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**THEME:**

**CONTROL SYSTEM FOR ADMINISTRATIVE PROCEEDINGS TRANSPORT COMPANY  
COMPANY ANDINA ANÓNIMA (TACA)**

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## CONTROL SYSTEM FOR ADMINISTRATIVE PROCEEDINGS TRANSPORT COMPANY COMPANY ANDINA ANÓNIMA (TACA)

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**Summary** *Research work with applicative demonstration of a control system administrative processes aimed at Andina CA Transport Company,; in which part lack of an application and the need to include within the institution, information management systematically, avoiding the use of applications that do not ensure fully supported by the information, they would generate complications the performance of the company.*

**Keywords:** process control, information management, data backup.

### 1. INTRODUCTION

*"Life in society human beings have created the need to transmit and process information on an ongoing basis. To this end, over time they have been perfecting different techniques and media. The technological breakthrough in the last two decades of the twentieth century and the first of the XXI century has developed increasingly sophisticated tools capable ce meet this need with great precision and speed "[1]*

*Today there are several types of computer systems that could highlight:*

**Management Information Systems:** *The insertion of new technology in an organization can mean an investment with a high risk of failure if the efforts of the process is not addressed in a plan to reduce the impacts of change. When referring specifically to the development of a Management Information System, as a kind of technological change are*

*clear about the needs of the organization to begin a process of this kind, as more and adequate flow of information sought, in addition to facilitating the execution of operations and make them more effective.*

**Transactional system:** A transaction processing system, designed as a collector, to store, retrieve and modify any type of information, which is generated in each transaction of a certain company.

A clear example of this type of system with those who work in and out in bancaras entities; while grants benefits such as online banking or face banking, transfer of financial amounts, whether deposits or withdrawals, to ensure users that these amounts have been added or deducted correctly.

**Systems Support Decision:** As there different approaches and situations for decision-making within the company, are booming DSS 1, that being computer systems, helps the in process of decision making, in which your goal is to enter certain parameters as alternatives within a data set for by selection of alternatives for assessment and other quantifications, results are displayed in statistical form, or any other form of show results, members of the company can determine which approach is appropriate or what decision to make, so that the company engages, meet, grow or any other interest that is pursued, to position itself as one of the best on the market.

In Ecuador there are no specific previous studies on the market free software nor on the business

models used by entrepreneurs and independent developers in the sector. Contrary to speculation which has usually about free software in Ecuador, most companies do not use the dual licensing as the primary way of generating income. Business models most commonly used in the industry maintain a social economy of knowledge. Rarely investment in free software represents losses for entrepreneurs. [2]

The different existing in the province of Imbabura companies, depending on the need of your requirements, make use of these types of systems, facilitating the work within the institution; causing it to grow as data systematization

Within the business environment, there are those that offer a shuttle service and this air, sea, land, river, etc.; that likewise require recorded either medium or large extent, all your transactions or data, which become business records, that at some time, will be evaluated for a decision. For this and other reasons these companies in the short or long term, they begin to systematize your records.

Development methodologies regarding Software vary depending on the complexity of work that this will have; It refers to the environment that is used to structure, plan and control the process of developing a SI [2]. Since the introduction of computer or SI, with the passing of the years there have been a variety of methodologies, also with their own weaknesses and strengths.

## 2. Tools & METHODOLOGY

### 2.1. Software development approaches.

2.1.1. Waterfall: **It is an elementary model that has served to GUIDELINES for the construction or in the other development paradigms; taking into account the following activities: Engineers may An analysis System, An analysis of requirements, Design, Codification or n, Testing, Maintenance.**

2.1.2. Prototyping: **Unlike incremental, offers customers a prototype of a or more is to being the project when it develops, but equally fragmented into phases the overall project taking into account the following activities: plan or to ask, or modeling to ask, construction or n the prototype development; delivery and retroalimentaci or n, or communication, delivery of the final development.**

2.1.3. **Incremental:** Fragmenta in parts or phases the overall project and the same activities are repeated in each phase being the following: an analysis, design, or say test.

2.1.4. Spiral: **This model works or n function of time, whenever their activities change, your time running your variable n a; consists of 4 activities are: determine objectives, an analysis of risks to develop and test, PLANNING FOR SECURITY n.**

2.1.5. **RAD:** Development or to ask of applications also known as RAD (in English is rapid application development) it is one of the models for the process of software development, designed and adopted by James Martin in 1980. This method includes iterative development, the construction or n prototyping and tool use CASE (Computer Aided Software Engineering) tools and or to rapid development. Today in the software developers often use applications that allow or so simple to ask and the design and codification or n interfaces to users. Some of the most platforms are known Visual Studio .Net, Delphi, NetBeans, among others. [3]

The analysis was carried out to evaluate the requirements requested by the end user, to thereby generate user stories and tasks relevant.

