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## Academic management by processes: An efficient proposal for Politecnica Salesiana University

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### Abstract

It is normal to see how companies direct their efforts in order to adapt to changes, a factor which in the Ecuadorian educational field has had greater emphasis in the last few years. Process-based management is a way of managing the company based on processes as a whole and not as separate pieces, requiring the support of top management to seek the commitment of staff. In this context, this paper presents a case study of the management of academic processes in the Universidad Politecnica Salesiana (UPS) under the process-based approach through "Business Process Model and Notation" and the proposal of a process to create processes. The results obtained are promising, since 100% of the processes were created with the collaboration of UPS staff, in addition the changes were managed properly.

Keywords: Process-based management, higher education institutions, efficiency, educational reform.

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## 1. Introduction

The scenario where Higher Education Institutions (HEI) operate in is increasingly changing by the so-called educational reform, understood as the decisions that the State makes to transform aspects of the educational apparatus (increase schooling rates, improve continuity-performance rates, among others) through the orientation of educational policies. (Franco Pombo, 2015). The Ecuadorian government of 2007 proposed a management projection in the educational field aligned with the *Sumak Kawsay* (Buen Vivir in Spanish or Good Living in English) which constituted the priority area of public policy by implementing and strengthening educational policies. (Ministerio de Educación, 2015).

In this context, state agencies have generated proposals that contribute to educational change; the Higher Education Council (Consejo de Educacion Superior - CES, in Spanish), considered as a "public referent body for processes that consolidate the Higher Education System, exercising its constitutional and legal powers, so as to have a decisive impact on the achievement of excellence in higher education through academic and professional training ..." (Estatuto Orgánico de Gestión Organizacional por Procesos del Consejo de Educación Superior, 2012) has generated reforms of educational policies, such as the Academic Regime Regulation issued on November 21, 2013, since then 9 versions have been presented, from which 7 have been written in the last two years, as shown in Table 1.

**Table 1. Reforms of educational regulations in Ecuador**

Regulation	2012	2013	2014	2015	2016
Academic Regime Regulation		november, 21	abril, 9 december, 17	may, 6 june, 10 september, 2 september, 23	march, 22 may, 4 november, 23
Regulations for the Presentation and Approval of Programs of Higher Education Institutions			august, 20	abril, 22 october, 7	march, 2 march, 23 october, 5
Regulations of undergraduate majors and Ranking of the Professors and Researchers of the Higher Education System	november, 7	may, 29 june, 9 september, 27	january, 22 may, 28 june, 18 july, 2 july, 23 september, 17 october, 8	february, 25 october, 14	march, 22 may, 11 august, 31 october, 19
Regulation of Harmonization and Nomenclature of Professional Degrees and Academic programs conferred by the HEIs of Ecuador.			july, 16 august, 20 october, 22	january, 21 june, 17 july, 8 september, 9 september, 23 september, 25 december, 2 december, 16	january, 27

In the same context, it is important to remark that not only has the legislation been reformed, but also Ecuador has presented an increase in the number of accreditation bodies and the inclusion of new regulations.

These changes have forced HEIs to reevaluate their structure, proposing new methodologies and strategies that enable them to face rapid and timely changes, and thus generate the expected results. Therefore, in the present paper UPS proposes and implements the process-based management model considering it as an operational and organizational basis.

This article has been divided into the following sections: Section 2 describes the methodology used for academic management at UPS. Section 3 justifies the design of the research presenting the context where Process Management was implemented. Section 4 presents the importance of project results. Finally, conclusions are presented in Section 5.

## **2. Method**

### **2.1. Process Management**

Processes have become increasingly fundamental in the course of time gradually appearing in the models of business management; they were initially seen as individual processes where the most relevant were chosen (Zaratiegui, 1999). They later went from an individual approach to an interrelated one where the company is considered as an interconnected system of processes.

On the above premise, HEIs face a challenge with respect to their organizational structure; and it is the conception of a HEI as set of interrelated processes to which it is possible to apply the process - based management model. All activity that is repetitive in its execution is subject to transform into a process and normalizing them brings efficiency and effectiveness in its application.

ISO 9000: 2015 defines process as "set of interrelated or interacting activities that use inputs to deliver an intended result" (ISO/IEC 9000:2015, Quality management systems - Fundamentals and vocabulary, 2015). Moreover (Pérez Fernández de Velasco, 2004) define it as "Sequence [ordered] of activities [repetitive] whose product has value for its user or customer", while (Bravo Carrasco, 2001) defines it as "a unit in It does fulfill a complete goal, a cycle of activities that starts and ends with a client or an internal user".

