Organization and Digital Transformation for the Location of Academic Records

Sir-Alexci Suarez Castrillon[1], Albert Miyer Suarez Castrillon[2] and Luz karime Hernandez Gegen[3]

[1] *Engineering Faculty, University Francisco of Paula Santander Ocaña, Colombia.*
[2, 3] *Faculty of Engineering and Architecture. University of Pamplona, Colombia.*

Abstract

This research presents a model for the organization and location of academic records, which due to their high volume of information are not available for online certifications. That is why it presents the stages developed to assign a coding that maintains a relationship of the location of the file along with the information that is digitized. This allows the reduction of physical space and less time searching for information. The different result indicators and goals that make up the development matrix are presented, as well as the roles of the stakeholder matrix. The location and transformation process will allow the delivery of online information to students, graduates and interested persons, regardless of the place where they request the issuance of certificates, as well as the reduction of the workload.

Keywords: digital organization, academic records, document preservation, information location, digital transformation.

1. INTRODUCTION

Digital transformation is one of the processes that allows the storage of large volumes of data, which are necessary for their preservation or online consultation, allowing the delivery of information and certificates in a faster and more accurate way. Before performing this digital transformation, it is of vital importance the whole process that is carried out to organize the information, so that it can also be consulted in physical form maintaining the same codes and location of the information.

With the arrival of COVID-19, institutions had to accelerate the process of document preservation and the delivery of digital information became a priority [1], [2]. As a consequence, educational institutions had to transform their face-to-face education to the new educational demands brought by the pandemic, due to the mandatory closure of each one, but not only the academic role is necessary, but also the administrative part is essential to continue with the educational training stages [3]-[5]. One of these processes are the academic records, which contain information on all subjects, averages and personal data of students in each university or educational center [6]. To achieve the digitization process, all the stages of the project must be developed and planned, focusing the objective on the location of the information, as well as the assignment of codes for each file, which will allow the location in the physical space, keeping the same reference in the software developed for the storage of the information.

When the organization of information in educational institutions begins, they may find large volumes of scattered information [7], which must be ordered and physically coded for their location, although the organization of documents is already done through the guidelines of the general archive of the nation, each institution has different physical spaces which maintain a particularity of its infrastructure [8].

The organization and location process contains an initial stage with a development matrix focused on performance indicators, which are divided into components [9]-[11]. Each component has an objective, starting with the digital transformation of the physical plan with its corridors and shelves where the information is located, this physical scheme is assigned a codification that represents the entry of the information in the software platform, in this way the information can be accessed online, and also represents the place where each academic record is located, the development matrix also sets out the baseline and goals of each component. It is also very important the role matrix where the roles of: responsible, execution, consultation and informed for each component are specified. Once all the documents that a file must contain are known and the physical location with the assignment of the code assigned in the software platform, the process of information entry and digital transformation begins.

This research presents the model of organization and location of student academic records, for the subsequent digitization of information through the design and development of 6 components with 5 phases of development specifying the roles of each component and task. In this way, the information stored at the Universidad Francisco de Paula Santander Ocaña is diagnosed, resulting in the creation of codes used in the development of the software that will allow the digitization and location of the site where the information is located, as well as the online delivery of academic certificates.

2. METHODOLOGY

Four stages were carried out: a) Preliminary project, b) Project phases, c) Start-up phase and d) Planning phase. The pre-project was managed through strategic, participatory and operational planning [10].

The following questions were addressed:

- Where are we?
- Where do we want to go?
- How can we get there?

The first answer is that everything is handled on paper, by means of folders where the folios of each academic record are stored. That is why the entire archive should be digitized, starting with the most recent files, resulting in a benefit to active students and graduates, as well as to the Admissions staff. The preliminary project defined the tasks for the project and the operative process. Therefore, the design corresponds to the project because it is a task that has a beginning and an end in a period of time, while the operative process is the tasks that are repeated over and over again.

In stage 2, a cycle was created with the initiation, planning, implementation, monitoring, control and closure phase, as deliverables are created and accepted, closures are performed. If there is a need for changes, new cycles can be created [12]. The initiation phase contains the development matrix, the matrix of stakeholders or roles and the initiation act, where the indicators and responsible parties are set out (Table 1).

Table 1. Initial stage.

Development matrix	Stakeholder or role matrix	Initiation Act
Performance indicators	Responsible (R)	Development matrix
Baseline	Execute (E)	Role matrix
Goal	Consulted (C)	
	Informed (I)	

The development matrix contains the result indicators that measure the progress of the expected results, 6 components are designed where the scheme of the physical spaces, number of files, control format and the fields that the software must have to store the location of each file and each digitized file are shown. The goal presents the values or status of the result indicators at the end of the project. The role matrix defines the persons responsible for each activity in relation to the components of the result indicators. Manager 1 will be in charge of the final approval of all activities and the admissions staff will be informed of all activities (Table 2).