So also the choice of the agile development methodology; it is decided or declared that the most optimal methodology for this research is the XP

methodology, thanks to the reduction of time in the development and planning of defined activities, based on a development pattern.

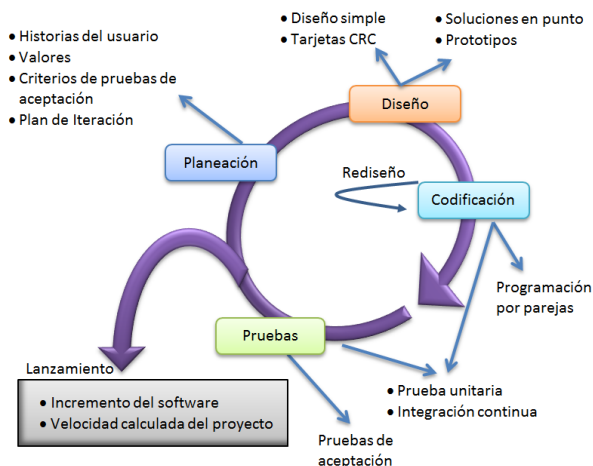


Ilustración 1 Ciclo de Vida XP

Fuente: Codejobs

2.2. The design patterns MVC <sup>3</sup> MVC is a programming concept or n, that since the emergence of the paradigms of programming or ny including object - oriented establishes other concepts such as classes, objects, inheritance, encapsulation, polymorphism; today in d ay are not used 100% in the creation or n applications, but their conceptualization or n is helpful to when creating a management structure of data or information or n.

MVC is a design pattern that split the project into 3 phases or modules: model, view, controller; whose names were identified thanks to their concepts, so that give clarity regarding the activities to be framed, to achieve the full development of the project.

### 2.3. Development Tools

In the development of applications, systems, and other applications, which help in business or

institutional performance; not only offering savings in time, but also agile response to user requests, to make timely decisions and thus make the company or institution, whether public, private or mixed, get more benefits and not just YOU increase revenue , but also its customers. These applications are developed in different SW <sup>4</sup> programming whether these free <sup>five</sup> or custodial <sup>6</sup> ;these in turn give the programmer different forms of work, so limited forms of work.

In order to comply with the development, the following tools were used in order to provide an optimal solution and the needs of the company:

- **ECLIPSE:** It is a development platform in Java, consisting of a bookstores í range and set of tools that allow the developer (programmer) work in a language c or I say open platform <sup>7</sup> a; providing an IDE <sup>8</sup> that puts the front of the platform fully functional, allowing ease of spread to other programming languages or n, text processing, network applications and also é na database m to s known as *Systems Gesti or n Database*.
- **JSF:** (Java Server Faces) is a í JAVA technology to development and also a framework <sup>9</sup> , which reduce the development of user interfaces using JSP <sup>10</sup> and in the same way supports the new additions to HTML.
- **JPA** (Java Persistence API) is a tool developed for Java EE, which allows the persistence of relational data directly with the applications, whether they are desktop (*desktop*), also é n that is Appen available on the Web, either It is a local network or a global network.
- **POSTGRES:** A DBMS <sup>11</sup> relational object - oriented and free , released under the license BSD <sup>12</sup> (is the [software license](#) granted primarily for systems [BSD](#) ) [4]. Like many other projects open source , development of PostgreSQL is not handled by

a company and / or person, but is run by a community of developers working selflessly, altruistic, free and / or supported by commercial organizations. This community is called the PGDG [5]

- **Primefaces:** It has a rich set of encapsulated or available in a bookstore way, intended for JSF components; or more is clear or say open this in turn facilitates the creation or a web application, user friendly with design friendly or innovative actions, allowing in this way, can make computers with other bookstore files.

### 3. Processes

Management processes are those that allow a company planning, organizing, directing and controlling the organizational functions that this subsists; making it a helpful tool in which you can successfully perform all their daily activities.

Now you can say that: the processes are a set of simple, routine and descriptive activities, showing step by step what, how, where and when activities are performed in daily work. For this reason it is essential to the creation of manual functions, processes, quality, political, organizational, methods, among other requirements, depending on the needs of the area, the department of the company or just the HR department.

**3.1. Inventories** The inventory MODULE is responsible for managing the entry and exit of the assets TACA belonging to the enterprise; when owning 2 shares (income and expenditure) is divided into two areas to work, allowed to unfold as if they were one.

**3.1.1. Income Inventory** This comprehensive control process takes, in terms of administration or entry in assets within the company; METHODOLOGY contains control as to avoid failures in terms of register values.