Among the benefits can be mentioned.

- Reducing resources, costs and time through the efficient use of resources.
- Obtaining the expected results.
- Definition of opportunities for improvement.

All process, independent of the type will consist of the following elements:

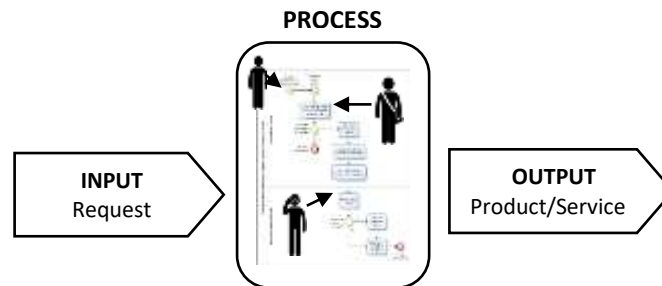
- Input: It corresponds to an element supplied by an actor or an output of a process, however, these elements are those that trigger the beginning of a process, i.e. without them there would be no process.

- Process: It is the sequence of activities, where: (i) actor(s) interact in certain activities (ii) a method of work (procedure), (iii) outputs delivered to the sub processes. It should be noted that some of the factors mentioned are lateral entrances to the process, that is, they are necessary inputs in some activity but they were not those that triggered the beginning of the process. It can be considered as a side entrance as a product of another process that interacts with the process being worked on.

- Output: It is the result of the process that could be the entry/side entry of another process and that is destined for a user.

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In this context, we can define as a process a set of interrelated activities, having the input that will be the trigger for the beginning of the process, the process as such with its activities and the result of its execution will be the product or service, as can be appreciate in the Figure 1.



**Figure 1. Elements of the Processes**

Thus, in academic processes, the idea presented in the previous paragraph is exemplified in the entry of a document, request, later followed the activities or steps necessary to solve the request through the intervention of actors such as Campus Secretary, Directors of the Undergraduate Programs, to give an example, resulting in the output that can result in a service or a product as a certificate. Hence, management by processes is not a far field with respect to an industrial process.

Is important to point out that you run the risk of wanting everything to be a process. (Mallar, 2010) proposes the following aspects that must fulfill an activity to be considered process:

- Have a clear mission or objective.
- The existence of an input, output and of the present actors.
- It must consist of operations or tasks.
- It is applicable through a process management methodology.
- A person can be assigned responsibility for the process.

### **3. Material and Method**

Processes are the most natural way of organizing activities in a company, where we want to generate a change of mentality in the personnel:

#### **3.1. Research scenario**

UPS in order to comply with the Sixth Transitory Provision of the Internal Academic Regime Regulation that establishes: "From the approval of these Regulations and within a period of ninety days, the Academic Vice Chancellor, jointly with the director of Computer Systems and the director of Human Resources, will present to the High Council the planning of the development, validation and implementation of the computer system that allows the academic and curricular management provided in these Regulation", approves the project "Commission for the implementation of the new academic management system" on January 20, 2015, a project that was proposed in two phases: (i) academic processes of Undergraduate majors , (ii) academic processes of Postgraduate programs, followed by its implementation phase.

The work team proposed had an interdisciplinary character including personnel from different areas, due to the experiences of the members in their areas; based on the above the team consisted of seven people, five of whom belonged to the Academic Vice Chancellor, a representative of the Department of Human Talent Management and a representative of the Systems Department. On the other hand, of the work team five were responsible for the creation of the processes, one of them in addition being the Representative of the Quality Management Committee, and two technicians in charge of the diagramming.

### 3.2. Development of the proposal

The methodology used is based on Process Management that contemplates the following stages. It should be noted that the first two stages were worked in parallel.

**Stage 0 (Education and Training):** Being a methodology which is not addressed by UPS, the information and training of the work team was essential. For this, the training was carried out to all members of the team in "Modeling with Bizagi Modeler" tool chosen for modeling the processes involved in academic management.

**Stage 1 (Identification of the academic processes):** At this stage a list of macro processes and processes was elaborated by assigning them: (i) a grouped coding by process, (ii) an identified name that allows to know what the process is about, (iii) a level of priority –high, medium, low– as shown in Table 2. It is one of the most important stages, since here the first approach with the processes is given not only by their identification but also by the indirect establishment of dependencies, problems, expert users, goals.

