outputs of the process, main stages of the process, actors participating in each stage of the process, information flows between the process and other processes or other interactions and KPIs of the process.

Finally, in the book "Fundamentals of Business Process Management" (Dumas et al., 2013) state other similar components in order to complete the profiling of the process. These components are the name, a brief description of the objective of the process, the main responsible for the process (owner), the customer of the process and its expectations, the result expected from the process, the event that triggers the process, a list of activities performed in the process, the precedent and subsequent processes, a list of required resources in order to complete the process and the main KPIs identified for measuring the processes' performance.

The list of components presented by the different authors has similarities, differing only in some components. This fact is justified by the fact that the components presented by all authors are relevant for completing a full characterization of a process, but it is up to the modeller of the

processes to decide what components are more relevant for providing a complete overview of the process without making the list too exhaustive.

The components presented above are registered in a document named Process Fact Sheet (Faria, 2020a). An example of a Process Fact Sheet is presented in Figure 7.

Name of Process: Procure-to-Pay	
Vision: The objective of the procurement process is to secure that the entire range of external products and services becomes available on time and is at the required level of quality.	
Process Owner: Chief Financial Officer (CFO)	
Customer of process: • Requesting unit	**Expectation of customer:** • Timely, economic and complete provision
Outcome: Delivered products or provided services for the requested unit	
Trigger: Need is identified	
First activity: Submit Request ..... **Last activity:** Create Purchase Order	
Interfaces inbound: Plan-to-Procure **Interfaces outbound:** Construct-to-Complete	
Required resources: • Human resources: Site Engineer, Clerk, Works Engineer • Information, documents, know-how: procurement guidelines, supplier rating, framework contract • Work environment, materials, infrastructure: Procurement information system	
Process Performance Measures: • Cycle Time • Operational Costs • Error Rate	

Figure 7 - Illustrative example of a Process Fact Sheet (Dumas et al., 2013)

Another way of representing the scoping of a process is a Process Scoping Diagram (Harmon, 2007). This form of representation is more graphical and allows for an initial diagnostic of what needs to be addressed while designing the process. In the centre of the diagram are the main stages of the process and the corresponding milestone that marks the transition between stages. Surrounding the stages of the process are four components: inputs, which are the documents, actions, etc., that will enter the process in order to enable its execution; outputs, which are the results of the process; enablers, which are resources that facilitate the execution of the process; and controls, which are policies or rules that dictate certain limitations to the execution of the process.

An illustrative example of a Process Scoping Diagram is presented in Figure 8.

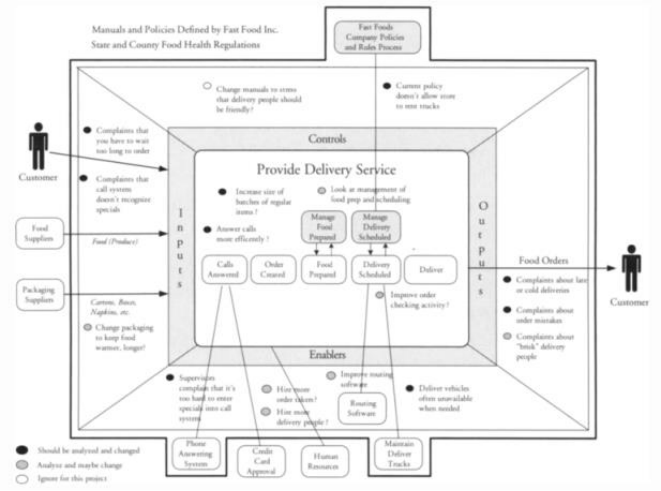


Figure 8 - Illustrative example of a Process Scoping Diagram (Harmon, 2007)

2.4.2 Types of process workflow representation

Workflow modelling is one part of process modelling, which by turn is an important step of any process improvement program. Workflow modelling is the act of materializing an abstract process into a representation model that allows for the easy and direct understanding of the project. Workflow representations normally include the tasks that need to be performed, the relationship between tasks, the actors, rules that need to be followed in the process, information systems that aid the realization of the process, among other relevant information (Mentzas et al., 2001).

There are many possible graphisms for workflow representation. The type of graphic representation of the workflow of the process will depend on the depth of the representation.

The book "Fundamentals of Business Process Management" (Dumas et al., 2013) classifies the representations in three levels:

- Level 1 – Process Landscape: this level is a very broad overview of the process, providing with a vision of the value-chain of the process, i.e., the sequence of activities that introduce value and that culminate in the result of the process;
- Level 2 – Business Processes: the business process drills-down each value-adding activity of the process landscape and provides a value-chain with more detail of that activity;
- Level 3 – Subprocesses and tasks: the lower level is the subprocess and tasks and it is a decomposition of the business processes in the more detailed manner, to allow for a guidance while performing these activities.

Sharp & McDermott (2001) provide a similar classification of the representations of business processes in three levels: handoff level (level 1), which consists of a representation of the main intervenients and deliverables in each stage of the process, without entering in detail of the tasks to be performed; milestone level (level 2), which adds to the handoff level some steps that allow for a better understanding of the flow of the process, presenting the milestones to be achieved, decisions to be taken, etc; and task level (level 3), which presents how the process is performed, by providing with detailed steps and instructions that need to be followed in order to achieve the milestones presented in the higher level representations.

These three levels presented above can be connected to the classification of business processes developed by APQC and presented in 2.2.1. Level 1 compounds APQC's levels 1 and 2 (category and process groups), level 2 corresponds to APQC's level 3 (process) and level 3 is equivalent to the levels 4 and 5 of APQC (subprocesses and tasks).

One possible representation for each of the three levels will be presented in detail.

Level 1 - Responsibility Matrix

Oliver (2010) defines Responsibility Matrixes as a graphic representation to allow an interconnection between the different stages of the processes and the actors that intervene in that process. The Responsibility Matrix provide a very high-level overview of a process or group of processes and is therefore adequate for the first level of representation.

The main components of this type of representation are the stages of the process(es), the actors, the classification of their action and the baseline of the stage.

Each column corresponds to a stage of the process while each row of the matrix corresponds to an actor. If the actor plays a role in the stage, there will be a symbol that classifies the interaction. Faria (2020b) describes the possible interactions as RACI: Responsible, Accountable, Consulted and Informed. In each stage there will be at least one responsible that will make sure that the baseline is achieved, while the other types of interactions are optional and depend from stage to stage.

The baseline is the result of the stage and marks the transition between stages.

An illustrative example of a Responsibility Matrix is provided in Figure 9.

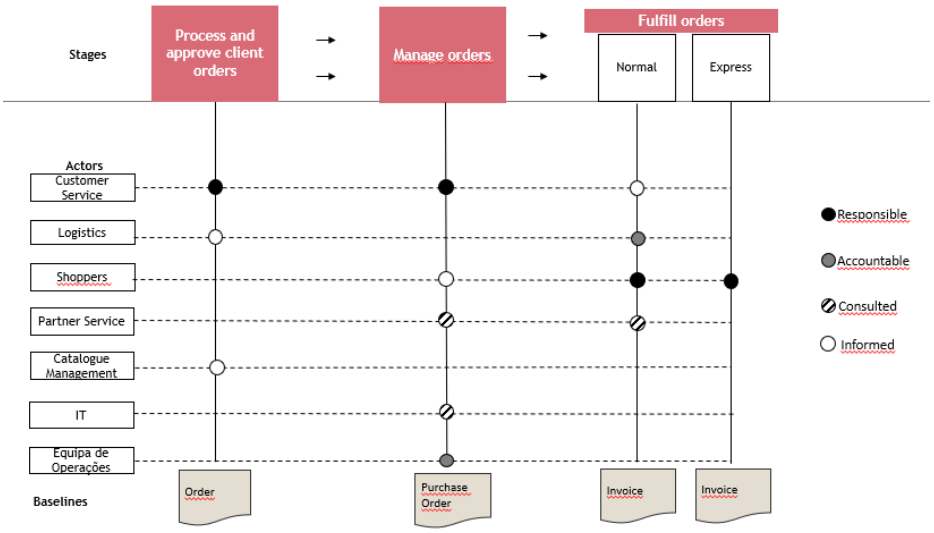


Figure 9 - Illustrative Example of a Responsibility Matrix

Level 2 – Swimlane Diagram

As Sharp & McDermott (2001) state in the book "Workflow Modelling", swimlane diagrams are the most used form of representation of process workflows. This is due to their ability to represent almost any kind of process, from complex to simple ones, in a very easy to read manner. Swimlanes became commonly used since they require little to no training to be read by any person and allows the understanding of who performs what and by which order.

The Swimlane Diagram is divided horizontally in different lanes, and each one representing one actor of the process. The top lane, when necessary, is reserved for the customer, supplier or other external intervenient, while the other lanes represent individuals or groups of individuals (departments, for example) that will perform any step that is included in their specific lane (Harmon, 2007).

The activities, events, flows, and other notations to represent the workflow will then be introduced in the specific lane of its actor. This notation will be further explored in the next section.

Although Swimlanes are being referred as a Level 2 representation, they can be used in any of the three levels, since they have the ability to effectively represent processes belonging to Level 1 if they are not extremely complex and they can be useful also to represent processes and subprocesses.

The Swimlane Diagram was the chosen representation to be used in this dissertation. An example of a Swimlane Diagram performed during the process improvement program described in this document is presented in Figure 10.

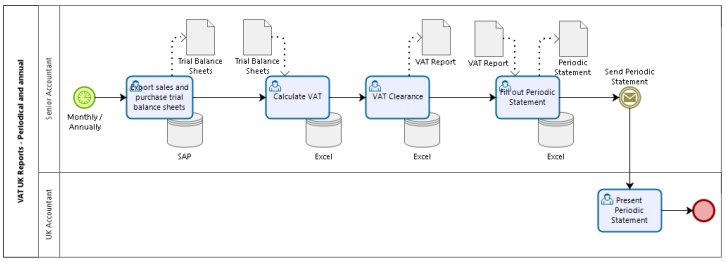


Figure 10 - Example of a Swimlane Diagram

Level 3 – Flowcharts

According to the book "Fundamentals of Business Process Management" (Dumas et al., 2013), flowcharts are one of the oldest forms of representation of process workflows. In their simplest form, flowcharts are composed by activities, symbolized by rectangles with the activity brief description inside, and decision points, represented as diamonds, in which a question is asked, and the diamond allows the separation of the process path for the right answer. The activities and decision points are connected by arrows that represent the process flow.

Flowcharts are commonly used with the same activities and decision points mentioned above, but for each activity there is normally a responsible assigned, there are input and output documents associated to each activity, if necessary, along with other relevant information.

Flowcharts are used to represent the most detailed subprocesses, since they can represent in an intuitive way complex processes, with a lot of interactions between the participants.

An example of a Flowchart is presented in Figure 11.

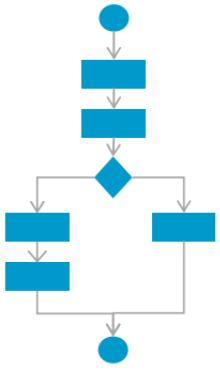


Figure 11 - Illustrative example of a Flowchart (Faria, 2020b)

As was mentioned during this section, the choice of the appropriate form of representation is derived from a trade-off between the amount of information available and the complexity of the process. Therefore, for very complex processes, responsibility matrixes should be used to represent them in a simple way, but the amount of information provided is limited. On the other hand, if the amount of information is important, Flowcharts or Swimlanes should be used. However, for very complex processes these representations can be hard to understand.

2.4.3 BPMN

Due to the growing importance of business processes in organizations, it urged in the last few years the need to find a standardised language for business processes that could be at the same time formal enough and easy to understand by the non-expert user. Nowadays, the leading standard in this field is Business Process Modelling and Notation (BPMN) (Chinosi & Trombetta, 2012).

BPMN was originally developed by Business Process Management Initiative (BPMI) and the version 1.0 was published in 2004. This organization is now part of Object Management Group (OMG) (Trisotech, 2015).

In the presented project, BPMN 2.0 is the standard followed in the design of the Business Process Diagrams (BPD). This updated version of BPMN was published in 2011 by OMG.

The main goal of using BPMN notation is to guarantee that all people involved in developing and utilizing BPDs can comprehend easily the process without needing to be instructed on the subject. BPMN was developed by using shapes and symbols that were easily recognisable by business analysts that were used to analyse flowcharts, while establishing rules for the use of this symbols (White, 2006).

There are four basic categories of elements in BPMN: flow objects, connecting objects, swimlanes and artifacts.

Flow objects

Flow objects are the elements that allow the representation of the workflow modelling and are divided into three types: events, activities and gateways.

Events are represented with circles and are situations that occur at specific points of the process and have an impact on its workflow. The most common events are the start and end event and are “happenings” in the process that trigger its beginning and define its end, respectively.

Activities are represented by rectangles and are the tasks that need to be performed to conclude the process. Activities take time to complete, whereas events are instantaneous.

Finally, gateways are represented by diamonds and are points of convergence or divergence of paths based on conditions, questions, etc.

Connecting objects

Connecting objects are represented by arrows that connect different elements. They can be sequence flows if they represent a path to follow in the process, message flows if they represent an exchange of information between actors or associations if they connect activities to associate data, system, or other Artifacts.

Swimlanes

Swimlanes are a mechanism to organize the workflow representation. The pool is the total space within which the process will be represented, and each lane is attributed to a different actor in the process.

Artifacts

Artifacts that allow the modeller to add information/context to the process. They can be Data Objects, for example, input and output documents of a process or other sources of information, groups, that allow to join activities that are related in a specific way and annotations, which are text boxes that add information necessary to the element it is connected to.

A detailed description of the graphic elements used in the BPD’s will be provided in Appendix A.

3 Diagnostic of current *modus operandi*

The main purpose of this project was to achieve long term optimization of the financial function of the client. In order to achieve this, however, it is not enough to look at the best practices mentioned in the previous chapter and copy them for the company.

As mentioned in the stages of BPM, the first step when improving organizational performance is to deeply understand the current operative model and critically analyse it in order to discover potential issues to be addressed in the future. This chapter will present how the collection of data was performed, followed by a thorough description of the processes that are performed currently and a detailed list of opportunities for improvement found during this discovery process.

3.1 Current organization of the Finance Department

The focus of this document is the activity of the Finance Department of the company. The Diagnostic stage of the project, as mentioned in chapter 1, involves the deep study of the current operating model of the company and, specifically, of the department.

This section will provide with the insights obtained from the analysis of the department, based mainly on the assessment of the current organizational structure and the relationship between the actors and on the interviews conducted with each one of the relevant stakeholders. The section culminates with the description of the method for organizing the information collected during the diagnostic stage.

3.1.1 Department organogram and responsibilities' distribution

It is impossible to understand the processes if you do not understand firstly the people that perform those processes. Therefore, the first step of the diagnostic stage was to understand how the Finance Department is currently organized and who are its human resources.

Due to the company's small size, the Finance Department has five members only. The organogram of the department is presented in Figure 12.

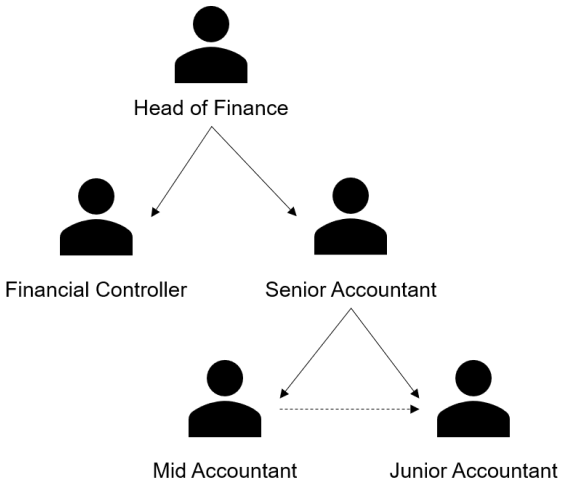


Figure 12 - Organogram of the Finance Department

According to the information provided by the client in an initial stage, the responsibilities of each person are detailed below.

Head of Finance

Higher hierarchy level in the department, being responsible for supervising the department and providing guidance. The responsibilities of the role apart from supervising and managing the human resources of the department are reporting, which include Management Reports, KPI reports development and analysis, Cash Flow Report, Revenue Control & Report and Quarterly Reports to investors, developing the company Annual Budget and provide Institutional and Investors information.

Financial Controller

This role accumulates the functions of Financial Controller and Analyst and reports directly to the Head of Finance. Its responsibilities are managing analytical accounting, performing reports related to Sales and Royalties to be shared with Business Partners and managing special projects, such as Portugal 2020.

Senior Accountant

The person that performs this role is the person that has more time in the Finance Department and accumulates the role of Internal Auditor as well. The main responsibilities are improving and automating operational procedures, managing intragroup pricing and reconciliation, managing payroll, validating and closing financial accounts, closing period in ERP, controlling inventory, ensuring tax payments and delivering legal documentation.

Mid Accountant

The Mid Accountant is also responsible for Treasury Operations and Business Partners Management. Some of its roles are updating Cash Flow information, managing accounts payables and performing payments, booking transactions, performing account reconciliations and managing relationship with factoring company.

Junior Accountant

The Junior Accountant is the newest member in the department and is therefore in a period of adapting and learning its roles, that include booking some transactions, controlling and booking credit card expenses, creating invoices for materials and managing accounts receivables.

The ERP software used by the company is SAP Business One and is the basis to perform most of the processes in the Finance Department.

This was the information provided by the client as the theoretical distribution of responsibilities and was used as a starting point for the next step of the diagnostic phase – interviewing each position.

3.1.2 Interviewing the main players

The objective of the interviews conducted was to have a better understanding of what each member of the department does, so that the *As-Is Model* that will be described later in this chapter could be the closest approximation possible to the real operational activity of the department. Apart from this, the interviews gave the opportunity to the different people to identify potential issues in their work that could be addressed in the future operating model. Finally, it was also important to assess the impact that the future recommendations could have on the work of this people, in order to minimise the inertia to change and to have a smooth implementation of the new state of processes.

Four interviews were performed, one to each of the positions mentioned in point 3.1.1. except the Junior Account, whose responsibilities were explained by the Mid Accountant, that until recently accumulated the responsibilities of both positions. The interviews were ordered, starting with the most operational positions and finishing with the most strategic one – the Head of Finance.

Each interview was divided in three parts. The initial part was a broad overview of the history of the person in the company and the roles that he/she had performed until now. A brief description of the processes each person performed was also asked in this first part. The second part, and the most important one, was a deep dive on each of the processes that the person was responsible for. The objective was understanding step by step how the process was performed, the trigger that initiated the process, the colleagues that collaborated or supervised the activities and the information system where the processes were performed. Finally, in the third part an opportunity was given to the employees to state their opinion on issues that were currently making their job harder, opportunities that they identified that could lead to better performance in the future, as well as any other relevant comments. The content of this interviews was recorded for providing a database of information for the identification of the current operations. The procedure was repeated in each one of the interviews.

3.1.3 Data collection and sorting

Having collected the information in the interviews mentioned above, the first step in order to organize it was to identify the list of processes. For each of the positions in the Finance Department a list of the processes that that person performs was made. For each process, the precedent and subsequent process was identified, as well as the constrictions to the realization of the processes.

Having finished listing the processes and subprocess, each was drilled down in activities. For describing each activity, an adapted version of “The Five Whys” methodology mentioned in point 2.3.3 was used. Each activity was fully detailed when the questions “What?”, “When?”, “Who?” and “Where?” were answered. Moreover, for each activity the documents that are used as inputs and the documents created as outputs of each activity were also identified, as well as specific rules to follow while performing the activity.

3.2 Mapping the current processes (*As-Is Model*)

The materialization of the data collected during the interviews and the research performed was the design of the current state of processes.

This section will provide an overview of the steps performed in order to reach the *As-Is Model*. The main activities described below are the definition of dictionary of processes and the design of the BPDs.

3.2.1 Process Dictionary

Prior to designing the process diagrams, it was necessary to more formally establish the list of processes in a formal way.

The flexible definition of responsibilities and functions works in small companies in which the employees multitask and have several different roles. However, as the company matures and grows, this informality in the definition of processes leads to some issues that will be identified in the end of this chapter and that, consequently, lead to increasing expenses and inefficiencies.

In this stage of the project, the definition of the process dictionary was based solely on the information collected about the current *modus operandi* of the department. The objective was that the *As-Is Model* that will result from the processes identified could be a truthful portrait of the reality. That way, it would be easy to identify potential issued and opportunities for future improvement.

Table 1 shows the result of the identification of processes and subprocesses performed, followed by a brief description of each process identified.

Table 1 - List of processes considered for the As-Is Model

Code	**Process**	**Subprocess**	**Owner**
AP_01	Accounts Payables	Invoice Registry and Analysis	Mid Accountant/ Jr. Accountant
AP_02	Accounts Payables	Manage Payables	Mid Accountant
AR_01	Accounts Receivables	Manage receivables	Jr. Accountant
AR_02	Accounts Receivables	Collections	Acc. Managers/ Mid Accountant/ Fin. Controller/ Head of Finance
AR_03	Accounts Receivables	Hedging Credit Risk and Factoring	Fin. Controller
RP_01	Reporting	Management Information Reporting	Fin. Controller
TR_01	Manage cash and liquidity	Treasury Report	Mid Accountant/ Fina. Controller
TR_02	Manage cash and liquidity	Bank Reconciliation	Jr. Accountant
AM_01	Asset Management	-	Sr. Accountant
CC_01	Month End Closing	-	Sr. Accountant
PR_01	Perform payroll processing	-	Sr. Accountant
TX_01	Manage taxes	VAT PT Reports - Periodical and annual	Sr. Accountant

TX_02	Manage taxes	VAT PT Reports – Recapitulative	Sr. Accountant
TX_03	Manage taxes	VAT UK Reports - Periodical and annual	Sr. Accountant
TX_04	Manage taxes	VAT UK Reports - Recapitulative	Sr. Accountant
CM_01	Cash Management	Petty Cash	Sr. Accountant
RF_01	Refund of Expenses	Urgent Expenses	Sr. Accountant
RF_02	Refund of Expenses	Normal Expenses	Sr. Accountant
IN_01	Invoicing	Invoicing ARR and MTO services	Head of Finance
RT_01	Royalties	-	Fin. Controller
BD_01	Budget	Create Budget	Head of Finance
BD_02	Budget	Track Budget	Head of Finance

AP – Accounts Payable

These processes include all the activities related to the management of supplier accounts. It includes receiving, organising and registering in SAP the invoices received (AP_01 – Invoice Registry and Analysis) and authorizing and performing the payments of debts to suppliers (AP_02 – Manage Payables). These processes are preceded by the process of Procurement, which is the process of purchasing goods/services to suppliers, and from which originates the invoices that will be treated in this process.

AR – Accounts Receivables

Accounts Receivables refers to managing client accounts. The processes start when an invoice is issued and includes the process of collecting open items from clients and processing clients' payments, by controlling cash inflows and issuing receipts to clear client account. Moreover, the process includes managing client credit, by maintaining a close relationship with the Insurance Company, and managing disputes from long-term overdue open items. As mentioned above, the process is preceded by the process of Sales and Invoicing.

RP – Reporting

This process refers to the group of activities that lead to the production of information that will be used to take management decisions. This includes analysing Management Accounting to calculate expenses by cost centre, as well as calculating revenues by profit centre. These reports will be useful also to track performance against company budget. Finally, it is in this process that Sales Reports are produced to share with Business Partners.

TR – Manage Cash and Liquidity

This process refers to all treasury operations. Managing treasury operations in the Client Company is performed mainly by maintaining an updated report to control cash inflows and outflows and classifying those transactions. It is also in this process that banks are reconciled to verify if all transactions are considered. From this report will emerge information to be used in the Reporting process.

AM – Asset Management

This process includes all the activities related to managing the company's assets. The process is divided into three stages: acquiring new assets, maintaining assets by revaluating them and

performing depreciations and amortizations and retiring assets that are no longer of use. This process currently is mostly outsourced to the external accounting firm since the company's ERP does not include the module to manage assets.

CC – Month End Closing

This process refers to the activities performed in order to close the accounting period. In the end of each month, the Senior Accountant will verify if any items are still opened and investigate the reason. After the adjustments needed are recorded in the system, the Senior Accountant will close the period and no more transactions can be recorded.

TX – Manage Taxes

This process refers to the activities that are necessary to perform in order to meet legal requirements. In specific, this process relates to the creation and submission of VAT Reports for both Portugal and the UK. The VAT Reports are divided in the Periodical and Annual Reports mandatory by law and the Recapitulative Reports. In both countries it is of the responsibility of the accounting firm to submit the reports, but the Senior Account has an important role in submitting the inputs to the filling in of the VAT Reports.

PR - Perform payroll processing

This process includes managing employees' payroll, recording time worked and performing tax payment. Alike the process AM – Asset Management, this process is conducted in collaboration with the external accounting firm since the company does not possess the required modules for payroll processing in the ERP.

IN – Invoicing

This process occurs before the AR – Accounts Receivables and refers to the activities of billing products/services to the clients. The company provides mainly three different types of sales that have different types of invoicing. In this process, the Head of Finance will have the responsibility of, whenever necessary, creating the invoice to send to the client according to the information provided in the contract.

RT – Royalties

The company has obligation to report sales to its business partners in order to pay the corresponding royalties. This process includes the activities of exporting the sales report and adjusting in accordance to the business partner requirement.

BD – Budget

Creating and tracking the annual budget is a paramount activity in every company. This process will encompass all the activities regarding the development of the budget with the Heads of each department and submitting it for approval (BD_01_01 – Create Budget). Furthermore, in this process the budget will be tracked, by updating monthly a report of both revenues and expenses to enable the decision makers to locate the company's performance according to the annual budget.

3.2.2 Process Design

Once the process dictionary is defined and thoroughly detailed, the next step in the analysis of the current processes is to design the process diagrams. Since the company had no mapping of the processes previously done, they were designed from scratch.

As mentioned in section 2.4.1. and 2.4.2, the design of the processes was done in *Bizagi Modeler*, using the BPMN 2.0 notation. To the standardised notations were made small adjustments to make the analysis of the diagrams as intuitive as possible so that every employee in the company can be able to understand. In the diagrams, the information flow between the

performer and the ERP used by the company were included since the relationship of the employees with the ERP is an important part of the activity of the Finance Department and has a high probability of not being optimized and, therefore, be a highlight in the identification of issues.

Moreover, there was a strong focus in designing the processes as accurately as possible so that they portray the company's reality. This focus was important to enable the clear identification of issues and opportunities for improvements.

In section 2.3.2, the hierarchy of processes was described, and this hierarchy was used in the process maps. The hierarchy levels used in this part of the project were Process, Subprocess and Activity. The processes were designed by grouping its subprocesses and, if necessary, defining the relationship between those subprocesses. In the cases where the processes were not divided into subprocesses, this hierarchy level was skipped and, consequently, the processes were mapped as the group of activities that are performed in the process, the relationship between them, as well as other information, such as the participants, the input and output documents and the information system used.

An example of a process map, process AR_01 – Manage Receivables, is presented in Figure 13. The remaining processes are presented from Appendix B to Appendix N.

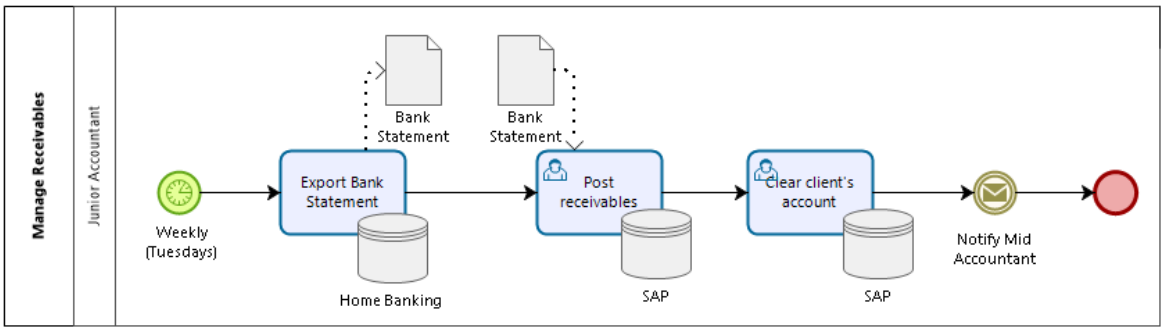


Figure 13 - Process diagram of process AR_01 – Manage Receivables

3.3 Identification and systematization of improvement opportunities

The last stage of defining the current operating model of the client company was to identify issues that need to be corrected in the future business processes.

The issues were first mentioned in the interviews with the members of the Finance Department, in which the interviewee stated the constraints and problems that usually encounters while performing his/her tasks. Since there is no one that knows better the issues found during a certain task than the person that performs it, the information collected in the interviews was the starting point for this part of the project.

Secondly, a deep analysis of the process diagrams was done, in order to find situations that cause constraints to the normal flow of the process.

Finally, the potential capabilities of SAP Business One (Company's ERP) were studied in order to understand if the company was making a good use of the software it has available, since this is normally a source of inefficiency in every Finance Department.

After identifying all the small issues and problems that the company encounters in its operations, a systematization was made to transform the list in the main improvement opportunities of the company, providing examples and understanding the implications that each opportunity can have in the company's productivity. The organized list of improvement opportunities is presented in the next subchapters.

3.3.1 Lack of definition of processes, procedures and controls

The first issue encountered was that the organic dynamic of the company reflected a poor definition of processes, procedures and controls. The tasks performed varied from performer to performer, leading to inefficiencies. There was a special focus on the Procurement area, that was responsible for several inputs to the processes of the Finance Department and that, due to the lack of defined procedures, failed to correctly register the needed information in the ERP. This lack of control made it difficult for the Finance Department to keep a correct track of the accounts, especially in what concerned to materials' inventory. A systematization of examples and impacts of this issue is presented below.

Examples:

- Purchase Order (PO) is done in Excel and not being used correctly;
- Raw materials are received in the warehouse, but the confirmation of the order received against the purchase order is not recorded properly;
- The register in SAP of the goods received is done late and usually not with accurate information about the status of the order;
- General code attributed to the delivery slip leads to errors in stock accounting - at the moment an *ad hoc* delivery slip is being used. This type of delivery slip does not make accounting postings or stock movements;
- Stocks entering warehouse with price equal to 0€, so the prices are not being updated in SAP in a timely manner;
- Open items analysis is performed only in the end of the year, accumulating a large group of long overdue open items;
- All the transactions regarding petty cash movements are recorded in the same file independently of the company;
- There is no specific balance of petty cash for each company;
- Employees do not fill in correctly the Excel for expense reporting and there is no control;
- Difficulty reconciling credit card transactions with invoices (lack of invoices from employee expenses);
- Different assumptions for recording transactions in general accounting and management accounting.

Practical implications:

- There is no record in SAP of Purchase Orders so when the materials arrive there is no document in the system to serve as base for comparison of prices and quantities or to serve as a base document for Goods Receipt.
- Since the stock's movements are not posted in a timely manner, the inventory never matches the level of stock in the system and it is necessary to do a thorough analysis in order to understand what movements were not posted and need to be.
- Materials have movements with a price equal to 0€, so no accounting postings are done. The material is bought and sold in the same month, so in terms of accounting there is only a recognition of a revenue in that month and the cost is recognised in the following month when the prices are updated.
- Delays in several processes, such as expenses reimbursement and month end closing.

- Errors in stock movements or in accounting postings are only recognised late in the month.
- Lack of connection between financial and management accounting and doubling of work. The process of month end analytical accounting closing is independent of the financial – these two types of accounting should be complementary.

3.3.2 Inefficient use of the ERP

The second issue identified was that the ERP used by the company was being severely underused, which led to inefficiencies that could be easily improved by taking better advantage of the functionalities of the ERP. This was particularly identified in the accounting of Cash Flow information, that is performed in Excel, requiring a significant amount of time to produce information that is less accurate than the one that could be exported from the ERP if the cash flow was controlled in the system. It was identified that the lack of training in the ERP and the consequent lack of knowledge of the system by the employees was the root cause of this issue.

Examples:

- Manual update of excel files – Treasure Report, Bank Reconciliation, Royalties and Budget;
- Payroll process has several manual steps and requires a constant update of Trello otherwise the payments might be incorrect;
- Cash Flow data in SAP is inaccurate so transactions are being recorded in Excel.

Practical implications:

- Excess of time spent in manual tasks when this time could be used in value added activities;
- Manual creation of Cash Flow report.

3.3.3 Doubling of responsibilities and lack of segregation of roles

As an indirect consequence of the first issue, it was identified that some of the processes performed were being shared by more intervenients than necessary, which increased the complexity and the time it took to perform the tasks. Apart from this, it was identified that the relationship with the external accounting firm is far from optimized, resulting in a duplication of work.

Examples:

- The process of collections requires the involvement of four people;
- Treasury is managed by two people and supervised by another;
- Depreciations and amortizations are calculated internally in Excel and externally in PHC;
- All transactions are posted first internally in SAP and then recorded in PHC by external accounting firm;
- VAT calculation is done first internally and then the calculations are repeated by the external accounting firm.

Practical implications:

- Excess of time spent in doubled tasks when this time could be used in value added activities.

3.3.4 Incorrect setup of SAP

The ERP is of paramount importance for the performance of the Finance Department. In almost every process there is the need to perform some action in the ERP, and therefore it needs to be adjusted to the company's needs. It was identified that the client's ERP was not correctly set up. The developments made to automate some tasks were not optimized and sometimes caused a worse impact in the process performance than if it was made manually.

Examples:

- Exception to rules defined for the automated mechanism to classify transactions lead to errors that need to be corrected manually at the end of the period;
- If mechanism blocks it needs to be corrected manually;
- Transfer of stock between companies is done without reporting a sale;
- No pricing method is well established for recording intragroup transactions;
- Not possible to register autonomously returns from an important client in SAP.

Practical implications:

- Manual analysis and corrections of management accounting postings;
- Manual analysis of intragroup transactions.

3.3.5 Problems with master data creation and setup

The accuracy of a company's financial data depends deeply on the master data. It was identified that the management of master data in the company was not following the best practices, and that led to increased lead time of the processes due to corrections in financial information derived from errors in master data creation. This issue is linked with the previous one since a more correct setup of the ERP could lead to less errors in master data creation.

Examples:

- The chart of accounts was designed for one of the business units (BUs);
- One client in different countries has the same VAT code;
- The CoA is not adapted to the UK needs;
- Lack of information in the business partner's (BP) master data.

Practical implications:

- The Chart of Accounts (CoA) does not fit the other BU's needs;
- The mapping of assets categories is not 1:1 in Portugal and in the UK;
- It was necessary to develop a mirror company in the UK for creating VAT reports;
- When doing the VAT reports some values might not be correct given the development made to double each BP created in the company and replicates the VAT information for each BP;
- The required fields for the Standard Audit File for Tax purposes (SAF-T) are not being filled in the BP master data.

4 Conceptualization of Future State of Processes

The correct definition of the processes of a company is the first step towards improving its performance and guaranteeing the quality of the outputs. Efficiency and quality are some of the mostly addressed issues in every company and, consequently, process improvement should be a recurring concern by every manager.

Having concluded the diagnostic of the current operating model, the next step was the development of the *To-Be Model.*

4.1 Assumptions taken into consideration for the *To-Be Model*

The aim of this project was to create a set of processes that could be implemented in the client company and be used in the long term. Consequently, the processes were designed assuming that the company reaches its target dimension and requires the processes of a big company, which is not the case nowadays due to the low degree of maturity of the company.

The first assumption that was considered was that a spinoff of the two business areas of the company would occur in the short/medium term. The company's top management have the intention to separate in different companies the mature and slow growing Wholesale division from the fast growing and innovative Tech division. The future state of processes was designed to be applicable to the Tech division, that is the focus of the company for future success. It is also the division for which the current processes are less adjusted since it is still a small division and accounts only for a small part of the company's annual turnover.

The second assumption considered was that all the Finance functions of the company would be dealt with internally. As mentioned in the *As Is Model*, the company currently outsources the accounting to an external firm. Although the managers of the company are inclined to outsource all activities that do not add value to the company by being performed internally, this is a decision that is not yet made and, therefore, the processes were designed for all the functions that could potentially be performed by the Department.

The rationale for this assumption was that, in the case that some of the activities are not outsourced or sometime in the future the company's management decides to internalize these functions, the processes will be adaptable to any reality. The outsourceable activities were identified during the design of the processes to facilitate the decision of the company of what activities to outsource.

The third and last assumption was that, although the company currently uses SAP Business One as ERP, this could not be a reality in the medium/long term. This ERP was implemented to fit the requirements of the Wholesale division and it is not completely adjusted for the Tech Division. The ERP is a considerable investment that the company must perform and, therefore, it will be a decision to be made when the spinoff is completed. The decision will also take into consideration the outsourced activities, that could lead to the company not needing an ERP at all. In the case that all accounting related activities are outsourced, the company could decide to use different software for managing the internal processes. As this decision is far from made,

the assumption was that no specific ERP would be used in the design of the process. Instead, when the activity required being performed in the ERP, the system considered was a standard ERP.

These assumptions resulted from the understanding of the necessities of the client and were agreed between the both parties before starting to develop the future processes.

4.2 Conceptualization of the *To-Be Model*

In order to design the BPDs, the same approach was used as in the *As-Is Model*. The software used was *Bizagi Modeler*, which allowed for the correct design of the diagrams and its storage in a cloud. As mentioned in section 2.4, *Bizagi Modeler* uses BPMN 2.0 as the standardised notation for business process design, and its components are detailed in Appendix A.

There are two distinct levels of detail in BPDs. The high-level diagrams were designed for each macroprocess and allow to have a global overview of each macroprocess, by identifying the processes and subprocesses, as well as the flow between them. One example of the high-level diagrams is presented in Figure 14.

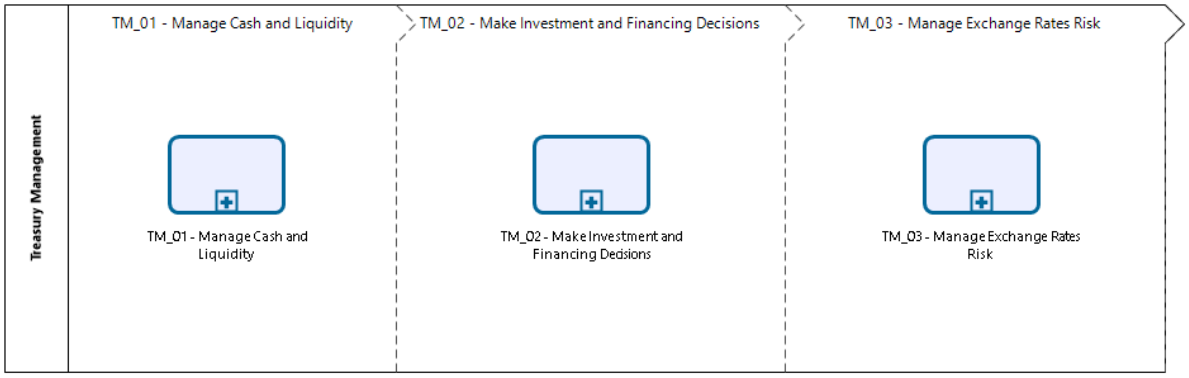


Figure 14 - Example of a BPD for a macroprocess (high-level)

The low-level of details is the process level, and corresponds to the group of activities, events and decision points that lead to the conclusion of each process. There is one diagram for each of the processes mentioned in the previous section. One example of the low-level diagrams is presented in Figure 15.

