

Research Article

Contributing to Organizational Performance Through Digital Human Resource Management

Libán Bande González^{1,*} , **Yamilet de la Caridad Montelongo García¹** ,
Lilibet Bande González² 

¹Faculty of Mechanical and Industrial Engineering, Universidad Central “Marta Abreu” de Las Villas, Santa Clara, Cuba

²Faculty of Humanities, Universidad Central “Marta Abreu” de Las Villas, Santa Clara, Cuba

Abstract

Organizations have embraced digitalization as a way of optimizing their processes, specially the one related to human resource management since it helps ensuring organizations remain effective and competitive. In the Cuban context, digitalization is conceived within the *National Development Plan until 2030* and the *Comprehensive Policy for the Improvement of the Informatization of Society in Cuba* facilitating its rapid dissemination and adoption in different sectors. However, little attention has been paid to subject of digital Human Resource Management (HRM) in Cuban institutions. This article aims at providing scientific evidence concerning the implementation of digital HRM in a Cuban institution, specifically at Universidad Central “Marta Abreu” de Las Villas. In order to conduct the study, it was necessary to divide it into two parts: one related to the identification of the theoretical and methodological foundations concerning the digitalization of HRM worldwide and within the Cuban context and the second part was devoted to the software development process. In both cases methods such as literature review, historical-logical, analysis and synthesis, participant observation and interviews were applied. As a result, the software P.R.O.G.R.E.S.S was developed, successfully validated by the Human Resources Directorate personnel who highlighted its contributions to the university's organizational performance since it helps fostering a culture of mentorship by pairing less experienced instructors with seasoned faculty members; creating initiative programs for faculties that excel in teaching, research or community engagement; and facilitating benchmarking against institutions by providing comprehensive reports on faculty achievements. Some suggestions are given for further research.

Keywords

Organizational Performance, Digital Human Resource Management, Cuban Institutions, Cuban Universities, Digitalization of Teaching Staff Information

1. Introduction

Digital transformation underpins the integration of technology into human resource management (HRM). Today, artificial intelligence, big data analysis, machine learning and

technology platforms are considered invaluable tools in improving the efficiency and effectiveness of HR process [3, 6].

Technology has revolutionized how HR operates by re-

*Corresponding author: libanbande@gmail.com (Libán Bande González)

Received: 10 October 2024; **Accepted:** 5 November 2024; **Published:** 26 November 2024



Copyright: © The Author (s), 2024. Published by Science Publishing Group. This is an **Open Access** article, distributed under the terms of the Creative Commons Attribution 4.0 License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

shaping businesses collection, storage, utilization, and sharing of employee data [38]. Digital technologies and services provide the means to more effectively attract and retain needed talent, as well as manage services and requirements in a more streamlined way. Modern HR also is about self-service, providing current and potential employees the ability to manage their work lives through online services, ensuring higher levels of satisfaction and productivity [20].

Today's enterprises face a constant flow of new technologies and information, innovative employment forms, rapid digitalization of the workplace and a changing demand for employees' skills that promotes a global rethinking of the way workforce is managed [28]. However, only a small number of digitally transformed HR practices have been reported in literature so far [38]. This is the case of the Cuban context since little is known about the efforts made towards the implementation of digital HR which it is reflected in the scarce literature found regarding this topic. Therefore, this article aims at providing scientific evidence concerning the implementation of digital HR in a Cuban institution, specifically at Universidad Central "Marta Abreu" de Las Villas.

2. Literature Review

1. Defining Human Resource Management

Human resource management (HRM) is a set of practices that affects performance, attitude and behavior of employee at work [1]. However, a more traditional approach defines HRM as the process of acquiring, training, appraising, and compensating employees, and of attending to their labor relations, health and safety, and fairness concerns [17].

Nevertheless, a broader perspective conceives HRM as an integrated set of processes, practices, programs, and systems in an organization that focuses on the effective deployment and development of its employees. These processes include employing people, training them, compensating them, developing policies relating to them, and developing strategies to retain them [32].

In line with this, agreement can be found regarding the perception of human resource management as a set of processes aimed at achieving the organization's goals and objectives [29]. This includes activities undertaken to attract, develop, and maintain an effective workforce. Managers have to find the right people, place them in positions where they can be most effective, and develop them so that they contribute to company success [14].