The components of the performance indicators were planned as follows:

- C1. Diagram of the physical spaces where the archives are currently located.
- C2. Diagram of the shelves where the archiving is done.
- C3. Definition of the number of files per box and file conformation.
- C4. Diagram of the physical spaces where files are filed that do not have shelves. Re-location of files.
- C5. Module to find academic records (Software).
- C6. Format for file control and change control

And the goals for each component have been:

- Deliver the schematic on a plan and leave it visible at the entrance to the archive.
- Deliver the schematic on a plan.
- Deliver document with number of files and file conformation.
- Deliver plan and leave it visible at the entrance to the archive. Move shelves and files.
- Fields required for location.
- Fields for review, loan of files.

Table 2. Role matrix.

Activity	Responsible 1	Responsible 2	Responsible 3	Admissions staff
Diagram of the physical spaces where the archives are currently located.	R	C / E	E	I
Diagram of the shelves where archiving takes place	R	C / E	E	I
Definition of the number of files per box	R	E		I
Module to find academic records (Software)	R	C	E	I
Diagram of the physical spaces where archiving takes place that do not have shelves.	R	C / E	E	I
Relocation of files to new physical spaces	R	C	E	I

3. RESULTS

The organization of documents is the starting point to achieve a physical location which maintains the same digital organization. That is why the objectives of the 6 components have actions to develop which are broken down into concrete tasks (figure 1 and 2). As there is a physical codification, it is easier to make a similarity with the digital organization and transformation. The physical plan is taken to a digital plan that maintains the order of aisles and shelves, assigning codes by row and column (figure 3). These codes will be the same in the application and can be consulted online. Each file must be located according to the corresponding box and career, ordering the documents according to the academic resume (table 3). The parallelism between the physical space and the fields of the application must be easy to correlate in such a way that a control of the files can be kept.

The organization and digitization of the archive has a rolling shelf signage with:

- Total corridors: 5
- Total shelves: 10
- For each shelf 5 rows and 20 columns with the exception of the first shelf which has only 16 columns.
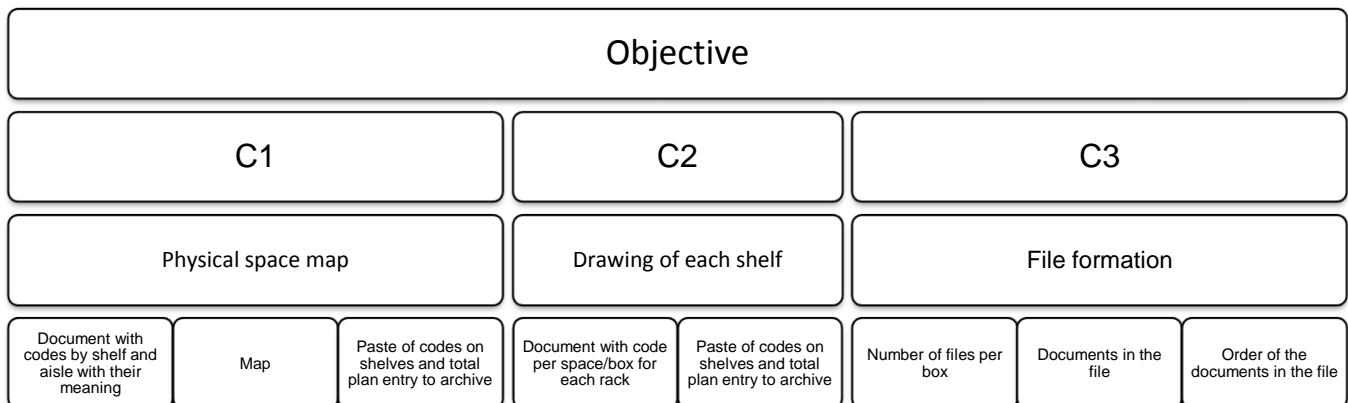- The number of files per box: a maximum of 35 files per box was established.