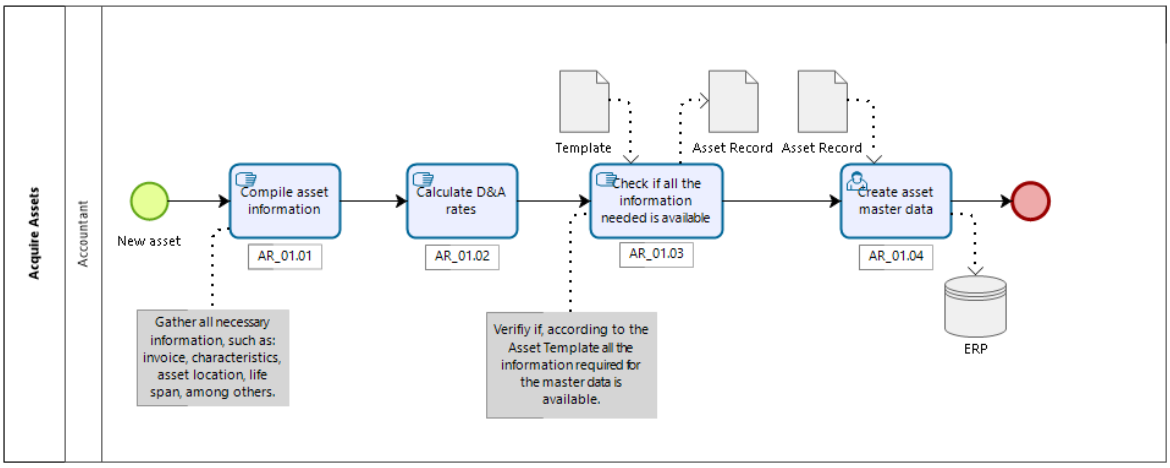


Figure 15 - Example of a BPD for a process (low-level)

4.3 Approach adopted to develop the future state of processes

One of the issues encountered in the analysis and diagnostic performed in the previous chapter was that inefficiencies were being caused by the incorrect definition of processes that preceded the ones performed by the Finance Department and whose inputs had a negative effect in the efficiency of the department. Although the scope of this project did not include the designing of processes that were not performed by the Finance Department, it was decided that some processes would have to be redesigned to guarantee that the inputs to the financial processes were produced correctly.

Consequently, the decision was to adopt an end-to-end approach. End-to-end processes are macroprocesses that deliver a complete functional solution to a certain area of activity. One example of the end-to-end macroprocesses is the Procure to Pay (PP). This macroprocess includes all the activities related to the sourcing of materials and the relationship with suppliers. It starts with the identification of needs to purchase a good/service and its systemization in a Purchase Requirement that, after being approved, is materialized in a Purchase Order. This Purchase Order would be the input for the identification of a supplier and the purchase of the good/service. This good/service would then have to be received and validated to verify if a return was required or if the good/service could be considered received. Finally, the Finance Department would have the responsibility of processing the invoices and the payments to the suppliers. To sum up, the end-to-end approach consists of defining a process from its beginning, that is the identification of a need, all the way to its end, which is the payment to the supplier.

This approach guaranteed that all the steps necessary prior to the action of the Finance Department are performed in the correct way and reducing the need to perform nonvalue adding activities by the department.

The other end-to-end processes considered were Order to Cash, Hire to Retire, Acquire to Retire and Record to Report. These macroprocesses will be addressed below.

Apart from the end-to-end processes, some other processes were considered to complete the activity of the department.

The overview of each macroprocess considered along with the best practices identified for each one is presented in the next sections. Moreover, for each macroprocess the expected impact of the new state of processes will be explained.

4.3.1 Procure to Pay (PP)

The macroprocess Procure to Pay includes all the activities related to the purchase of goods/services to suppliers. It begins with the identification of a need for a purchase, that will be assessed through a Purchase Requirement (PR). The PR, if approved, will be transformed into a PO, that will be the document needed to make the purchase. The good/service will be received and confirmed against the PO, to verify that no returns or adjustments are needed. This activity originates a Goods Receipt processed in the ERP. Finally, the invoice will be received and processed by the Finance Department, that concludes the process by making the payment to the supplier.

The BPD of the Procure to Pay macroprocess is available in Figure 16, while the processes and subprocesses that constitute this macroprocess are listed in Table 2. The BPDs of the PP macroprocess are available in Appendix O.

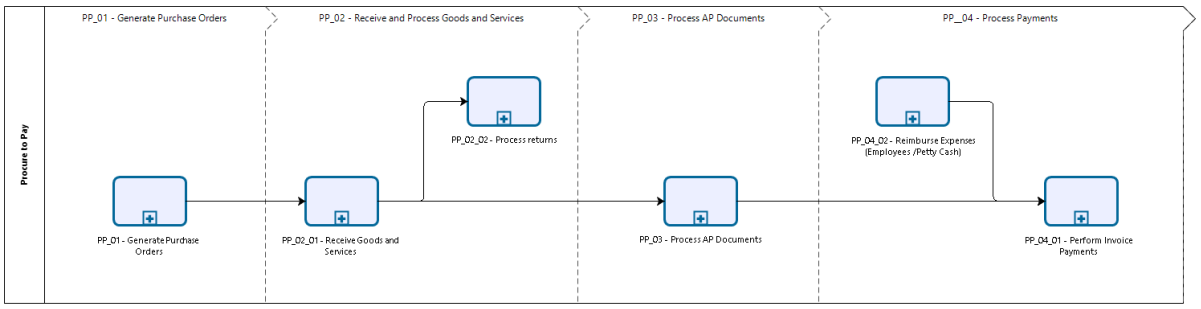


Figure 16 - Overview of the Procure to Pay (PP) macroprocess

Table 2 - List of processes and subprocesses in Procure to Pay (PP)

Code	**Process**	**Subprocess**	**Owner**
PP_01_01	Generate Purchase Orders	-	Office
PP_02_01	Receive and Process Goods and Services	Receive Goods and Services	Office
PP_02_02	Receive and Process Goods and Services	Return Goods	Office
PP_03	Process AP Documents	-	Junior Accountant
PP_04_01	Process Payments	Process Invoice Payments	Junior Accountant
PP_04_02	Process Payments	Reimburse Expenses (Employees /Petty Cash)	Junior Accountant

Finally, during the design of the processes there were considered some actions that improve the performance of the process which will be listed below. An analysis of the impact of the new processes in this macroprocess is also performed in the end of this section.

Best practices:

- Purchasing objectives, strategies and plans established to ensure continual review and improvement;
- Agreements for most goods and services developed with a fewer number of suppliers;
- Accountability for data accuracy and compliance at source, reinforced with front end controls;
- Low value/high volume items to be directed through an E-procurement system or Purchasing card (P-card);
- Purchase Orders (PO) to be raised for all other purchases with only limited exceptions allowed;
- Clearly define what are the exceptions for POs;
- Self-approval for purchases below a predetermined limit settled according to business requirements;
- Define value limits for self-approval, quotation from one supplier and from more than one supplier;

- Queries, approvals and 2-way match managed electronically using workflow and scanned invoices, so that no paper documents are used;
- Elimination of all paper orders, invoices and cheque requests;
- Maximize use of self-billing for direct spend;
- Low-cost payment methods;
- Web based inquiry tools for all internal users and suppliers.

Expected impact:

The Procure to Pay was the macroprocess from which more inefficiencies arise. It was identified that the procurement area, mainly in what concerned the purchase and reception of goods in the warehouse were being performed in a low standardised way, using manual Purchase Orders to make purchases and without any control of the entry of materials in stock. The impact of this and other problems in this process was felt in the complexity of some accounting procedures, mainly in the period end procedures, whose lead time increased significantly due to the need to correct documents that were not filled out or that had incorrect data.

The new processes address this issue by making it mandatory to use the ERP in all the tasks related to procurement. Firstly, filling in the Purchase Request will be performed in the system, that will transform the request in Purchase Order once the purchase is approved (in system, as well) and the specifications of the purchase are all filled in the request. Any unapproved purchase or Purchase Order that does not meet the process' requirements will be blocked.

By guaranteeing these actions, the documents will arrive to the Finance Department in a timely manner and with the correct information. Consequently, when performing the accounting procedure to close the period there will be a significantly lower amount of corrections to perform, and the time it takes to perform this activity will be significantly reduced.

Moreover, if the Goods Receipt are filled in correctly and in the system there will be a better match between the inventory count in the system and the real one, which allows a more accurate valuation of inventory, that will be essential to create management information that will be ready to be used with a higher degree of trust from the managers.

To sum up, the short-term impact on the Procure to Pay is a drastic reduction of *adhoc* documents and incorrections. This will reduce considerably the lead time of some processes in the Record to Report macroprocess. There will exist a stricter control of the purchases made, what will have an impact on tracking the budget and guaranteeing that it is not surpassed.

4.3.2 Order to Cash (OC)

The Order to Cash (OC) macroprocess is a customer-oriented group of processes which includes all the selling related activities. The first part of the macroprocess deals with the acquiring of new clients, including the commercial activities necessary to acquire a new customer, the approval of new customers and their registry in the Credit Insurance Company. The first half is concluded when a new contract is signed and, consequently, a sale is made.

The second half of the macroprocess relates to billing and collecting payments. The sale made needs, firstly, to be billed and the invoice needs to be delivered to the customer. This macroprocess will also deal with client's open balances, by performing the collecting actions necessary to retrieve the amounts in debt. In extreme cases of non-payment, the disputes will also be addressed in the macroprocess. Finally, this macroprocess will also be responsible for managing and processing payments received.

The BPD of the OC macroprocess is presented in Figure 17, while the list of processes and subprocesses that constitute this macroprocess are available in Table 3. The BPDs of the OC macroprocess are available in Appendix P.

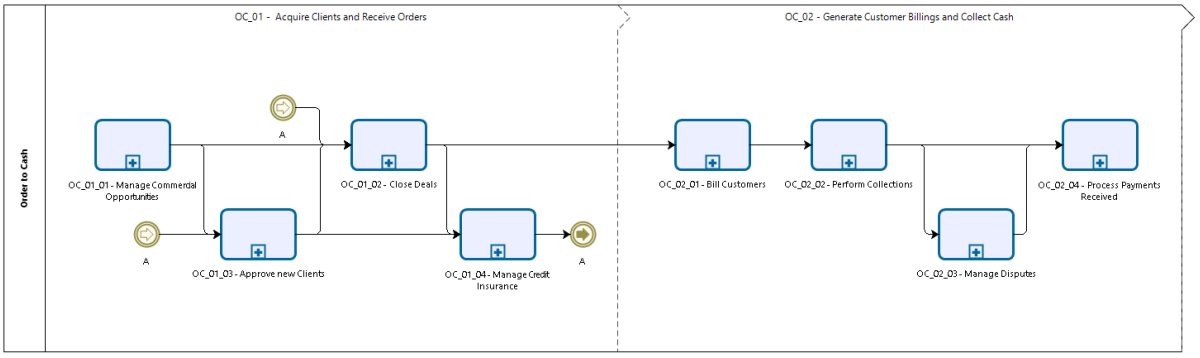


Figure 17 - Overview of the Order to Cash (OC) macroprocess

Table 3 - List of processes and subprocess in Order to Cash (OC)

Code	Process	Subprocess	Owner
OC_01_01	Acquire Clients and Receive Orders	Manage Commercial Opportunities	Business Development
OC_01_02	Acquire Clients and Receive Orders	Close Deals	Business Development
OC_01_03	Acquire Clients and Receive Orders	Approve new Clients	Business Development
OC_01_04	Acquire Clients and Receive Orders	Manage Credit Insurance	Credit Analyst
OC_02_01	Generate Customer Billings and Collect Cash	Bill Customers	Head of Finance
OC_02_02	Generate Customer Billings and Collect Cash	Perform Collections	Mid Accountant
OC_02_03	Generate Customer Billings and Collect Cash	Manage Disputes	Mid Accountant
OC_02_04	Generate Customer Billings and Collect Cash	Process Payments Received	Junior Accountant

Finally, during the design of the processes there were considered some actions that improve the performance of the process which will be listed below. An analysis of the impact of the new processes in this macroprocess is also performed in the end of this section.

Best practices:

- Connect to customer and supplier processes and minimise non-value-adding activity;
- Standardise process except where differentiation is necessary to match customer capabilities;
- Automate as far as possible within an agreed framework (prices, product and service entitlement, lead-times);
- Manage by exception and manage-down exceptions;

- Set pricing to encourage customer behavior driving supply chain costs down;
- Capture fulfilment data giving insight into the cost-to-serve of different accounts;
- Allocate responsibility for data quality to users within the Client's wide data management framework;
- Maximize cash-flow and its predictability.

Expected impact:

One of the issues found in the Order to Cash macroprocess was the duplication of work, due to the high number of intervenients in some of its processes. The company was currently involving four people in the process of collections, which leaded to inefficiencies in the process, that made the process less effective.

Furthermore, the company has a very specific method of invoicing and revenue recognition that is not structured. Currently, the company treats each invoice individually and every contract has its own specifications, which results in the responsibility for invoicing being centralized in the CFO. This fact constitutes a risk for the company since if the CFO is unavailable or leaves the position, there is no replacement that can perform these tasks in the short-term.

In order to address these issues, there were defined functions that should be attributed to people by the CFO. For example, the process of collections will be performed by the person that is attributed the responsibility of Collection Agent. This person will have the responsibility for the process entirely, having only the support of the CFO for managing complex, out of the ordinary situations. In the short-term this will lead to a shorter lead time in the development of this process and the collection actions will be more effective since all the information will always be concentrated in one person. If this person is not available, the standardised process is well defined and, consequently, a new person can be assigned to this function without the loss of productivity.

Regarding the process of invoicing, it was decided to split the type of invoices in three major types. Every contract will the fall into one of these categories and it was possible to define a standardised the procedures for invoicing sales orders from the three different categories. Furthermore, the process was attributed to a function (AR Processor). Even if the CFO prefers to keep these functions in the short-term, it is possible to have a standardised procedure that can be passed on to an employee in the case that the CFO does not have availability to dispose time to this function.

To sum up, the main impacts in the Order to Cash were the elimination of the duplication of tasks in the process of collections, which will lead to a shorter lead-time and a more effective collection of debts. Secondly, the process was standardised to allow the responsibility for each function to be passed on without implications in the productivity.

4.3.3 Acquire to Retire (AR)

The Acquire to Retire (AR) macroprocess encompasses all the activities related to the management of assets. It is divided into 3 main stages. The first stage relates to the activity of registering the newly acquired assets in the system, along with all the relevant information for asset characterization. The second stage includes all the activities necessary to maintain the asset record updated, both in count and in value, this includes periodically validating system's asset inventory against the physical inventory and updating the value of assets either through depreciations or revaluations. Finally, the third stage includes the activities related to retiring an asset.

The BPD of the AR macroprocess is presented in Figure 18. The complete list of processes and subprocesses is provided in Table 4. The BPDs of the AR macroprocess are available in Appendix Q.

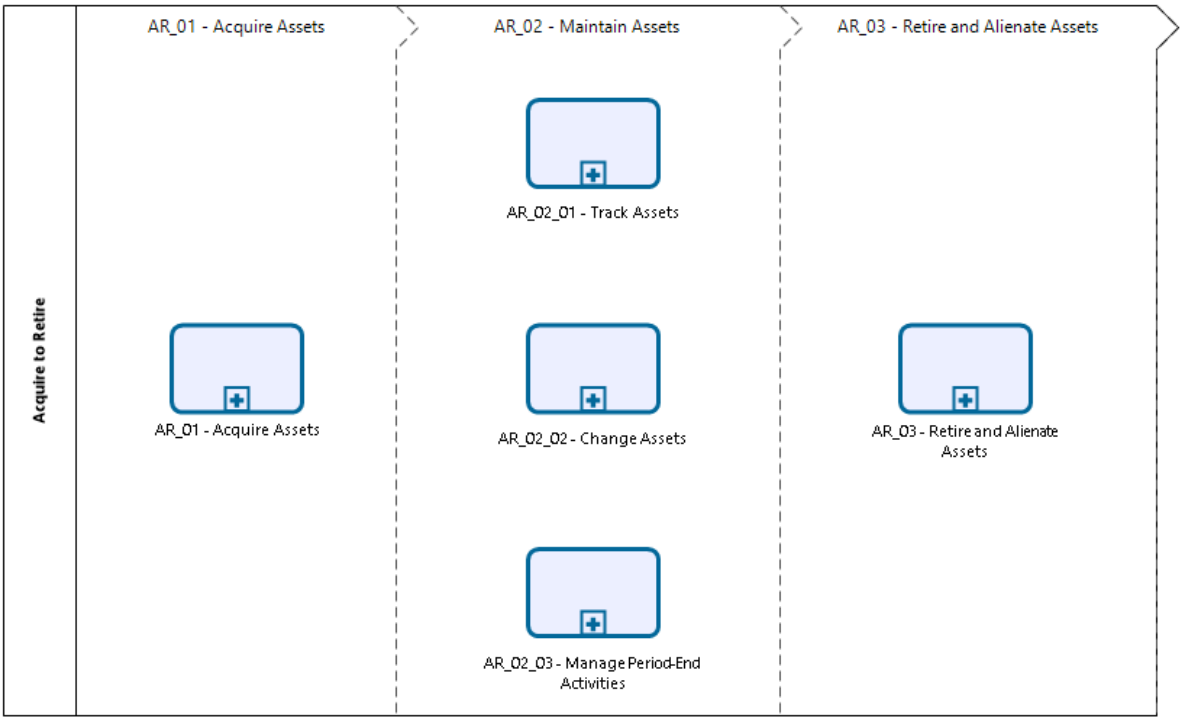


Figure 18 - Overview of the Acquire to Retire (AR) macroprocess

Table 4 - List of processes and subprocesses in Acquire to Retire (AR)

Code	Process	Subprocess	Owner
AR_01	Acquire Assets	-	Senior Accountant
AR_02_01	Maintain assets	Track Assets	Senior Accountant
AR_02_02	Maintain assets	Change Assets	Senior Accountant
AR_02_03	Maintain assets	Manage Period-End Activities	Senior Accountant
AR_03	Retire and Alienate Assets	-	Senior Accountant

Finally, during the design of the processes there were considered some actions that improve the performance of the process which will be listed below. An analysis of the impact of the new processes in this macroprocess is also performed in the end of this section.

Best practices:

- Automate fixed asset capture, monitoring and accounting;
- Create a template that comprises all information needed to gather regarding the asset in order to create the asset's master data;
- Define when can the inventory differences be approved, or when it is necessary to recount the assets;
- Define in what circumstances should the asset master data be modified.

Expected impact:

In this process, similarly to what will be described below in the analysis of the Record to Report macroprocess, one of the main issues encountered was that the Senior Accountant was performing internally some tasks that were also being performed by the external accounting firm. This is not efficient since the Senior Accountant could be using its time for an activity that is more useful for the company.

The new processes guarantee that there is no duplication by assigning the responsibility of each activity to the correct person. The process considers the internalization of Asset Management; however, it is adaptable to a situation in which the company decides to outsource this area.

Another impact of the new processes in this project will be the better control of the asset count, since it is guaranteed that the acquiring, maintaining and disposing of assets is made in the most correct way possible. This will guarantee the match between the system's asset count and the reality.

4.3.4 Hire to Retire (HR)

The Hire to Retire (HR) is an end-to-end macroprocess that includes all the employee related activities from the recruitment to the exit of the company. However, in the scope of this dissertation only the process HR_01 - Process Payroll is included. This process relates to the activities that lead to the payment of salaries to employees.

The BPD of this macroprocess is presented in Figure 19. The process that constitutes this macroprocess is also presented in Table 5. The BPDs of the HR macroprocess are available in Appendix R.

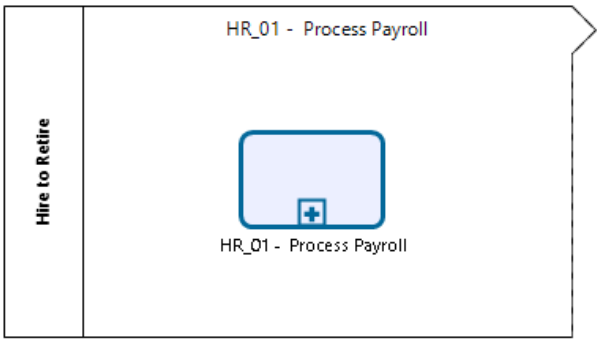


Figure 19 - Overview of the Hire to Retire (HR) macroprocess

Table 5 - Detail of process in Hire to Retire (HR)

Code	Process	Subprocess	Owner
HR_01	Process Payroll	-	Senior Accountant

Finally, during the design of the processes there were considered some actions that improve the performance of the process which will be listed below. An analysis of the impact of the new processes in this macroprocess is also performed in the end of this section.

Best Practices:

- Have one database for employee information;
- Have a monthly submission of holidays and overtime;
- Centralize the payroll processing activities in one person;
- Create a platform for payroll/HR inquiries;
- The development of the tax plan should be according to the country legislation in order to minimise taxes and optimize payments;
- Define a template for tax statements.

Expected impact:

Currently, this process is not being well coordinated by the company and the external accounting firm. There are some tasks that are being performed internally that should not be. Moreover, the definition of the payroll amounts is done based on notes taken by 2 people in a tool of their choice. This is propitious to making mistakes.

In the new processes, the responsibilities are better defined, and it is guaranteed that all the payroll related data is stored in the correct tool. Consequently, there will be a less tendency for incorrections.

However, this process was not considered problematic and its current performance was not a concern for the client.

4.3.5 Record to Report (RR)

The Record to Report (RR) macroprocess includes all the activities from booking in the ERP the accounting transactions to comply with financial accounting rules and procedures through the analysis of profitability.

This macroprocess starts with the period-end and year-end accounting procedures necessary to close the period. This includes booking all transactions necessary both in financial and in management accounting, culminating in the production of the Financial Statements provided by the ERP. The information provided by the ERP will be the input for reviewing the information recorded in the analytical accounting by the cost/profit centre responsible and the CFO. Finally, when the information is validated, the Management Reports that support decision making from management activities are produced. Moreover, in this macroprocess are included the activities of creating the company's annual budget, along with its regular monitoring.

Another objective of this macroprocess is the compliance with legal obligations, such as the production of VAT Reports.

Finally, the RR macroprocess culminates with a periodical review of the profitability analysis by client and by product.

The BPD of the RR macroprocess is presented in Figure 20. The list of processes and subprocesses that constitute this macroprocess is provided in Table 6. The BPDs of the RR macroprocess are available in Appendix S.

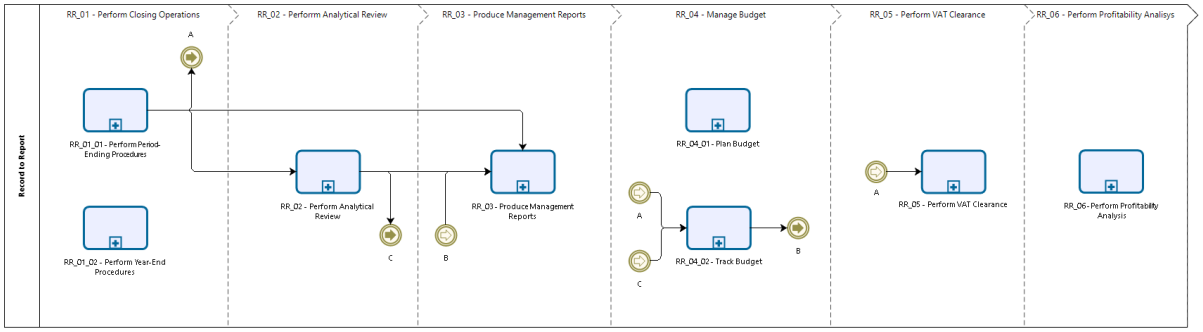


Figure 20 - Overview of the Record to Report (RR) macroprocess

Table 6 - List of processes and subprocesses in Record to Report (RR)

Code	Process	Subprocess	Owner
RR_01_01	Perform Closing Procedures	Perform Period-Ending Procedures	Senior Accountant
RR_01_02	Perform Closing Procedures	Perform Year-End Procedures	Senior Accountant
RR_02	Perform Analytical Review	-	Management Control
RR_03	Produce Management Reports	-	Management Control
RR_04_01	Manage Budget	Plan Budget	Head of Finance
RR_04_02	Manage Budget	Track Budget	Head of Finance
RR_05	Perform VAT Clearance	-	Senior Accountant
RR_06	Perform Profitability Analysis	-	Head of Finance

Finally, during the design of the processes there were considered some actions that improve the performance of the process which will be listed below. An analysis of the impact of the new processes in this macroprocess is also performed in the end of this section.

Best Practices:

- Centralize and standardise general accounting and treasury activities including general ledger, fixed assets, intercompany accounting, external financial reporting, cash management and foreign exchange;
- Integrate systems and compliance across the whole company;
- Emphasize source accountability for data accuracy;
- Focus on process improvement and error reduction by understanding when and where errors occur;
- Maximize use of automatic journals and auto posting, eliminating spreadsheets and manual entry;
- Reduce the volume of reports produced and target information towards relevant users by using a balanced scorecard approach to assess performance;

- Establish Service Level Agreements between the transaction processing centre with divisions and report on key performance indicators.

Expected impact:

The Record to Report macroprocess encompassed the issues mentioned in the analysis of the Procure to Pay. The accounting procedures to close period were taking a long time to conclude derived from the lack of quality from the inputs that were supplied by the precedent processes. This situation was aggravated by the lack of definition of responsibilities between the company and the external accounting firm. Most of the functions that were being outsourced, were also performed internally, which led to a duplication of tasks that does not add any value to the company.

Furthermore, the lack of defined procedures from the antecedent processes led to the supply of documents with errors that will create incorrect data. The reporting of management information is one of the most important outputs of this process, and the lack of quality of the data were reducing its benefit for the management. Moreover, the reports were being shared with the CEO, President and other relevant people around 60 days after the finish of the period, and so the information lost much of its importance since it is not updated anymore.

To address the first issues mentioned, the end-to-end approach was implemented to guarantee that the information reaches this process as accurately as possible and in a timely manner. It was also defined that a strict cut-off date should be defined to guarantee that the end of period procedures are performed when they are supposed to.

Although it was considered that all activities were performed internally, as explained in section 4.1., it was developed a document that allowed the company to take an informed decision on the functions it wants to outsource. In the processes it was also pointed out which functions can be outsourced to guarantee that the company does not perform any activities that are not from its responsibility and/or do not add value. The terms of the contract from the accounting provider in the case of outsourcing should guarantee that the information necessary to conclude the management reports are performed in time.

The management reports will also be improved by the measures mentioned above, since the quality of the data will improve considerably and will be supplied with much less delay then happens currently. It was also addressed the fact that the reporting tools of the company (individual excel according to necessities identified) are not adequate to the best practices in management information reporting. The implementation of a BI Tool to perform the reports and share them will improve significantly the data-driven decision-making process.

To sum up, this process will benefit largely from the new process implementation since it will reduce drastically its lead time and improve significantly the quality of the output.

4.3.6 Treasury Management (TM)

The Treasury Management (TM) macroprocess manages all the cash related activities. The first and main process of TM relates to the recording and control of day-to-day transactions, by controlling bank statements and recording the transactions in the ERP. Secondly, this macroprocess includes predicting the cash requirements of the company, by identifying short-term requirements and assessing the need for extra financing or the capability for performing investments with unassigned balances. Finally, since the company operates in more than one currency, this macroprocess includes the activities of controlling the exchange rates and the balances in each currency account to mitigate the risk from financial market's volatility.

The BPD of the Treasury Management (TM) macroprocess is provided in Figure 21, while the list of processes that are included in it are presented in Table 7. The BPDs of the TM macroprocess are available in Appendix T.

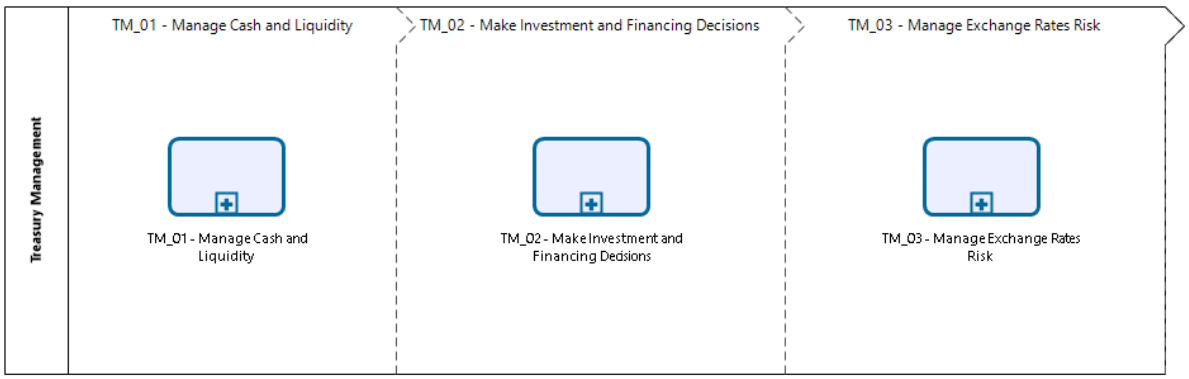


Figure 21 - Overview of the Treasury Management (TM) macroprocess

Table 7 - List of processes in Treasury Management (TM)

Code	Process	Subprocess	Owner
TM_01	Manage Cash and Liquidity	-	Financial Controller
TM_02	Make Investment and Financing Decisions	-	Financial Controller
TM_03	Manage Exchange Rates Risk	-	Financial Controller

Finally, during the design of the processes there were considered some actions that improve the performance of the process which will be listed below. An analysis of the impact of the new processes in this macroprocess is also performed in the end of this section.

Best practices:

- Treasury needs to have a complete visibility into bank accounts, cash balances and flows across government through summary reports with drill-down views to the account level;
- Reporting and accountability for KPIs for Cash Forecasting, Cash Management, Investment Management and Debt Management;
- Integrate cash planning into the strategic planning cycle for all ministries;
- Establish a baseline with reference to budget for baseline working capital/cash requirements;
- Like capital investments, develop a project approach to forecast cash/working capital requirements;
- Develop a working capital cost approach to evaluate investments where large cash requirements are needed, and balance the costs against service level outcomes for the government and taxpayers;
- Identify financial exposures above a defined level of materiality on a government-wide basis;
- Develop a global exposures model to identify internal offsets, enable cost/benefit & effectiveness measurement of hedging, assess performance against a passive (no hedging) benchmark;
- Document experience & performance through a structured dashboard;

- Develop a baseline for weekly cash outlays with transparency centrally across all ministries;
- Seek to reduce cash "buffers" with good, timely information and effective forecasting;
- Consolidate aggregate excess cash into efficient debt reduction or short-term investments keeping in mind legislation and policies for cash management;
- Follow a structured cash release strategy based on when spend needs to occur;
- Automate cash release and accounting to the extent possible.

Expected impact:

One of the comments provided by the client regarding the process of managing treasury was, quoting, "We do not trust the Cash Flow information from the ERP". This happened because the country managed its daily cash flow in an Excel document used to record and classify the day-to-day transactions. This is not a good practice since it takes a lot longer that recording in the ERP since is a manual task. Apart from the time it takes, it is much more propense to errors and does not supply the ERP with the necessary information to be able to automatically export the financial statements.

To address this issue, the focus in the new processes was to guarantee that the recording of the treasury transactions is performed in the ERP.

This will have a positive impact in the company since it will have much better control of the classification of transactions and the information will be prepared for being supplied to the reporting processes.

4.3.7 Master Data (MD)

The Master Data (MD) macroprocess includes all the activities related to the management of the master data in the ERP. It is divided in five processes and each one relates to a category of master data: banks, chart of accounts, business partners, materials and cost/profit centres.

Each process includes the activities of creating or modifying master data with the required approval workflow. Furthermore, except for the chart of accounts and the cost/profit centre master data, each process includes a subprocess that enables the removal of outdated master data, in order to keep the system updated and clear of unnecessary accounts.

The BPD of the MD macroprocess is presented in Figure 22, while Table 8 provides the list of processes and subprocesses that constitute this macroprocess. The BPDs of the MD macroprocess are available in Appendix U.

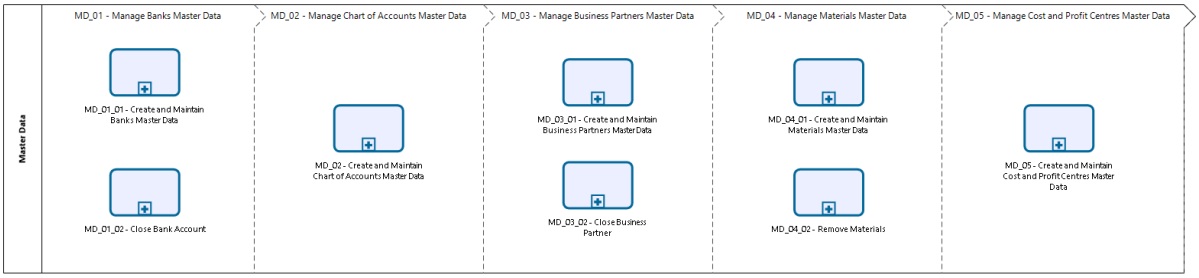


Figure 22 - Overview of the Master Data (MD) macroprocess

Table 8 - List of processes and subprocesses in Master Data (MD)

Code	Process	Subprocess	Owner
MD_01_01	Manage Banks Master Data	Create and Maintain Banks Master Data	Finance
MD_01_02	Manage Banks Master Data	Close Bank Account	Finance
MD_02_01	Manage Chart of Accounts Master Data	Create and Maintain Chart of Accounts Master Data	Finance
MD_03_01	Manage Business Partners Master Data	Create and Maintain Business Partners Master Data	DM Team
MD_03_02	Manage Business Partners Master Data	Deactivate Business Partners	DM Team
MD_04_01	Manage Materials Master Data	Create and Maintain Materials Master Data	DM Team
MD_04_02	Manage Materials Master Data	Deactivate Materials	DM Team
MD_05_01	Manage Cost and Profit Centres Master Data	Create and Maintain Cost and Profit Centres Master Data	Controlling

Finally, during the design of the processes there were considered some actions that improve the performance of the process which will be listed below. An analysis of the impact of the new processes in this macroprocess is also performed in the end of this section.

Best practices:

- Implement single chart of accounts across the whole company;
- Create templates for all master data, clearly identifying the information needed;
- Define responsible people for approving the creation of master data;
- Create rules for the names and numbers of all master data in order to uniformize the data.

Expected impact:

The last macroprocess considered in the future operating model was one in which it was also identified issues that were prejudicing the department's performance. The company had no control on the introduction of Master Data in the ERP, and, consequently, it encountered frequently incomplete data in the ERP from missing Master Data.

This fact had an especially negative effect in the VAT Clearance, since the VAT codes were regularly wrong and needed to be corrected in every invoice issued. The Senior Accountant had to perform corrective procedures in order to supply the correct invoice data to the VAT Report.

The solution found for this issue was the development of templates and approval workflows to guarantee that the information introduced in the ERP is correct and accurate and that it will not have to be modified in a regular basis. The definition of mandatory fields in the ERP was another measure suggested to guarantee that missing data does not cause potential incorrections in the recording of transactions.

Lastly, it was also introduced mechanisms that guarantee that the master data is at all time updated and clean of unnecessary records.

4.4 Effective implementation of the future state of processes

No matter how good the set of new processes is, the company will not receive the benefits if the implementation is not addressed carefully. The implementation should follow a long-term plan that include the steps necessary for a smooth integration of the processes in the company's routine without disrupting operations in the short-term and without causing discomfort to the employees that are used to their ways of operating.

This section will address briefly the next steps that the company needs to follow to effectively implement the new operating model in order to take the most out of the realization of this program.

The first issue addressed will be change management, by stipulating what factors will minimise the inertia from the actors to the new procedures. Secondly, the roadmap for implementation that was provided to the company as a guideline for the actions to perform in the next months will be briefly described. Finally, the support provided to the company in the decision of the Business Process Outsourcing (BPO) model to be adopted will be described.

4.4.1 Managing change in an organization

One of the main challenges when implementing transformation programs in the organizations is the inertia inherent to the human being that opposes changes in routines. This is an irrational feeling held by every person and that constitutes one of the biggest adversities when trying to implement improvement measures. Consequently, it is also part of an improvement project to support implementing and managing change within the organization.

In order to minimise the inertia mentioned above, there are several pillars of change management that need to be carefully addressed to make the implementation of changes as smooth and effective as possible. These pillars will be approached individually below (Sousa, 2013).

1. "At all times involve and agree support from people within system"

Organizations are made of people and so people are the main source of success and unsuccess in any company. Avoiding inertia to change should be taken into consideration throughout the project by keeping people involved and allow everyone to contribute to the changes that will be implemented. This provides the time for the employees to get used to the change environment and to feel an ownership of the changes implemented. This pillar was addressed specifically during the interviews performed with all people from the Finance Department, showing that the main concern of this project was to make their job easier and allowing them to have the opportunity to share their opinions and insights about the subject.

2. "Understand where the organisation is at the moment"

There is a tendency when performing transformation projects to try to apply to every company the same standardised approach. This is done by using best practices benchmarks and directly apply them to the company. This can be a source of problematic situations since every company is different and the company's needs depend deeply on its maturity and specific characteristics.

In this specific case, the company was a small/medium sized company, with a high growth potential and an organic structure typical of tech start-ups. There was a concern to implement a set of future processes that were simultaneously applicable to today's organization but focused on the company's target size. This can cause inefficiencies in the long term since the organic

structure can be very positive in a low maturity company. However, in the long-term keeping this organic nature of organization is utopic and will be chaotic.

To sum up, the processes developed were focused on the company mid term target dimension, but with the concern of making it applicable to today's organization and allowing time to the employees to slowly adapt to these processes.

3. "Understand where you want to be, when, why, and what the measures will be for having got there"

Change is particularly difficult when people fail to understand that something is not right. That is why the first step in the project was to understand why the company needed change and to make sure that the need for change was unanimous in the organization. This need to change combined with the analysis of the company's vision, strategy and long-term objectives were the path to understanding what needed to be done in order to get closer to the desired goals. People embrace the change when they can feel the potential result it can bring.

4. "Communicate, involve, enable and facilitate involvement from people, as early and openly and as fully as is possible"

Change management walks always side by side with communication strategy. There is no better way to resolve any issue than to effectively communicate. This is the reason why in the implementation of the project it is necessary to develop a communication plan to guarantee that there is an environment of transparency and honesty while the project is being implemented. People feel safer when they know what to expect, and there should always exist a two-way communication channel to allow for everyone to address their issues with the proper person and make sure that everyone feels comfortable with the changes implemented.

Change management is a very complex subject and involves a meticulous plan to optimize the implementation of any change. However, if these four pillars are the cornerstone of the plan, it is a big step towards the success in the implementation.

4.4.2 Roadmap for implementation

The implementation of a finance transformation is a long-term activity that needs to be planned and require that a series of steps is correctly performed before the use of the new state of processes becomes part of the company's routine. The definition of these steps was the last stage in project. The series of steps will be detailed in this section.