HRM is of vital importance for three reasons: it can be a significant source of competitive advantage, it is an important part of organizational strategies for achieving competitive success, and it impacts organizational performance [35].

Therefore, it can be stated that human resource management relies upon a sophisticated set of integrated process to help the organization manage human capital. Its effectiveness lies in how well integrated these processes are and how well aligned they are with the mission and strategy of the organization [32].

1. Digital human resource management

This construct has been conceived attending to different conceptualization clusters like; digital transformation, digitalization of human resources management and digital human resource management [20, 41, 6, 38].

Forbes refers to digital HR and defines it as the automated or online administration and delivery of the range of human resource and human capital management services and data [20]. Workforce information is rapidly accessible to HR practitioners, as it is to employees themselves through self-service capabilities (p.4). On the other hand, digital transformation of HRM, digitalization of HRM and digital HRM are identified as related but different constructs [41].

Digitalization of HRM denotes the socio-technical process of exploiting digitization potentials for operational and/or strategic HRM purposes. Digital transformation of HRM denotes the socio-technical digitalization subprocess of exploiting digitization potentials for strategic purposes of HRM, and digital HRM denotes the socio-technical result of the digitalization of HRM.

These three constructs need to be analyzed separately but keeping their interrelation in mind [6, 41].

On one hand, it is argued that digital HR is the result of digitalization of HRM through the use of social, mobile, analytics and cloud (SMAC) technologies [6].

On the other hand, the treatment given to these constructs in scientific literature has been comprehensively analyzed by different authors based on the purpose, the methodology, the definitions or related concepts, and the concepts and/or theoretical framework declared in different studies [38]. As a result, must authors advocate the use of the construct digital transformation.

However, for the purposes of this article the authors decided to follow the concept of digitalization of human resources management stated by [41]. However, regardless of the different constructs authors utilize for designating the integration and implementation of technology for improving HRM it is essential to keep in mind that it bolsters recruiting, streamlines the selection and hiring process, accelerates employment onboarding, opens up training and development, reshapes performance management, improves quality of work, eases retirement, customizes talent management [20].

2. Defining Strategic Management and Organizational Performance

There have been numerous studies on strategic management and organizational performance. Several attempts have been made for different authors in order to define strategic management.

Strategic management can be defined as the art and science of formulating, implementing, and evaluating cross-functional decisions that enable an organization to achieve its objectives. As this definition implies, strategic management focuses on integrating management, marketing, finance/accounting, production/operations, research and development, and information systems to achieve organizational

success [33]. Another view regards strategic management as a set of managerial decisions and actions [45] that determines the long-run performance of a corporation [31]. Likewise, strategic management is conceived as a deliberate and continuous series of operations carried out by a firm to successfully achieve its objectives and minimize dependence on unplanned occurrences [21, 24]. However, this definition was further developed stating that strategic performance includes environmental scanning (both external and internal), strategy formulation (strategic or long-range planning), strategy implementation, and evaluation and control [45]. The study of strategic management, therefore, emphasizes the monitoring and evaluating of external opportunities and threats in light of a corporation's strengths and weaknesses.

On the other hand, there has not been a consensual agreement regarding the concept of organizational performance. Some agreement has been reached in relation to the subjective nature of organizational performance [23, 13, 16]. On one side, [23, 13] conceive organizational performance as achieving organizational goals. Performance is multidimensional when goals are manifold; performance is a subset of action; performance is subjective because it is the product of operation, which, by its subjective nature, consists of approaching a reality to a desire [23]. On the other hand, organizational performance can be regarded from six different approaches or as an ensemble of them all being these: goal approach, system resource approach, social system approach, competing values approach, subjective approach, and constituency approach [16].

Since literature has failed in establishing a solid foundation for conceptualizing organizational performance some authors have researched on performance assessment according to their own interpretations of organizational performance according to three priorities [19]. First, performance should be analyzed by each entity within the limits of the environment in which they decide to operate. For example, the markets used to analyze a company's performance, in which it operates. Second, objectives set by the entity linked to performance. Therefore, a company measures its performance against objectives and targets established and accepted internally rather than on those used by external bodies. Third, performance is reduced to relevant and recognizable features. According to this authors' theory, the environment influences performance, the objectives to be achieved, and the relevant and recognizable features [16].

