

# TRANSFORMING DATA INTO PROCESSES, THROUGH BUSINESS PROCESS MANAGEMENT

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## 1. Motivation

This abstract describes the analysis and modeling phases of the Business Process Management methodology applied to the information system supporting the emission of energetic certificates for buildings in the Portuguese territory. All the contents thereby presented are based on the work done at the company Portugal Telecom - Sistemas de Informação for its partner and customer “ADENE – Agency for Energy”, as a branch of the Portuguese State’s Ministry of Economy and Innovation. The basis for the work consisted in the application of the Business Process Management methodology for the referred system, promoting the continuous improvement and process efficiency in its current developing cycle a evolutionary maintenance.

## 2. Main Goals

The main goals focused the application of the Business Process Methodology for the referred system, applying its theoretical and procedural fundamentals to obtain improvements at the business process layer.



**Fig. 1: Phases in the Business Process Management process life cycle**

During the process it was necessary to understand, for the particular system implementation:

- What constitutes a business process and what are its components?
- How are the business processes modeled (architectural and implementation-wise)?
- How to obtain effective improvements in the business processes?
- What are the benefits of its application?

Considering the macro-objectives of the base project,

the covered stages of Business Process Management application are limited to two, which include:

**A system analysis and mapping**, which conforms to the design phase of the Business Process Management methodology. This phase requires an analysis of the system, in an attempt to obtain the understanding of its architecture and of how its business processes are specified. This phase focuses on system requirements analysis, applied to the corresponding Enterprise Content Management portal.

**A system re-engineering and improvement**, which conforms to the modeling phase of the Business Process Management methodology. This phase focus on the introduction of improvements and changes to the system, in its Enterprise Content Management portal and AgilePoint process engine components.



**Fig. 2: Cross-sectional view of the addressed themes**

The remaining phases to be applied are also planned and scheduled. But, it must however be noted, that its duration supersedes in length, content and detail the objectives and the quantity of content that is possible to include in the scope of this masters` thesis, considering its limits and associated regulations.

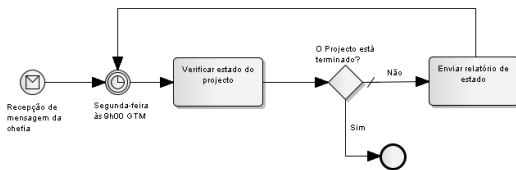
## 3. Approach

Considering the objectives to attain, it was taken part in the existing developing team and accompanied its current evolutionary maintenance process. The system was analyzed in a broad and modular perspective, with focus on key business processes. With the analysis and it’s results obtained, was promoted the introduction of new functionality to the information system’s enterprise portal component and process execution engine. As such, the perspective evolved from purely conceptual model engineering and documenting tasks to a more practical approach involving business process modeling, portal and

supporting code-behind implementation tasks.

### 3.1. Analysis

The information in the analysis phase was obtained using fundamentals of requirements engineering applied to the information's system relational database and portal components, in a reverse engineering process. By following a model driven engineering approach, it was elaborated a set of representative models in the specific domains of Unified Modeling Language and in the Business Process Modeling Notation, with the help of the Enterprise Architect CASE support tool.

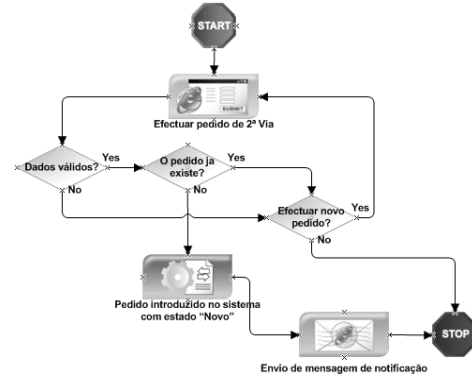


**Fig. 3: A business process specified in the Business Process Modeling Notation**

The obtained models were complemented with textual descriptions to constitute a formal specification document, internal to the project and with the intended target audience as current and future project developers, project managers and business analysts.

### 3.2. Modeling

Provided with the knowledge and insight obtained in the analysis phase, including the system models and corresponding documentation, it was proceeded to the modeling phase of the methodology. In this phase, it was focused the specification, modeling and coding of a new process – the request of a 2nd instance of an already issued energetic certificate, and its integration in the information system a complete process flow. Specific task involved edition of Microsoft Office SharePoint portal server components, modeling the process flow in the AgilePoint Business Process Management suite, implementation of process support code-behind in Microsoft Visual Studio developing suite and elaboration of the relational database support model in Microsoft SQL Server



**Fig. 4: A business process specified in the AgilePoint component**

## 4. Conclusions

The execution of the two referred phases of Business Process Management methodology already contributed with value to the project, in a documentary and functional perspective. In addition to the accomplished documental analysis, it was contributed to the supplement of system's provided features, introducing the possibility of re-issuing an already issued energy certificates by the system as an entirely new process.

By following a model-centric approach it was possible to promote the use of the designed models in the complete development and process reengineering, not being those restricted to static and purely conceptual models. The reengineering of the system was therefore aided, since changes implemented at the conceptual model level, in the graphical modeling tool, could be easily translated into real changes in the corresponding executable flow.

As for future development perspectives, will be given continuance to the base project and the application of the remaining phases of the cycle Business Process Management, namely the execution phase for the implemented process, the collection of statistic indicators, and its improvement and refinement based on the study of the obtained metrics. By following the next phases, it can be contributed to a better process execution performance or to the identification of inherent problems in the modeling of the process flow.