Before starting to use the processes, the company will have to resolve some issues that it has pending. The first issue is completing the spinoff mentioned in section 4.1., in order to be able to focus in the value adding activities for the Tech business unit. This activity is expected to be completed during the summer of 2020.

Furthermore, the company will also have to decide which processes to outsource. This decision can be supported by the information provided in section 4.5.3. This decision is relevant because it will require some alterations in the processes (that were already anticipated). These modifications consist mainly of changing the responsible for a certain set of activities within some processes from an internal person to the external firm. Some processes may even become obsolete if their responsibility becomes exclusively of the accounting firm. The definition of the BPO model will be completed when the provider is chosen, the terms of the contract agreed, and the contract signed. The contract will contemplate the processes that are now responsibility of the external accounting firm, along with the service levels that the provider is expected to deliver.

After this decision is taken, the company has the conditions to decide what ERP/systems it will need to purchase to perform its activity. This is particularly important in a Finance Department since the ERP is the cornerstone of all the department's activity. In this decision the trade-off

between the cost of the ERP and its capabilities will have to be weighted due to the high investment necessary to purchase and implement an ERP. The implementation of the chosen ERP requires also careful attention since it needs to be adjusted to the company's needs and its setup needs to be effective to avoid future issues. The implementation will be completed with the User Acceptance Tests, which validate that the system is ready to use, without errors and adapted to the company's requirements.

Finally, when all these steps are concluded, the company can begin at 100% its operations with the new processes, ERP and BPO model. This sequence of ordered steps does not invalidate that some processes that are not restricted by the decisions that still need to be made can start being implemented to make the implementation process smoother.

4.4.3 Business Process Outsourcing (BPO)

As mentioned in the previous section, the company has some important decisions to make before the new processes can be fully implemented. One of these decisions is the decision of the BPO model to follow. This decision is divided into two main challenges: decide what activities to outsource and decide what provider to hire.

Although this decision is internal and must be performed by the CFO and the top managers of the company, some support documents were developed to support the decision-making process.

In order to address the first issue, the support provided was by identifying clearly what activities can be outsourced and what activities should be kept internally. This definition was made in parallel with the design of the BPDs, since it was necessary to identify which activities would alter its owner in case it got outsourced. This identification allowed, on one hand, to make the processes adaptable to any decision made by the company's management, and, on the other hand, to support the managers when defining what activities to outsource.

The choice of the provider to which should be outsourced the activities is also a decision that needs to be made internally due to the degree of commitment and the investment required. Even so, there were defined a set of criteria to help the managers compare and evaluate the different providers contacted by the company. The indicators proposed are the following:

- Responsiveness: implement requests for new services and modifications to existing services in a timely manner;
- Knowledge of management staff: depth and breadth of industry and client specific knowledge of supplier management staff including, bringing new transformative ideas to enhance customer service;
- Delivery on commitments: delivery of all promised services in a consistent/timely manner, including compliance to SLA terms, meet cost/productivity improvement targets and implement corrective actions agreed on;
- Business knowledge of agents: agent knowledge on client specific products and services;
- Transformation initiatives: ability of the supplier to propose and deliver on transformation projects that can enhance customer service, while reducing costs;
- Account team: responsiveness of the account team to requests/questions/comments from management/customer service centres; level/quality of communication and information sharing; and collaboration on value creation/sharing;
- Seasonality: ability to handle seasonal fluctuations within short notice;
- Transition: ability to plan and support a timely and seamless transition of service;

- Infrastructure leverage: ability to ensure proper integration / availability of systems for infrastructure usage.

In order to make a quantitative comparison between the providers, it was proposed different weights to each criterion that should be adapted according to the company's providers. The utilization of quantitative measures in the process of decision-making is an important step to make an effective choice. The quantitative result of the provider will then be traded off against the quote proposed by the provider to the company.

5 Conclusions and future work

The project presented in this dissertation aimed to improve the organizational structure of the financial function of a company, by developing a set of processes that defined the way the company should operate its financial function and adjacent functions that produced inputs to the financial processes. The client had the organic structure typical of a startup and had the need to create the organizational backbone to sustain its long-term high growth potential.

Furthermore, the company suffered from inefficiencies on the processes, mainly concerned with the underutilization of its Enterprise Requirements Planning (ERP) software that caused several different issues. The first one worth mentioning is that the lack of accurate information in the ERP, mainly from Procurement processes, led to a significant increase in the lead time of the accounting procedures, namely the end of period procedures. Consequently, the information supplied by these processes was being delivered to the managers with an average of 60 days delay. This delay was having implications in the decision-making process since the managers had not all the information necessary with quality and in a timely manner to support their decisions.

Secondly, the company lacked control mechanisms in its processes, since there was a low standardisation of procedures and the knowledge was centralized exclusively in the responsible for each activity. For this reason, the shareholders were doubtful about the trustworthiness of the processes being developed and of its outputs. To aggravate this situation, the lack of work instructions and the difficult in sharing knowledge makes the replacement of any employee difficult, which constitutes a risk for the company.

In order to address the issues felt by the client, a BPM project based in the *PwC Transform*® framework was developed. In the diagnostic stage, it was possible to have a global overview of the company's functional model, while taking a deep dive in the daily routines of the Finance Department's players. There was a focus to include everyone from the department in this stage in order to cultivate the predisposition to change in the people and to involve them in the brainstorming of issues and improvement opportunities. The design of the *As-Is Model* allowed a clearer vision of the operational activities of the department and was a guarantee that the analysis performed was aligned with the perspective of the CFO. From this stage, emerged the main improvement opportunities that should be addressed in the conceptualization of the *To-Be Model.*

The design of the future processes was a consequence of the issues identified in the diagnostic stage and was performed according to the market's best practices. These new processes provide the structural organization the company was lacking to sustain its high growth prospects, while making the company as efficient as possible to guarantee its long-term competitiveness. The set of processes is a comprehensive end-to-end approach of the Finance Department's core activities and the adjacent activities that have an impact on the performance of the department. It is important to highlight that, as explained in section 2.1.3, a BPM project is a never ending activity that should always be monitored and updated in order to sustain the continuous

improvement mentality that needs to be part of the identity of any company that desires long-term sustainable success.

Finally, the next steps the company must perform in order to activate the full potential of the processes developed is the implementation of the new operating model. Implementing change in a company is a challenge due to the discomfort it causes in the employees, that are already used to their routines and their procedures. However, following the roadmap provided and addressing change management carefully will guarantee the smooth implementation of the new operating model, that will bring a positive impact in the company's impacts.

Overall, the impact of the project will be felt by the company in the long-term since it will provide with the organizational backbone needed to grow and evolve sustainably, without feeling the pain associated with high growth and with the loss of the flexibility characteristic of a startup. The company will also feel an upgrade in the quality of the information it produces in the Finance Department, increasing significantly the quality of its Management Reports. A decision-making process sustained by solid data is believed to be more accurate and effective that if data is not part of the equation, and so the company will benefit from this increasing quality in management decisions.

In a short/medium-term horizon, the company will feel some pain derived from the need to adapt to the new procedures and new mechanisms, but this pain will be relieved by an increased operational productivity originated from the minimisation of the issues encountered during the diagnostic. The company will reduce the lead-time of some of its activities and eliminate other non-value adding activities, which will free time from its resources to focus on other activities that have a bigger impact on the company's performance. After the spin-off and according to the BPO model chosen, the company can also have cost reductions derived from a better allocation of resources, both human and software.

Looking further into the future, it is also important to highlight some opportunities that the company can assess in order to continue improving once the project described in this dissertation is implemented and fully operational. The first subject that the company should evaluate in order to enhance the benefits that the data production of the company will feel from this project is the implementation of automated Dashboards and other visualization solutions to maximize the utilization of the data produced. The company has a newly defined Information Management Model with adequate KPIs and measures that can correctly assess the company's performance. Furthermore, it has the processes defined in order to effectively and in a timely manner produce the information necessary to make the calculations mentioned. In order to take full advantage of these improvements, the company should implement an automated way of collecting, treating and visualizing data, using an adequate BI Tool. This would create a data production process aligned with the best practices in the market.

Secondly, the company should also assess the possibility of using *Robotic Process Automation (RPA)* in its financial function. This is a long-term possibility that could increase the efficiency of the processes by automating some of its most standardised bureaucratic processes. This practice has been a trend in managing financial resources, since the processes from this area are sometimes very standardised and easy to automate. *Bizagi*, the software used to design the BPDs, has a module that allows the automation of processes.

Finally, in the same line as the previous recommendation, the company should assess the benefit from implementing process mining mechanisms in its processes. Process Mining is a set of techniques in the field of process management that enhance the analysis of business processes. It allows the identification of trends and patterns using data mining algorithms that can contribute for the identification of improvement opportunities in its process performance.

To conclude, the company will benefit from the new state of processes in two different horizons. In the short/medium-term the company will benefit from operational improvements and from

the better allocation of resources to increase productivity and, eventually, have some cost reductions. In the long-term, the company will feel a more sustainable growth supported by a more defined structural organization, that will allow it to take full advantage of its growth potential without feeling the pains that come from quick growth. The company should keep a continuous improvement mentality to guarantee that the processes are critically monitored and updated constantly, to keep up with the best practices in process management. Finally, in order to build a sustainable competitive advantage, the company should look at the trends appearing in the market in business process management and information management.

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APPENDIX A: BPMN 2.0 notation

a. Activities

Element	Description	Notation
User Task	Is a typical workflow Task where a person performs the Task with the assistance of a software application.	
Service Task	Is a Task that uses some sort of service that could be a Web service or an automated application.	
Receive Task	Is a Task designed to wait for a message to arrive.	
Send Task	Is a Task designed to send a message. It is used when the task involves sending a document or an email to another person.	
Manual Task	Is a Task that is expected to be performed without the aid of any business process execution or any application.	
Loop	Tasks may be repeated sequentially, behaving like a loop. This feature defines a looping behavior based on a Boolean condition. The Activity will loop as long as the Boolean condition is true.	
Sub-process	Identifies a point in the Process where a predefined Process is used. A reusable Sub-process is called a Call Activity in BPMN. The element has a thick border.	

b. Events

Element	Description	Notation
Start Event	Indicates where a particular Process starts. It does not have any particular behavior.	
Timer Start Event	Is used when the start of a Process occurs on a specific date or cycle time (e.g., Monthly)	
Link Event	This Event is used to connect two sections of the Process.	 Link Throw

		 Link Catch
Timer Event	Indicates a delay within the Process. This type of Event can be used within the sequential flow indicating a waiting time between activities or when activities are only performed at a specific time..	
End Event	Indicates when the Process ends.	

c. Gateways

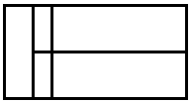
Element	**Description**	**Notation**
Exclusive Gateways	As Divergence: It is used to create alternative paths within the Process, but only one is chosen. As Convergence: It is used to merge alternative paths.	
Complex Gateways	As Divergence: is used to control complex decision points in the Process. It creates alternative paths within the Process using expressions. As Convergence: Allow continuing to the next point of the Process when a business condition becomes true.	
Parallel Gateways	As Divergence: is used to create alternative paths without checking any conditions. As Convergence: is used to merge alternative paths, the gateways waits for all incoming flows before it continues.	

d. Data

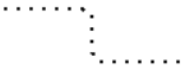
Element	**Description**	**Notation**
Data Objects	Provides information about how documents, data and other objects are used and updated during the Process. They can be inputs or outputs, being that the ones in the left are inputs and the ones in the right are outputs.	
Data Store	Provides a mechanism for activities to retrieve or update stored information. It indicates in which software should the task be performed.	

Annotations	It’s a mechanism for a modeler to provide additional information for the reader to fully understand the process .	

e. Swimlanes

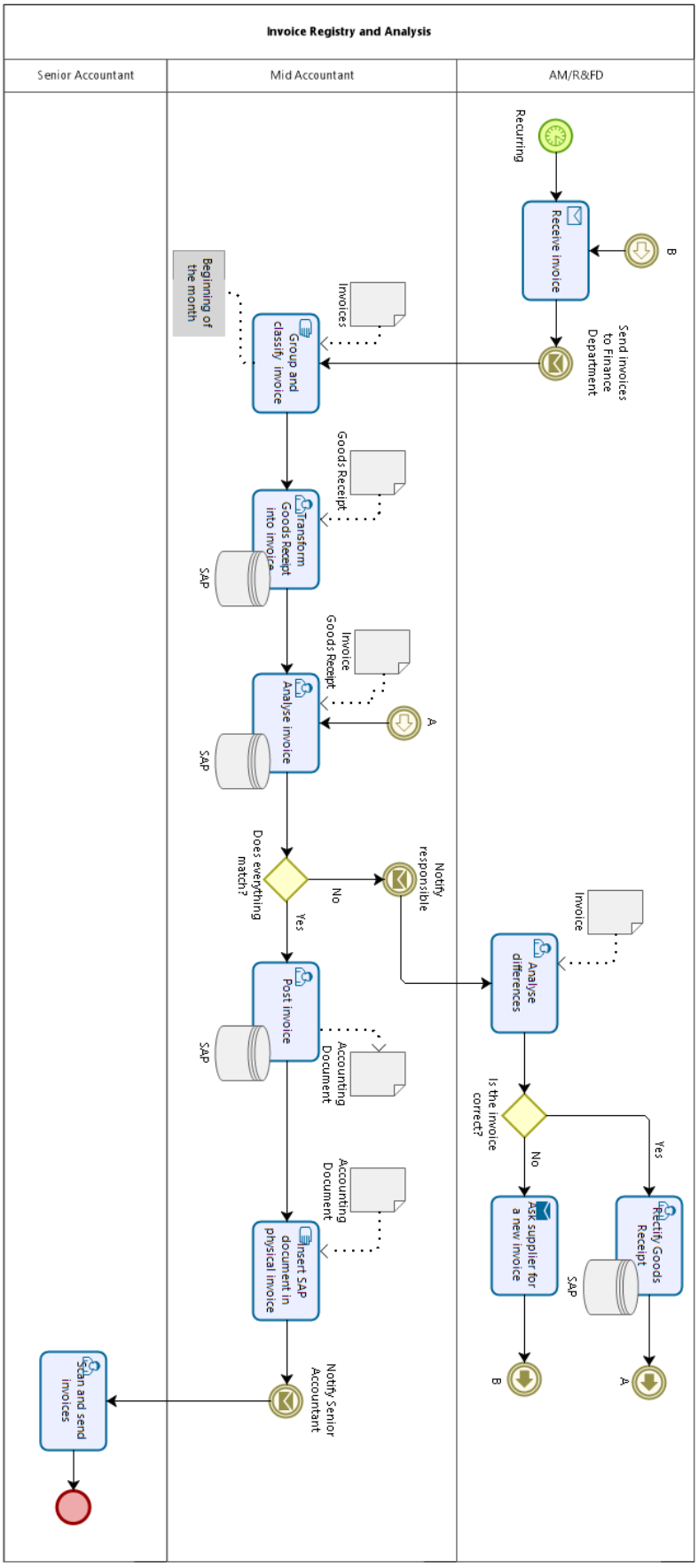
Element	**Description**	**Notation**
Pool	A Pool is a container of a single Process (contains the sequence flows between activities). A Process is fully contained within the Pool. There is always at least one Pool.	
Lane	Is a sub-partition within the Process. Lanes are used to differentiate elements as internal roles, position, department, etc. They represent functional areas that are responsible for tasks.	

f. Connectors

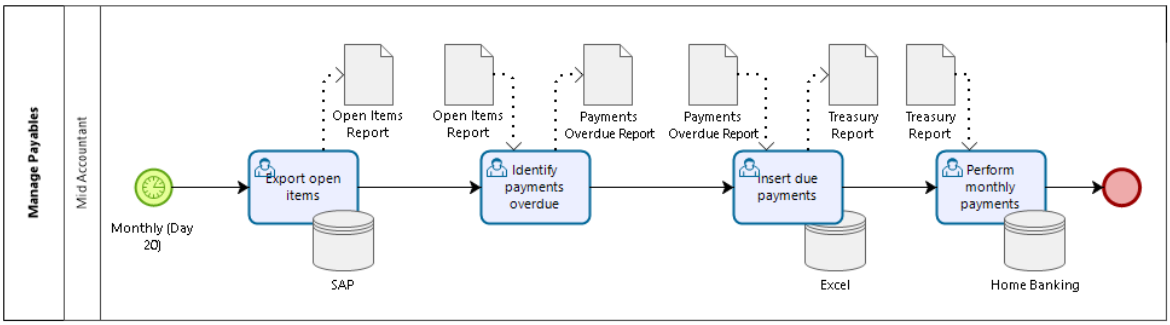
Element	**Description**	**Notation**
Sequence Flow	A Sequence Flow is used to show the order that activities will be performed in the Process.	
Association	It's used to associate information and Data elements with Flow Objects. It also shows the activities used to compensate for an activity.	

APPENDIX B: BPDs (*As-Is Model*) – Accounts Payables (AP)

AP_01 – Invoice Registry and Analysis

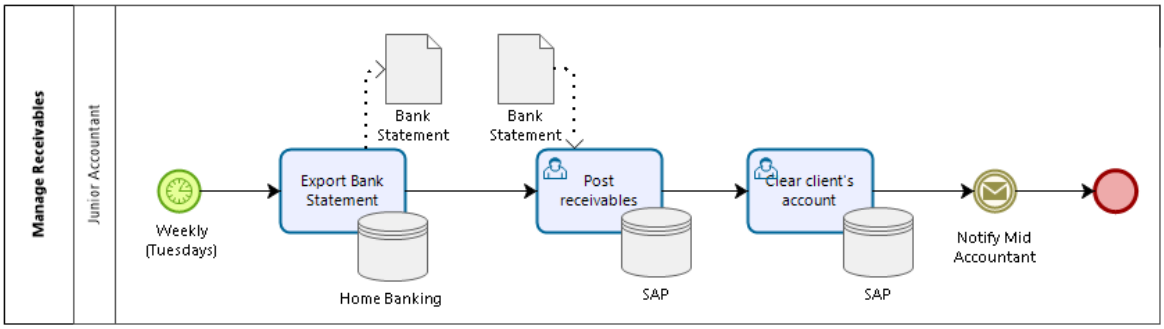


AP_02 – Manage Payables

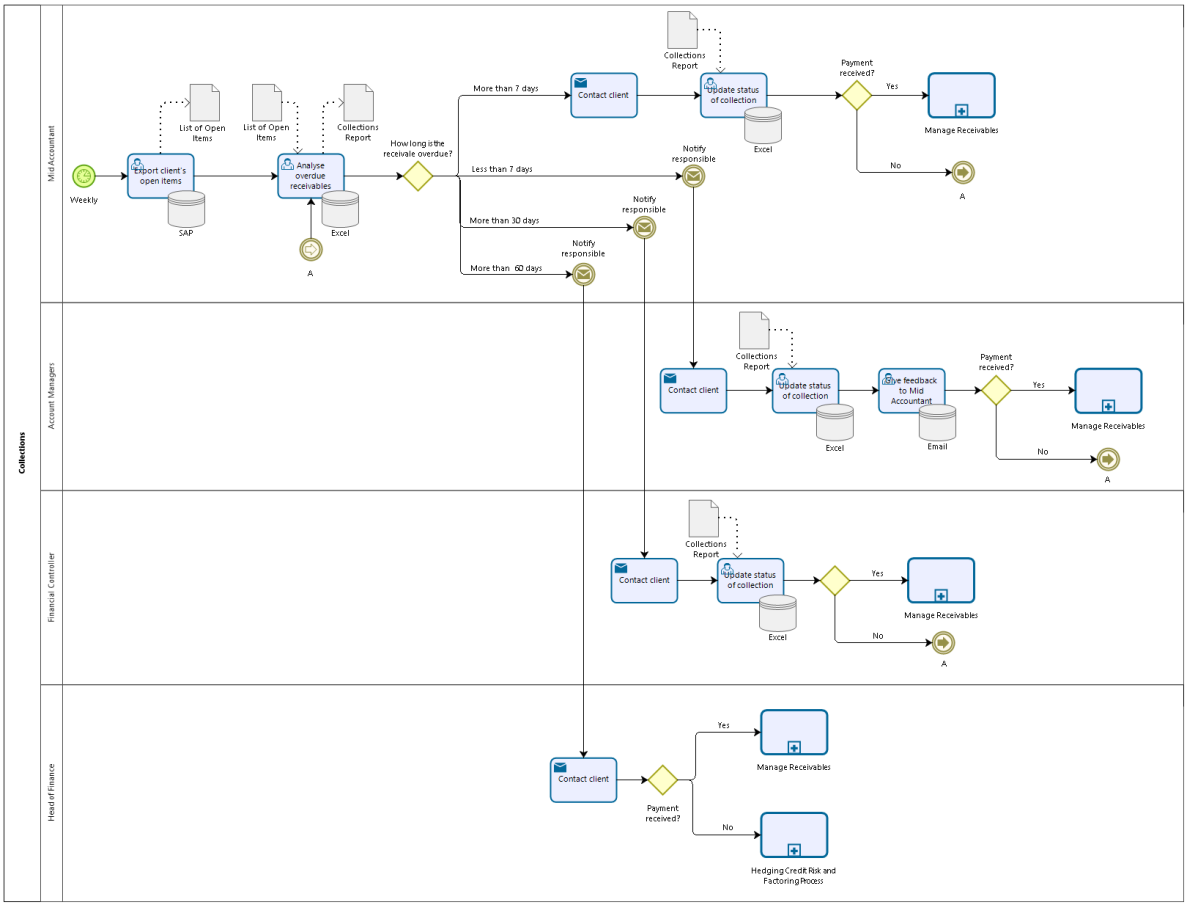


APPENDIX C: BPDs (*As-Is Model*) – Accounts Receivables (AR)

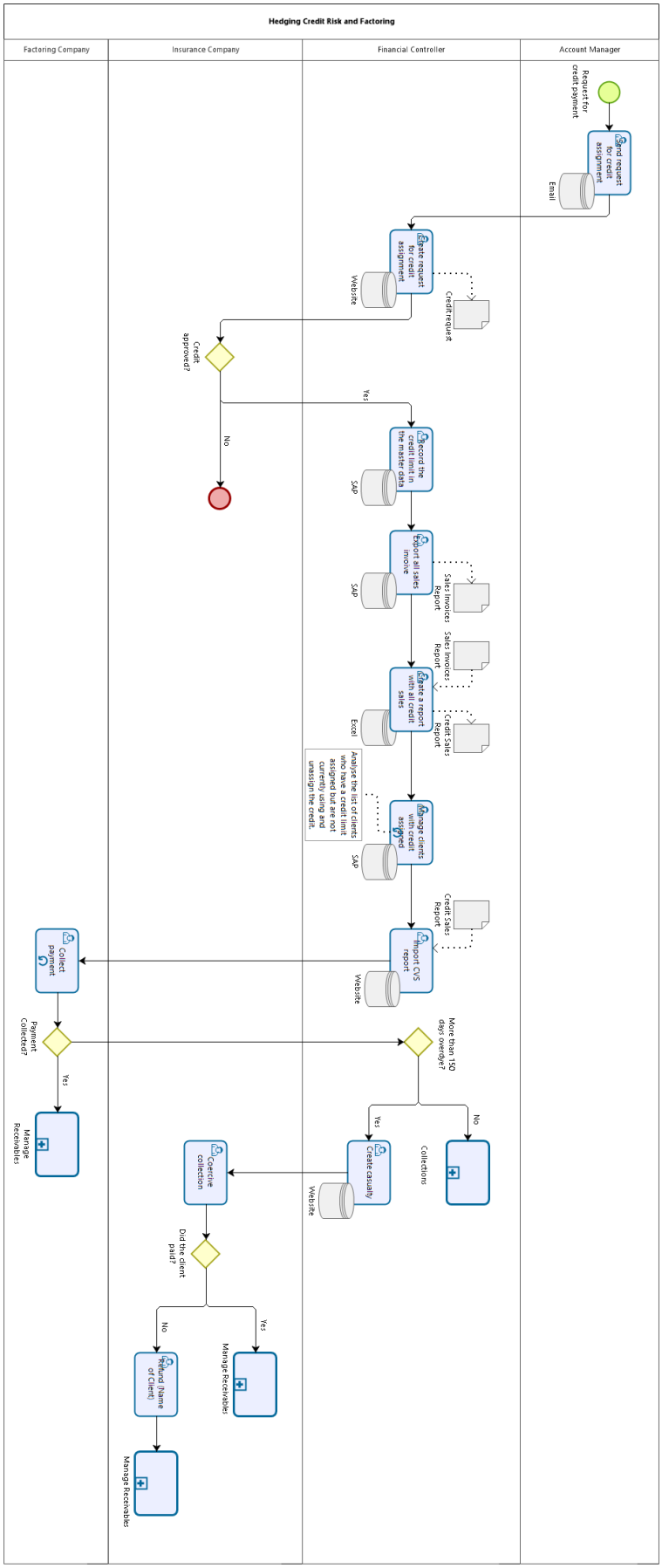
AR_01 – Manage Receivables



AR_02 – Collections

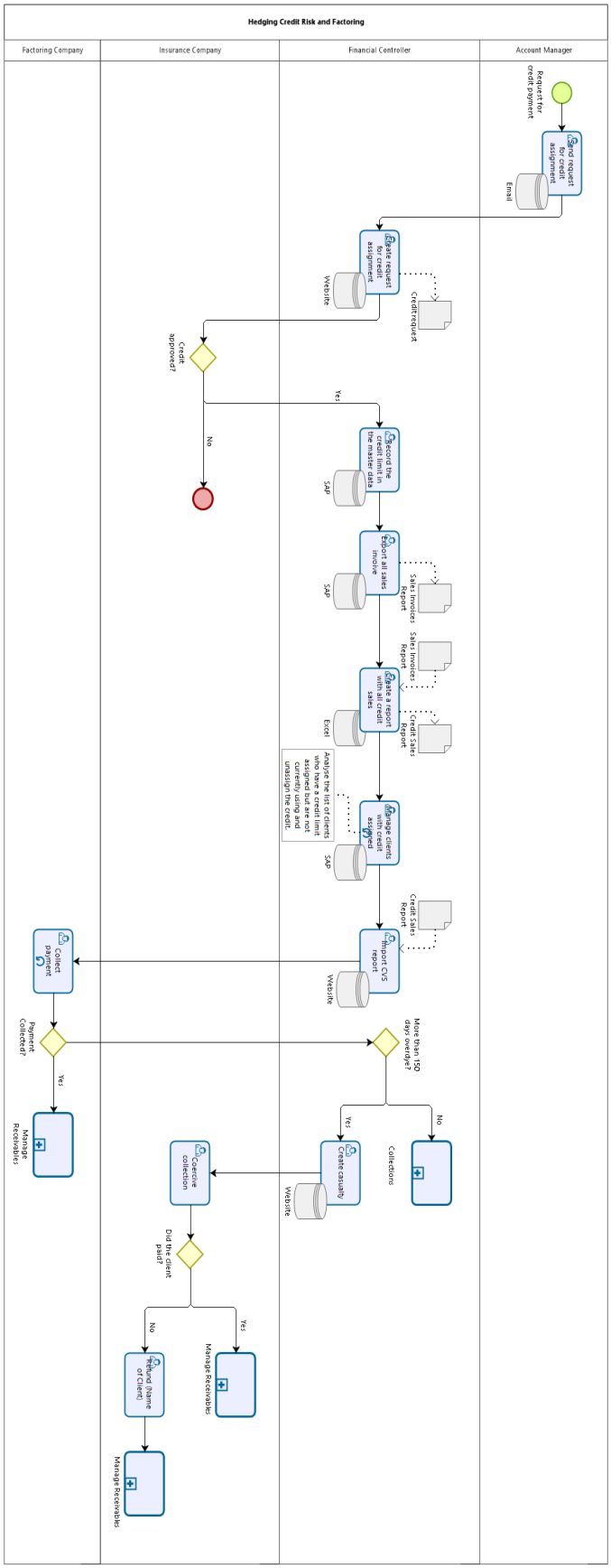


AR_03 – Hedging Credit Risk and Factoring



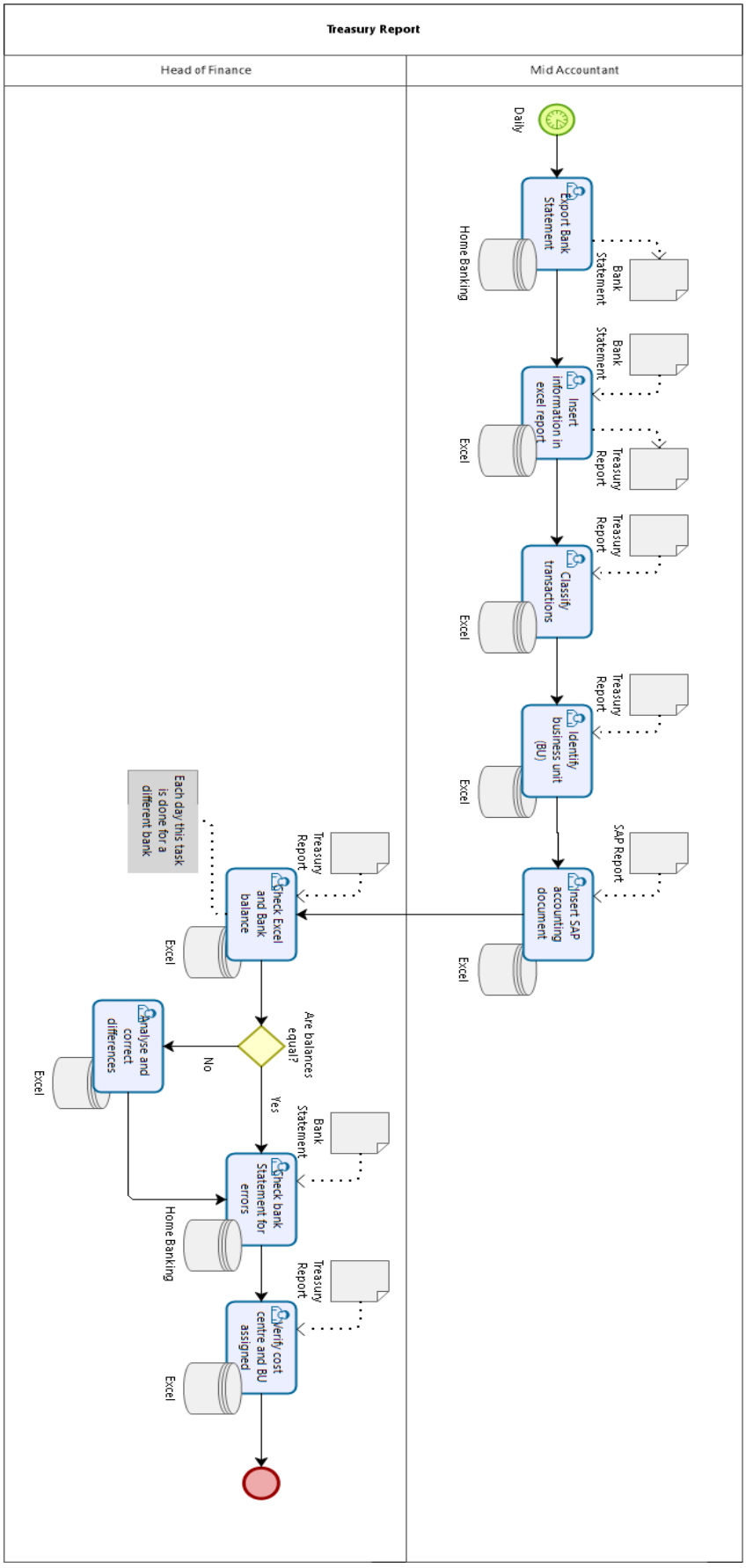
APPENDIX D: BPDs (*As-Is Model*) - Reporting (RP)

RP_01 – Management Information Reporting

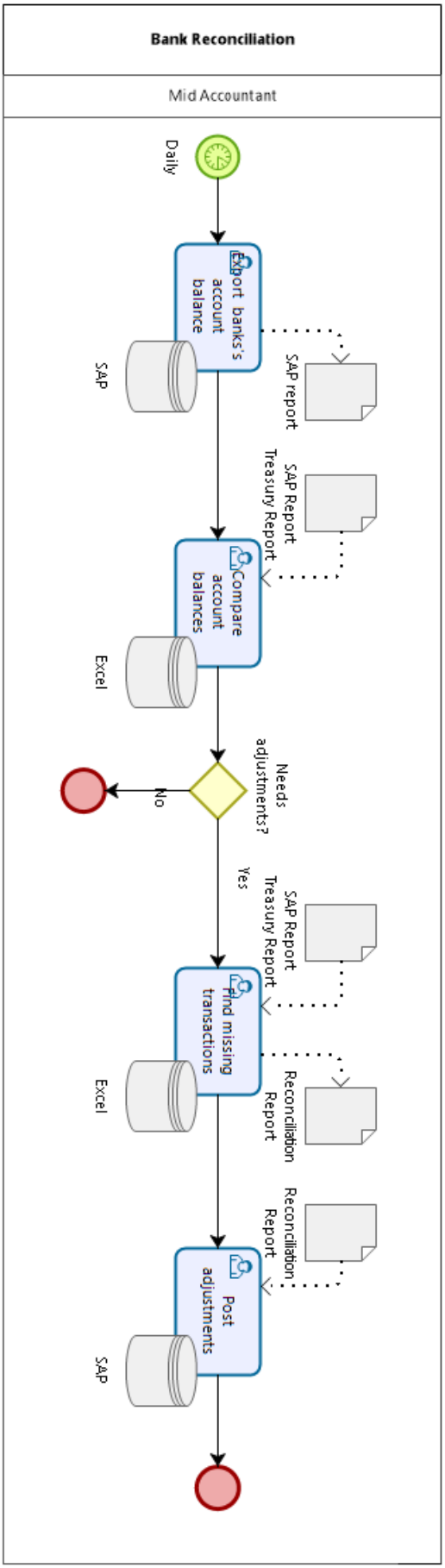


APPENDIX E: BPDs (*As-Is Model*) – Manage Cash and Liquidity (TR)

TR_01 – Treasury Report

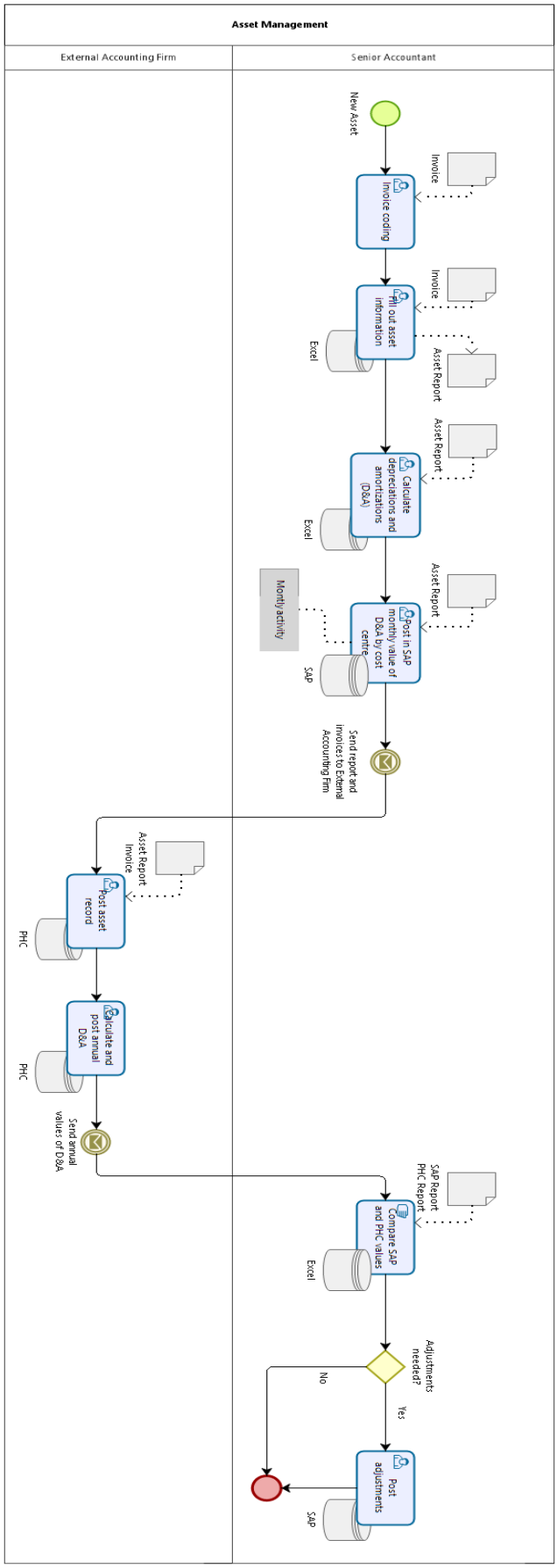


TR_02 – Bank Reconciliation



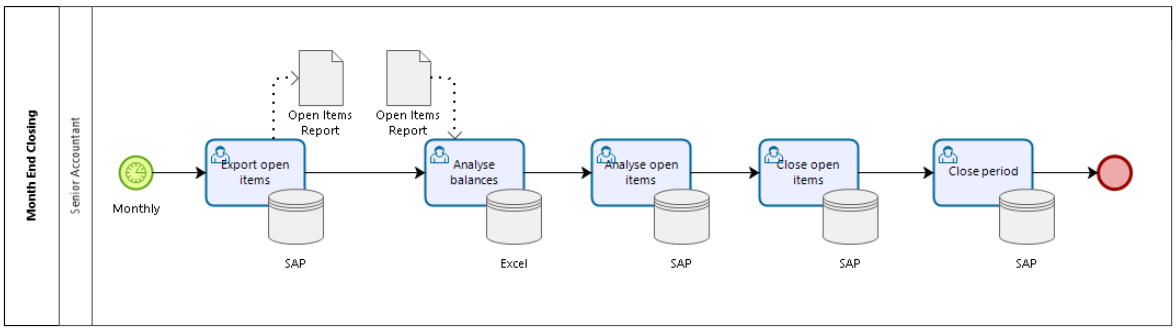
APPENDIX F: BPDs (*As-Is Model*) – Asset Management (AM)