Regarding the relationship between strategic management and organizational performance it been stated that strategic management practices (strategy formulation, implementation, and evaluation) notably and positively influence organizational performance, specifically in terms of profitability, productivity, and operational performance. Hence, by implementing efficient strategies, businesses can enhance their overall performance in several domains. Therefore, adopting strategic management practices can enhance organizational performance through setting explicit goals, improved deci-

sion-making, efficient allocation of resources, adaptation to environmental changes, promotion of innovation and creativity, ensuring organizational alignment, and implementation of performance measurement and evaluation procedures [24].

3. Role of Digital HRM in Strategic Management and Organizational Performance

Companies are making considerable efforts to create a competitive market by aligning their human resources to achieve established organizational goals like: cost-cutting, hitting ambitious sales targets, increasing the number of customers, gaining more market share, improving the quality of the goods, and raising productivity [36, 5]. By managing human resources more effectively and efficiently organizations can also attain sustainable organizational performance [4].

Digital HR is focused on the implementation of innovative solutions, personnel productivity improvement and it perceives employees as investments that should be supported [30].

In the 21st century, human resources have been able to revolutionize the experience of employees by the transformation of HR processes through the use of new digital platforms, applications, and methods of providing HR services including digital communication [39].

Digital HRM can bring several benefits to organizations, such as clear performance evaluation, provision of cost-effective benefits [15], increased efficiency, reduced administrative burden, improved employee experience, enhanced decision-making through data insights, and better alignment of HR strategies with overall business goals [18]. Also, Digital HRM enhances efficiency, accuracy, and productivity. It enables HR professionals to focus more on strategic tasks, employee development, and fostering a positive work environment [10].

Different technologies used in human resource management and its purposes have been analyzed [46]:

1. **HR Information Systems (HRIS):** HRIS is software that helps HR professionals manage employee information such as payroll, benefits, attendance, and performance evaluations. HRIS enables employee data tracking and analysis, as well as efficient communication between HR staff and employees.
2. **Applicant Tracking Systems (ATS):** ATS is software that helps recruiters manage job applications and resumes. The ATS allows recruiters to filter applications based on various criteria such as education, experience and skills. ATS also helps schedule interviews and sends out automatic rejection letters.
3. **Learning Management Systems (LMS):** LMS is software that helps organizations manage employee training and development. An LMS enables HR professionals to create and deliver online courses, track employee progress, and assess learning outcomes [43].

It is important for organizations to design structures that can embrace and integrate new technologies. The human

resources function plays a critical role in this process by supporting the adoption of new technologies and adapting to new ways of working. By doing so, organizations can improve their effectiveness and remain competitive in today's rapidly changing business environment [7].

4. Adopting Digitalization of HRM in the Cuban Context

In Cuba, promoting and developing society's informatization and bringing citizens closer to information and communications technologies (ICTs), one of the country's strategic sectors [2] is conceived within the constitutional mandate, including the guidelines of the last three congresses of the Cuban Communist Party, the *National Development Plan until 2030* and the provisions of the *Comprehensive Policy for the Improvement of the Informatization of Society in Cuba* [8].

Although informatization constitutes the core of the main transformations carried out in the country, literature-based evidence is insufficient to demonstrate concrete examples. Most of the evidence found is related to the advances made during the COVID-19 pandemics; however, little is known about the implementation of technology for improving organizational processes.

3. Materials and Methods

To conduct the study, it was necessary to divided it into two parts.

The first part was related to the literature review carried out

in order to establish a conceptual and methodological framework for the digitalization of Human Resource Management (HRM) worldwide and within the Cuban context. This involved sourcing relevant scientific papers, books, and reports from a diverse range of databases and publications mainly ResearchGate, Scopus, Web of Science, SciELO and online Cuban journals. Literature was selected based on its relevance to HRM digitalization, with a specific focus on studies applicable to the Cuban economic and social landscape. Both English and Spanish language sources were included to ensure a comprehensive view of global perspectives and local insights. The collected literature was critically analyzed by comparing methodologies, findings and theoretical perspectives. This comparative analysis allowed for the identification of prevailing trends, gaps in the current body of knowledge and opportunities for innovation in the Cuban HRM digital platform. Synthesis of this information resulted in a set of informed conclusions that shaped the development of the HRM software in the subsequent phase of the study.

The second part was devoted to the software development. In the practical application phase of the study, a bespoke HRM software, P.R.O.G.R.E.S.S, tailored to the needs of a Cuban institution, Universidad Central "Marta Abreu" de Las Villas, was developed. The software development process adhered to established project management principles taking [25, 9, 40, 37, 34, 12] as a basis. As a result, five stages, involving interviews and programming, were identified (Table 1).