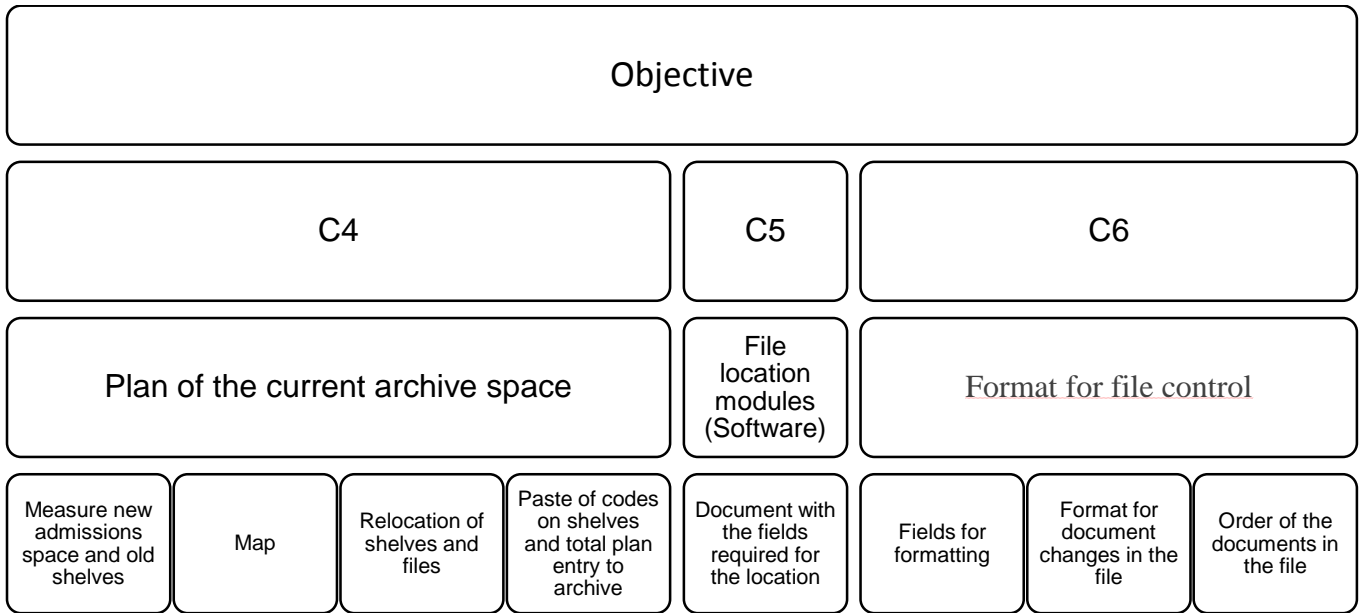**Fig. 1**. Breakdown structure of the work components 1-3.

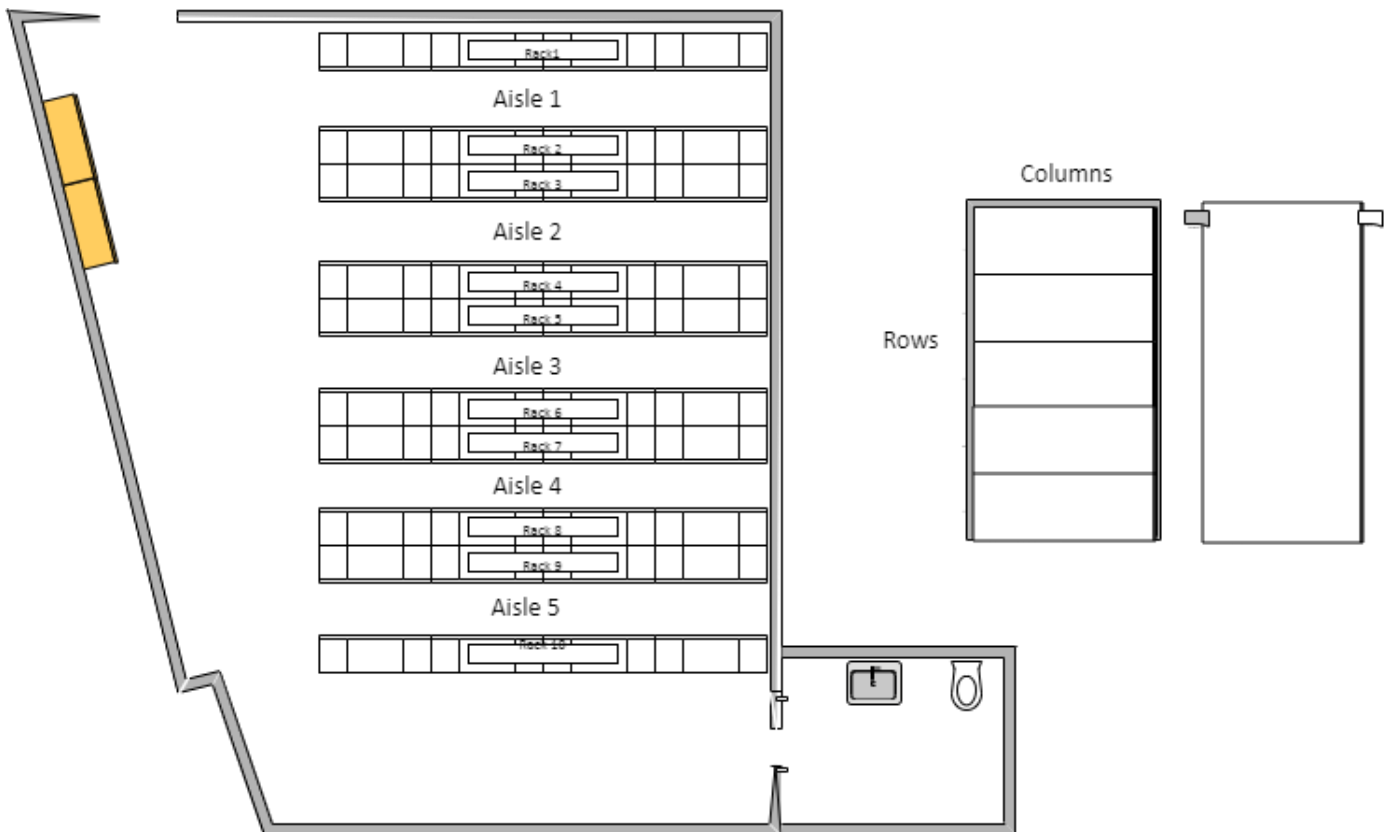**Fig. 2.** Breakdown structure of the work components 4-6.