AM_01 – Asset Management



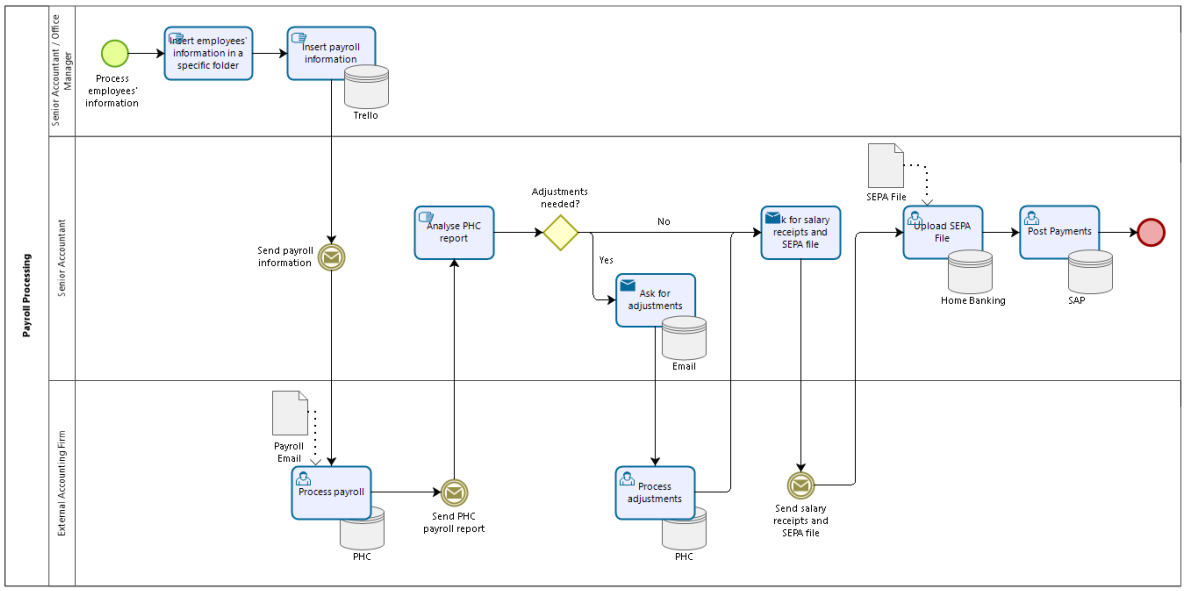
APPENDIX G: BPDs (*As-Is Model*) – Month End Closing (CC)

CC_01 – Month End Closing



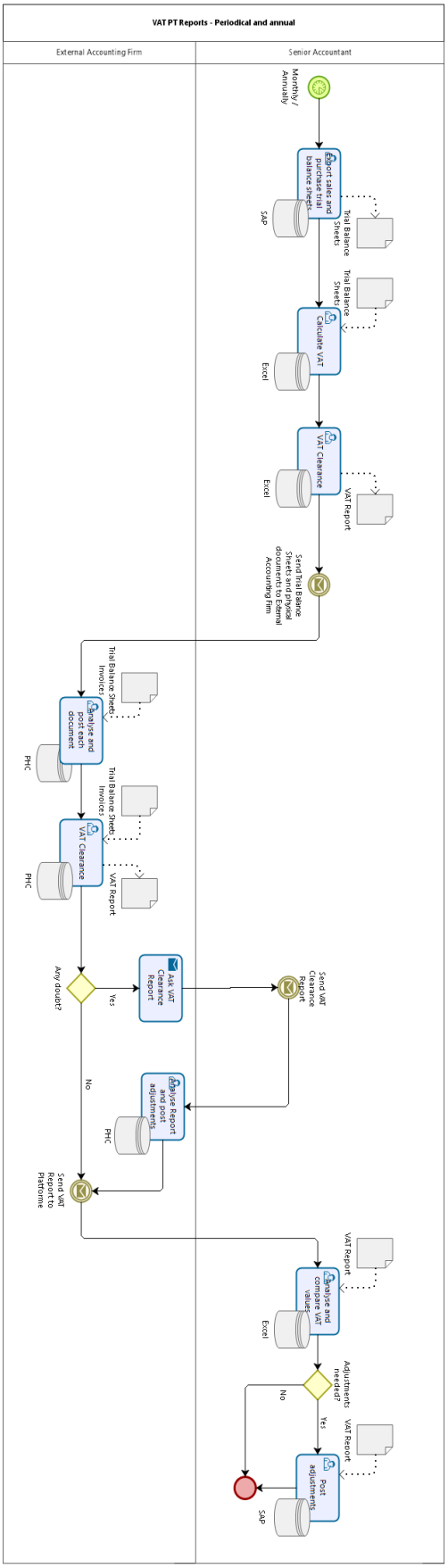
APPENDIX H: BPDs (*As-Is Model*) - Perform Payroll Processing (PR)

PR_01 – Perform Payroll Processing

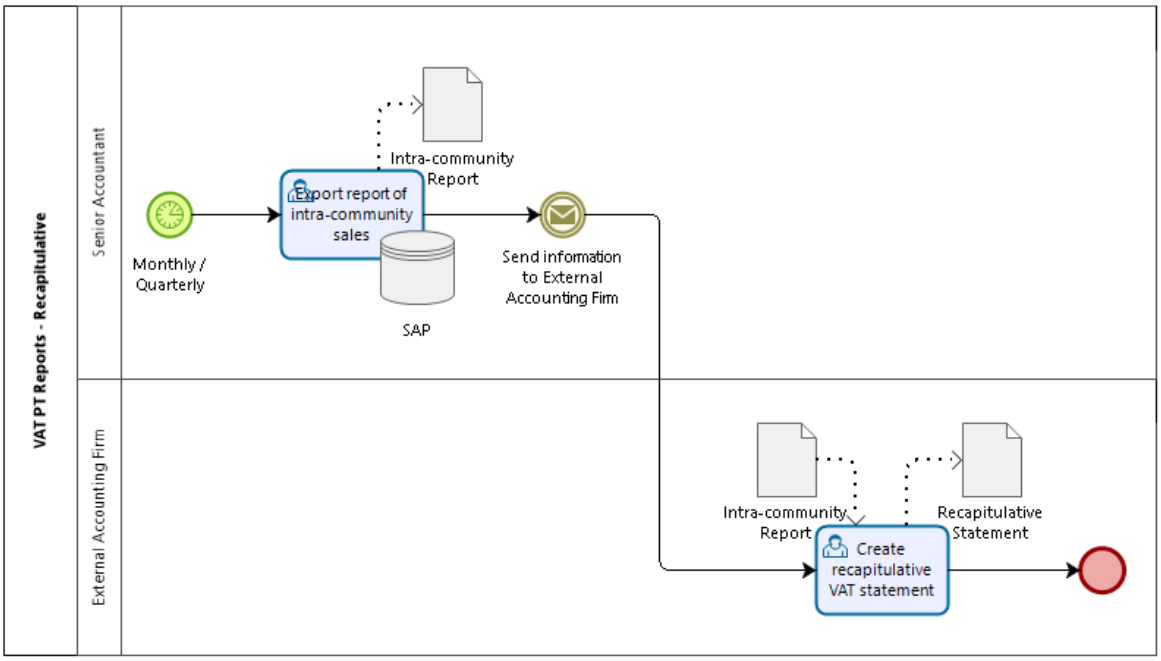


APPENDIX I: BPDs (*As-Is Model*) - Manage Taxes (TX)

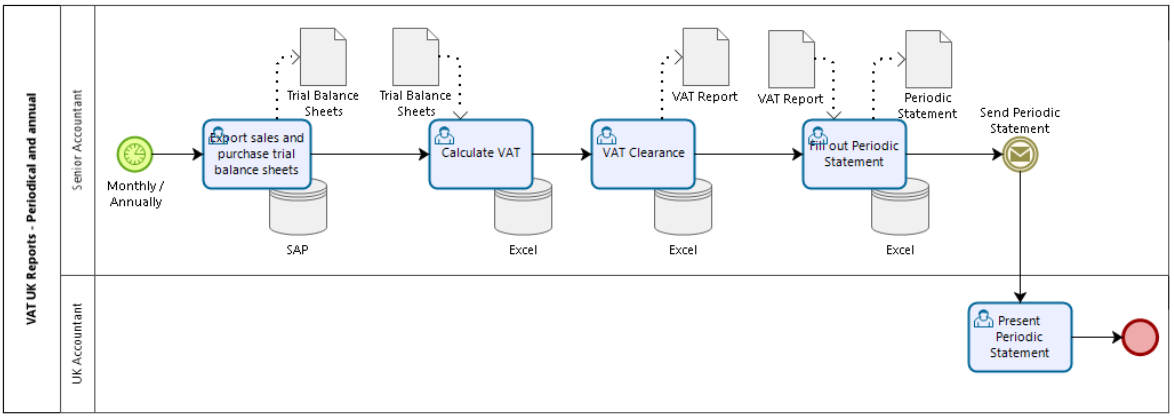
TX_01 - VAT PT Reports - Periodical and annual



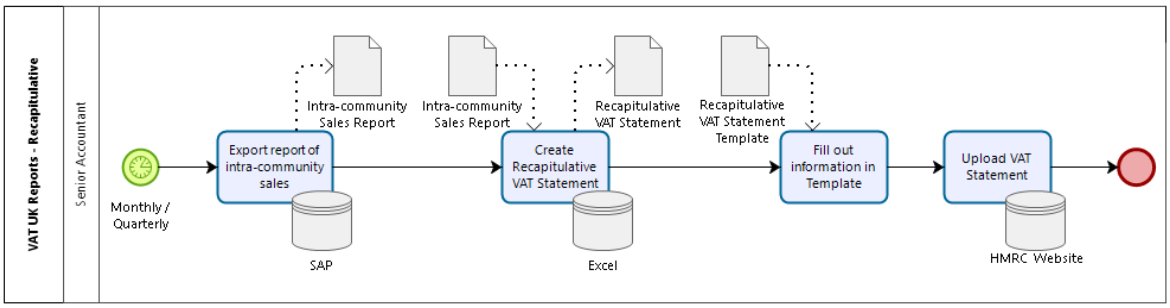
TX_02 - VAT PT Reports – Recapitulative



TX_03 - VAT UK Reports - Periodical and annual

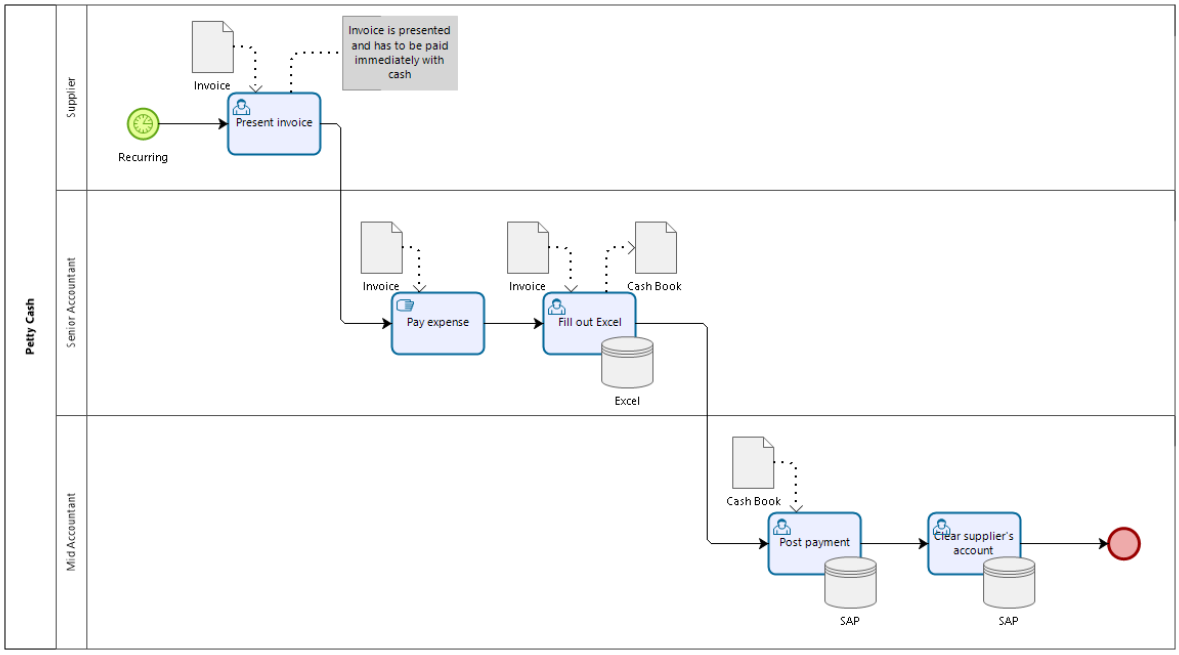


TX_04 - VAT UK Reports – Recapitulative



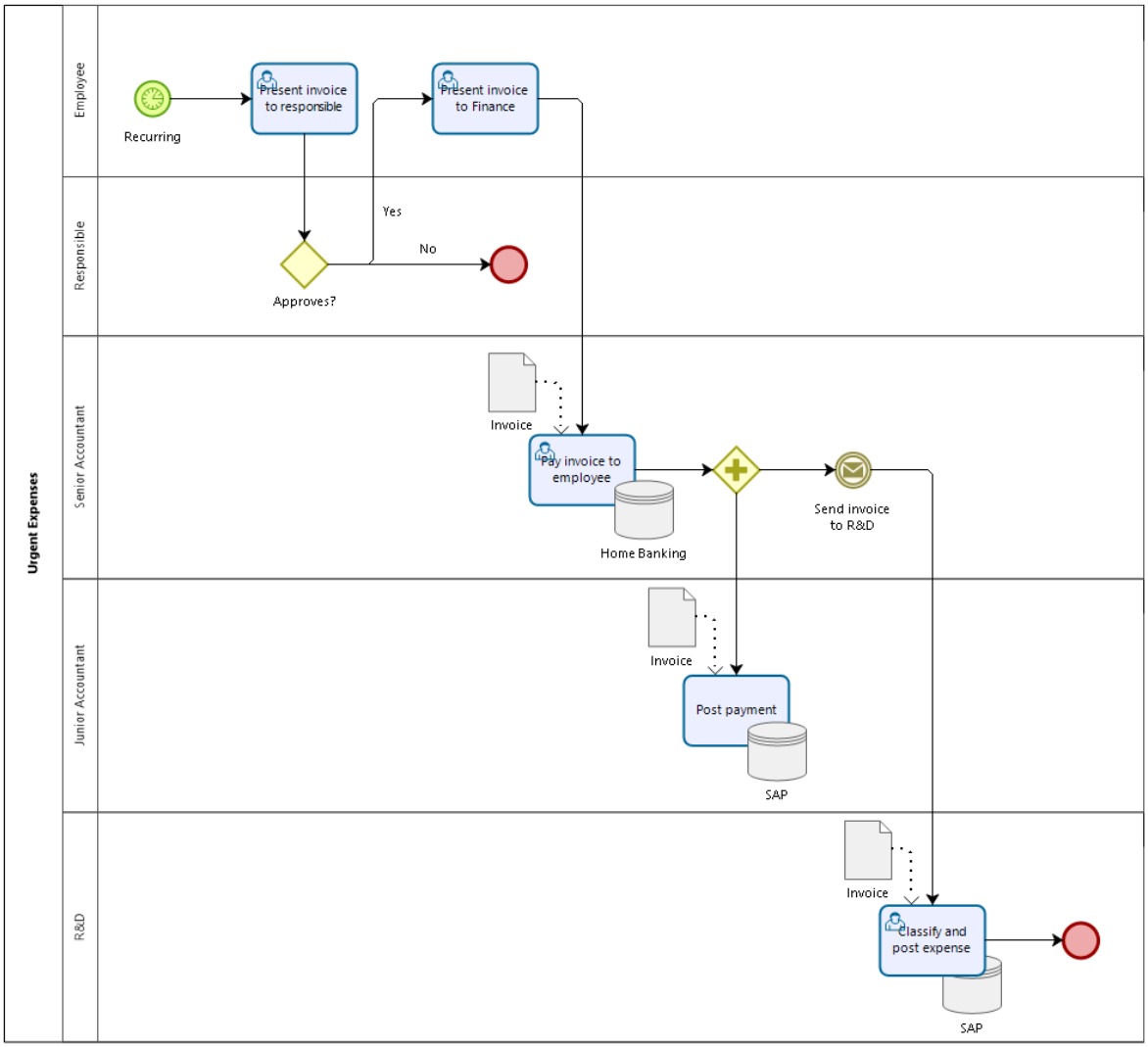
APPENDIX J: BPDs (*As-Is Model*) – Cash Management (CM)

CM_01 – Petty Cash

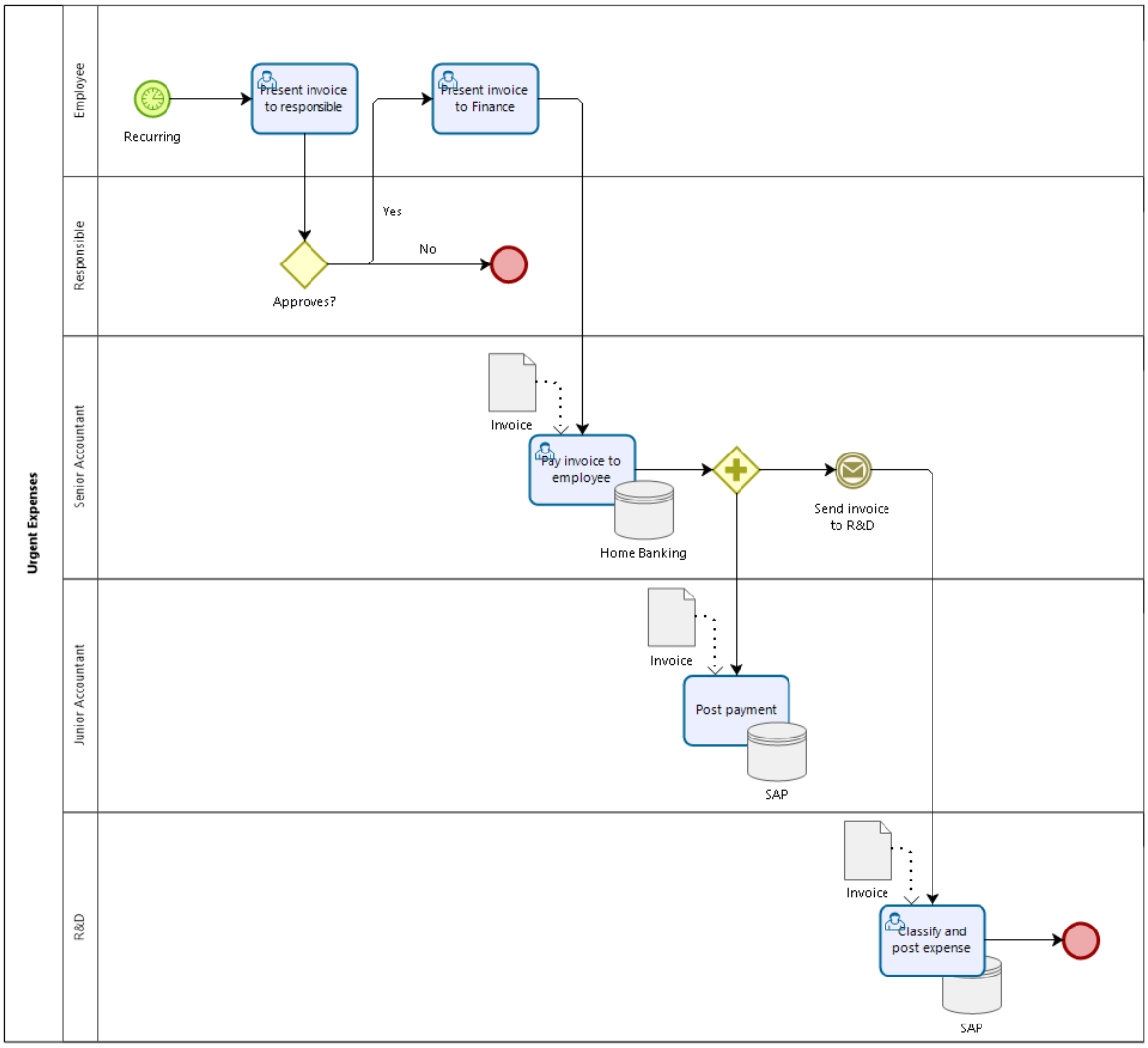


APPENDIX K: BPDs (*As-Is Model*) - Refund of Expenses (RF)

RF_01 – Urgent Expenses

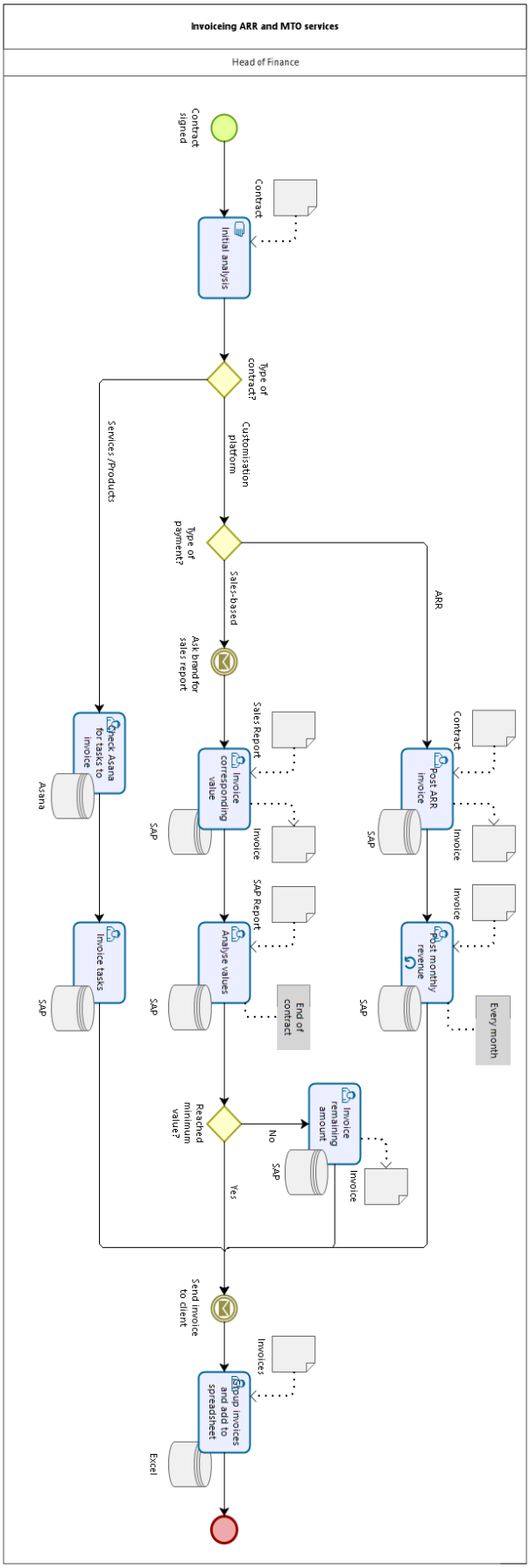


RF_02 – Normal Expenses



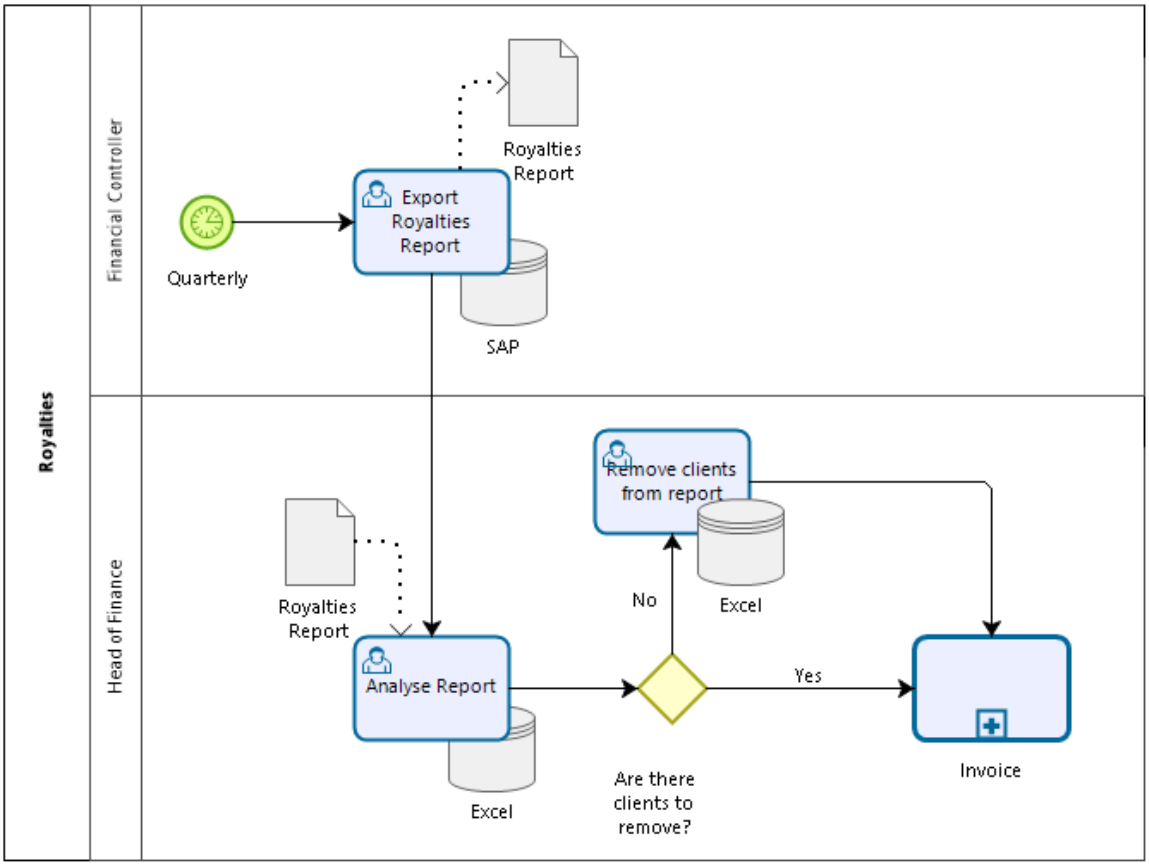
APPENDIX L: BPDs (*As-Is Model*) - Invoicing

IN_01 - Invoicing ARR and MTO services



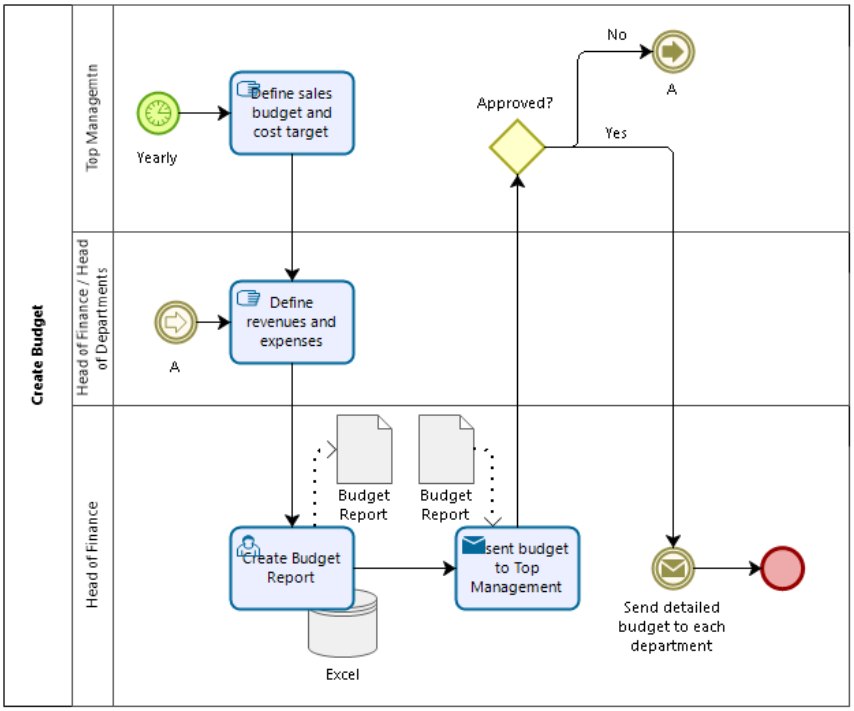
APPENDIX M: BPDs (*As-Is Model*) – Royalties (RT)

RT_01 – Royalties

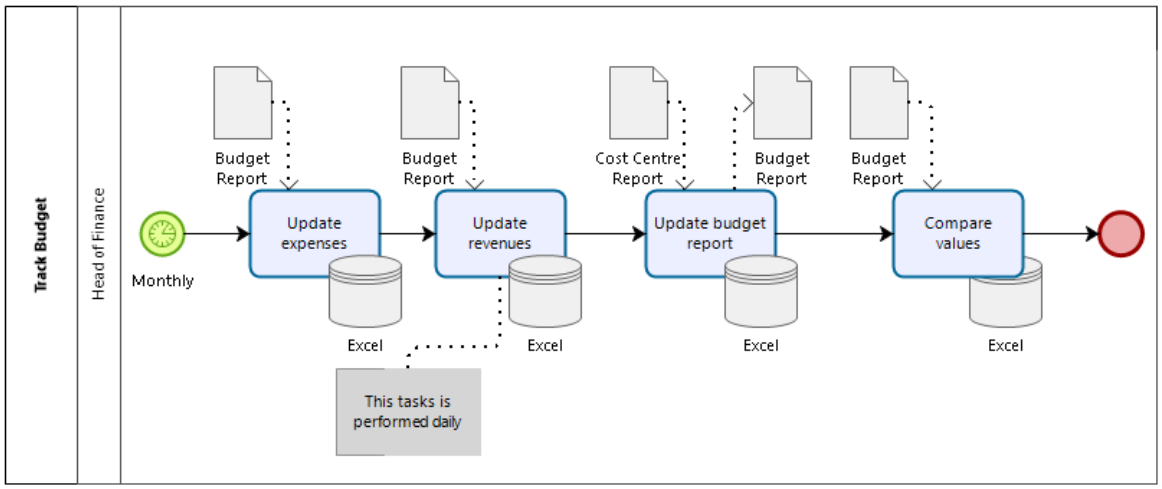


APPENDIX N: BPDs (*As-Is Model*) - Budget (BD)

BD_01 – Create Budget

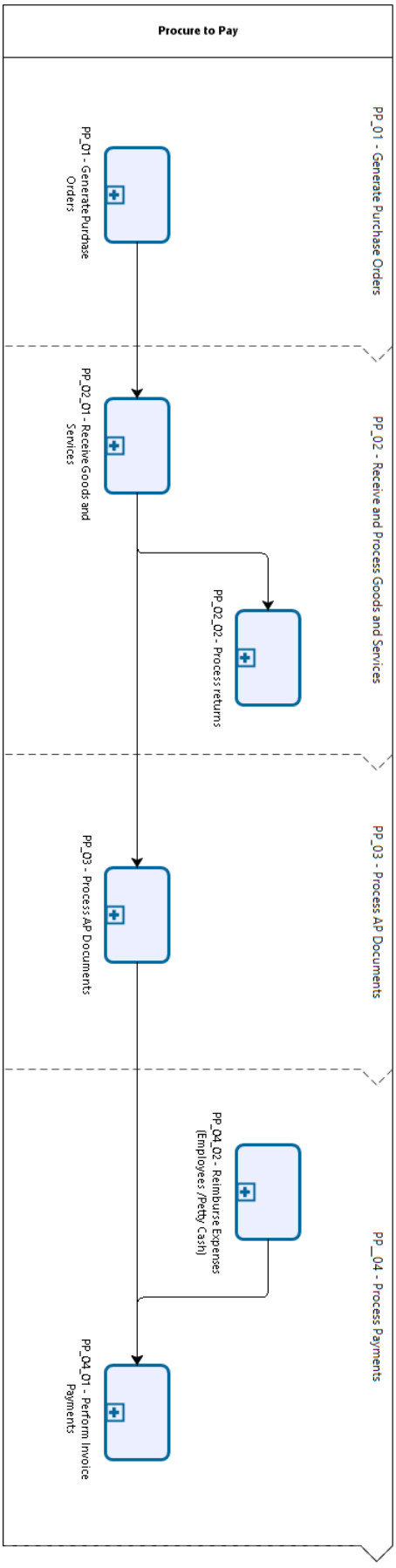


BD_02 – Track Budget

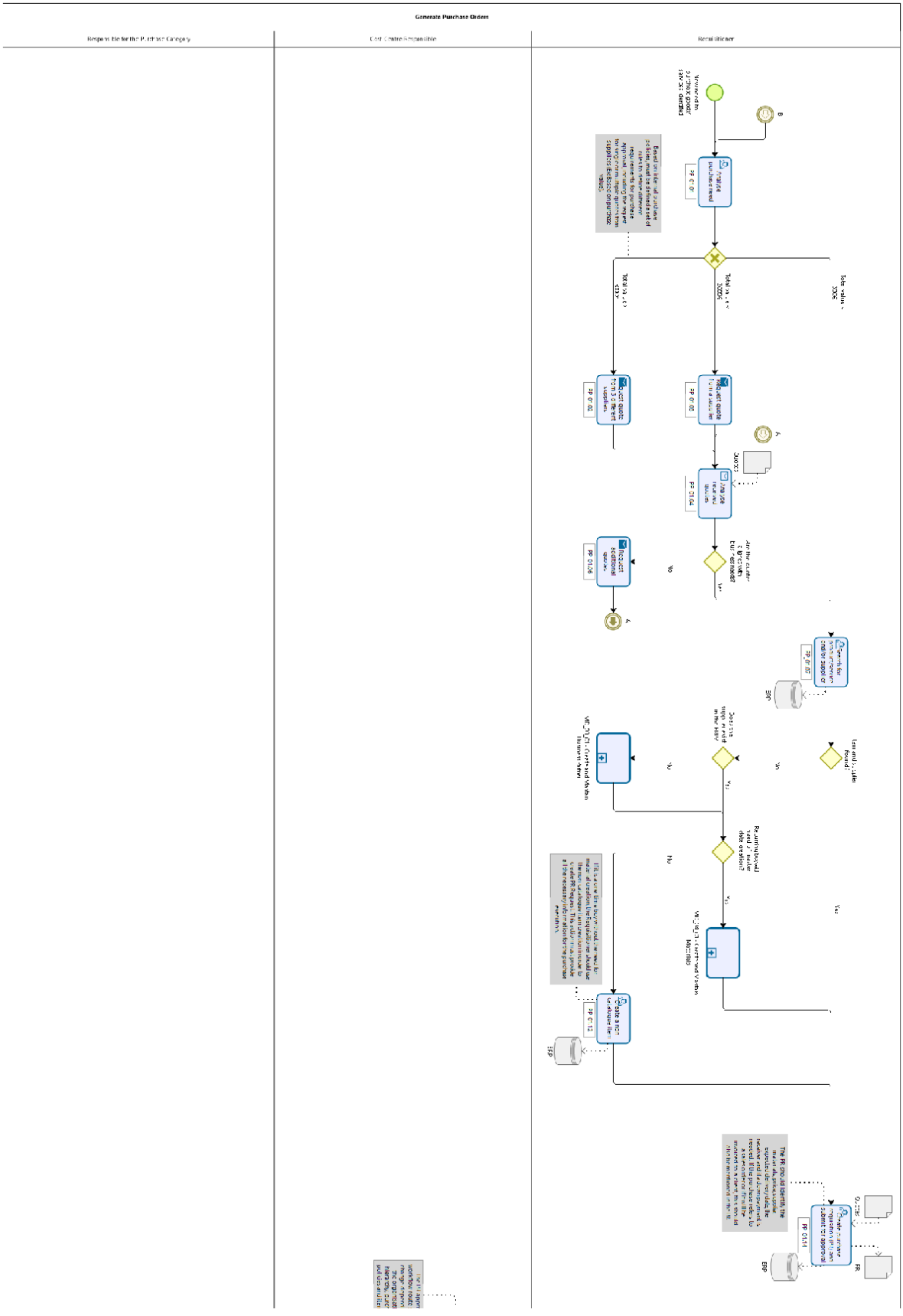


APPENDIX O: BPDs *(To-Be Model)* - Procure to Pay (PP)

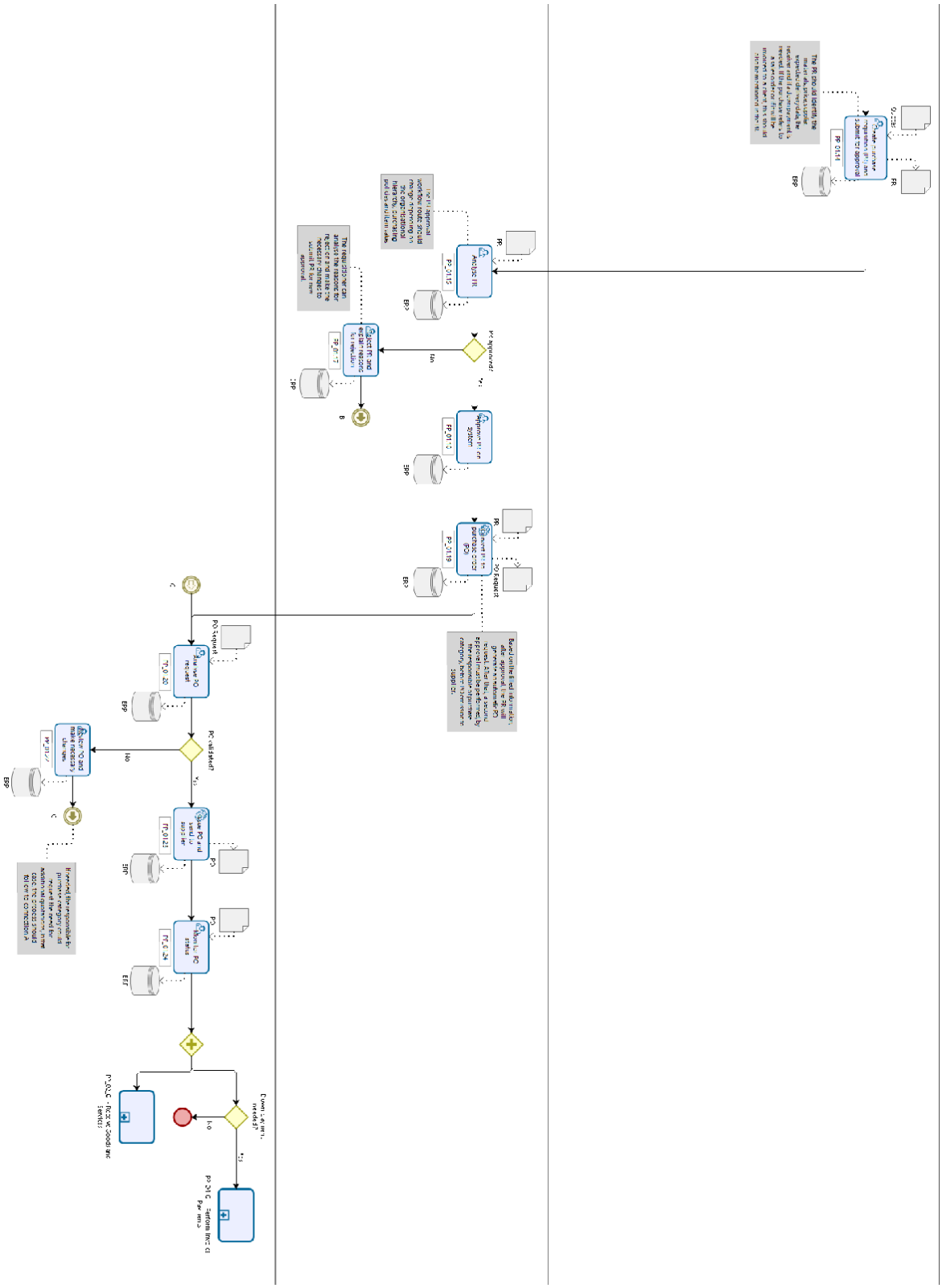
PP – Procure to Pay



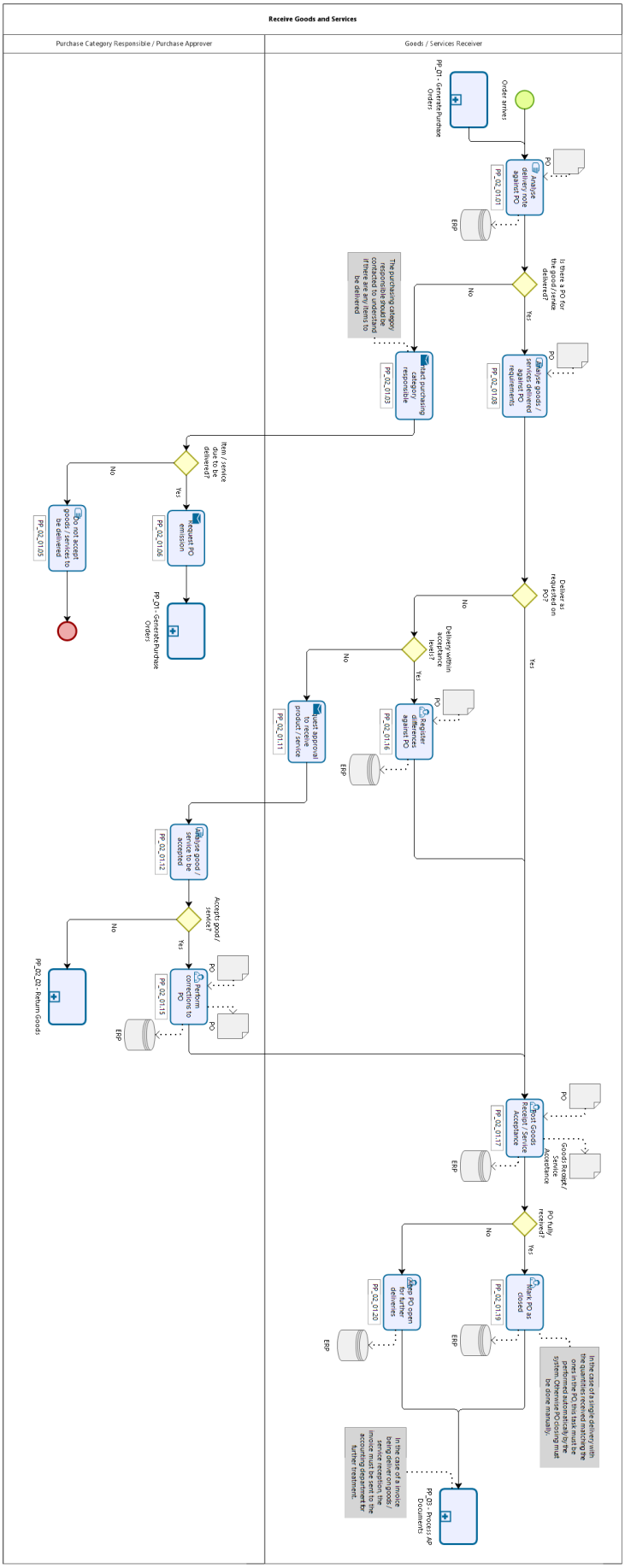
PP_01 – Generate Purchase Orders (1/2)