**Table 2. Identification of academic processes**

Macro Process	Process	Codification	Priority
1 / management	2	GC-SC-###	Middle
	3	GR-AD-###	High
	1	GR-CA-###	High
	1	GR-CG-###	Middle
	1	GR-CP-###	Low
34 / third level	3	GR-GR-###	Low
	2	GR-HO-###	High
	4	GR-IR-###	High
	7	GR-MA-###	High
	3	GR-OA-###	High
	4	GR-PC-###	High
	2	GR-VS-###	Middle
2 / third level- fourth level	3	GP-ED-###	High
	1	GP-GA-###	Low
<b>38</b>			
<b>process</b>			

**Stage 2 (Establishment of formats/templates):** After identifying the academic processes, the head of the Quality Management Committee will prepare the following templates that should be used by the team to present the processes to the Committee: (i) preliminary version, this document

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corresponds to the initial version of the process, it is not approved by an official organization of the institution, (ii) final version, (iii) diagram, (iv) documents in excel, (v) request model.

The preliminary version and the final version have the following structure:

- Change History.
- General description. It is made up of: (i) Purpose, (ii) Scope, (iii) References, (iv) Glossary.
- Development of the Procedure: Includes: (i) Requirements, (ii) Description, (iii) Actors, (iv) involved in the collection of information, (v) Owner of the procedure, (vi) Users for training in the use of (vii) Reports, (viii) Attachments.

**Stage 3 (Assign people in charge):** For each process a person responsible for its creation was assigned. This person will have autonomy in their work while fulfilling the expected results in the established time; we should not confuse the person responsible with the owner of the process, since the first will be in charge of creating the process while the second is in charge of the management and continuous improvement of the processes, in our case it is the Academic Vice Chancellor.

**Stage 4 (Creation of the process):** This stage is considered fundamental, a process survey guide has been generated, which consists of the activities shown in the diagram of Figure 2:

- **Review of information/regulations:** Each person responsible for the process must: (i) collect and/or review information and / or regulations, (ii) generate a draft using the templates provided.
- **Approval of the draft:** The process manager will present his draft to the Quality Management Committee, where the work team will be able to provide comments to the responsible person in case he considers it.
- **Presentation to expert users:** This step considered one of the most important, is in charge of choosing the users who will participate in the review of the process. As a strategy, it has been suggested that users have different functions and that most of them are responsible for their operational function.
- **Generation of the preliminary version:** After the process leader includes any suggestions he deems appropriate; he passes again to the approval of the draft by the Quality Management Committee.
- **Diagram:** With the approved version, passes the process where the designers who will diagram the process using Business Process Model and Notation (BPMN) and must be approved by the Responsible for the Quality Management Committee.