Table 1. Stages undergone during the software development process. Source: Own elaboration.

Stage 1	Defining the system's functional requirements.
	User workflow study.
	Impairment recognition.
Stage 2	Functional requirements refinement.
	Project brief presentation.
	Patterns identification for interaction design.
Stage 3	Wireframes construction.
	Wireframes approval.
	Prototypes construction.
Stage 4	Prototypes approval.
	Database design.
	UML patterns design.
Stage 5	Object-oriented programming.
	Design patterns usage.

Also, [11, 26, 22, 42, 27, 44] were revised to identify the principles and patterns for designing the graphic user inter-

face.

P.R.O.G.R.E.S.S (Performance analytics, Reporting and

insights, Operational data integration, Growth and workforce management, Resource empowerment, Employee experience enhancement, Skill development, Strategic training solutions) was built using modern programming languages and development environments deemed most suitable for creating secure, scalable and user-friendly HRM systems.

1. Sampling and Data Collection

The study took place at Universidad Central “Marta Abreu” de Las Villas, specifically at the Human Resources Directorate which it is structured in 6 departments devoted to: selection and recruitment; staff training; staff performance; occupational safety and health, risk management; and payroll, subsidies and retirement.

Most of the work carried out in the departments is paper-based which hinders in-time and effective decision making; frequently, that related to the teaching staff. Therefore, it was necessary to digitalize the teaching staff information to diminish paperwork and ease data sharing and cross-referencing at the selection and recruitment; staff training and staff performance departments.

To develop the software, it was necessary to interview people from the different departments, taking into account their responsibilities and how the software will tribute to their fulfillment, as well as the Human Resources Director, as illustrated in Table 2.

Table 2. Sampling identified for developing the software. Source: Own elaboration.

Department	Number of people interviewed	Responsibility
Selection and recruitment	3	Selection and Recruitment Specialists (SRSp)
	1	Selection and Recruitment Manager (SRM)
Staff training and rewarding	3	Staff Training and Rewarding Specialist (STSp)
	1	Staff Training and Rewarding Manager (STM)
Staff Performance	3	Staff Performance Specialists (SPSp)
	1	Staff Performance Manager (SPM)
Human Resources Directorate	1	Human Resources Director (HRD)

To facilitate the data collection, semi-structured interview schedules were used as well as a series of open-ended qualitative questions.

4. Results and Discussion

1. Software Design Process

To discuss the results obtained during this phase it will be necessary to analyze them according to the stages declared in Table 1.

1). Stage 1

This stage aimed at determining the system's functional requirements, the users' workflow and impairments.

As a result of the different interviews conducted for this stage, it was observed that P.R.O.G.R.E.S.S should respond mainly to the needs of the Training Manager (STM) and the Training Specialists (STSp) concerning the management of the teaching staff. Also, the following functional requirements were identified:

1. The system should provide users with the ability to log in and log out (Figure 2).
2. The system should allow users to input and store specific data type in a secure database (Figure 3).
3. The system should permit users to search, filter and re-

trieve specific data type from the database (Figure 3).

4. The system should automate specific processes to reduce manual input and increase efficiency (Figure 3).
5. The system should generate reports on specific data points which can be exported in file formats (Figure 3).
6. The system should offer accessibility to people with visual impairment.

In order to fulfill the last requirement, it was decided to create an interface with light and dark themes.

The users' workflow was studied to determine the sequence of tasks to be performed on a day-to-day basis and how one task feeds into another. Finally, some STSp were identified as visually impaired.

2). Stage 2

In this stage, the functional requirements were refined so that there was no ambiguity in the functionalities requested by the clients. Then, a project brief was built for the client's approval.

3). Stage 3

In this phase the correct user interface design pattern for the problem was selected. The STM and STSp wanted to keep a daily control of certain metrics and for this purpose the dashboard pattern was applied as illustrated in Figure 1.