**3.1.2. Exit inventory** This process allows to control the output of assets owned by the company in their inventories, containing control events regarding failures to avoid inventory records to lids

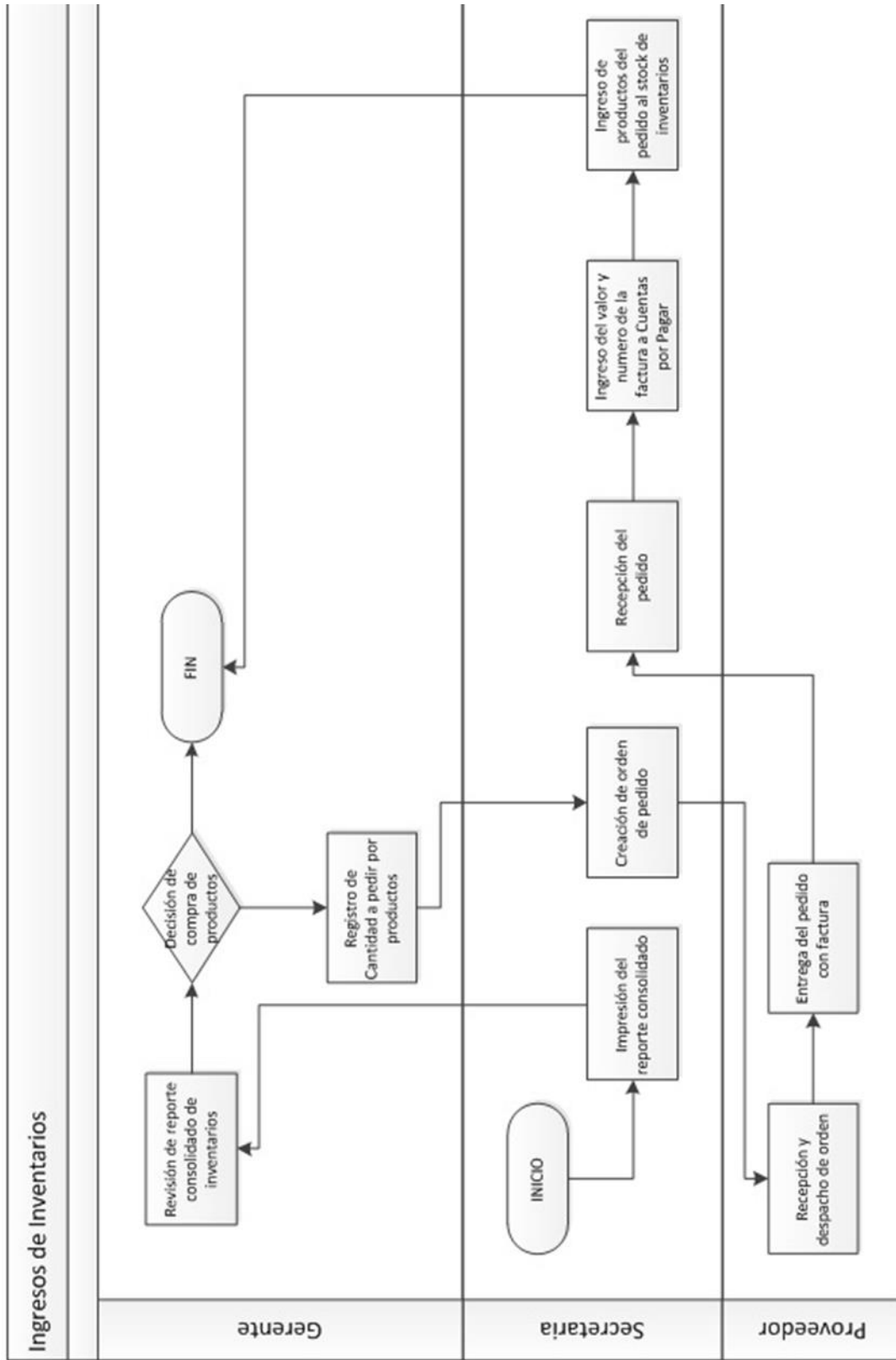
**3.2. accounts** The MODULE of accounts to create, manage and terminate the debts that customers purchase the company (collect) or debts that the company acquires with suppliers (payable). When handling two states, these are divided into two submodules that are reviewed AHEAD or not.

**3.2.1. Receivable** This submodule allows you to manage those debts that customers acquired with the company, allowing the company to meet the payment history of the client and determine if your debt may increase or be on hold until the end of the current debt.