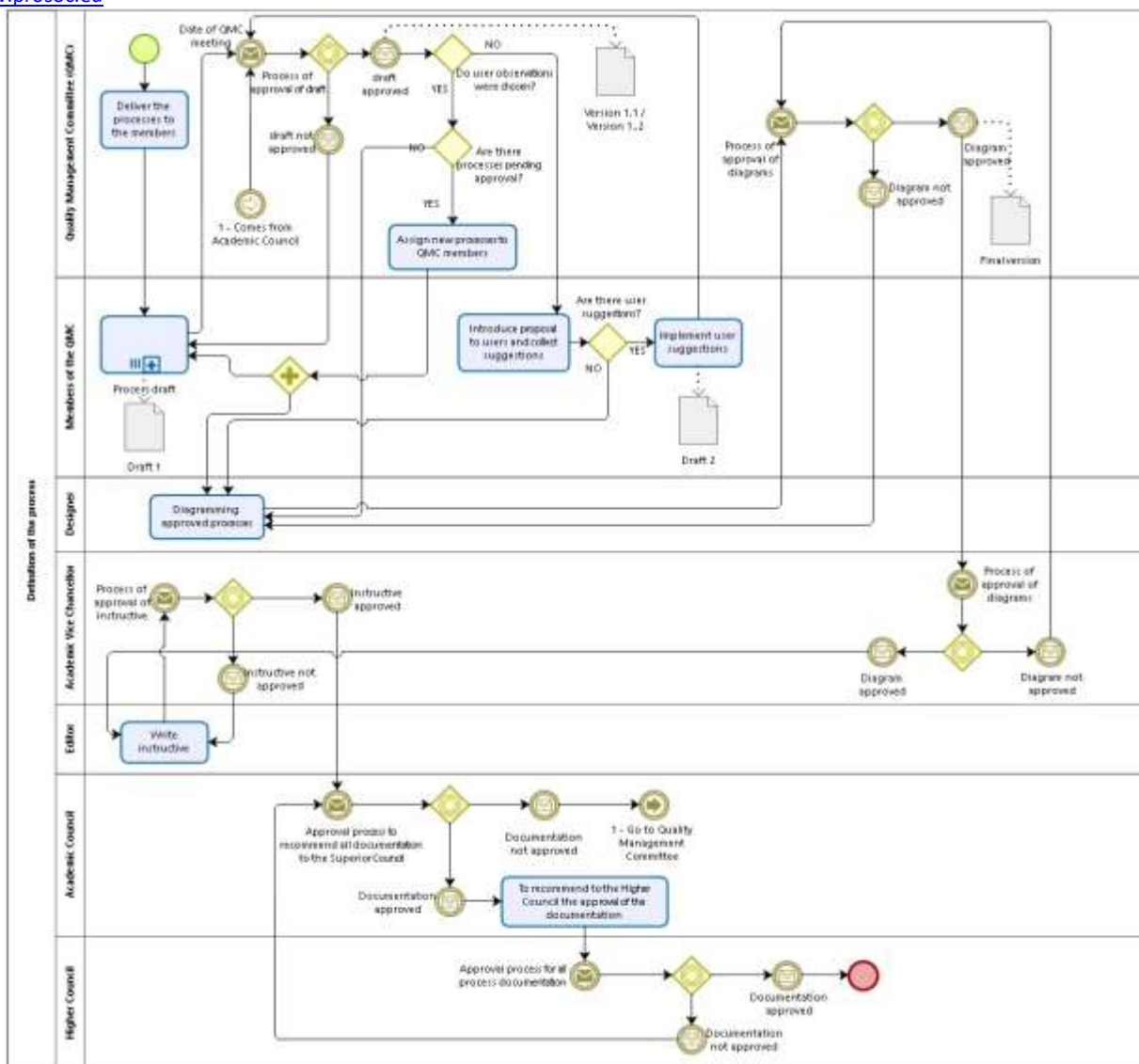


Figure 2. Process Creation

**Stage 5 (Review and approval):** The review and approval is made up of three instants of time: (i) after the process has been reviewed by the Quality Management Committee Manager, the process will be handed over to the Academic Vice Chancellor, who will analyze it and if appropriate will forward it to the Academic Council or to the person in charge of the process in order to make the necessary adjustments, (ii) it is analyzed in the Academic Council and if appropriate, they request its approval to the Higher Council or it may be submitted with observations, (iii) it is analyzed in the Higher Council and the process may be approved or modified in case it is necessary. Figure 3 shows the process for the approval of the documents.

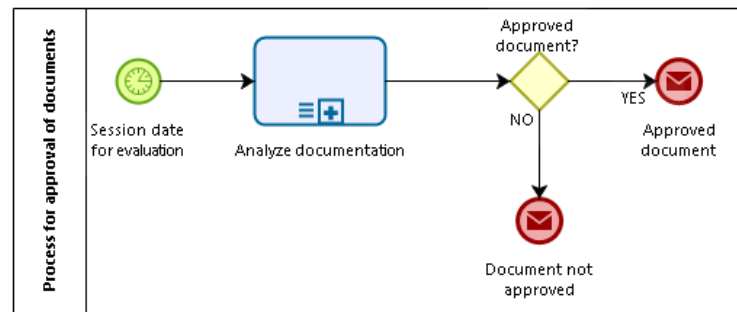


Figure 3. Analysis and Approval

**Stage 6 (Continuous Improvement):** Following the changes in internal or external regulations, the Quality Management Committee Manager along with the Process Manager will determine the schedule of tasks considering the impact level –high, medium, low, none– that the modification in the process presents. It should be noted that the people who are responsible must use the change template for the processes, and after it has been approved by the Academic Vice Chancellor, send a notification to the agents involved in order to announce the changes.

#### 4. Obtained Results

100% of academic processes that were considered within the project were created, moreover the implementation has presented the following results:

*Customer Oriented Organization:* UPS aligned to its mission and vision statements, and considering that its students are the main axis for the implementation of the processes, it is evident that through FEUPS (UPS's students' federation) students are more committed to actively taking part in academic processes.

In 2011, UPS had already mentioned that "one of the keys to achieving continuous improvement is for customers to become involved in the product development process ..." (Pesantez, 2011), this is considered to be the central focus of Quality Function Deployment, where the goal is to design customer-oriented processes.

*Customer focus:* Staff in every company is a critical factor, since a motivated staff will work in favor of the institution, the results at the staff level are that:

- Most staff are clearly aware of their activities and responsibilities.
- Sharing knowledge and experiences, which enrich processes, always aligned with internal and external regulations.
- The staff is motivated since in the respective meetings they were able to present their suggestions, proposals and observations, which were openly discussed.
- The staff contributes to the continuous improvement of processes.