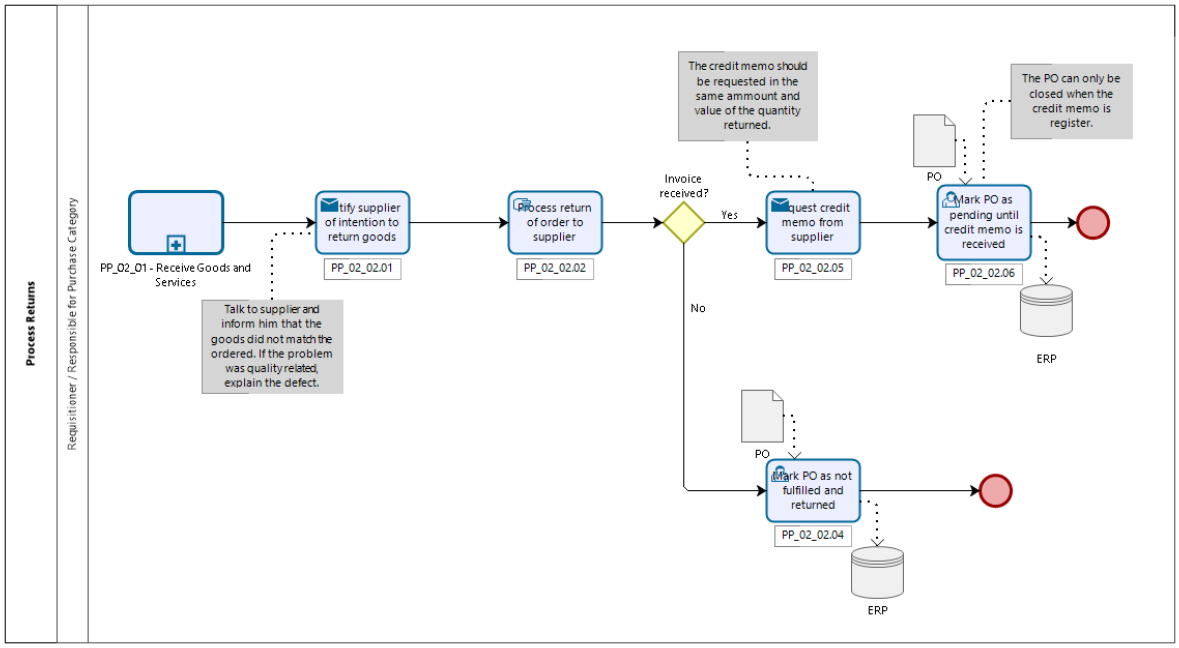
PP_01 – Generate Purchase Orders (2/2)



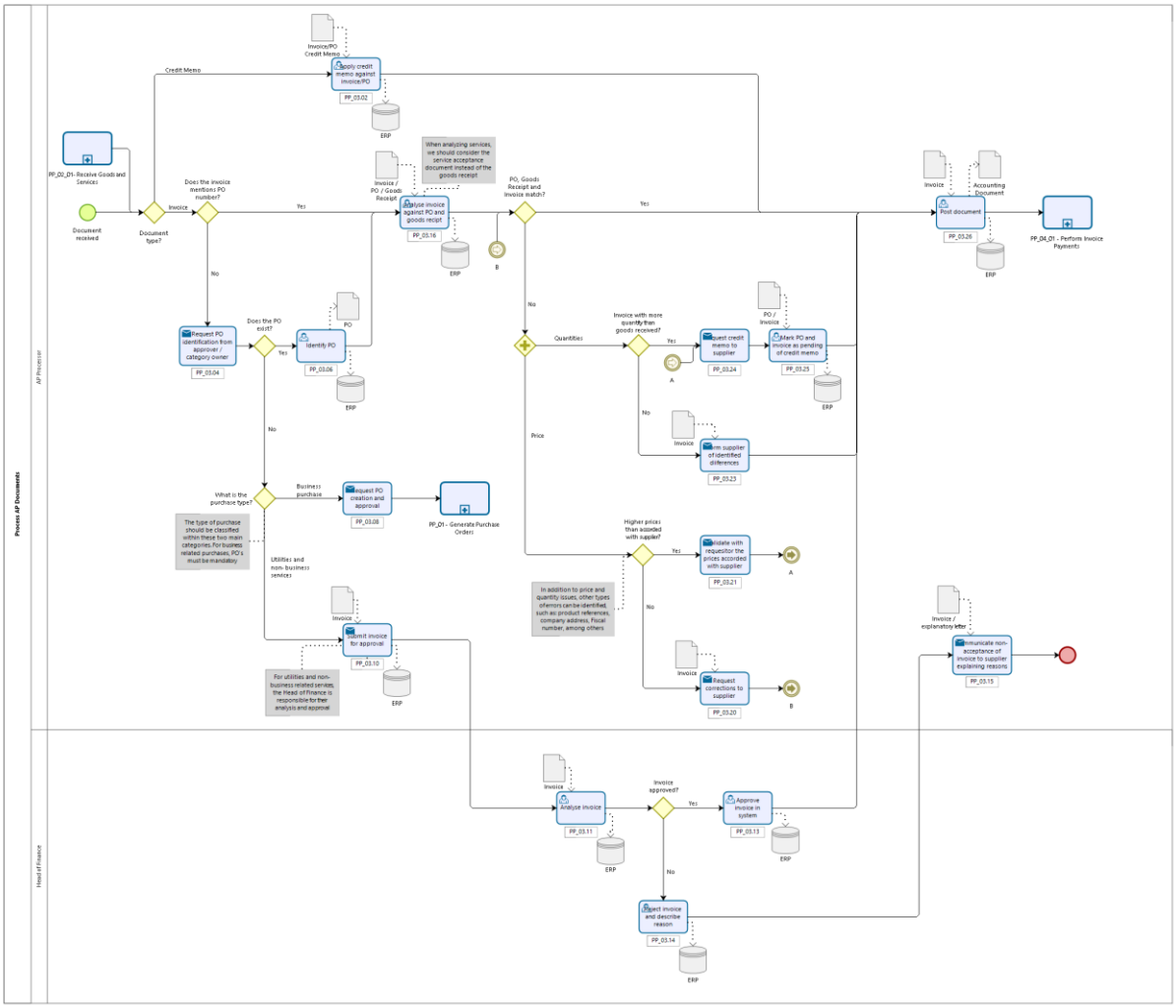
PP_02_01 – Receive Goods and Services



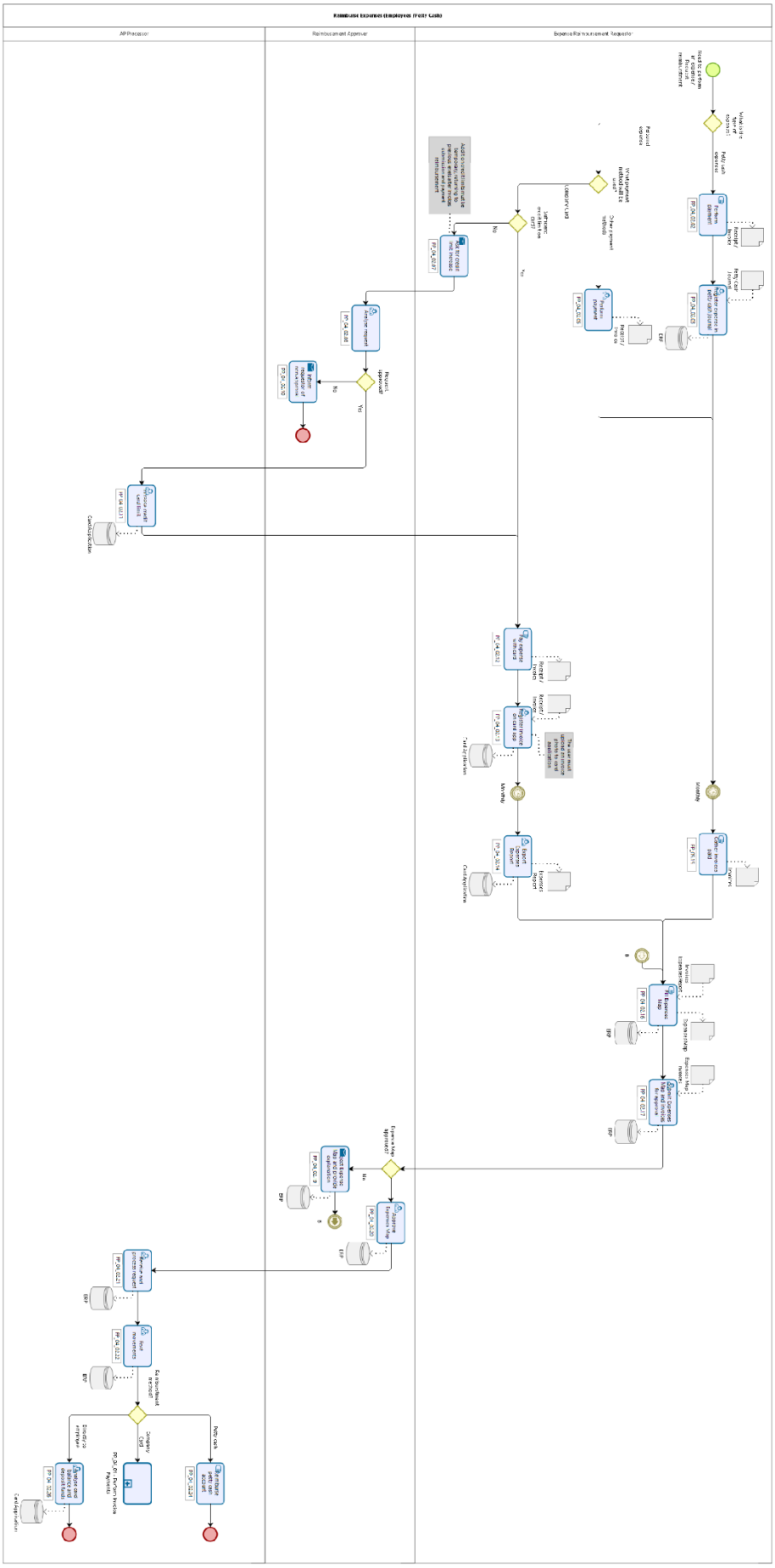
PP_02_02 – Return Goods



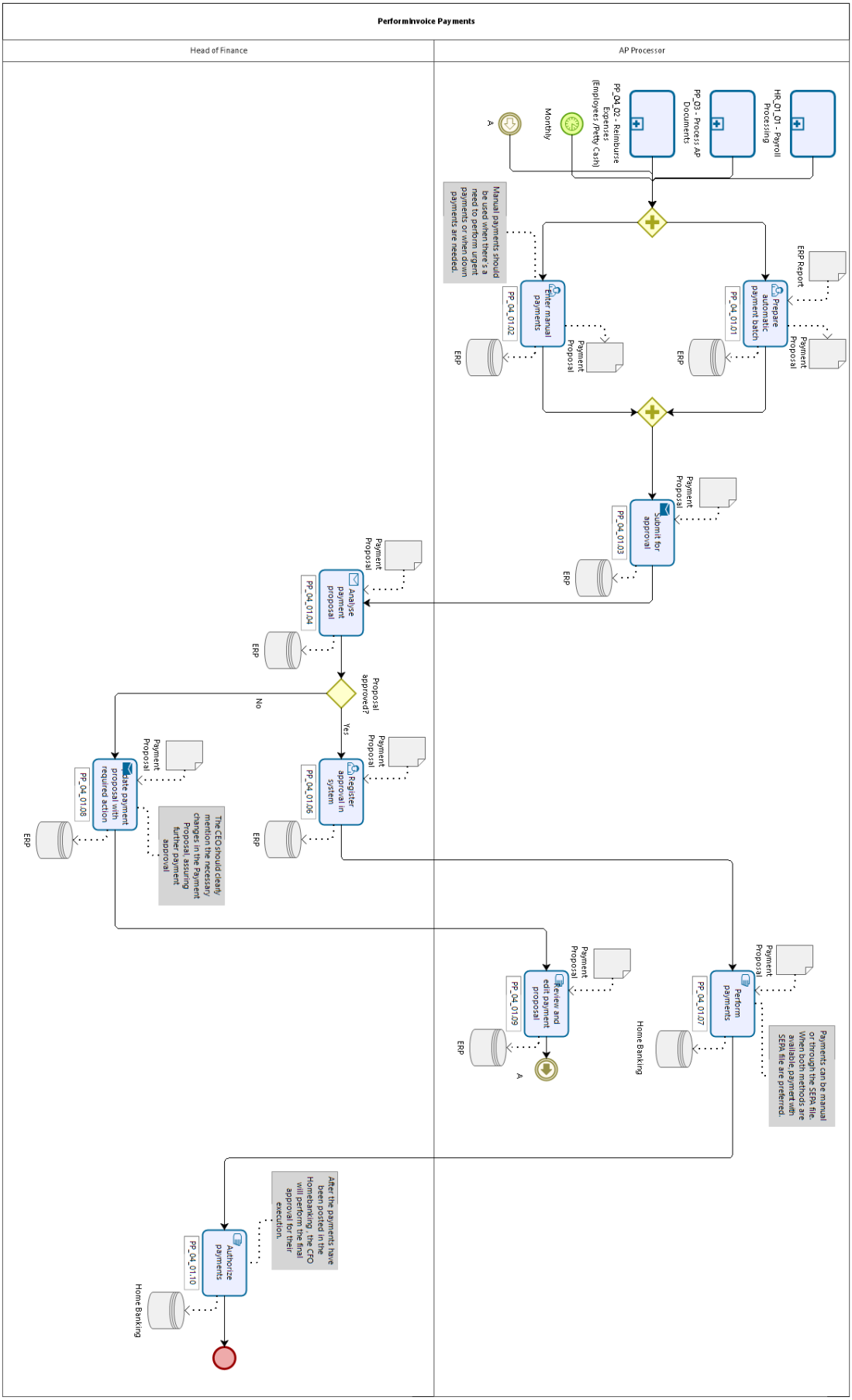
PP_03 – Process AP Documents



PP_04_01 – Process Invoice Payments

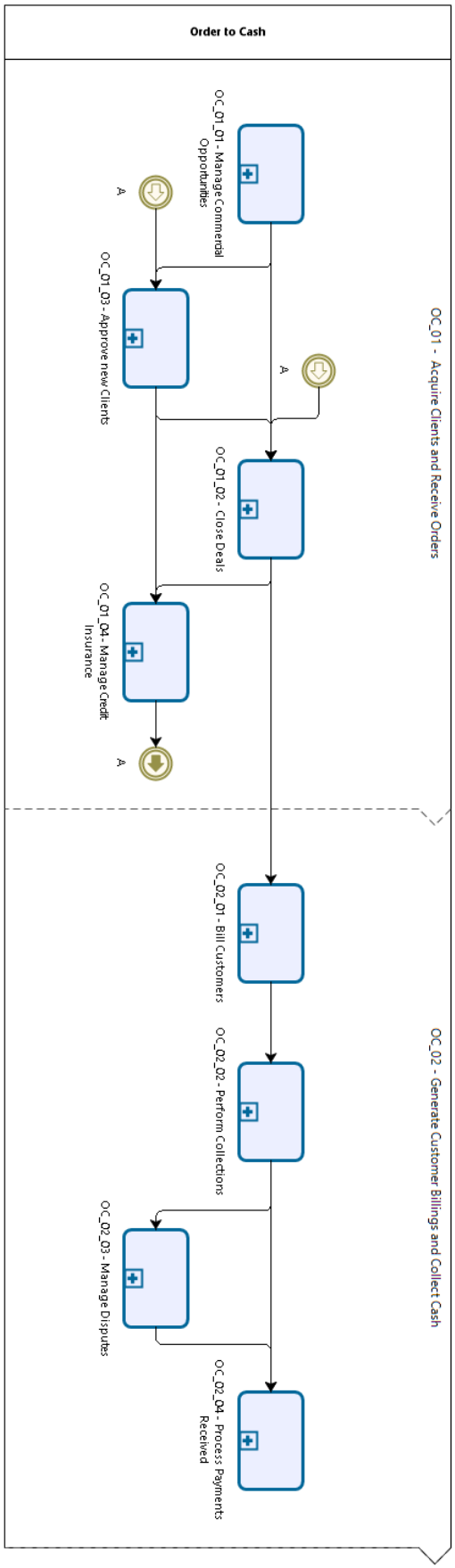


PP_04_02 - Reimburse Expenses (Employees /Petty Cash)

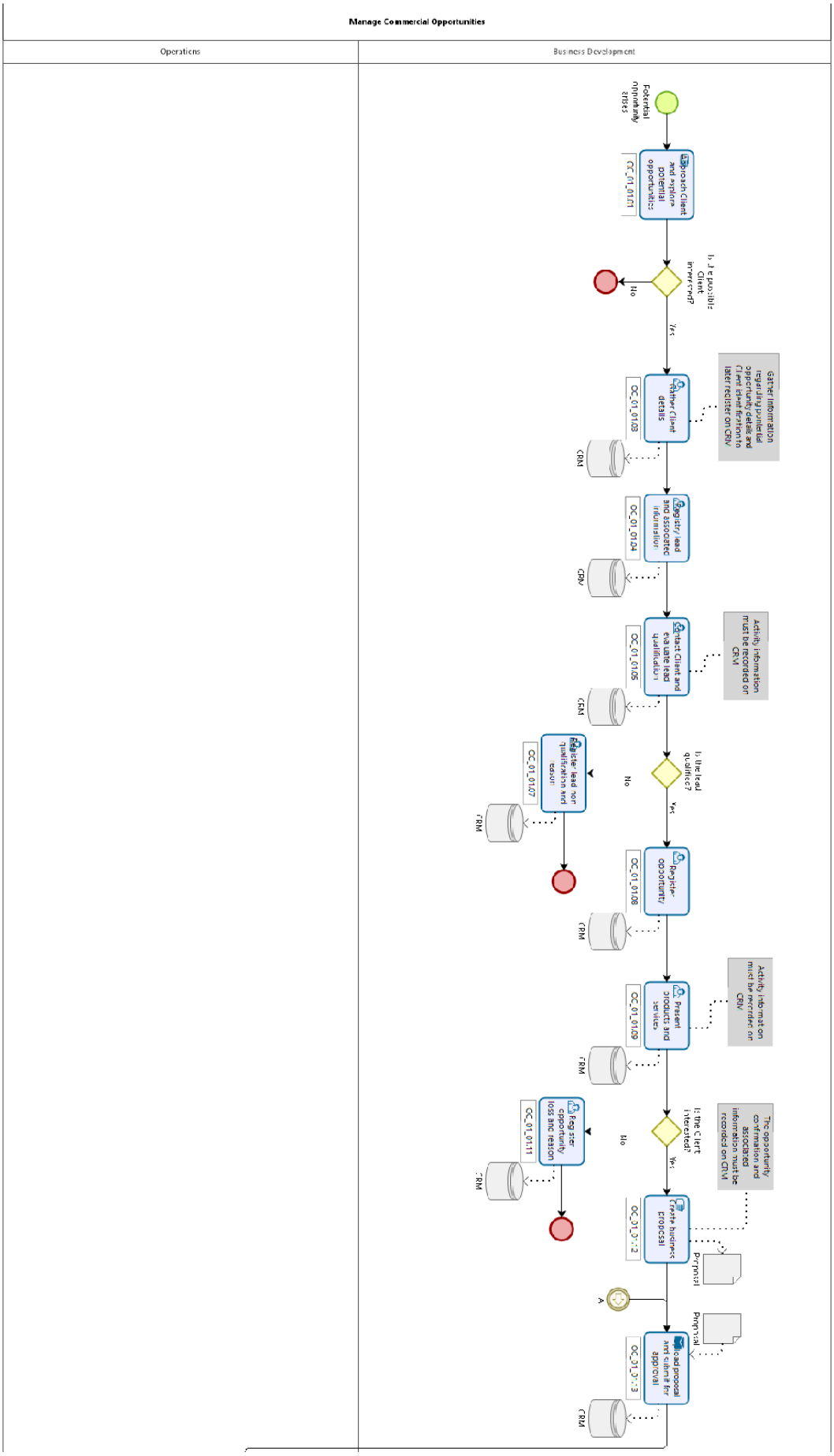


APPENDIX P: BPDs (*To-Be Model*) – Order to Cash (OC)

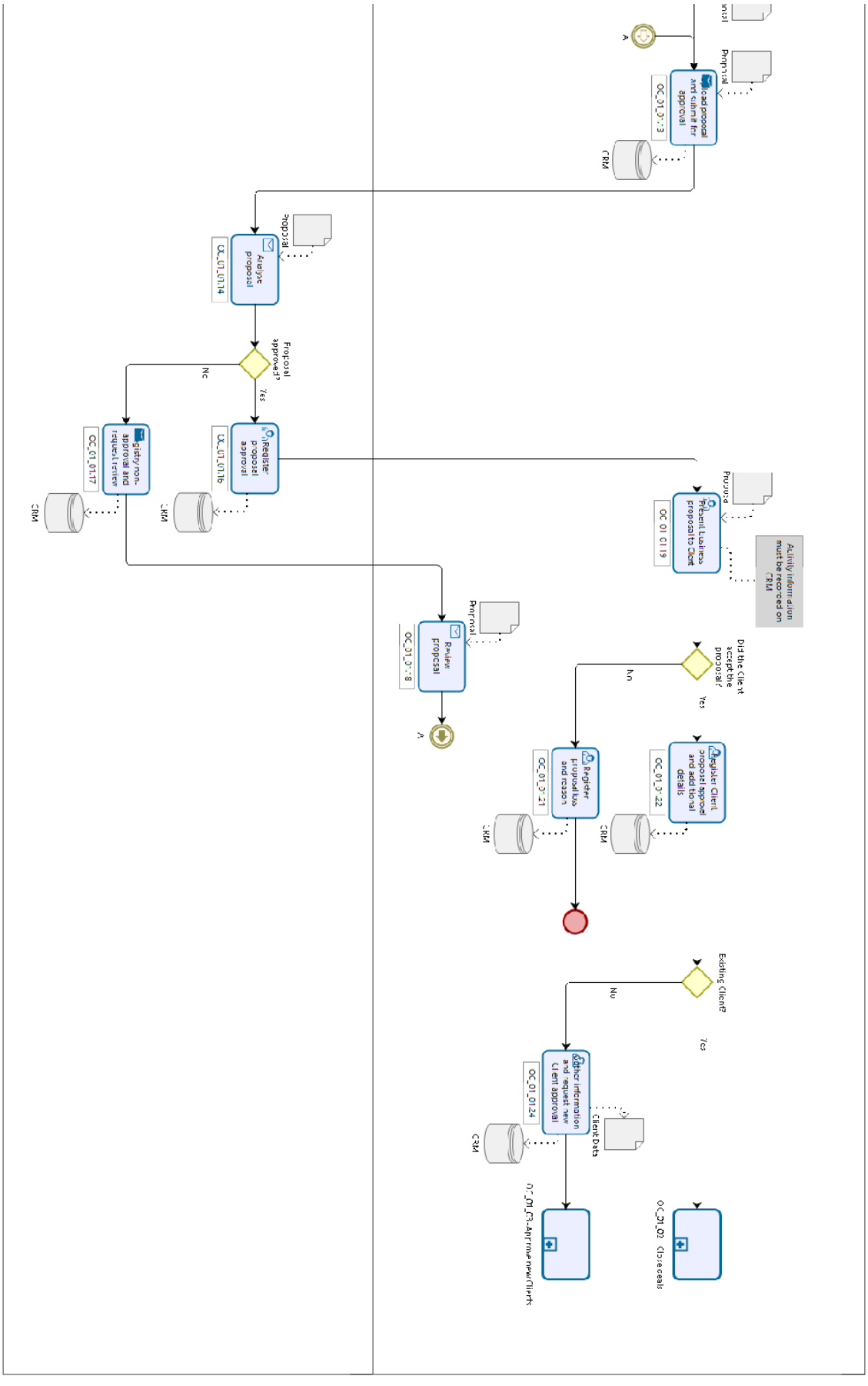
OC – Order to Cash



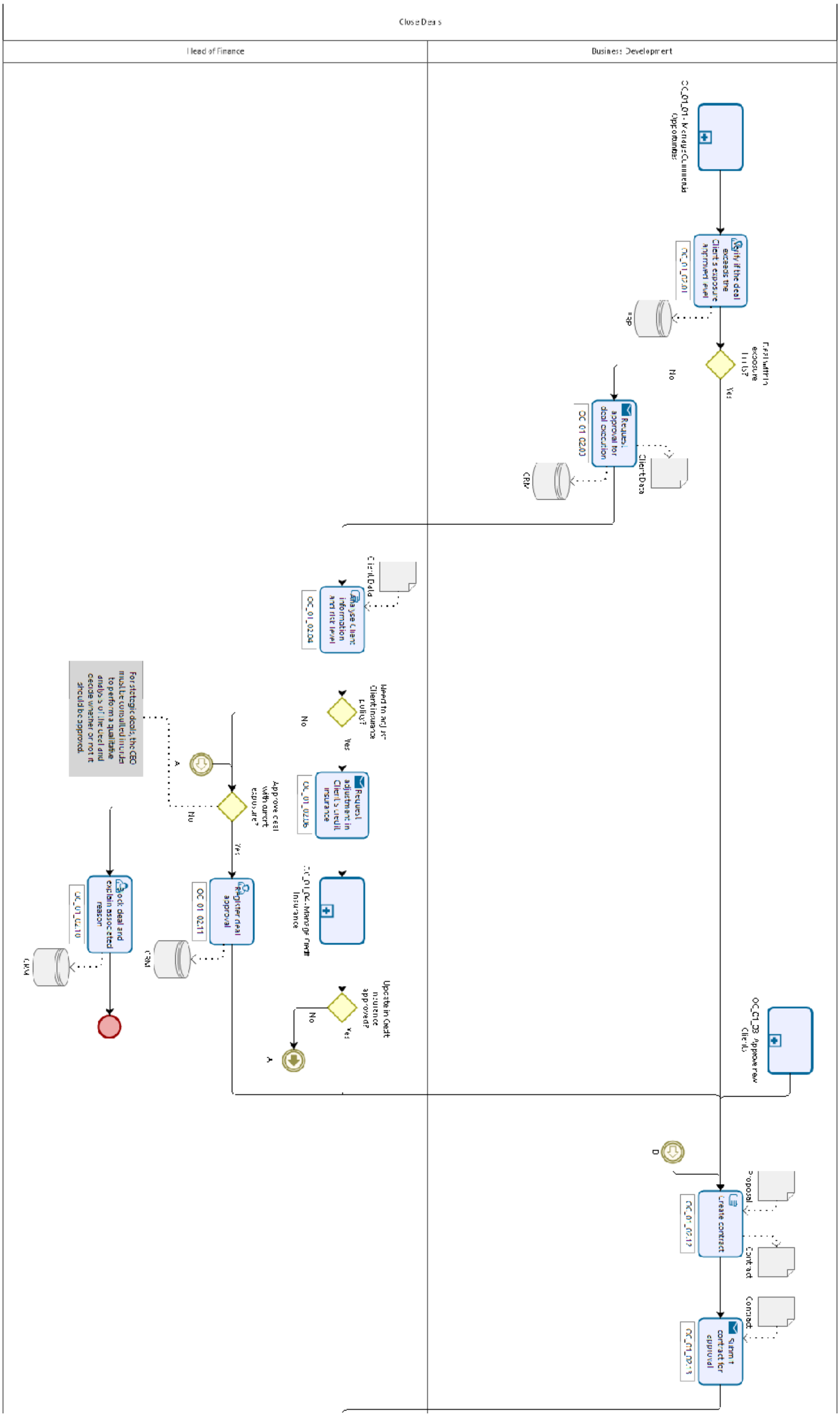
OC_01_01 – Manage Commercial Opportunities (1/2)



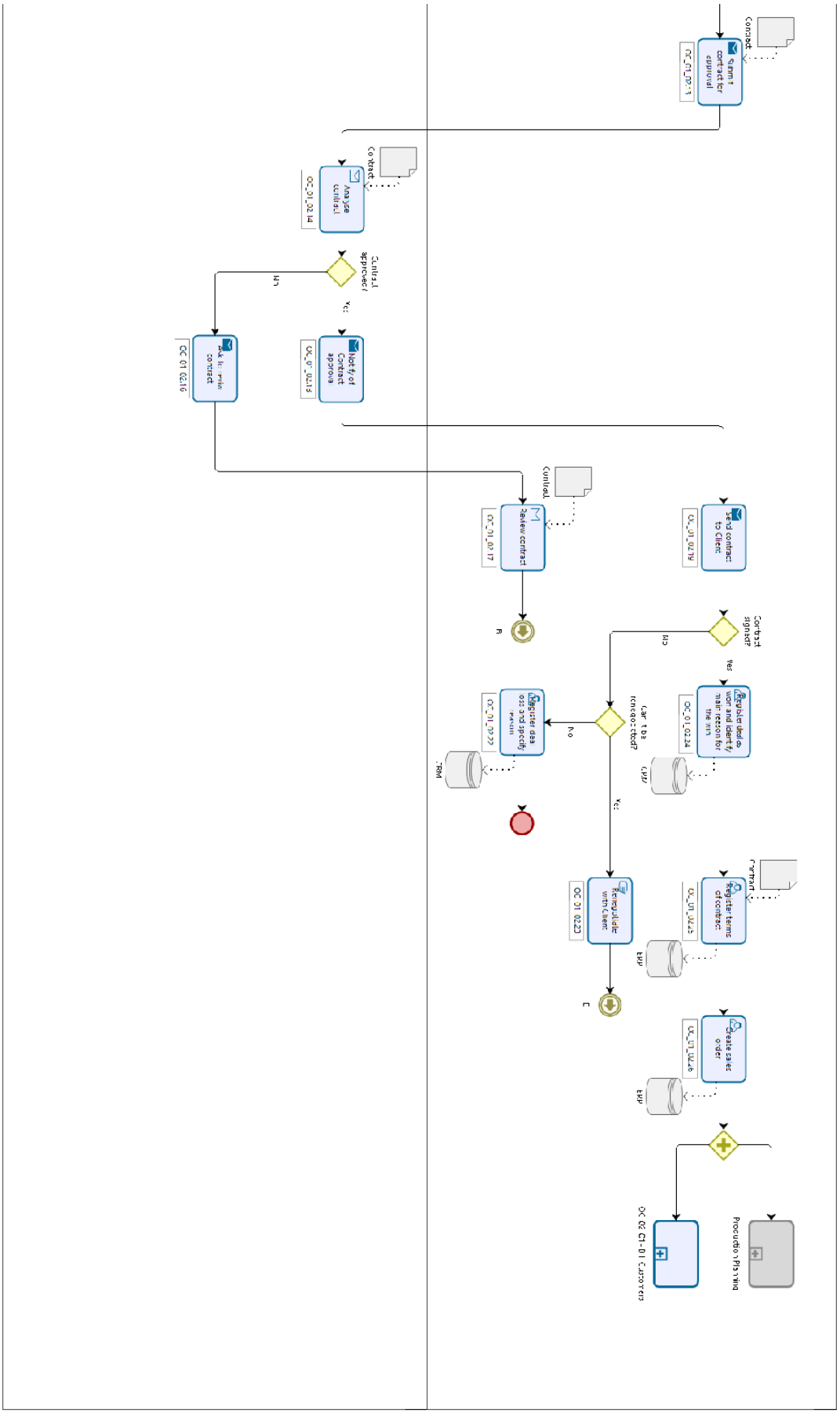
OC_01_01 – Manage Commercial Opportunities (2/2)



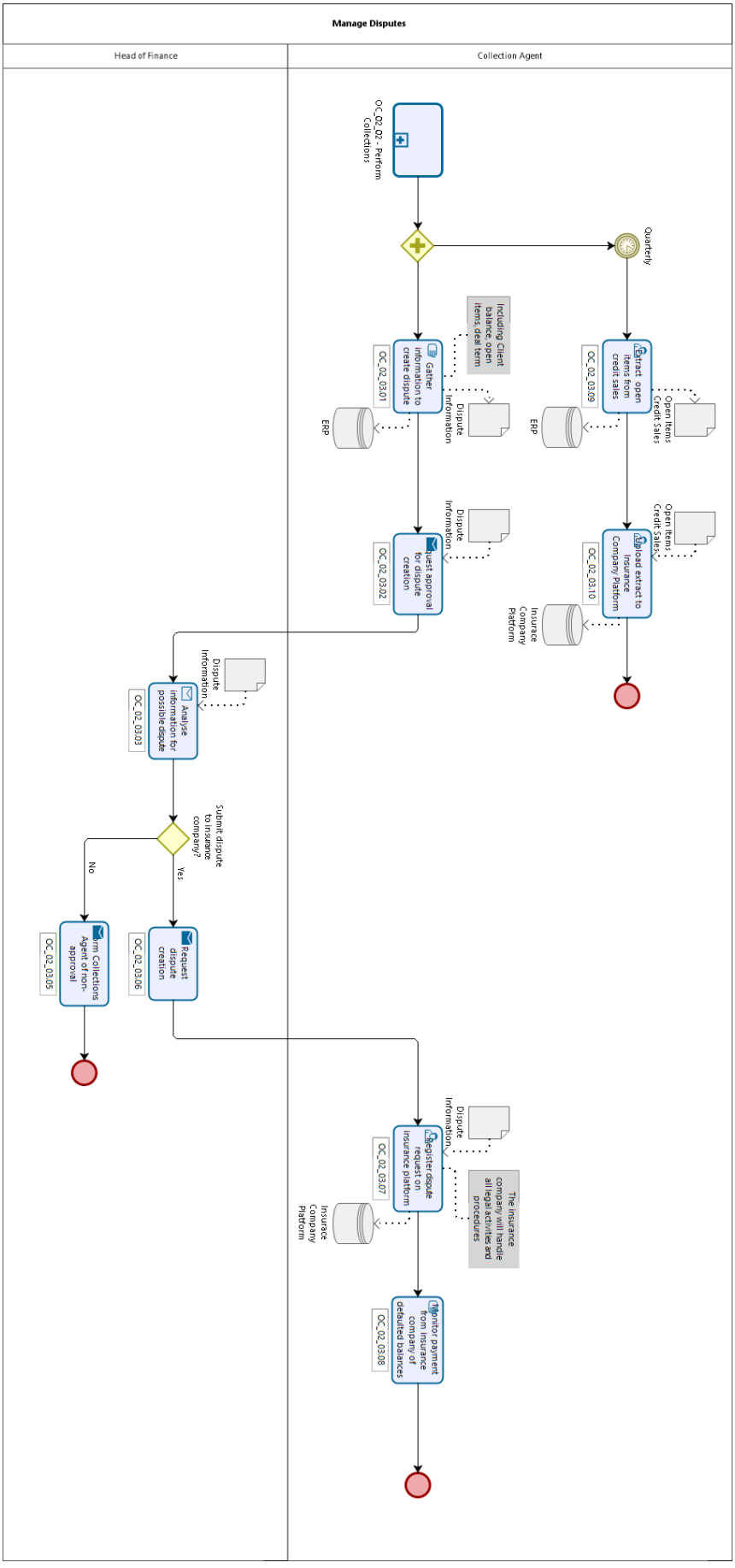
OC_01_02 – Close Deals (1/2)