Fig. 3. Physical plan of the facility

Table 3. Documents that make up the file.

No.	Documents			
1	Registration form	Military passbook	Liquidation	Sibling discount
2	Icfes test results	Liquidation	Completion of materials	Guardianships
3	Diploma and degree certificate	Completion of materials	Refunds	Special novelty
4	Registration form	Refunds	Changes in working hours	Meritorious thesis
5	Icfes test results	Changes in working hours	Curriculum changes	Grade clearance
6	Diploma and degree certificate	Curriculum changes	Semester cancellation	Minutes of the presentation
7	Identity card	Semester cancellation	Validation minutes	Carnet
8	Document of guardian	Validation minutes	Second and third qualifiers	Photography
9	Sisben or eps	Second and third qualifiers	Qualifications	Photocopy of academic resume
10	Habeas data form	Qualifications	Approval resolutions	Payment of grade entitlement
11	Medical examination	Approval resolutions	Vacation rentals Cúcuta	Voting certificates
12	Serology test	Vacation rentals Cúcuta	Approval of applications (transfers, transfers and homologations)	

After the dossier design process, the following tasks were completed:

Component 1: Document with codes by shelf and aisle with their meaning, plan, paste of codes on shelves and total plan for entry to the archive. With a duration of 6 days.

Component 2: Document with code per space/box of each shelf, document with code per space/box of each shelf, paste codes on shelves and total plan for entry to the archive. Duration of 10 days.

Component 3: Number of files per box. Documents in the file. Order of the documents in the file. Duration 5 days.

Component 4: Measure new admissions space and old admissions shelving. Plan. Relocation of shelves and files. Paste codes on shelves and total plan of admission to file.

Component 5: Document with codes by shelf and aisle with their meaning (Software).

Component 6: Fields for the format. Format for changes of documents in the file. Order of the documents in the file.

Adjunct tasks: Organize by codes and file the grade documents for the entire year 2020 and part of 2021, in addition to removing the folders and placing them in the alumni file. Organize all the technicians that are in Admissions in the mansion and place them in the new Admissions.

Review folder by folder of the 2020 and current year postgraduate programs and insert the debts of pending documents to the system. Change the pink folders of correspondence and other documents from 2011 to date, also foliate and level the sheets. Print the missing documents of the missing careers of the new students 1-2021.

Generate reports of graduates from active careers and move graduates from the active and inactive file to the graduate file. Organize the academic resumes of the graduates and bring the file cabinets.

Keep the academic resumes of all graduates from 2019 to date. Organize by codes all old file (Qualifications, voting certificates and other documents). Archive all documents.

The fields for the application that allows the organization and digitization by means of a code that is composed of the shelf number, row, column and search field.

4. CONCLUSION

The digital transformation allows storing a large amount of information, but first the information must be organized and located in a physical form that can be properly managed when performing the digital storage. The presented model allows that the information is always ordered maintaining the parameters and physical location, achieving the assignment of reference codes of each document present in the physical file, as well as its location following the aisle, column and row within the shelf where it is located. This allows the digitization of the information to be truthful and reliable. Finally, the organization, location and codification allows the delivery of certificates in a digital and timely manner, keeping all documents secure.

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