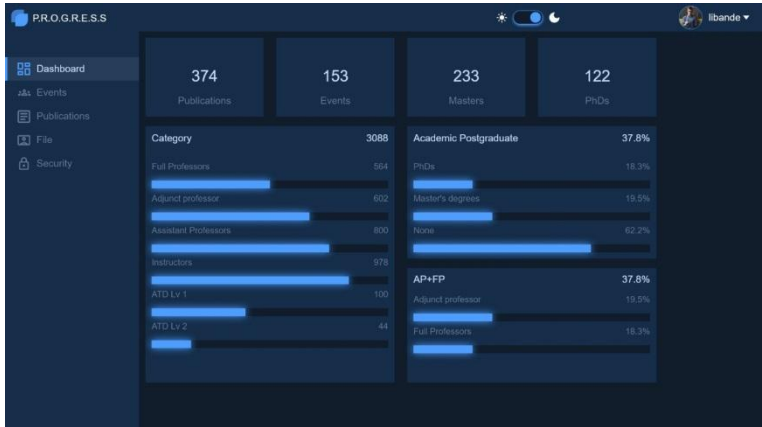


Figure 1. Dashboard.

This dashboard reveals how metrics has behaved in the last five years.

The upper side of the dashboard shows the name of the software and its logo, followed by a switch that allows changing between light and dark themes, and then it shows the name of the logged user. Figure 2 illustrates how the log-in window is displayed.

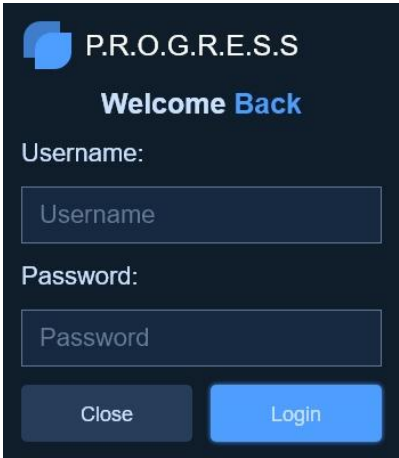


Figure 2. Log-in window.

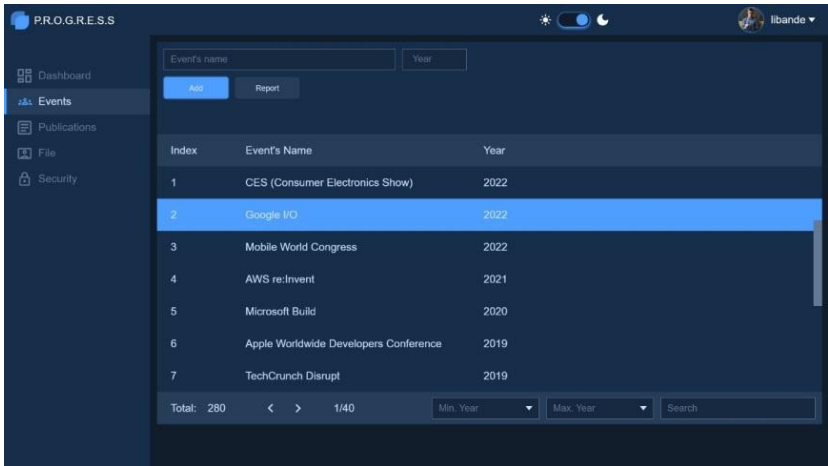
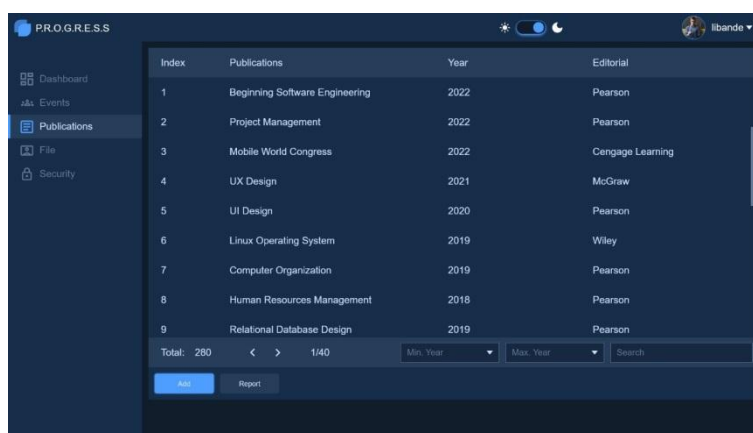


Figure 1. Events window.

To the left side of the dashboard the items Events, Publication, File and Security are shown.

Events and publications allow the human resources specialists to introduce the teaching staff information related to these categories. Figure 3 and 4 illustrate the digital workspace.