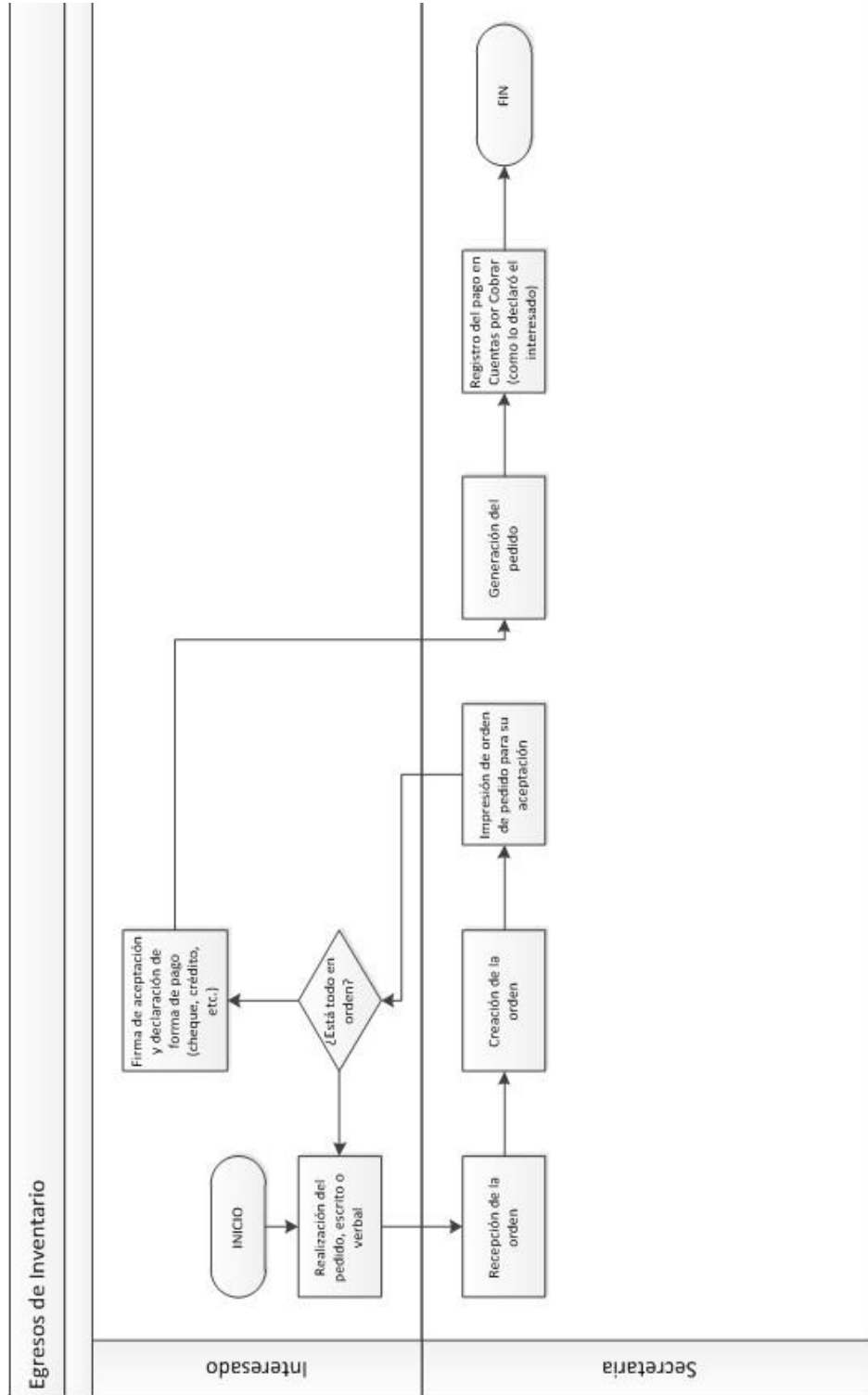
**3.2.2.** This submodule **Payable** module allows viewing and recording payments completely or credits to accounts that you have with suppliers.