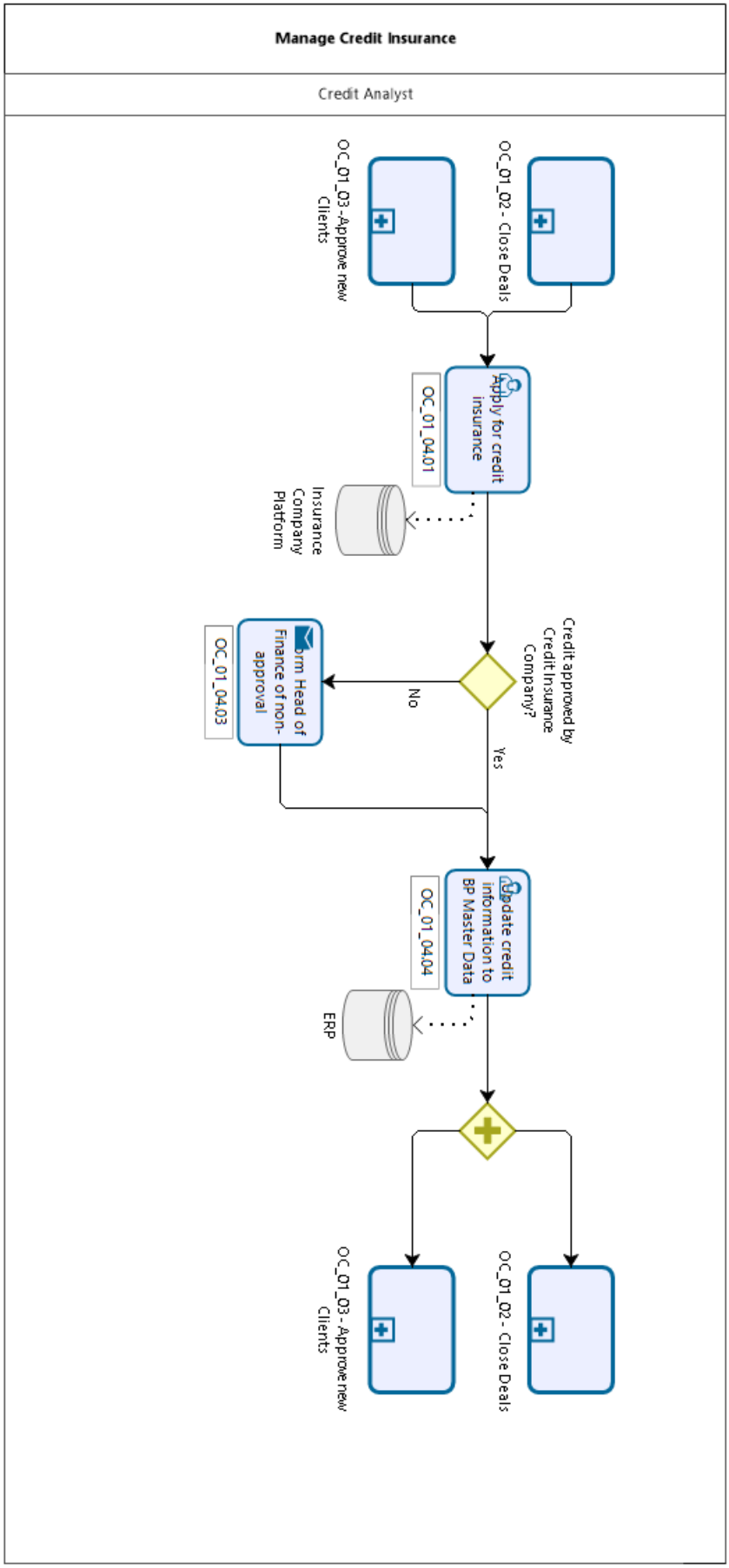
OC_01_02 – Close Deals (2/2)



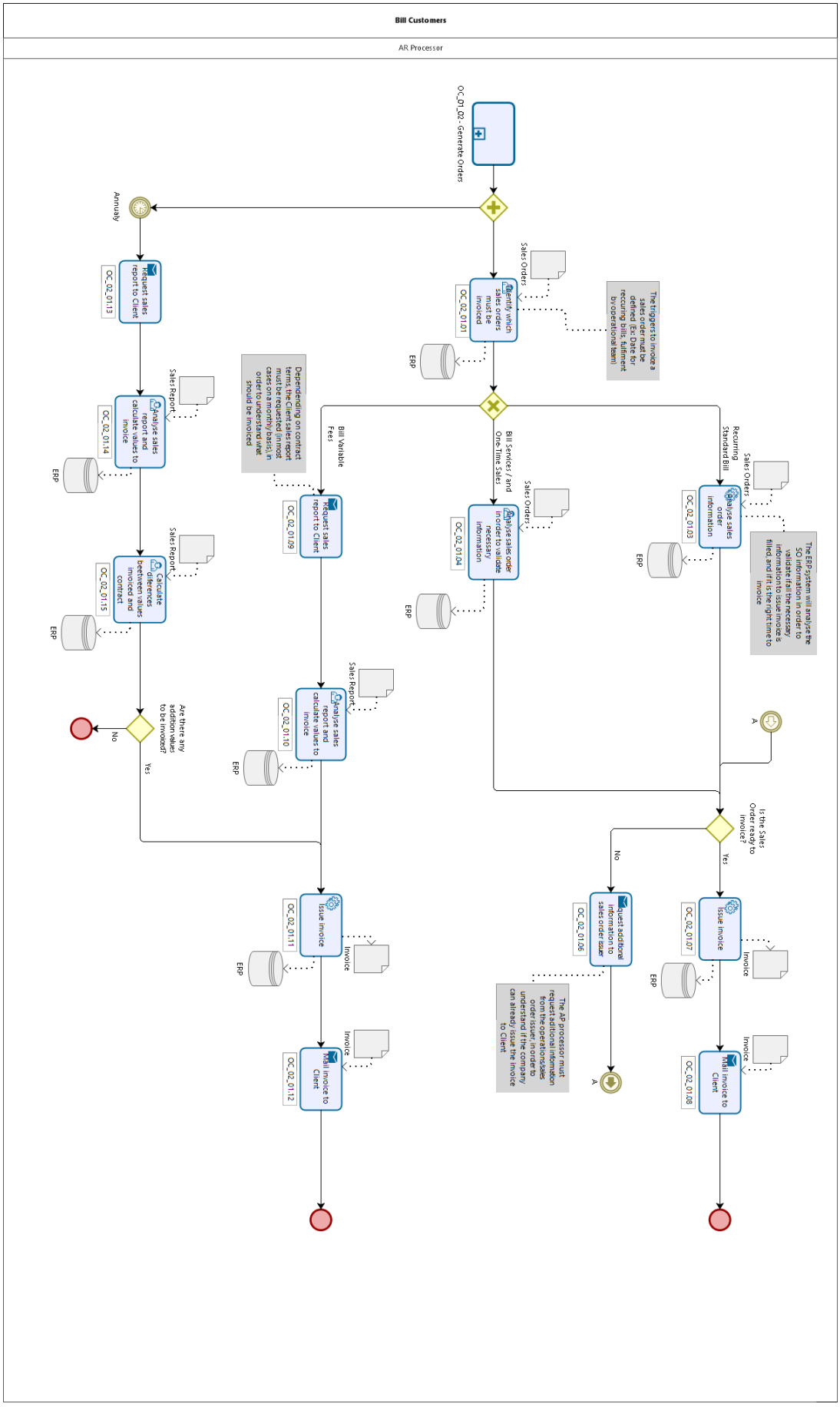
OC_01_03 – Approve new Clients



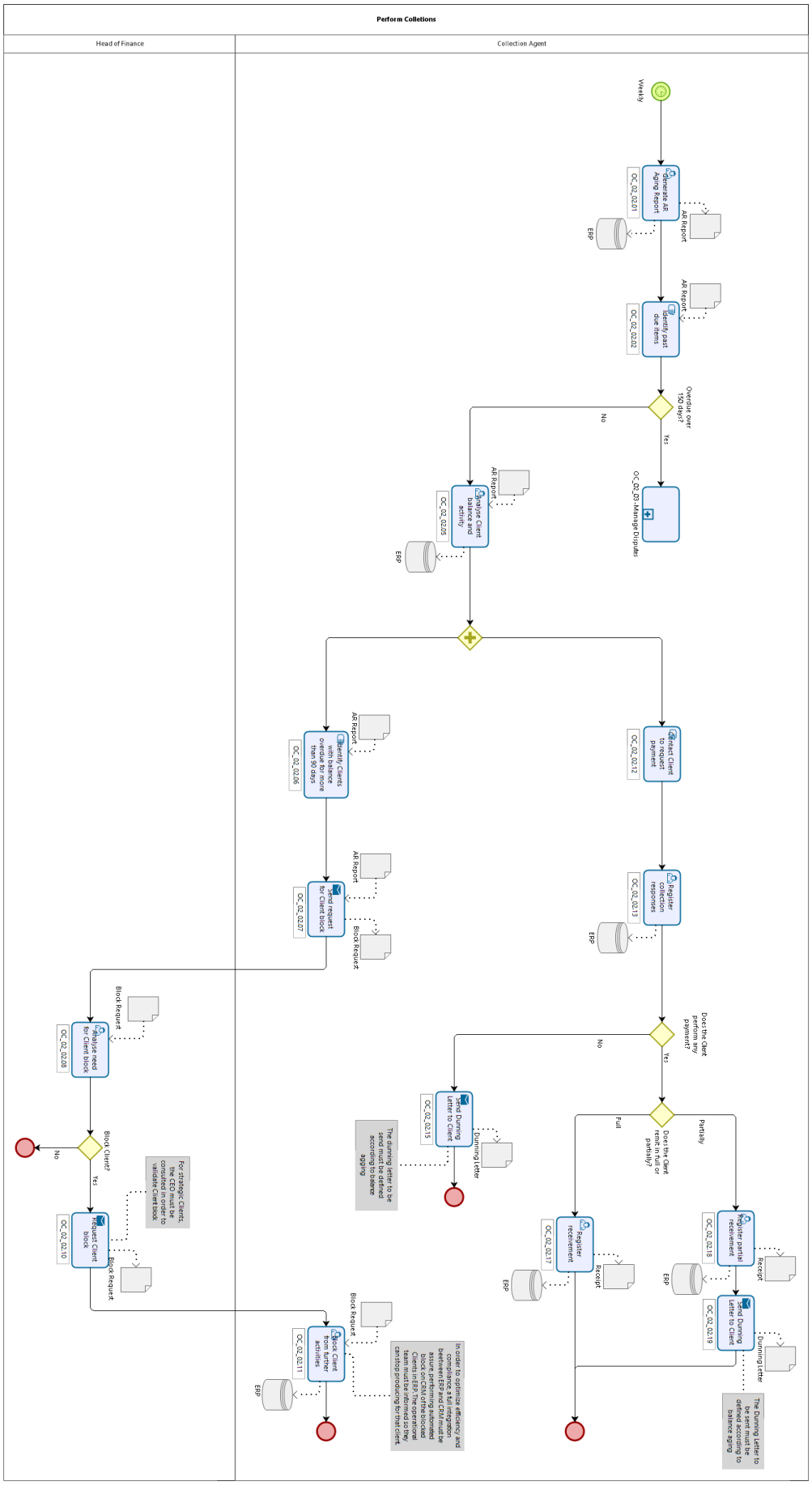
OC_01_04 – Manage Credit Insurance



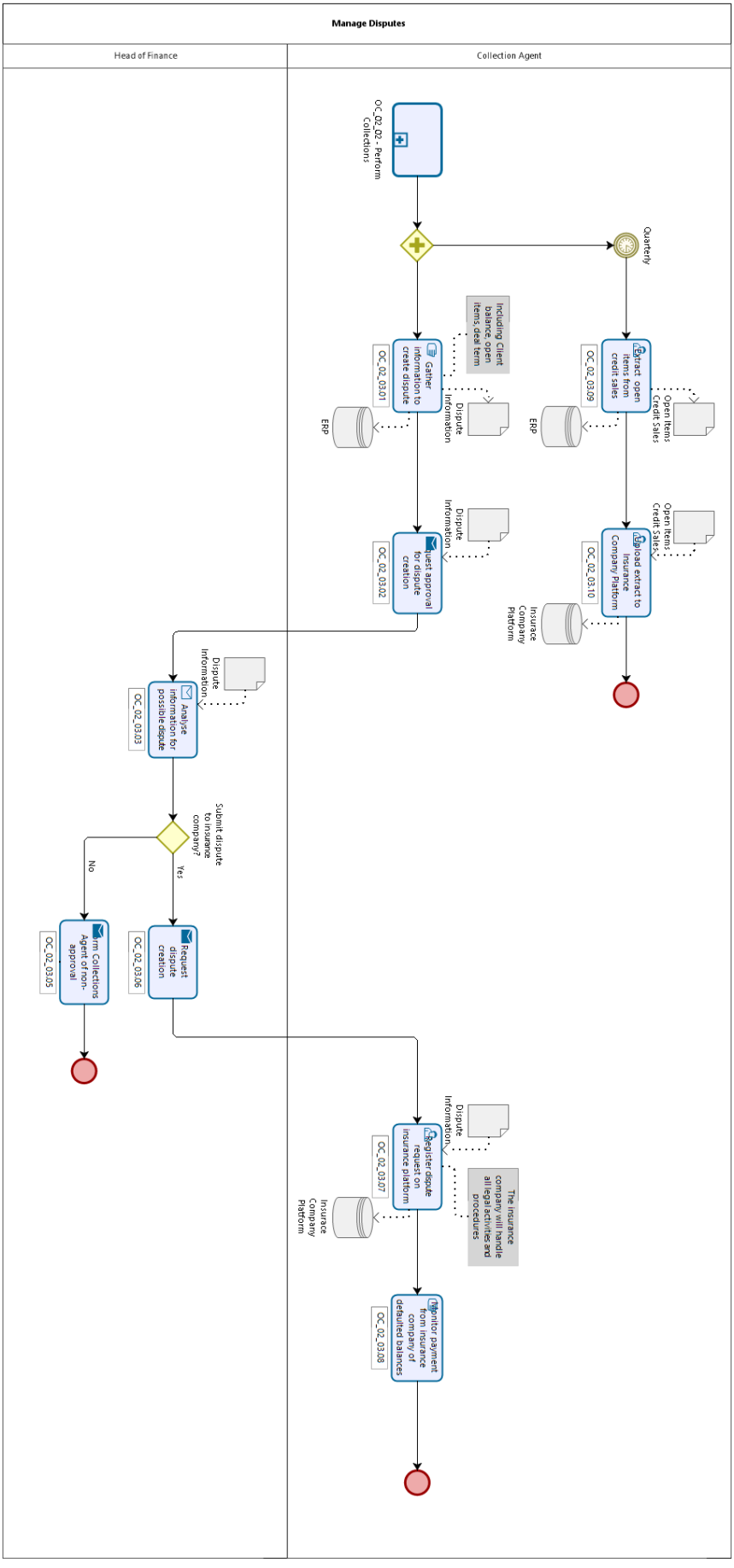
OC_02_01 – Bill Customers



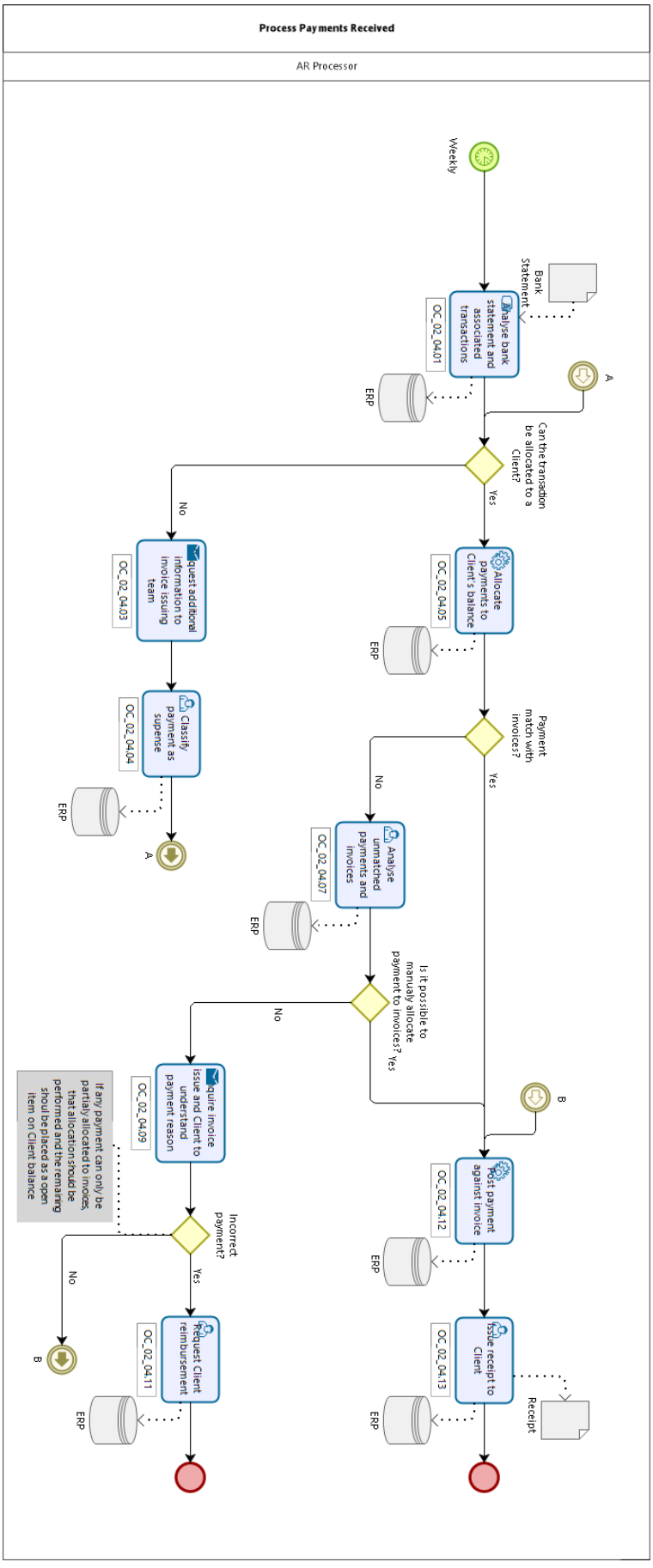
OC_02_02 – Perform Collections



OC_02_03 – Manage Client Disputes

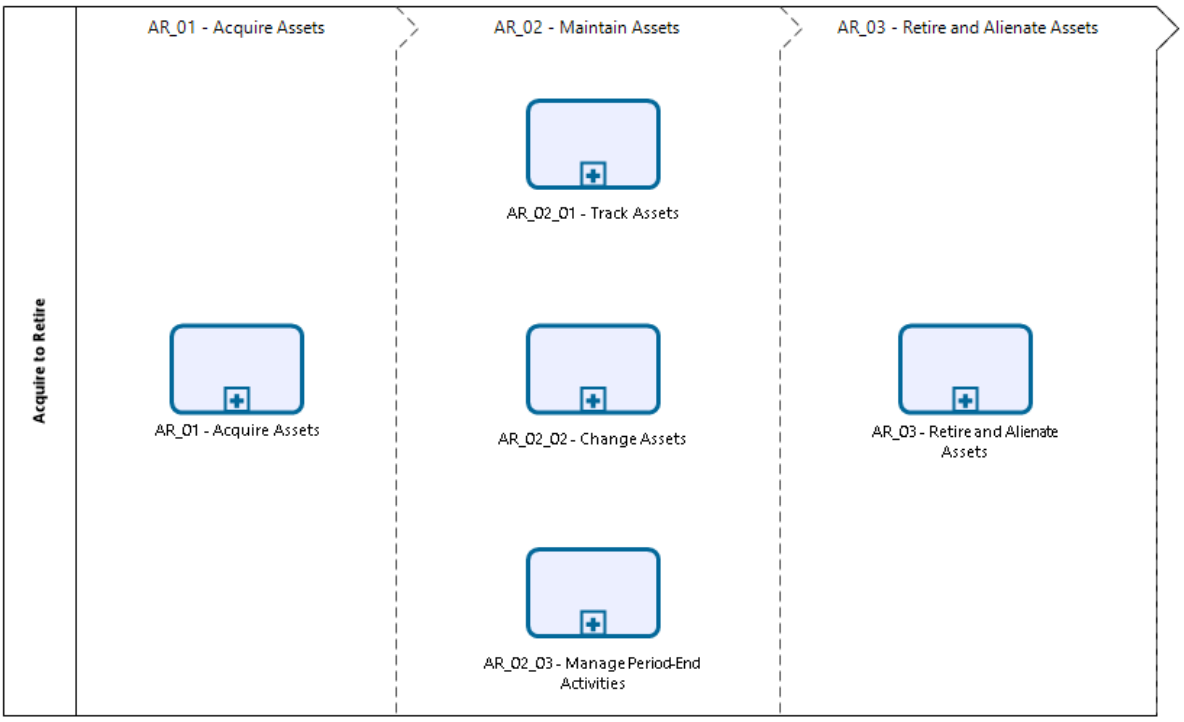


OC_02_04 – Process Payments Received

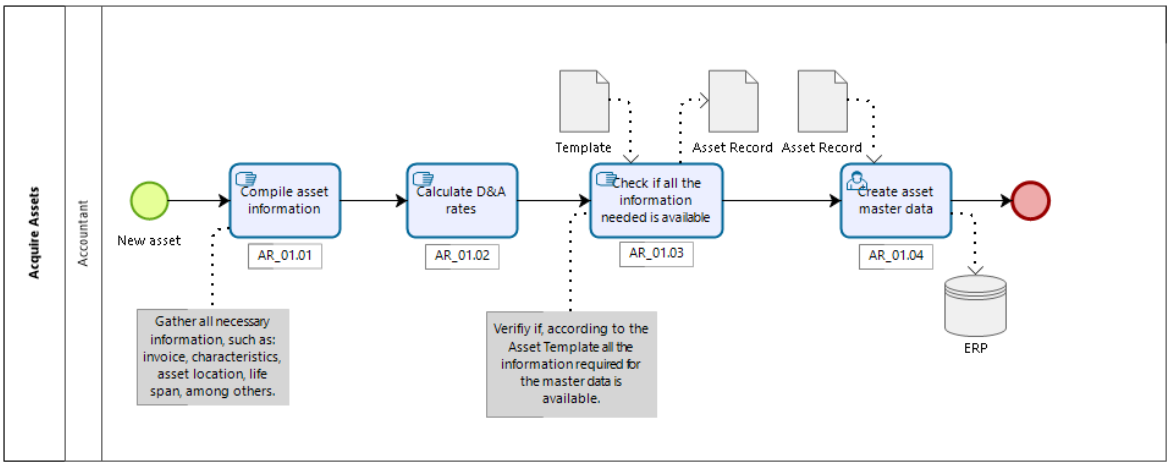


APPENDIX Q: BPDs (*To-Be Model*) - Acquire to Retire

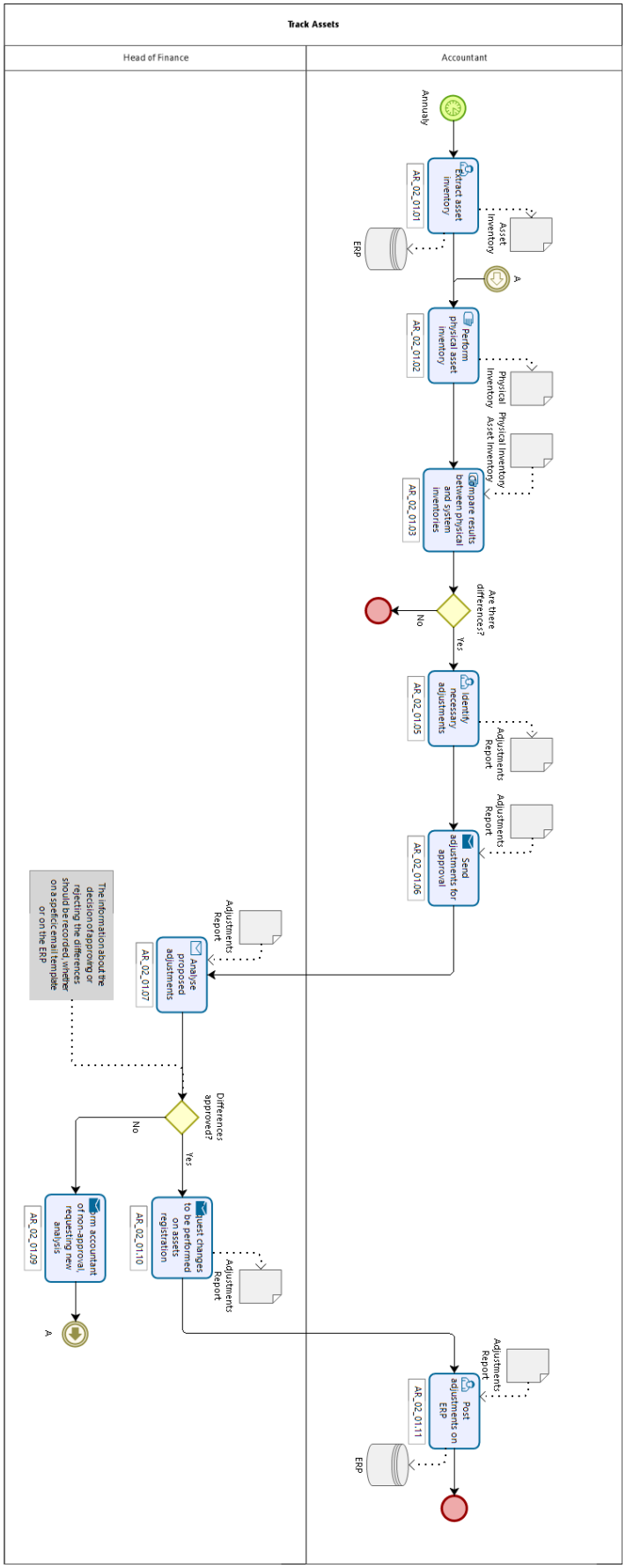
AR – Acquire to Retire



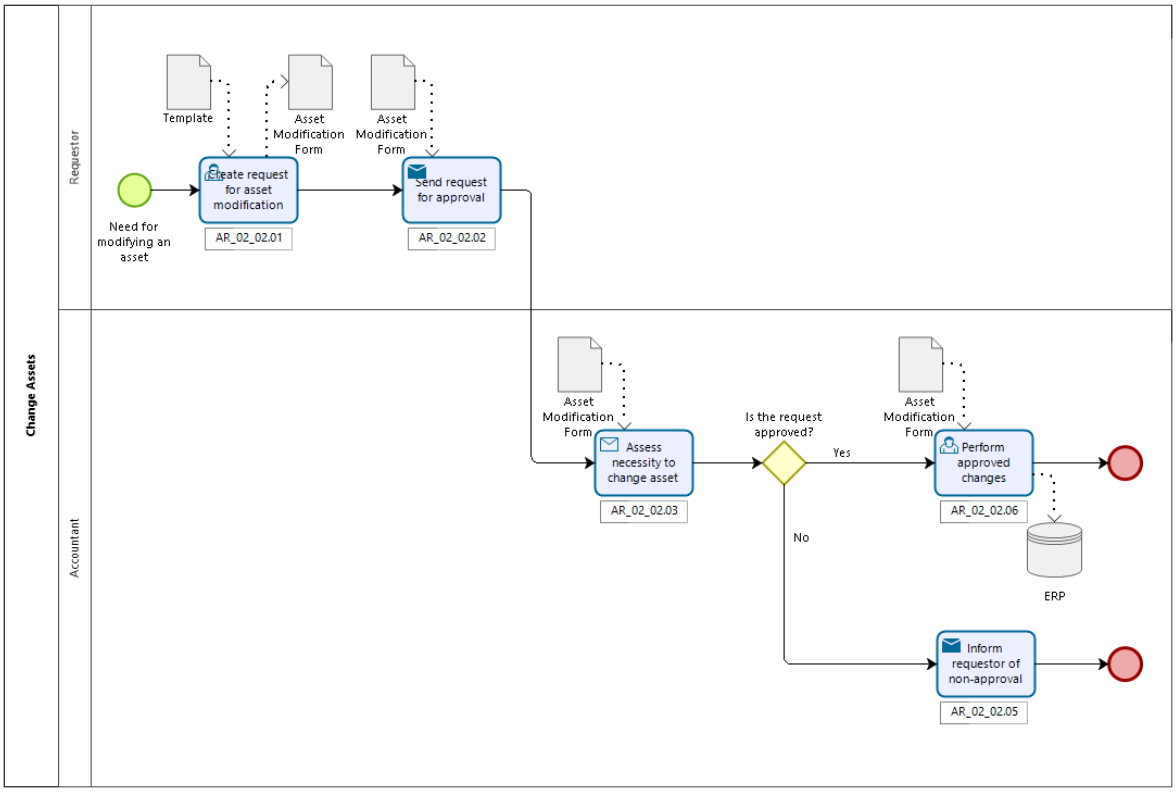
AR_01 – Acquire Assets



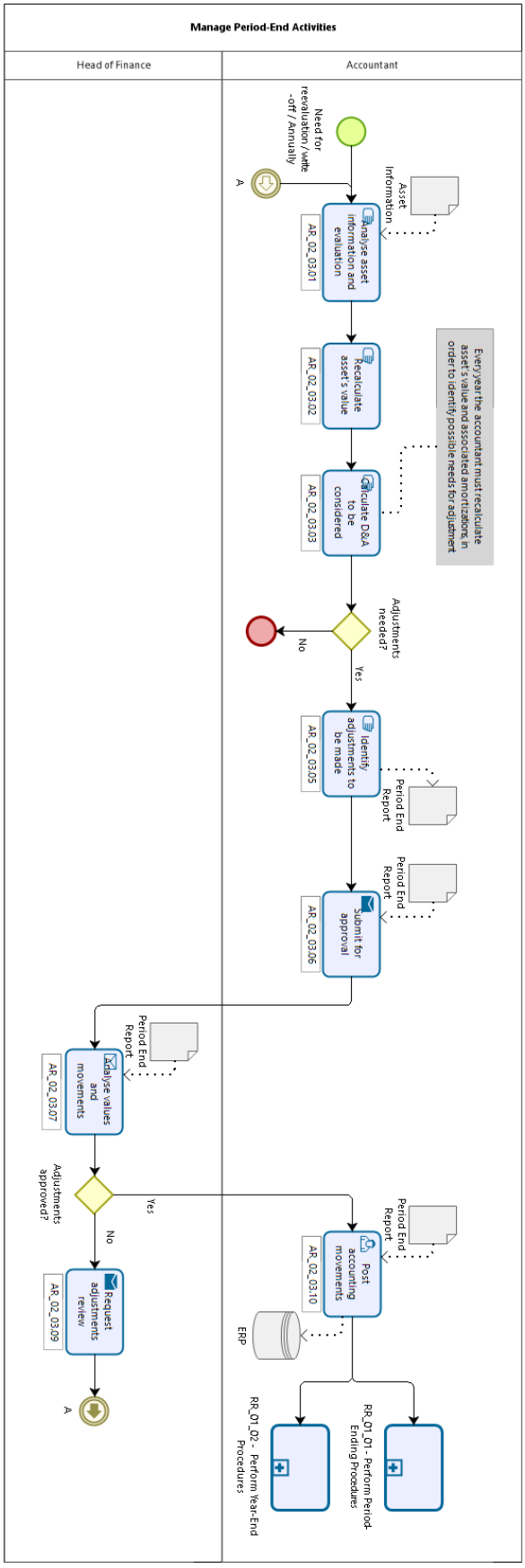
AR_02_01 – Track Assets



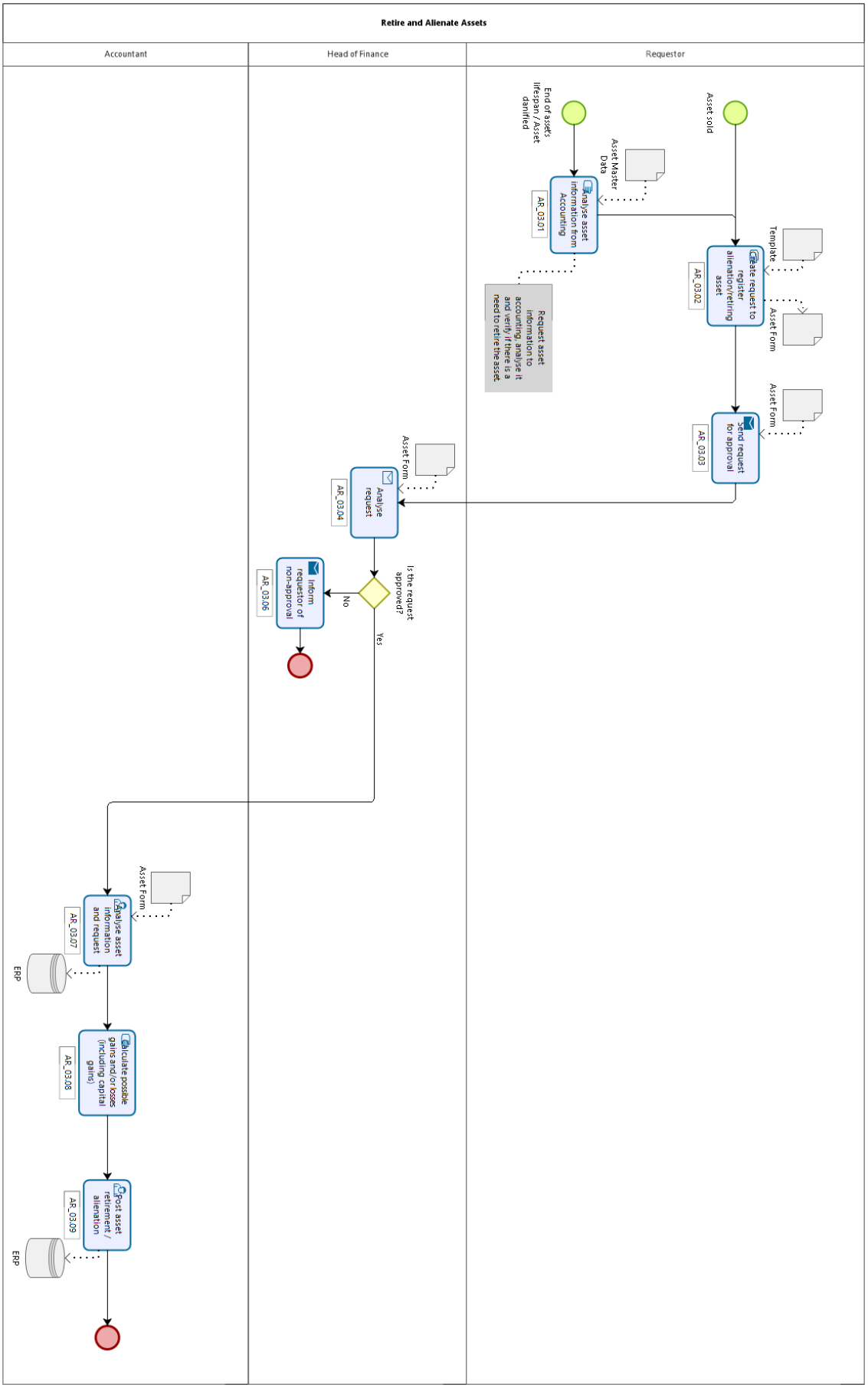
AR_02_02 – Change Assets



AR_02_03 – Manage Period-End Activities

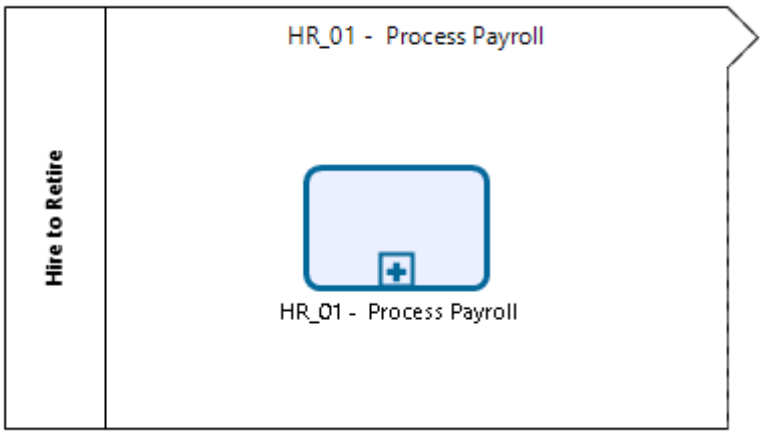


AR_03 – Retire and Alienate Assets

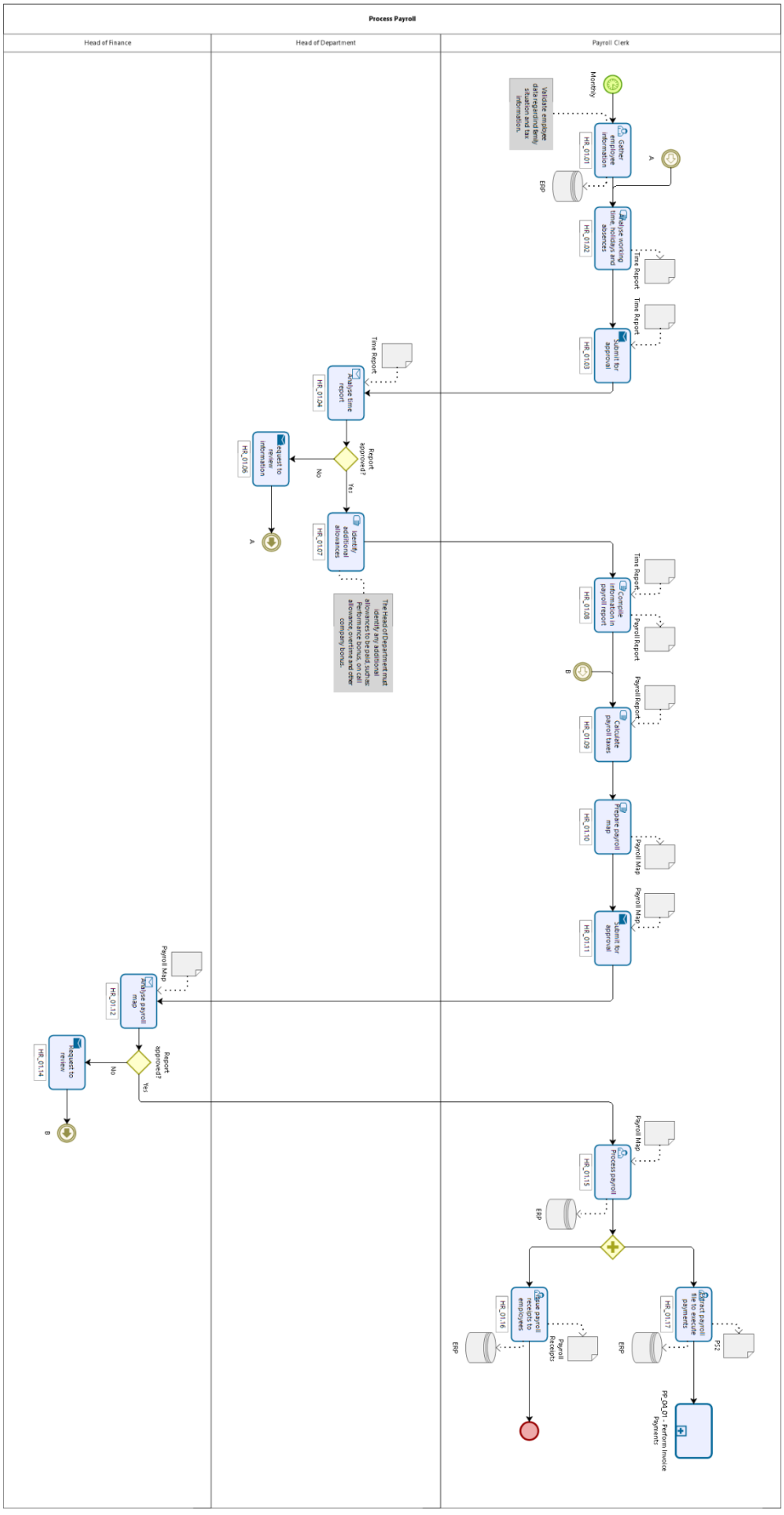


APPENDIX R: BPDs (*To-Be Model)* – Hire to Retire (HR)