Index	Publications	Year	Editorial
1	Beginning Software Engineering	2022	Pearson
2	Project Management	2022	Pearson
3	Mobile World Congress	2022	Cengage Learning
4	UX Design	2021	McGraw
5	UI Design	2020	Pearson
6	Linux Operating System	2019	Wiley
7	Computer Organization	2019	Pearson
8	Human Resources Management	2018	Pearson
9	Relational Database Design	2019	Pearson
Total: 280		< > 1/40	Min. Year Max. Year Search

Figure 4. Publications window.

The Events section comprises three subsections: upper, middle and lower section. The upper section allows introducing the events' name and the year it took place into a database that contains all the events the professors have attended to. Also, by clicking on the Report button it automatically generates an Excel file with all that information. The middle section chronologically shows the events' names and the years the took place, Finally, the lower section reveals the total number of events that has been introduced into the database, facilitates moving from one page to another and allows search operations by introducing a time period so the user can retrieve all the events that were hold during the selected timeframe.

Regarding the Publications section, as seen in Figure 5, it portrays the name of the publications, the years they were issued and their publishers. Like in the case of the Events section, the lower section of the Publications window reveals the total number of publications that have been introduced into the database, facilitates moving from one page to another and allows search operations by introducing a time period so the user can retrieve all the events that were hold during the selected timeframe. However, it also contains and Add and Report button.

By clicking on the Add button the window from Figure 5 will be displayed and the HR specialist that operates the software will fill in the blank spaces with the corresponding information.

Like the Report button from the Events menu, the Report button in Figure 4 will generate an Excel file with all the information introduced in Figure 5.

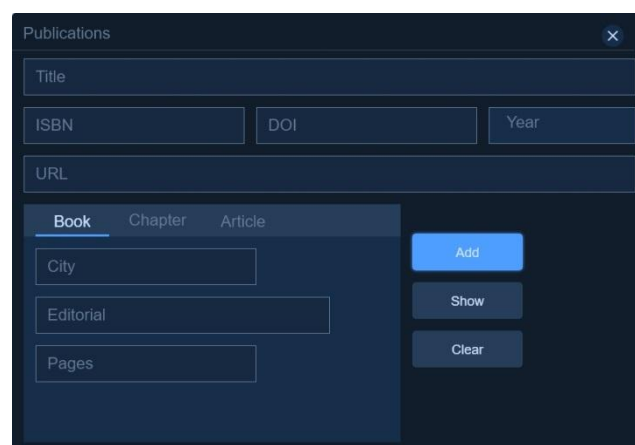
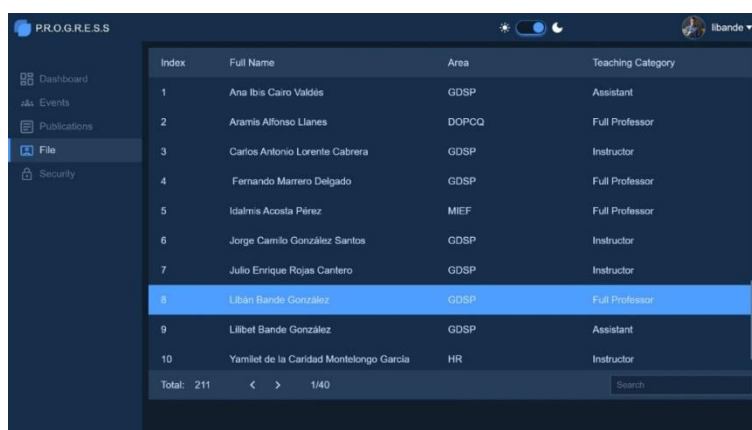


Figure 5. Add publication window.

Concerning the File section, a window like the one displayed in Figure 6 will exhibit the names of all people comprising the teaching staff alongside their department and the teaching category. It is important to mention that some people from administrative areas may possess a teaching category and they may teach in one particular degree course or in several; but, the software will designate them in their corresponding administrative area. Also, the search option allows looking for a specific professor by typing his/her name or just part of it.