**3.3. Guides process Parcels** This allows you to manage MODULE, generate and monitor the environments made by customers, to use the messaging transport service way, the company offers TACA

### **Income Process Inventory**

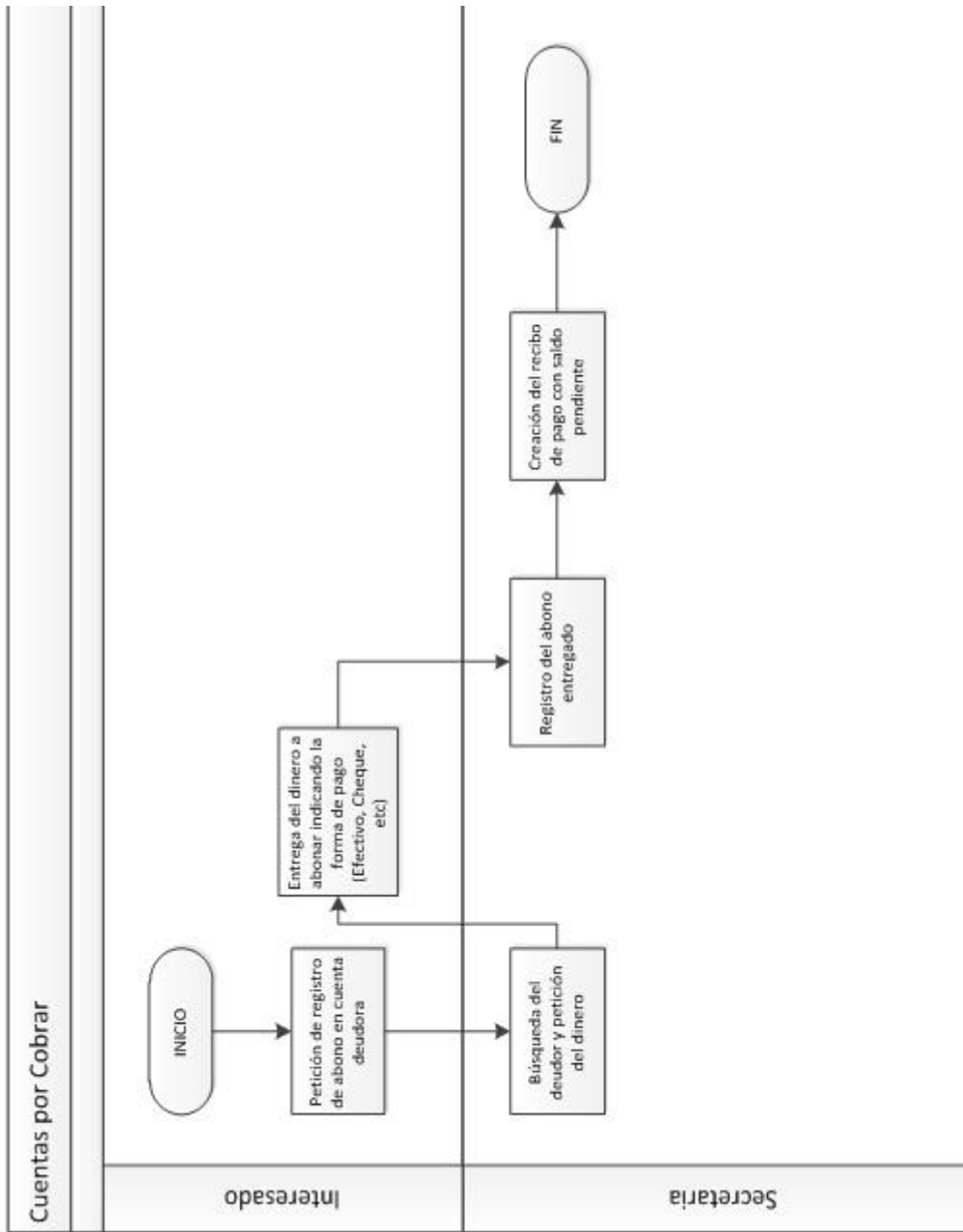


Exit process Inventories

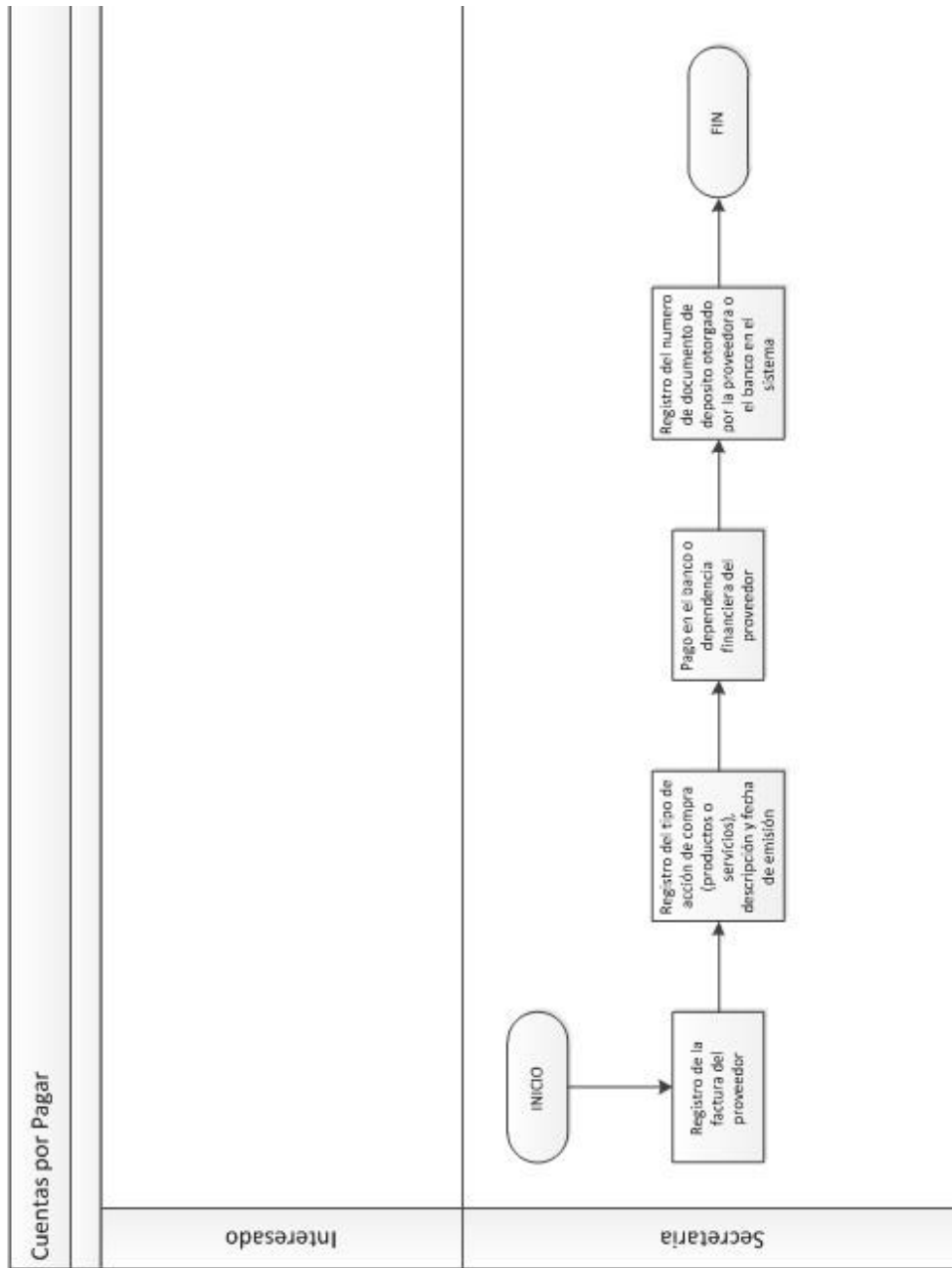




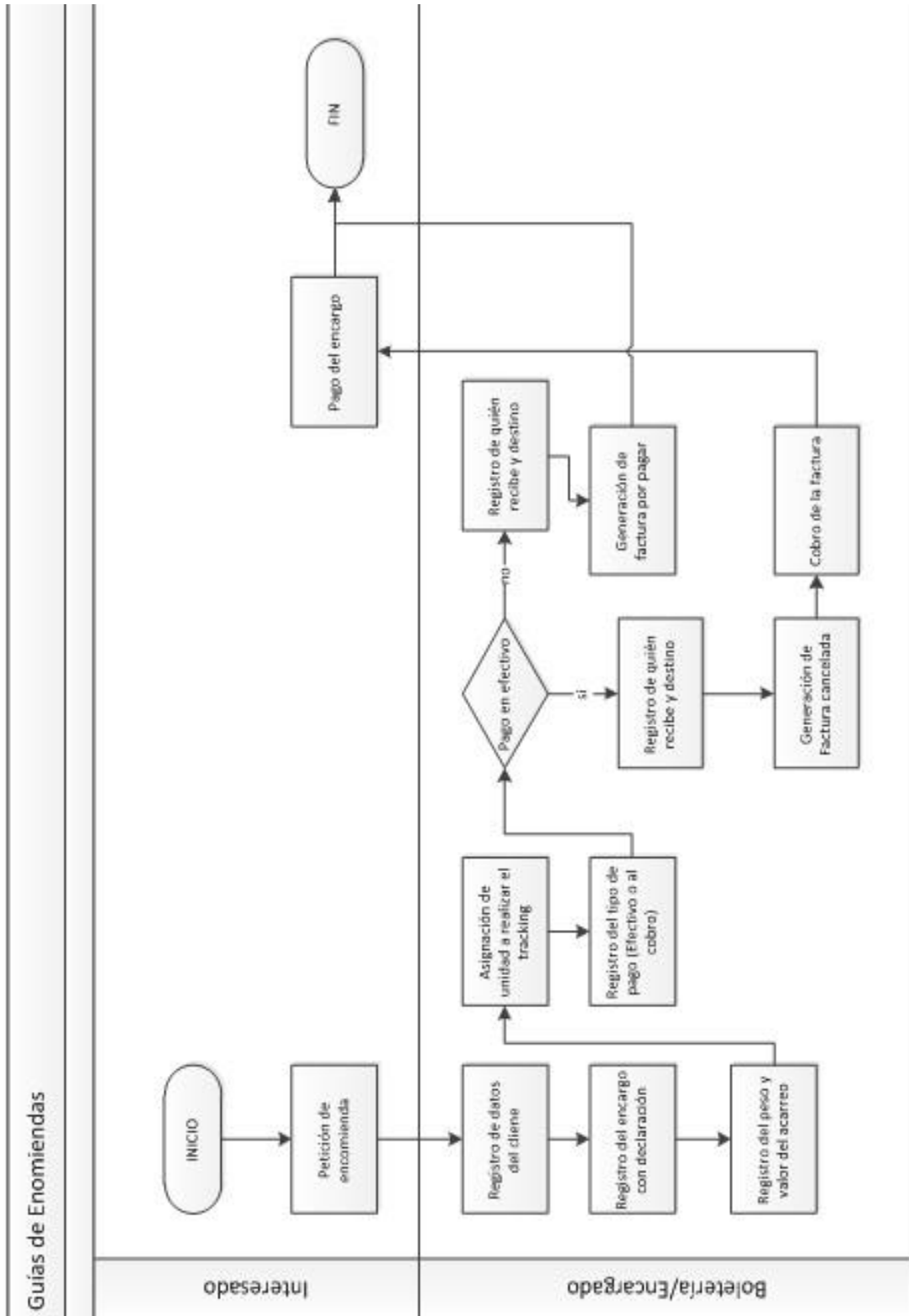
### Accounts Receivable Process



### Accounts Payable Process

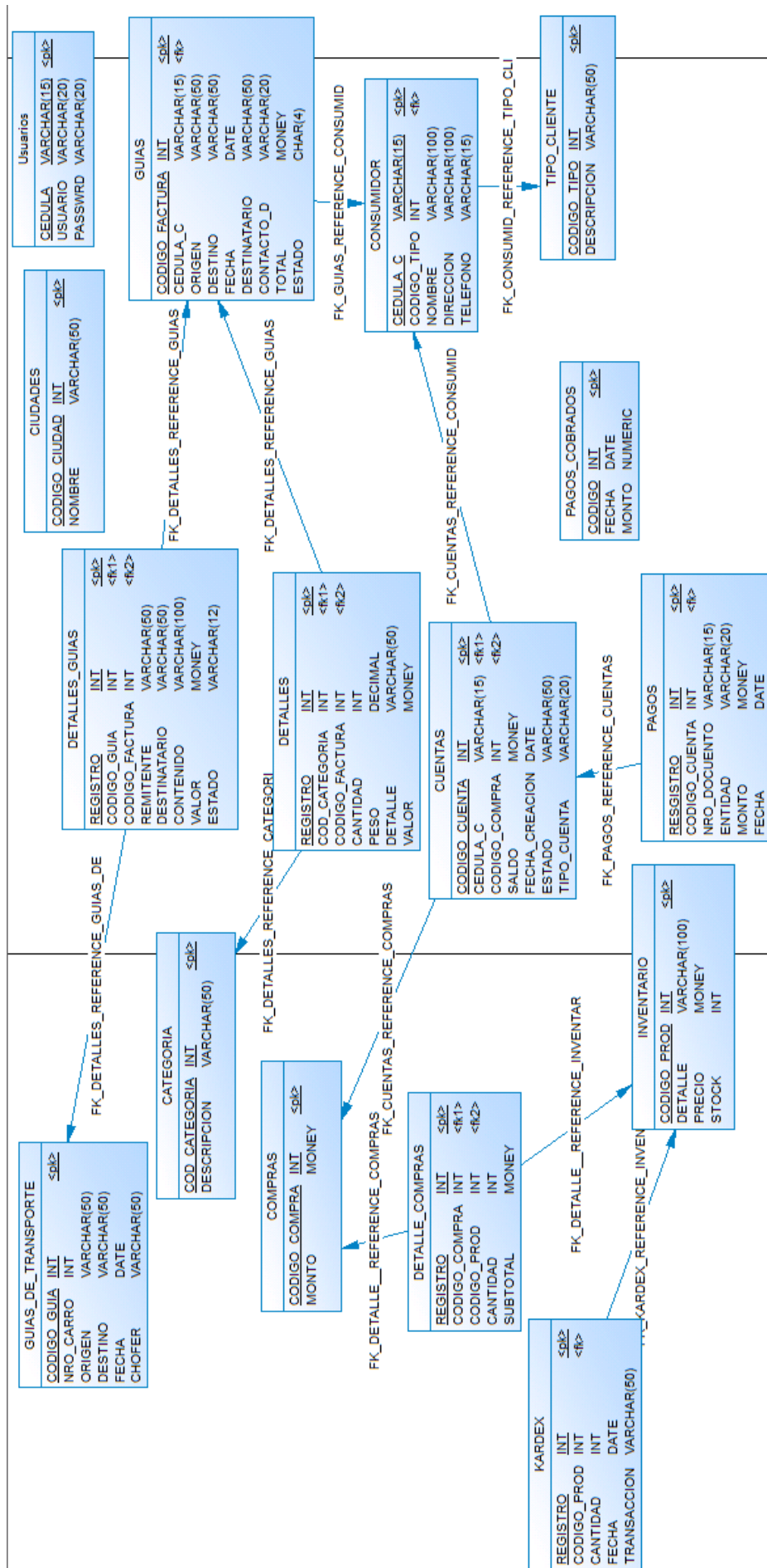


### Guides process Parcels



Conceptual model

Database (Transport Andina CA)



#### 4. RESULTS

<b>Vista</b>	<b>Primefaces</b>
	<b>WEB views</b>
<b>Controlador</b>	<b>Bean(Tablas)</b>
<b>Modelo (lógica del negocio)</b>	<b>ManagerFact</b>
	<b>ManagerDAO</b>
<b>entidades</b>	
<b>JPA/JSF</b>	



Ilustración 3 Diagrama del Aplicativo por capas

Fuente: Autor

The graph shows a layered structure MVC; this in turn, to understand respects a hierarchy, to access the data and in the same way, to display data (the analysis will be taken from the database until the user views, bottom - up) which each layer works as follows:

- **BDD:** records the information or, when the transaction has been validated; this means that meets the prescribed requirements within the layer **1 or business logic** layer and **controller**.
- **JPA / JSF:** technology in which the application is developed and implements compliance with the rules established within the layers of the MVC.
- **Entities:** are dedicated classes or private lessons, in which the same attributes of each table in the BDD, where access is given to the **driver** and as I assign the same **model** (1 or business logic) Shall earn or information from the database and are assigned to these entities; é n also it can indicate that a management object is performed; ie entities take

the same definition programming or n or n OOP, in which objects and entities, handled almost the same character í stica having OOP <sup>13</sup> ; some of these are attributes accessor and mutator, data management via me all.

- **Model (1 or logic of business):** This is sub divided into two layers being: ManagerDAO, which is responsible for carrying out the connection ordirect to the database n, using stored procedures (SP <sup>14</sup> ), m to s known as CRUD 's <sup>15</sup> ; these when they are consulted in the database, we return a table of the same data type (**entity**) in the table was consulted the SQL statement <sup>16</sup> . Another of the layers that exist in this 1 or logic is the ManagerFact, which is in charge of making requests to ManagerDAO and to make the transaction as i o n which have designated him and returnthem to the **entity** or directly to the **controller**.
- **Controller:** is responsible for receive requests the views that have been pre - programmed to be assigned within a class, variables of the same data type and name as were created in the database.

#### 5. Conclusions.

- Developing applications for business, becomes an advantage for the productive sector, REA or area where you live, facilitating and opening upnew sources of employment, with innovative, accessible and scalable proposals during the time that these systems are used. The development of the application was directed to give solution or n, and benefit greatly fromthe opportunities that the company provides to position itself within the cant or ny of the province.

- The new technology í as development, allow the programmer to deliver efficient, recurrent and attractive to the work, making their daily activities, they will increasingly become m to s dependent on tech nol ogy, providing a massive contribution to the care of the ambient.

- Applying good practices of programming to pr or n is possible to obtain a product with the user friendly and easy to access f; Likewise the use of technological applications gicas or greatly reduce the use of mariales such as leaves; avoiding agglomeration or n of documents, which occupy much space inside the area to work.

## 6. Recommendations.

- The new development initiatives and proposals for improvement in administrative processes within companies, should be a high priority, so not only helps the town, but also é n the pa í s, being part of those who support it made in Ecuador and also give openness to those who do this kind of research or development, have the opportunity to put into pr to ctica their knowledge acquired in the classroom ym Sa u n, be deepened to strive delivery quality software.

- In the development of this research or n, or n it is as option, allowing the application to engage in the future with new enhancements or requirements if needed

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