HR – Hire to Retire

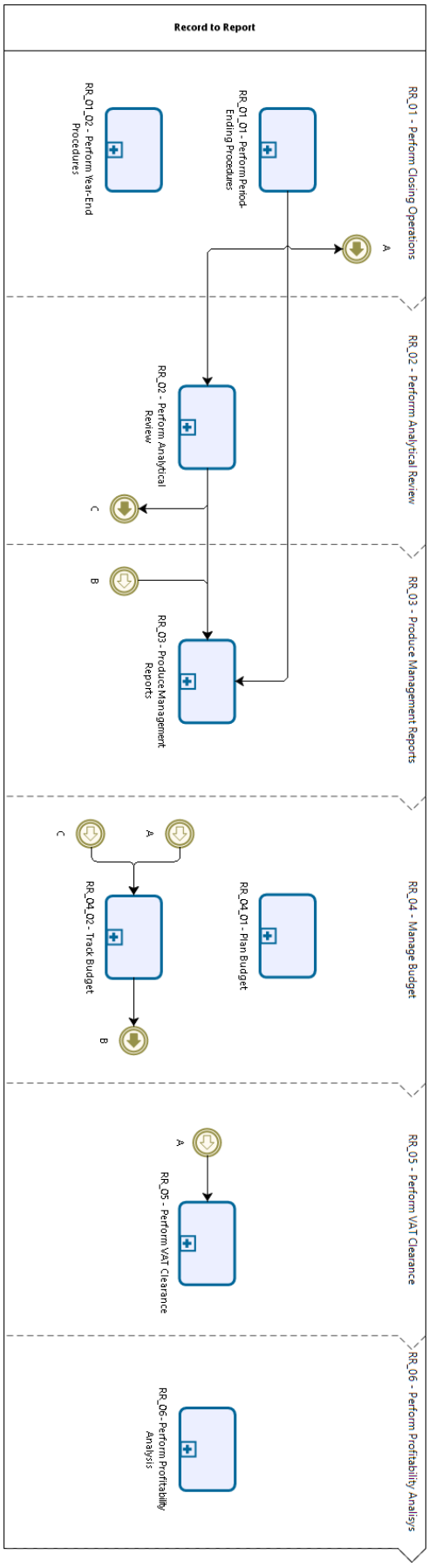


HR_01 – Process Payroll

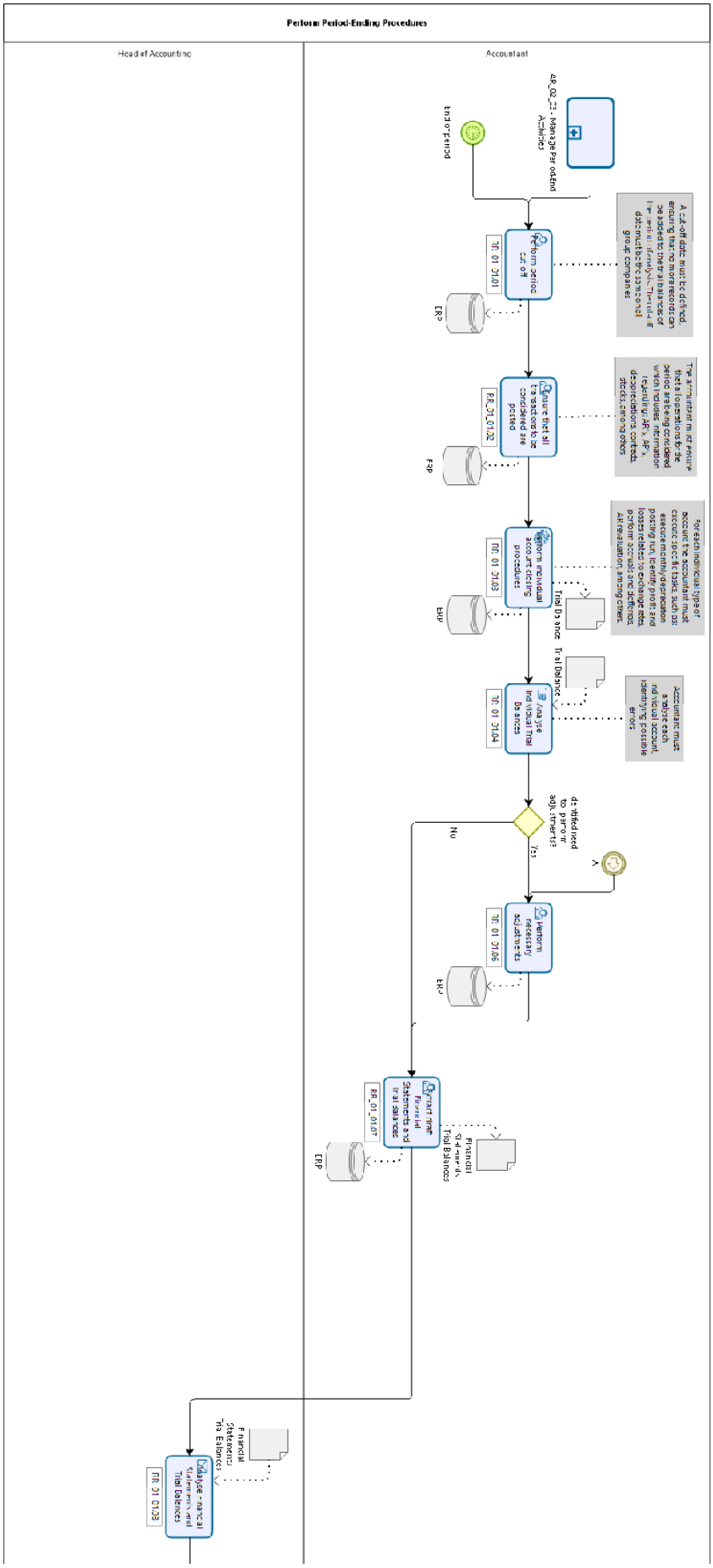


APPENDIX S: BPDs (*To-Be Model)* - Record to Report

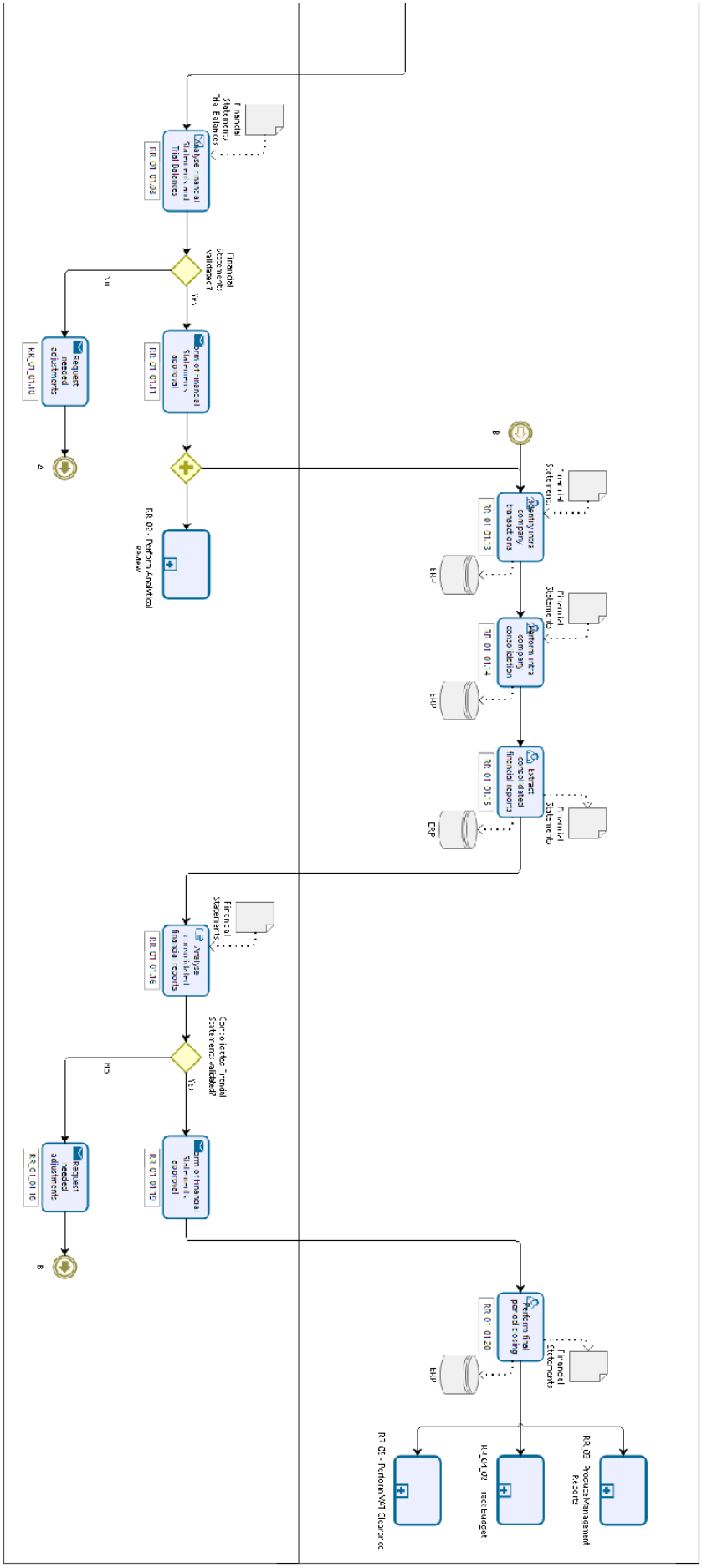
RR – Record to Report



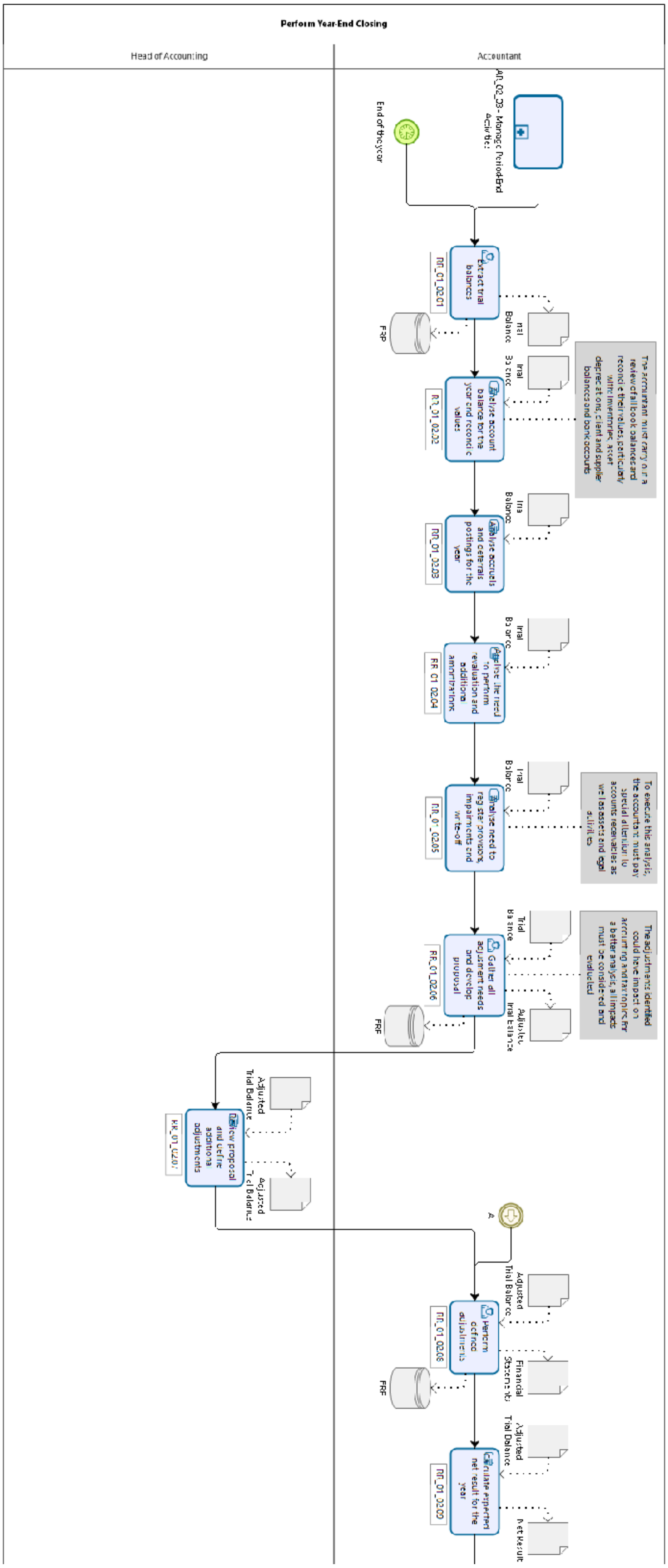
RR_01_01 – Perform Period-Ending Activities (1/2)



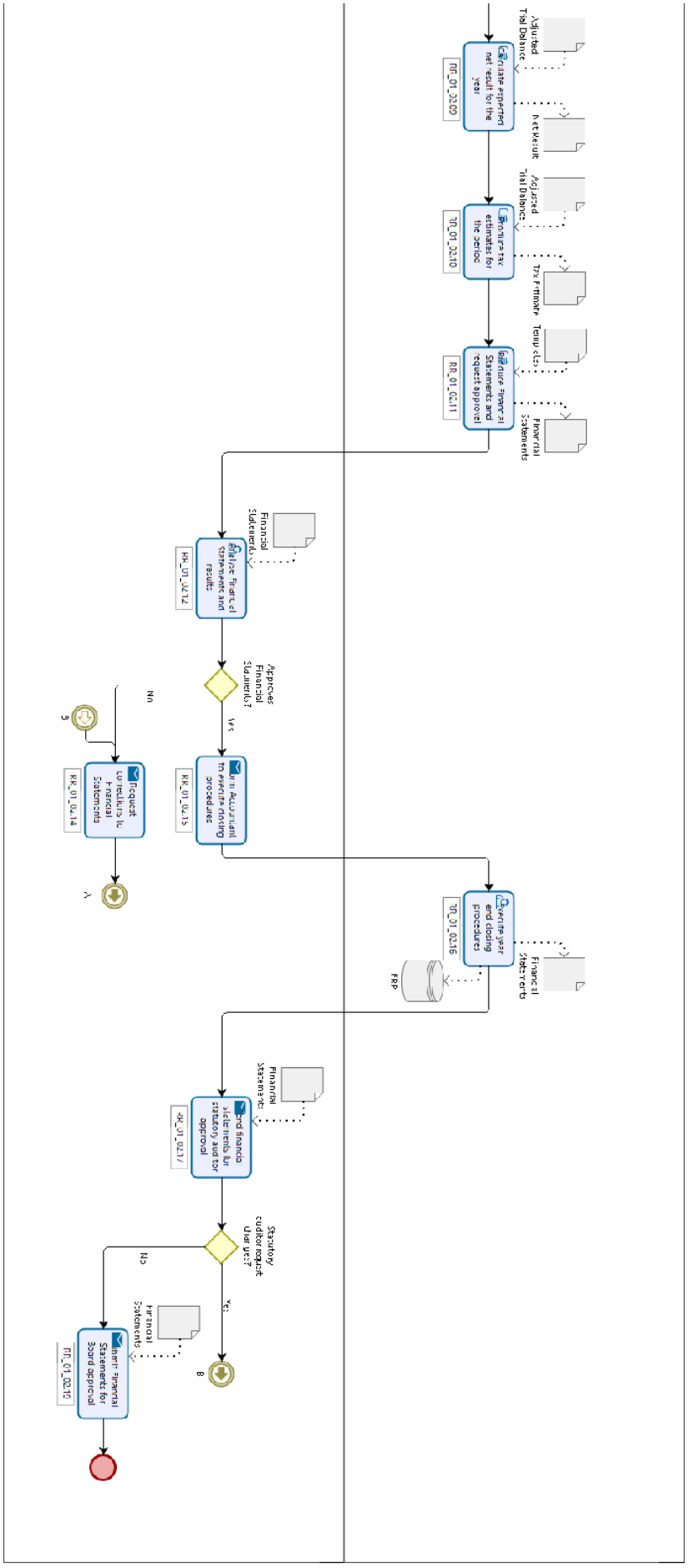
RR_01_01 – Perform Period-Ending Activities (2/2)



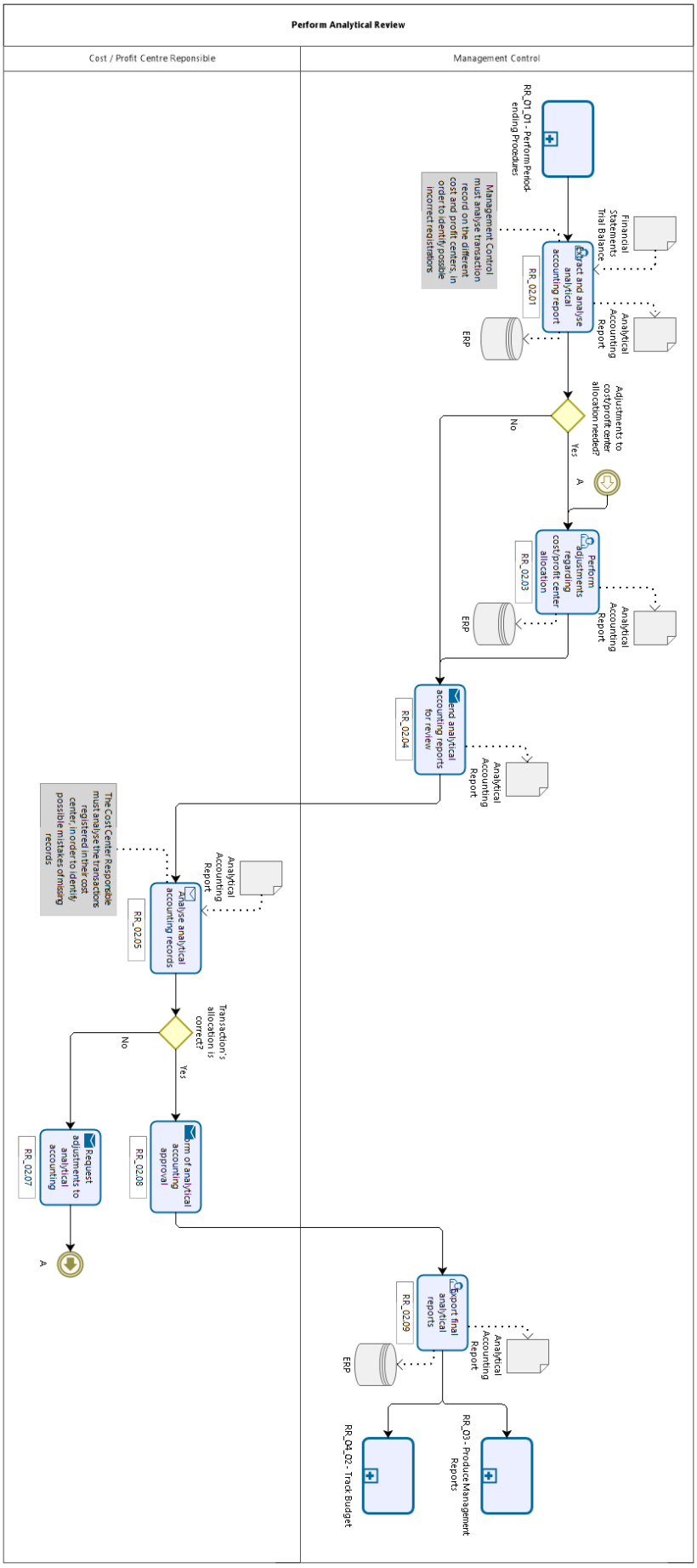
RR_01_02 – Perform Year-End Activities (1/2)



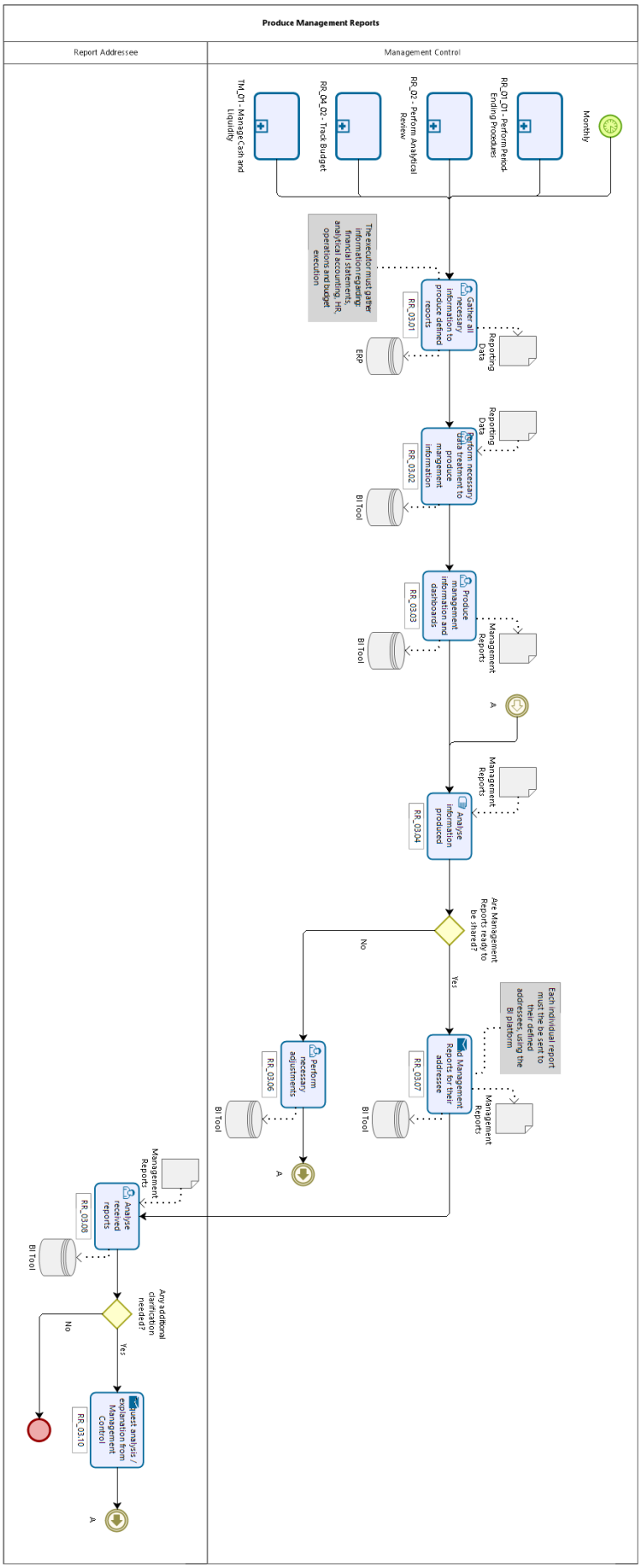
RR_01_02 – Perform Year-End Activities (2/2)



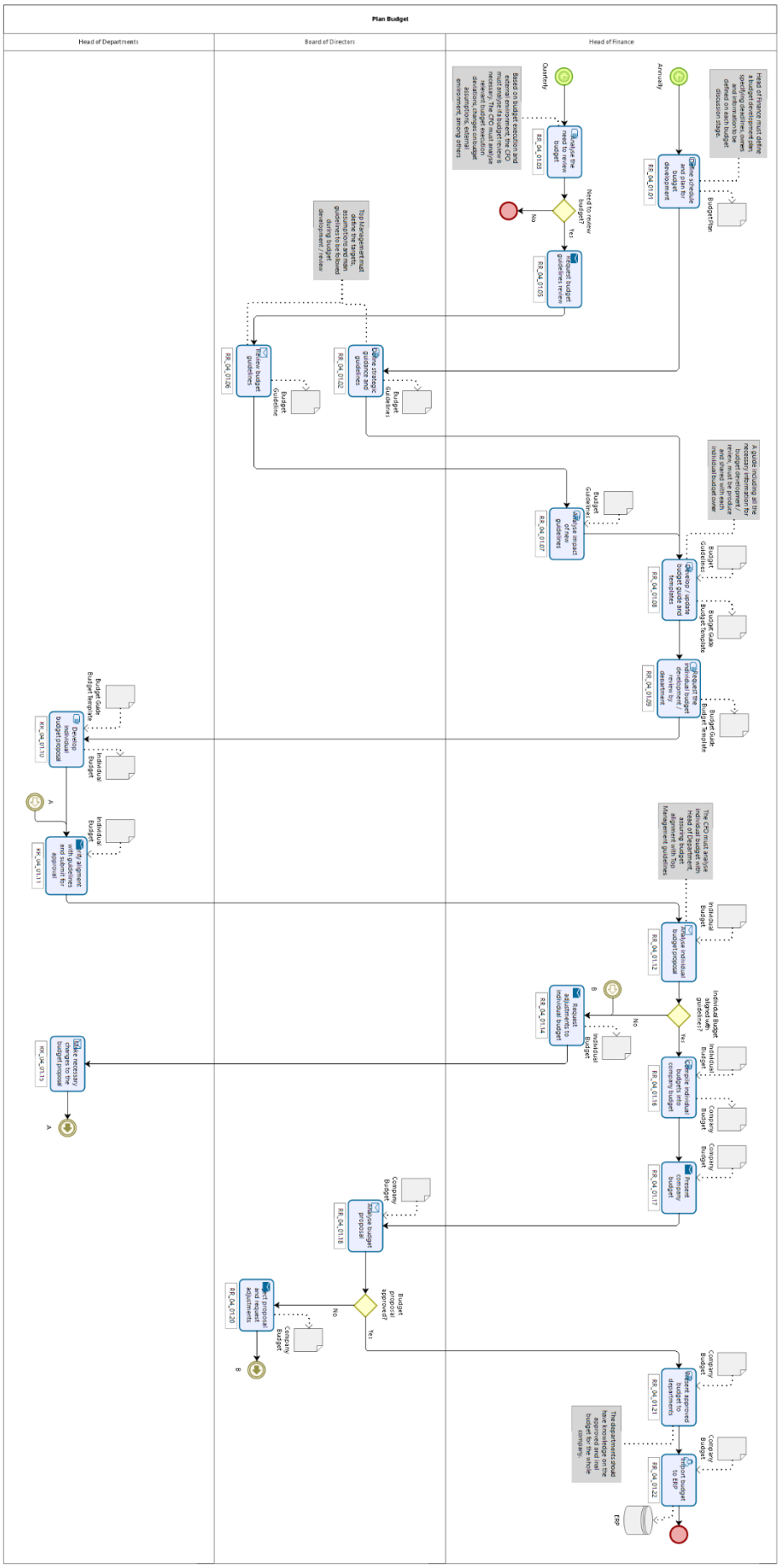
RR_02 – Perform Analytical Review



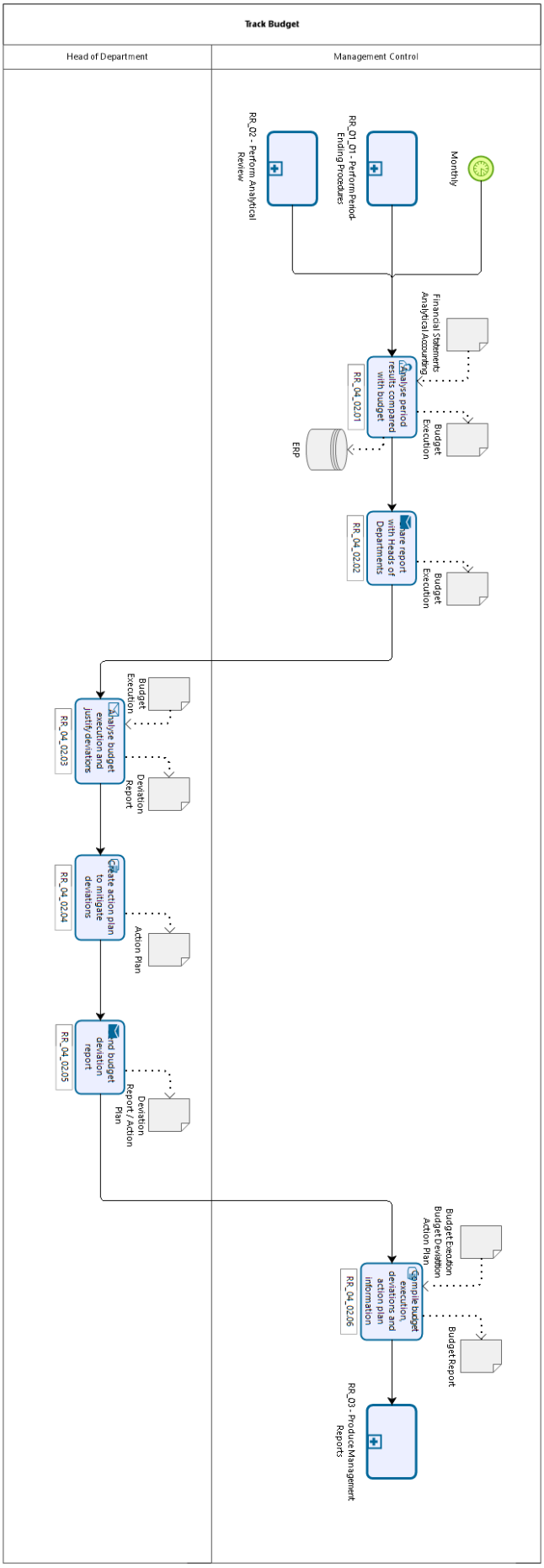
RR_03 – Produce Management Reports



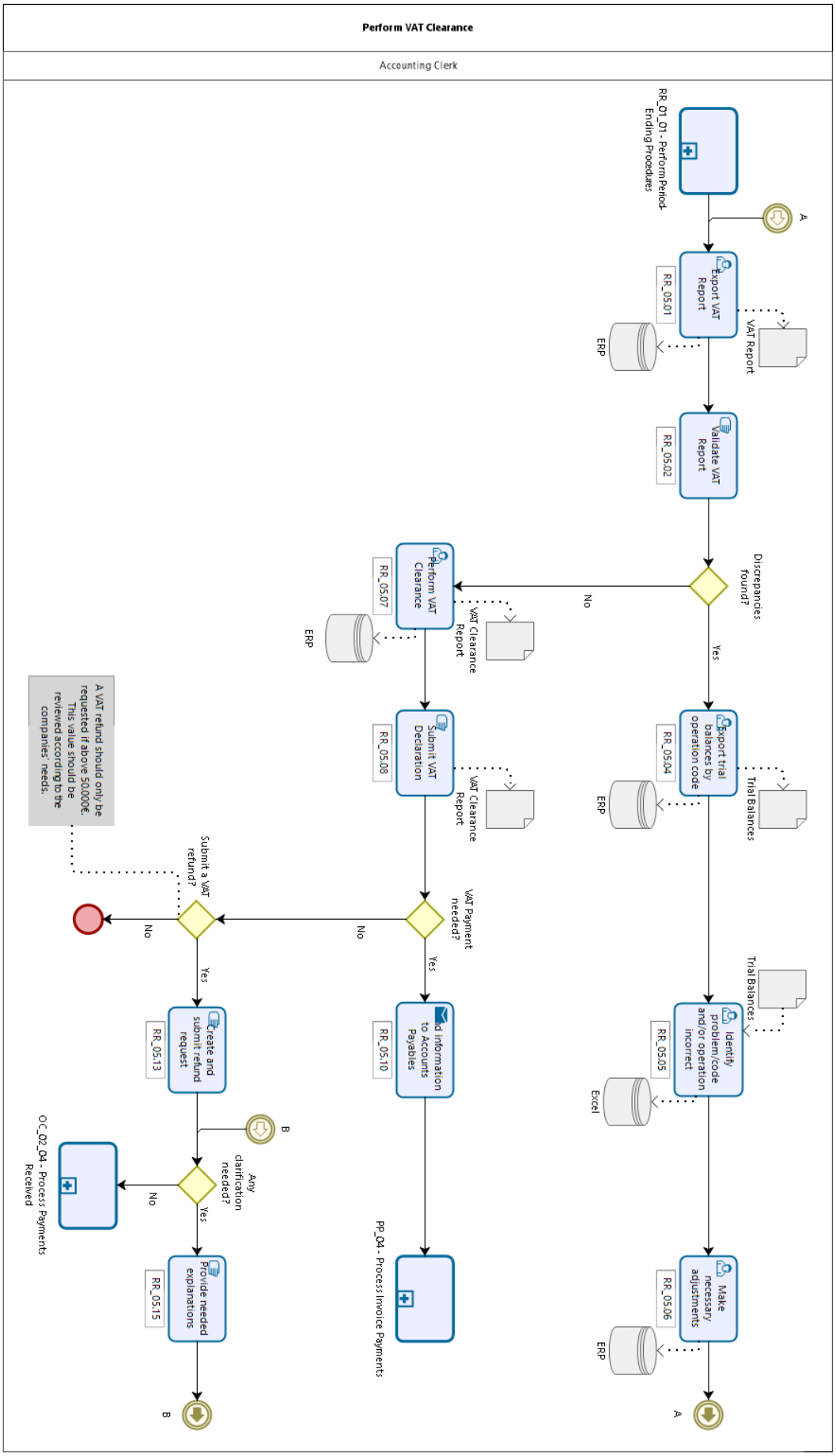
RR_04_01 – Plan Budget



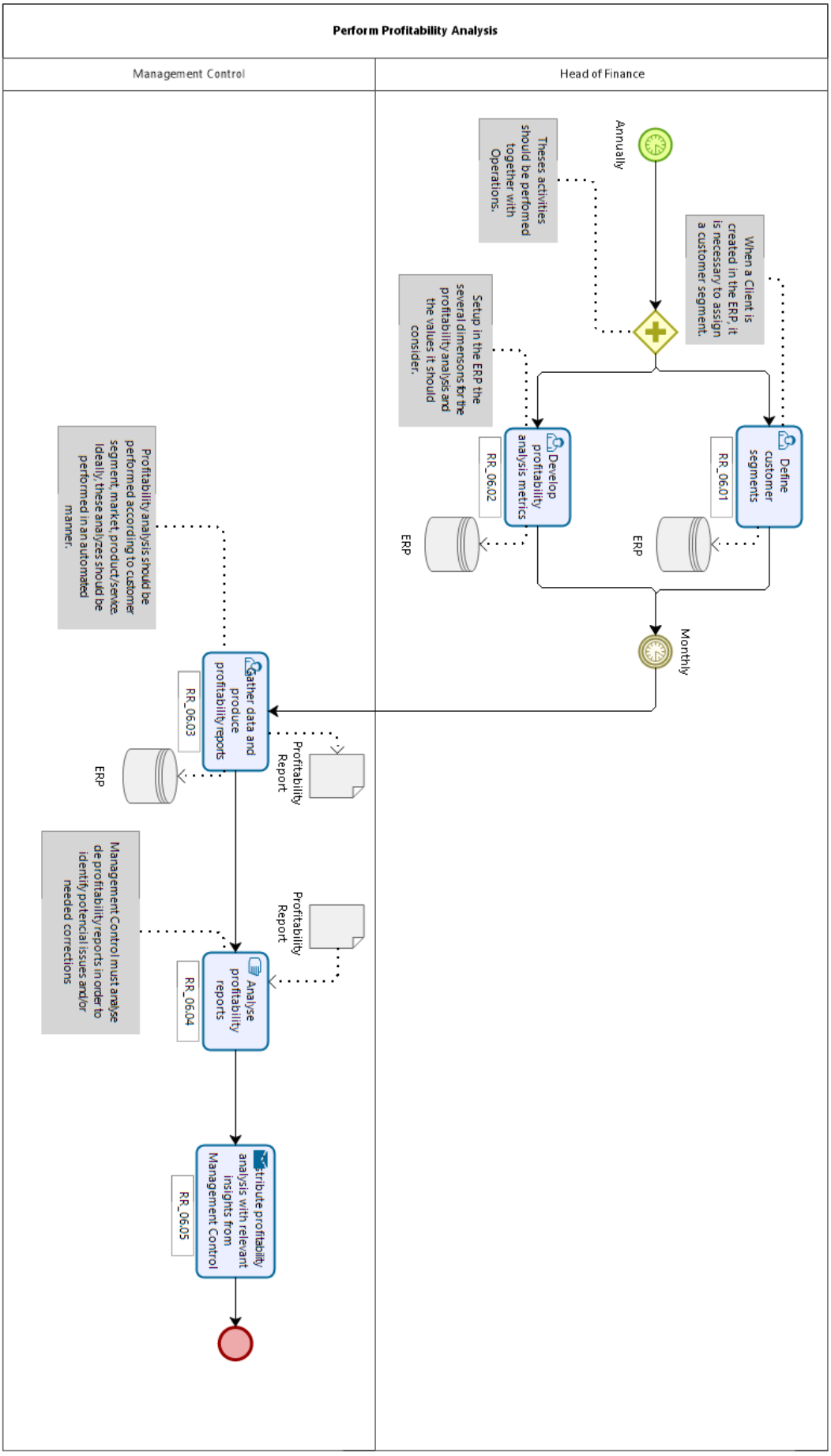
RR_04_02 – Track Budget



RR_05 – VAT Clearance

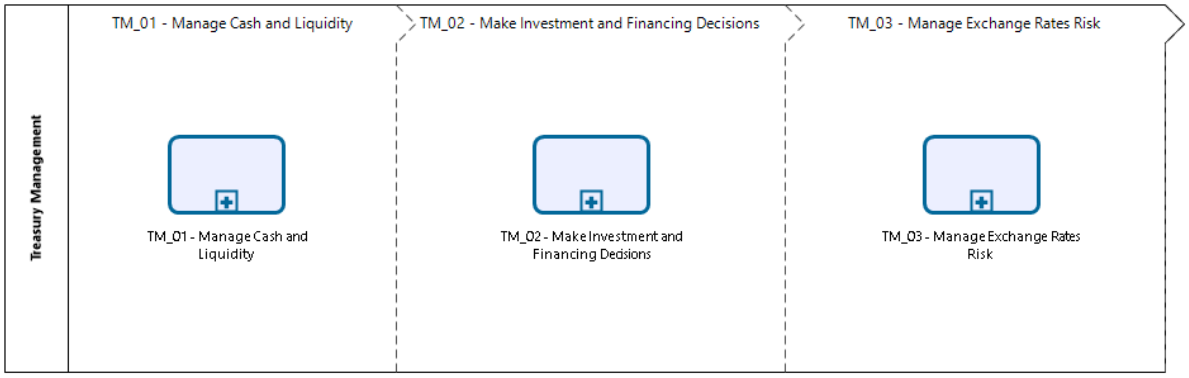


RR_06 – Perform Profitability Analysis

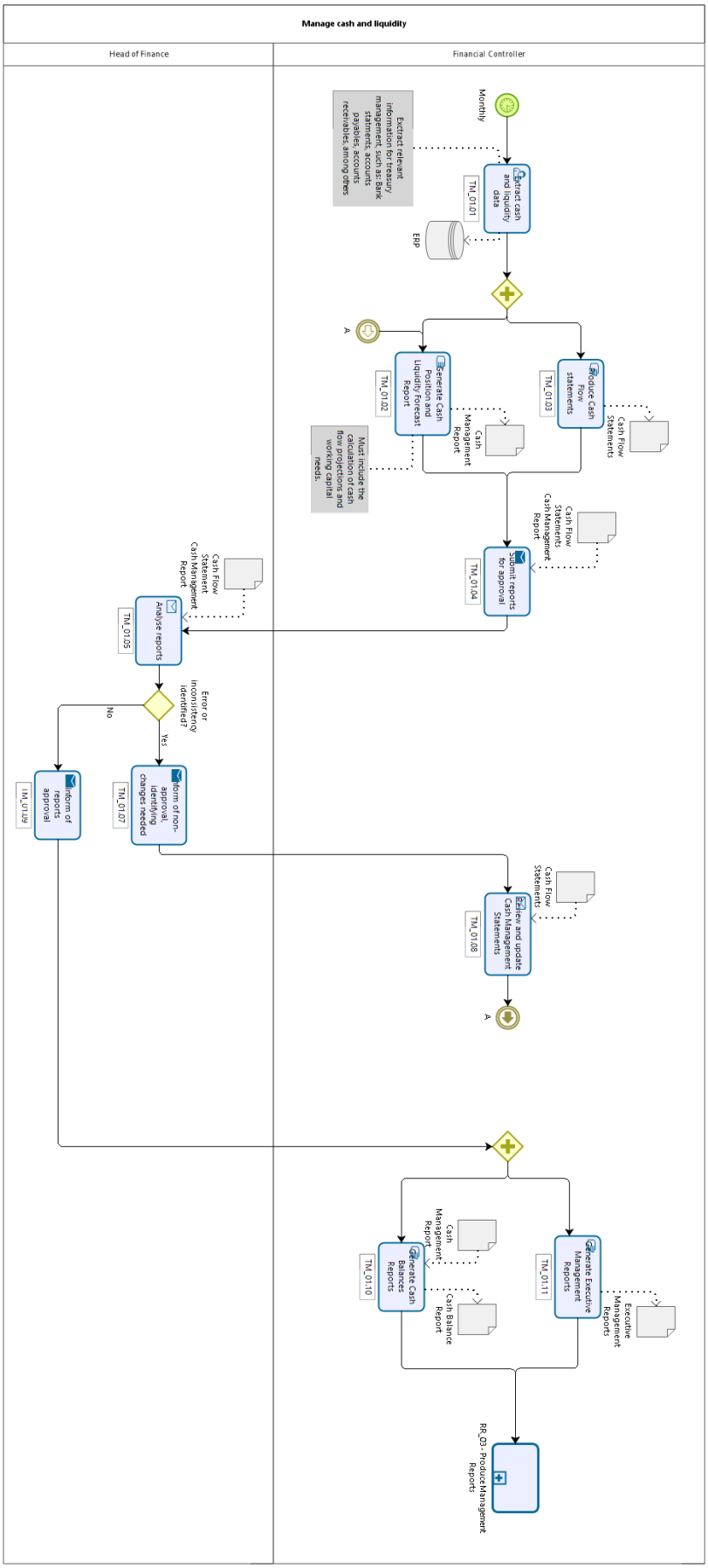


APPENDIX T: BPDs (*To-Be Model)* – Treasury Management (TM)