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*Continuous improvement:* All processes are focused on continuous improvement, either by changes in regulation or by internal UPS issues. The benefit of continuous improvement is the flexibility to react to changes in a timely manner.

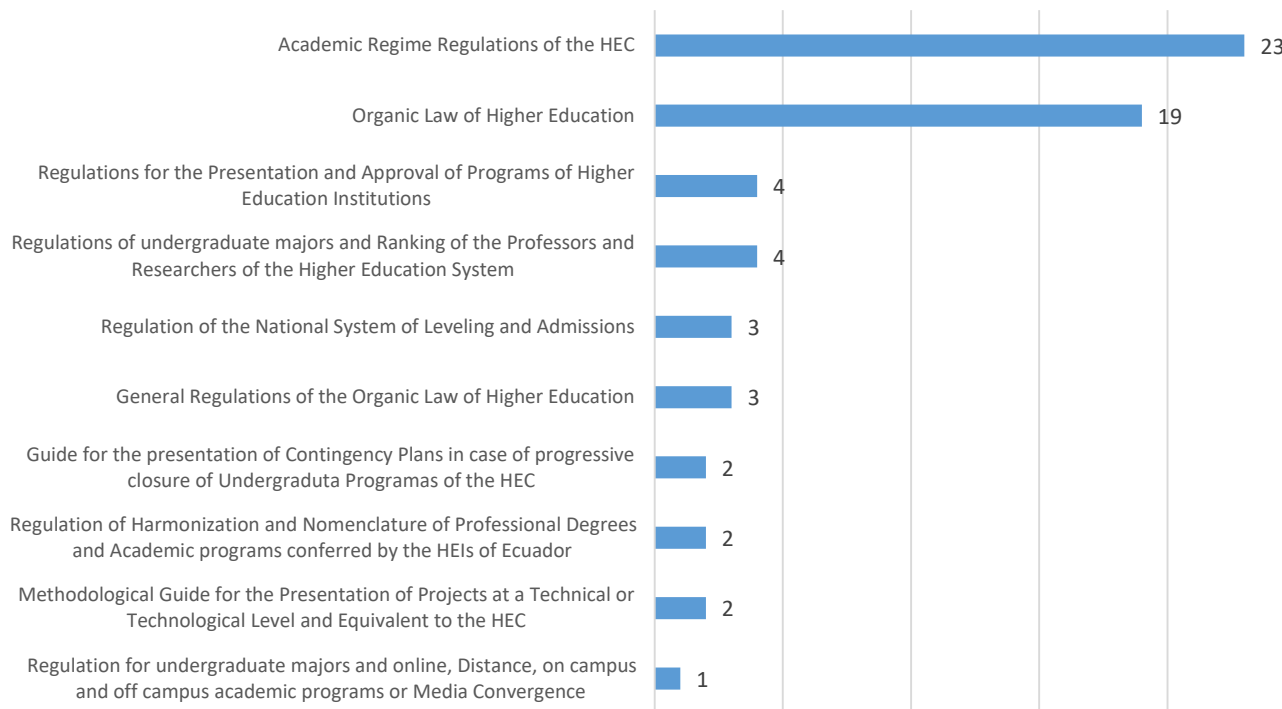


Figure 4 shows the number of processes where the external normative has been taken as reference.

**Figure 4. Number of times the external regulations have been referenced in the academic processes**

*System approach to management:* The compression of a management system contributes to efficiency and effectiveness in UPS. It presents the following benefits:

- Knowledge of the interdependence between the academic processes of HEIs and integration.
- Identification of critical processes which contribute to the objectives of UPS.
- Continuous improvement through measurement and evaluation.

**5. Conclusion**

Process management is beneficial for any institution because by having clearly defined tasks, agents and output, resources or time will not be wasted on efforts that will not produce results. In addition, it provides a reengineering benchmark which allows tasks to be redesigned and thus contributing to continuous improvement. It has been possible to prove that in UPS the proposed methodology is a

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suitable tool for academic management of a HEI which is demonstrated in the commitment of the staff and the improvement of academic processes.

The processes will not only serve at the functional level of HEI employees, but also for the Computer Systems department, since in each activity it is possible to find what the computer system must carry out.

In Figure 4, shows that the Regulations of Academic Regime of the CES is the most cited, and when compared with the number of times it has been updated, it can be concluded that UPS is in constant change management in order to adapt to the reforms established in this case in the Higher Education Council.

As future work we propose the definition of indicators that will allow us to manage decision making based on information and the implementation of academic processes in a computer system.

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