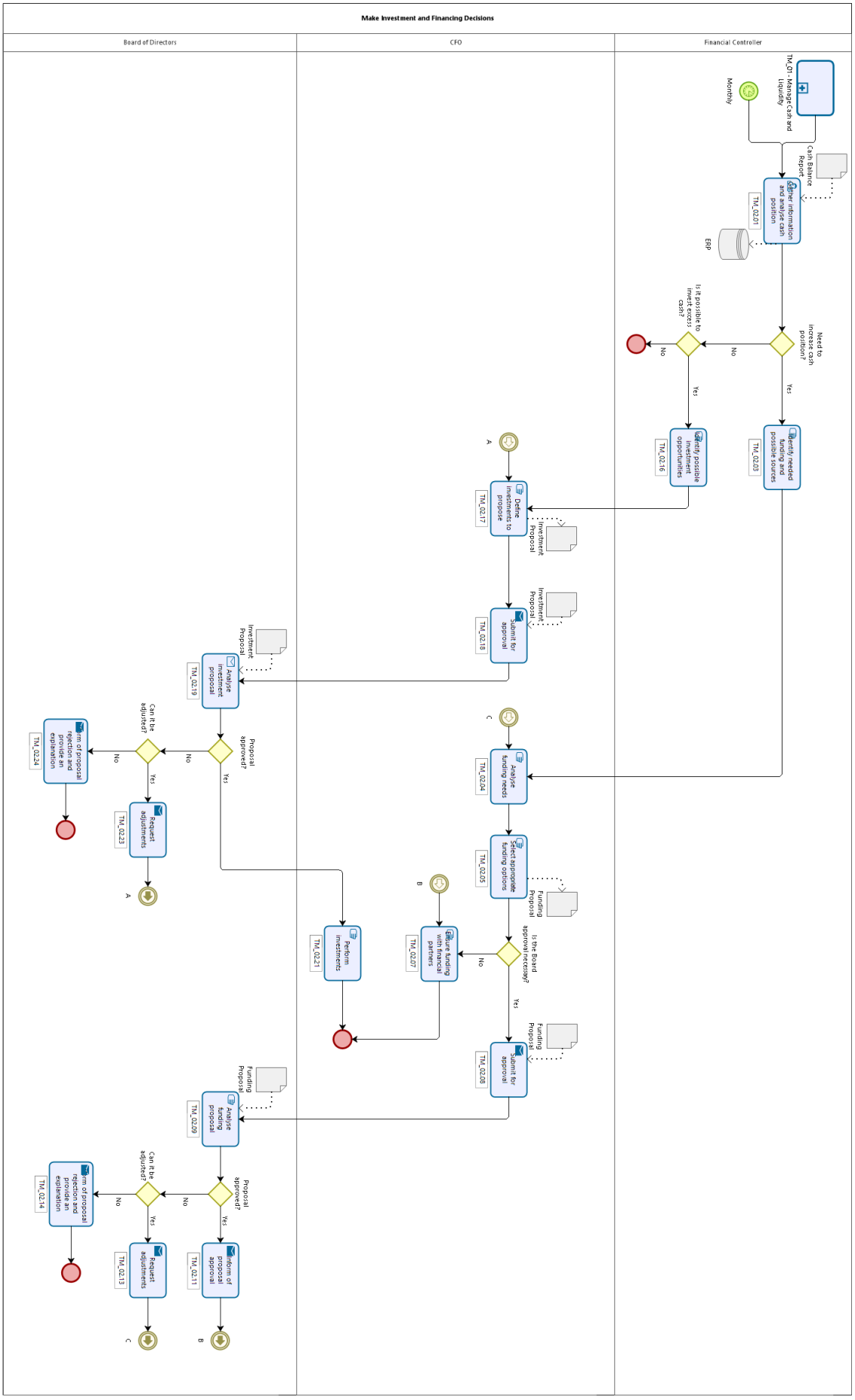
TM – Treasury Management



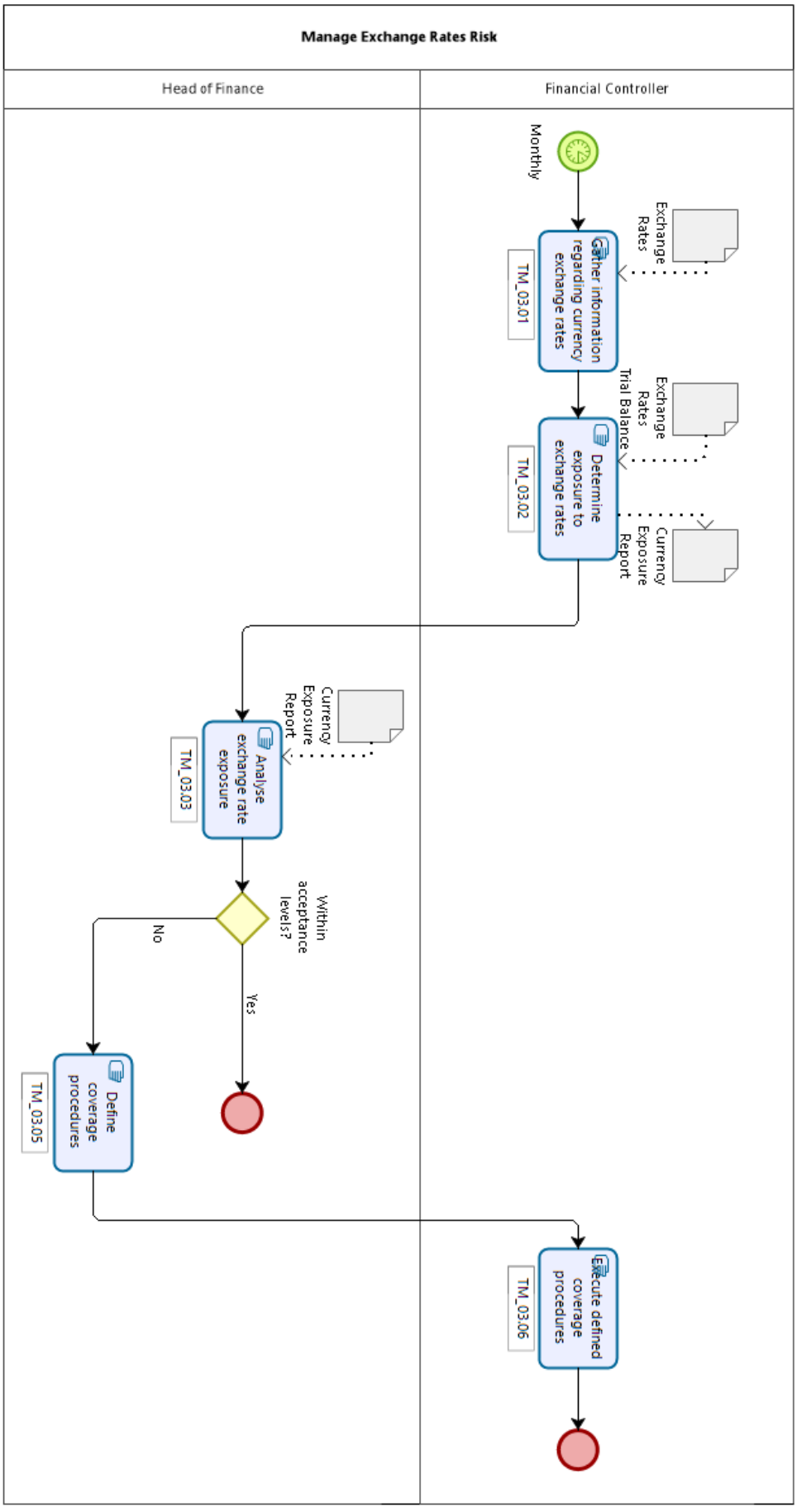
TM_01 – Manage Cash and Liquidity



TM_02 – Make Investment and Financing Decisions

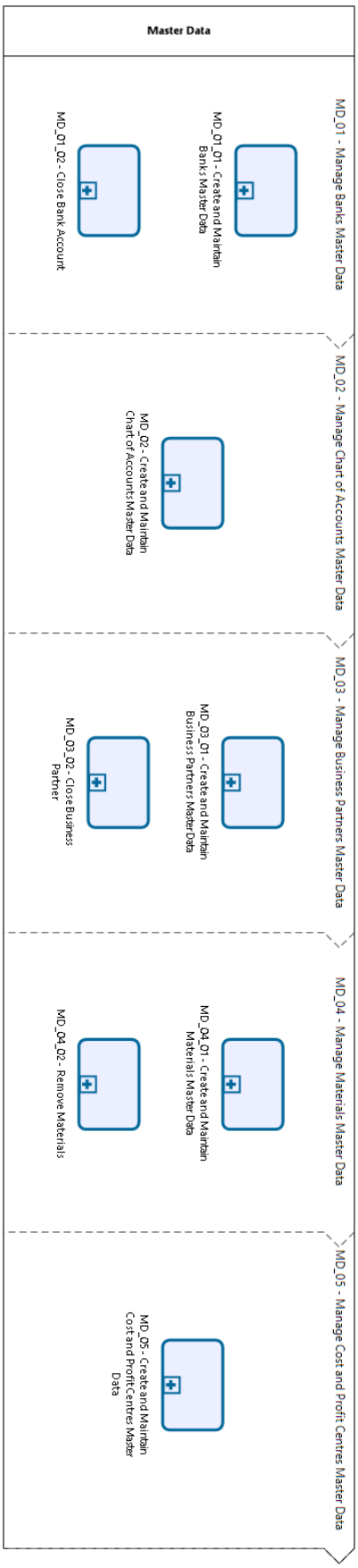


TM_03 – Manage Exchange Rates Risk

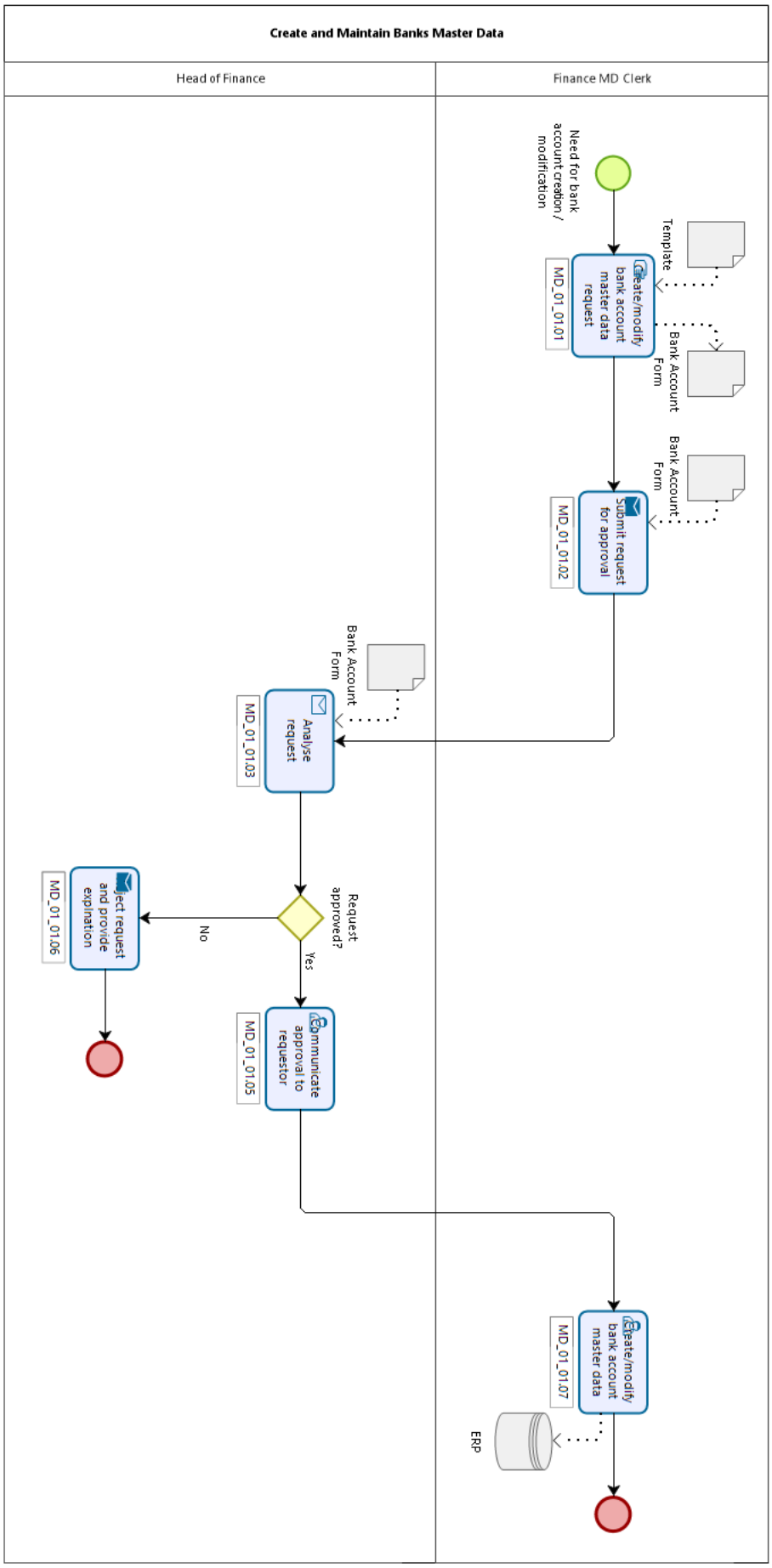


APPENDIX U: BPDs (*To-Be Model)* – Master Data (MD)

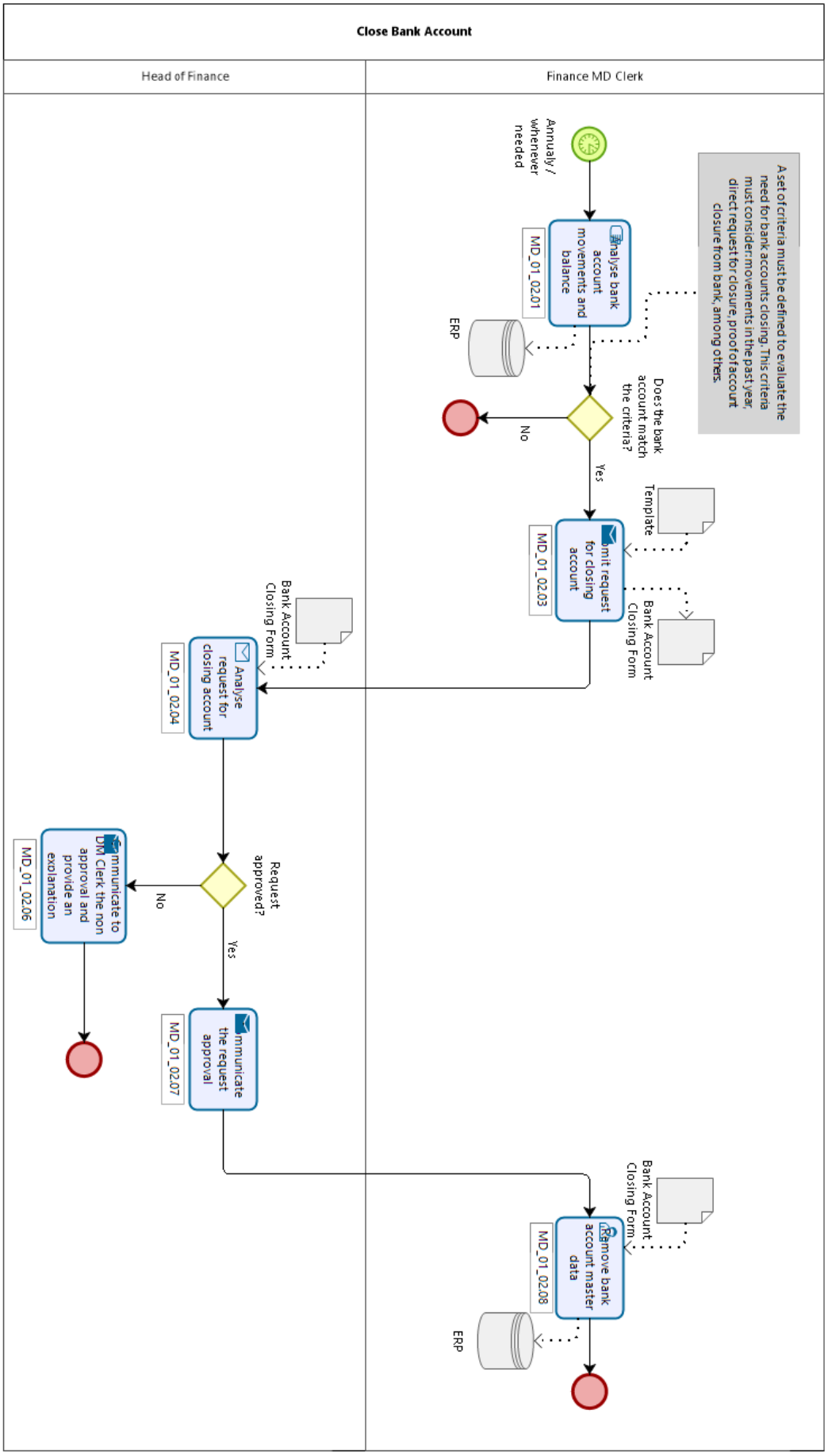
MD – Master Data



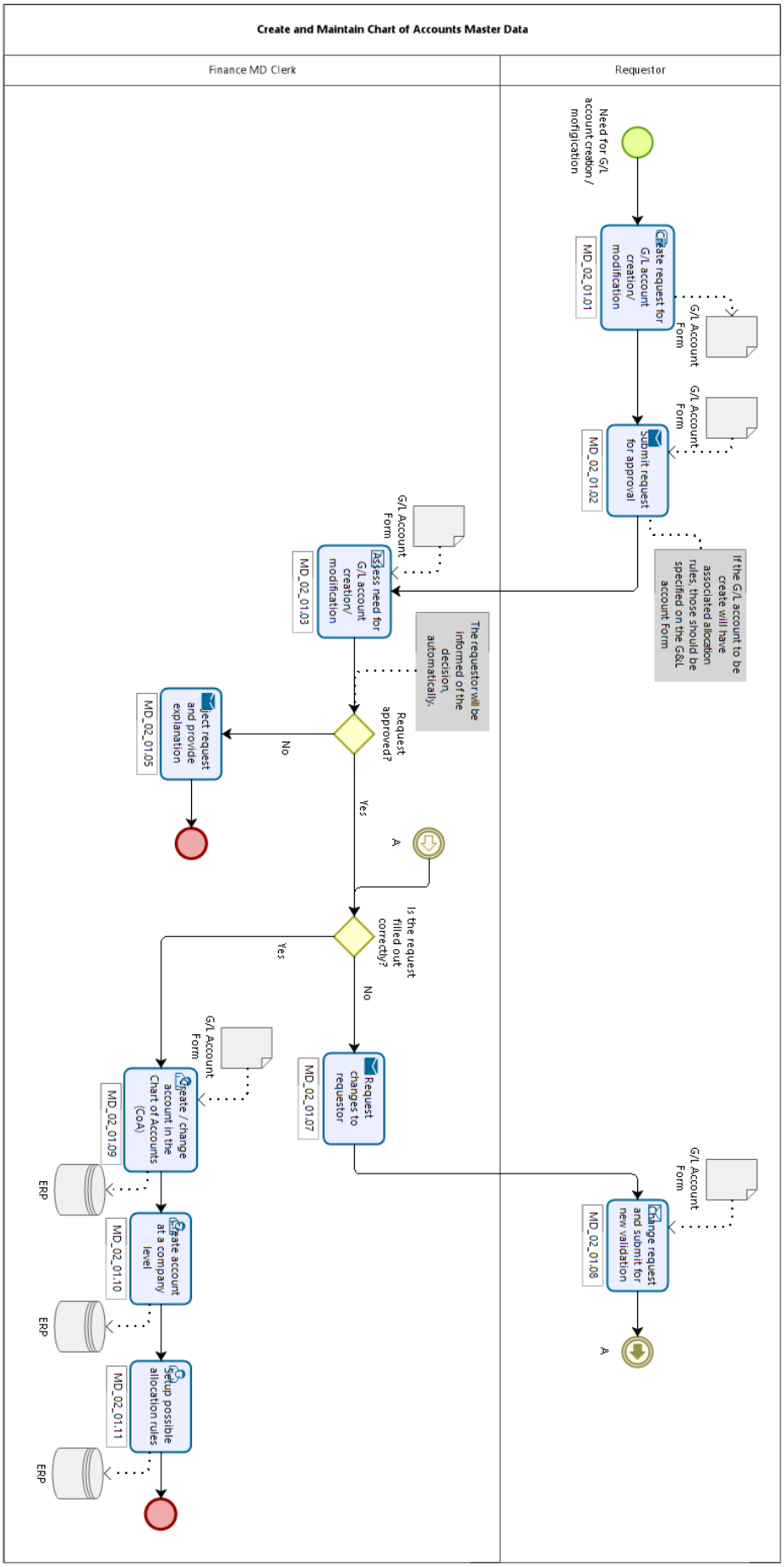
MD_01_01 – Create and Maintain Banks Master Data



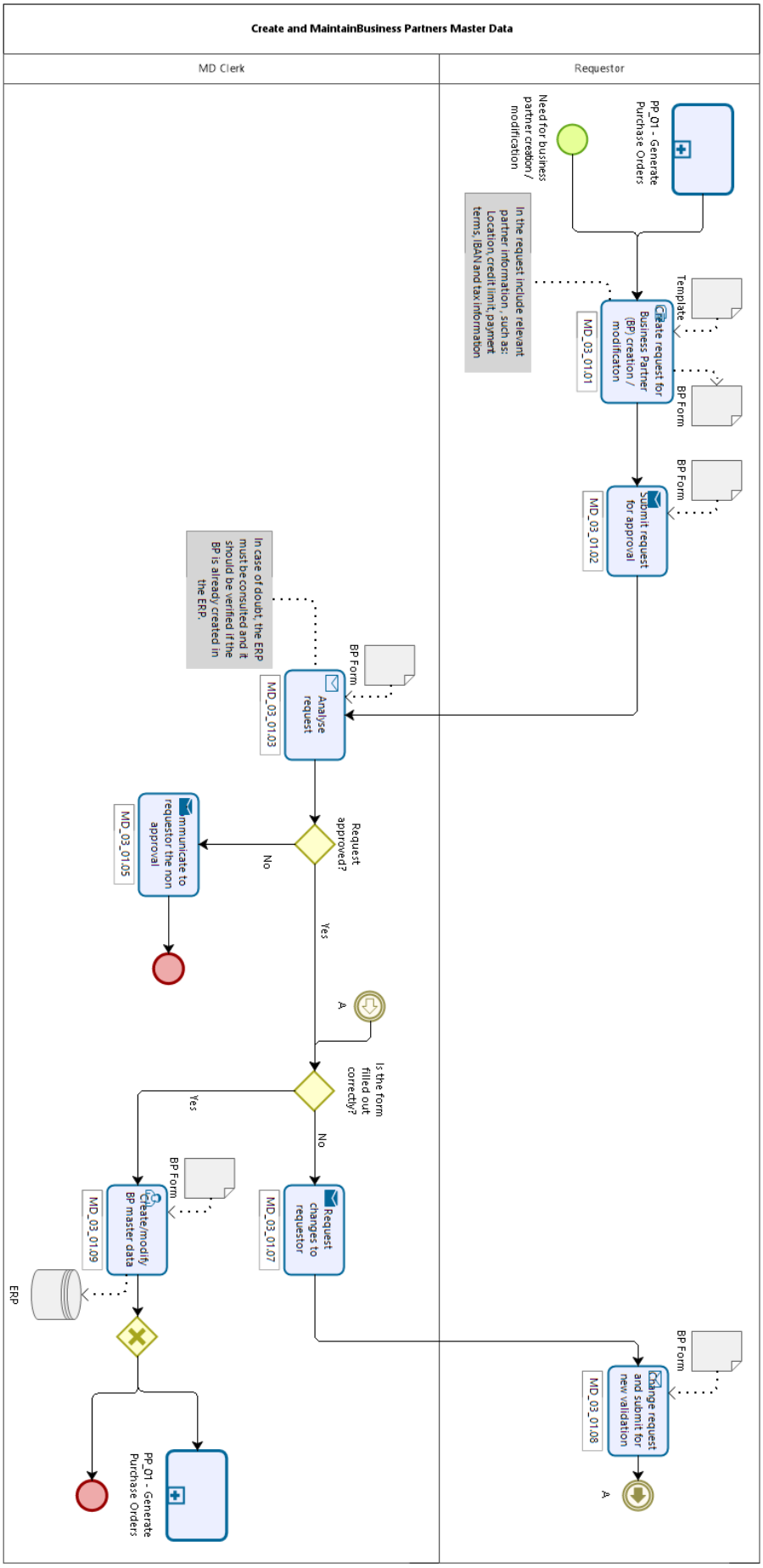
MD_01_02 – Close Bank Account



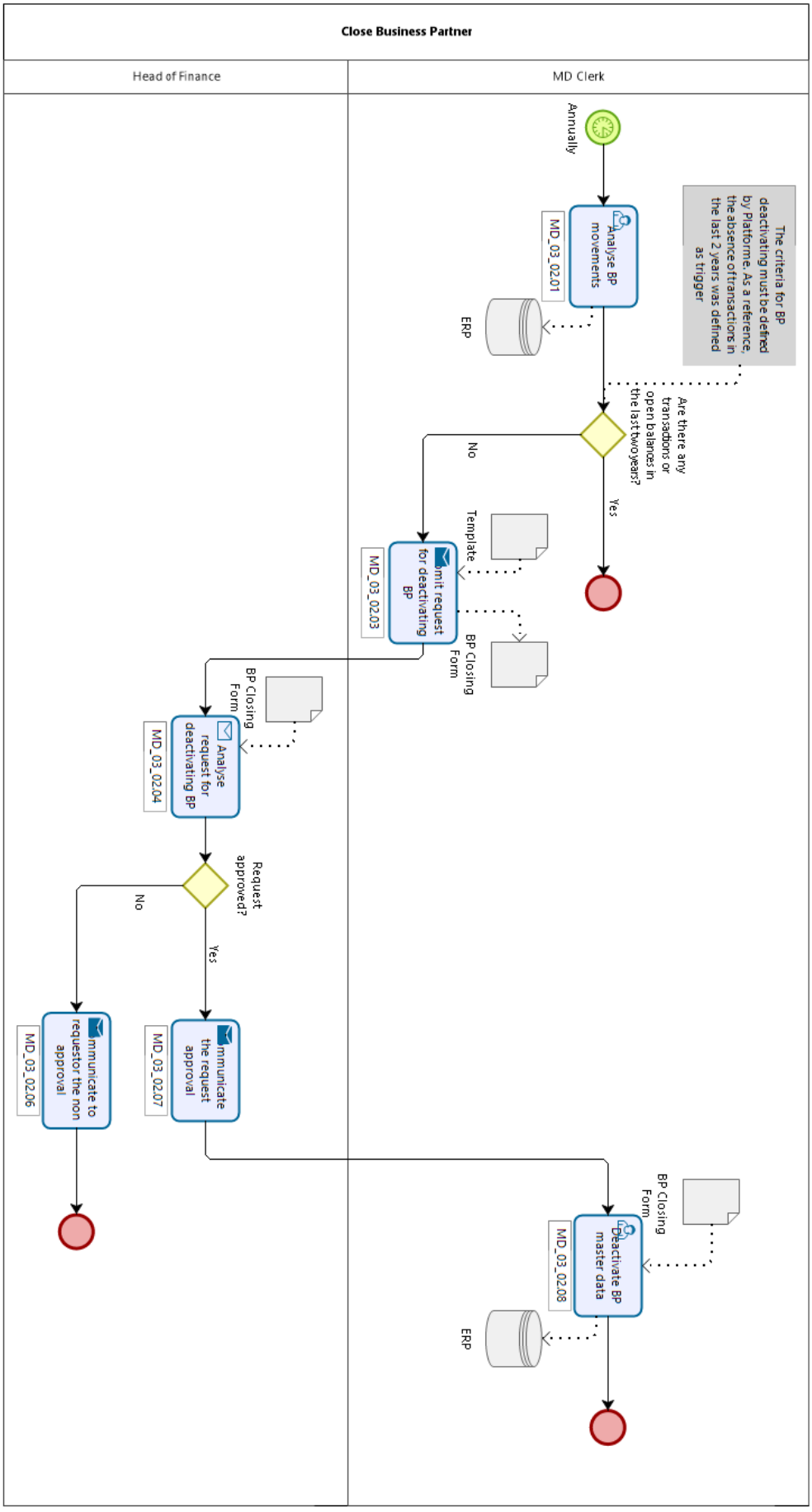
MD_02_01 – Create and Maintain Chart of Accounts Master Data



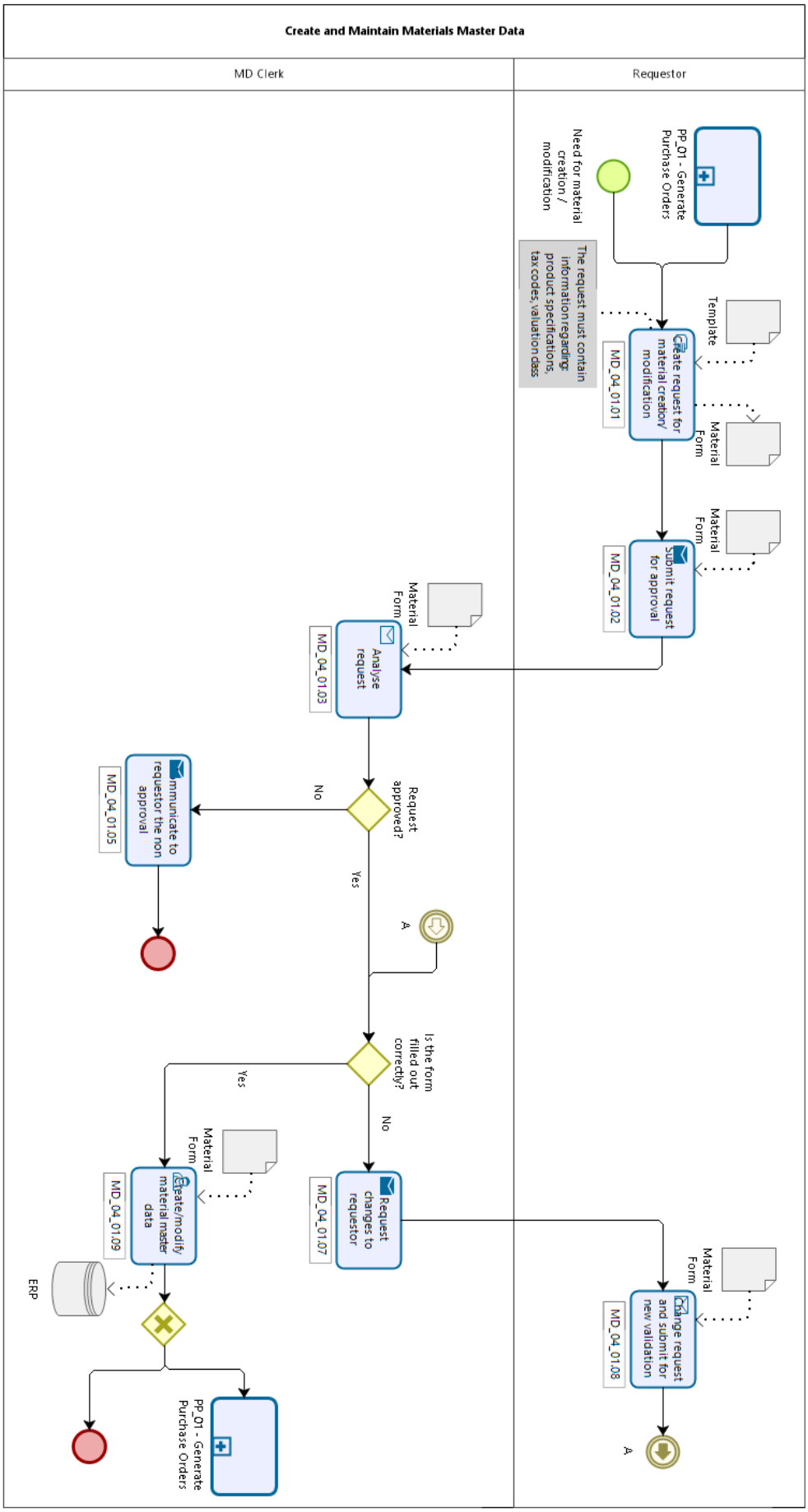
MD_03_01 – Create and Maintain Business Partners Master Data



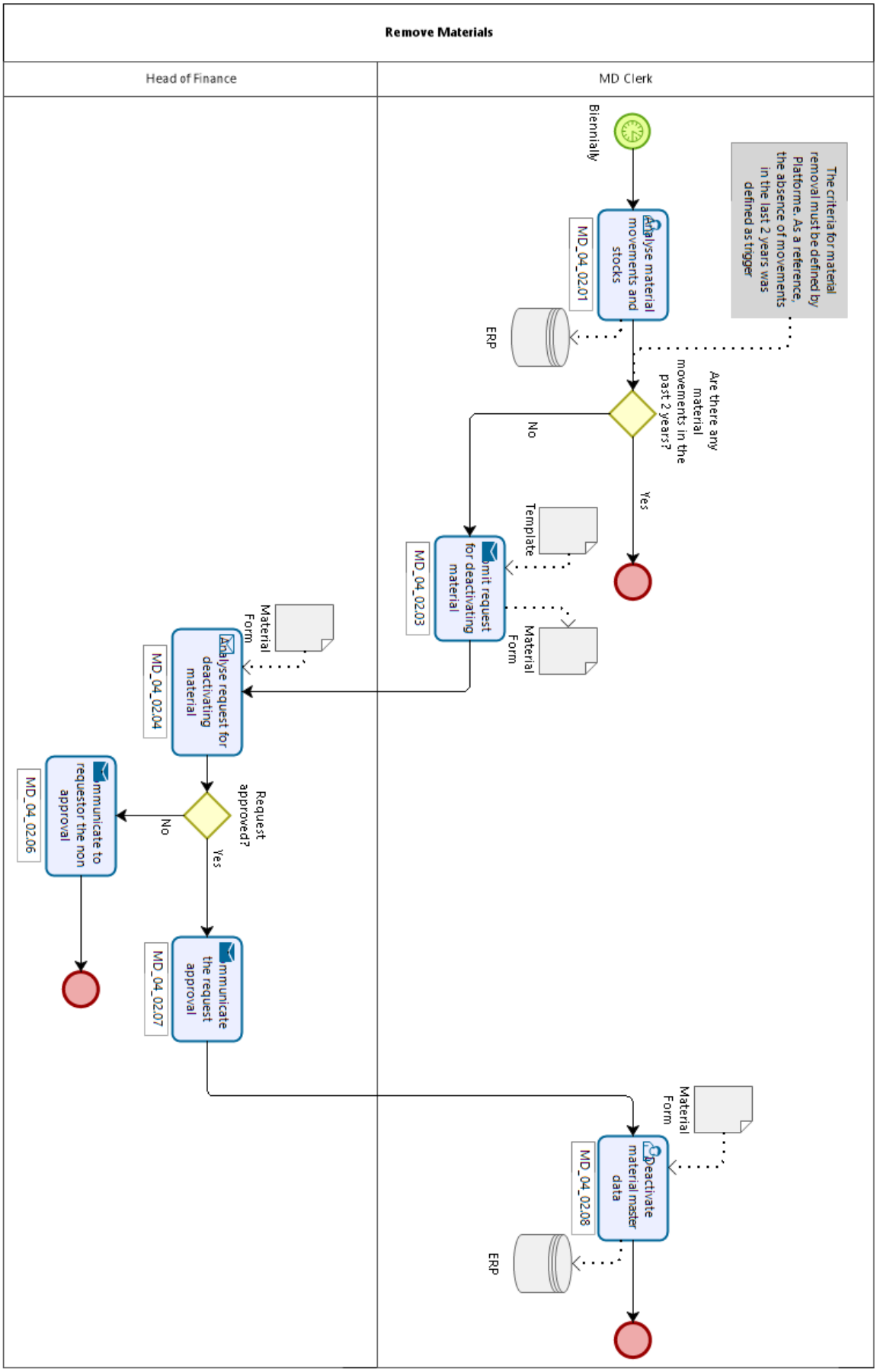
MD_03_02 – Close Business Partner



MD_04_01 – Create and Maintain Materials Master Data



MD_04_02 – Remove Materials



MD_05_01 – Create and Maintain Cost and Profit Centers Master Data