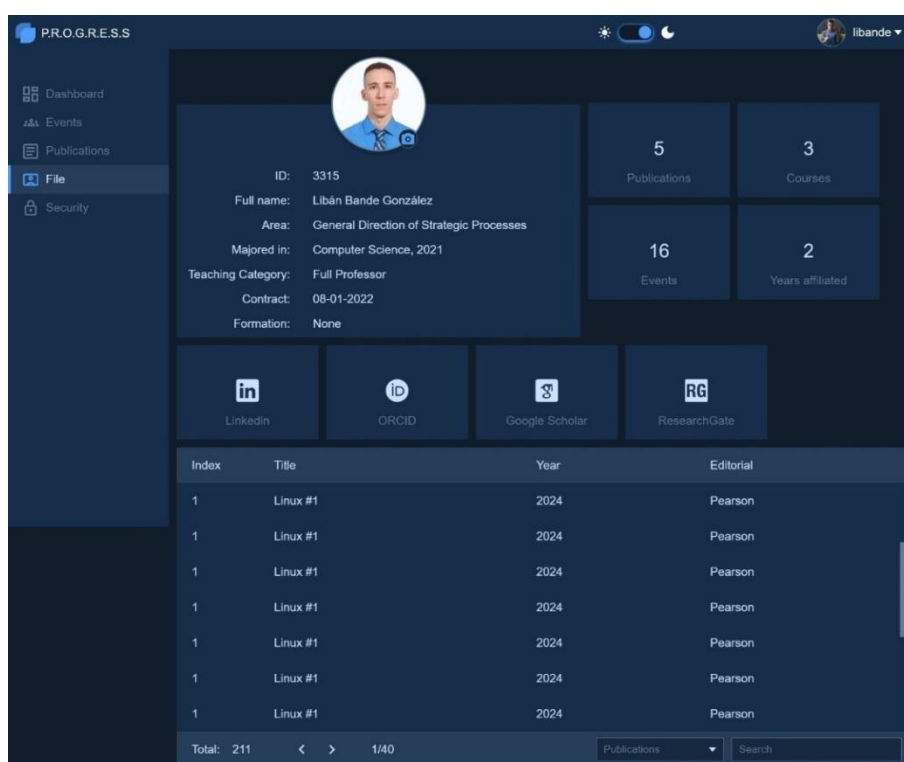
The screenshot shows the 'PROGRESS' application interface. On the left is a sidebar with navigation options: Dashboard, Events, Publications, File (selected), and Security. The main area displays a table of professors. The table has columns for Index, Full Name, Area, and Teaching Category. The 8th row is highlighted in blue.

Index	Full Name	Area	Teaching Category
1	Ana Ilys Cairo Valdés	GDSP	Assistant
2	Aramis Alfonso Llanes	DOPCQ	Full Professor
3	Carlos Antonio Lorente Cabrera	GDSP	Instructor
4	Fernando Marrero Delgado	GDSP	Full Professor
5	Idalmis Acosta Pérez	MIEF	Full Professor
6	Jorge Camilo González Santos	GDSP	Instructor
7	Julio Enrique Rojas Cantero	GDSP	Instructor
8	Libán Bande González	GDSP	Full Professor
9	Lilibet Bande González	GDSP	Assistant
10	Yamilet de la Caridad Montelongo Garcia	HR	Instructor

At the bottom of the table, it says 'Total: 211' and '1/40' with navigation arrows. There is also a search bar.

Figure 6. File window.

In order to access the information of a certain professor the HR specialist must double click in the name of the professor and then a window like the one in [Figure 7](#) will emerge.



The screenshot shows the 'PROGRESS' application interface for a specific teacher's profile. The sidebar is the same as in Figure 6. The main area displays the teacher's profile information, including a photo, ID, full name, area, major, teaching category, contract date, and formation. To the right are four summary boxes: Publications (5), Courses (3), Events (16), and Years affiliated (2). Below these are four social media/academic profile links: LinkedIn, ORCID, Google Scholar, and ResearchGate. At the bottom is a table of publications.

Index	Title	Year	Editorial
1	Linux #1	2024	Pearson
1	Linux #1	2024	Pearson
1	Linux #1	2024	Pearson
1	Linux #1	2024	Pearson
1	Linux #1	2024	Pearson
1	Linux #1	2024	Pearson
1	Linux #1	2024	Pearson

At the bottom of the table, it says 'Total: 211' and '1/40' with navigation arrows. There is also a search bar and a dropdown menu set to 'Publications'.

Figure 7. Teacher's specific window.

In the center of the window some general information of the professor will be displayed like his teaching category, the area where he holds his contract, the date when he signed up his contract, formation (if the professor holds a Master or a Ph.D. certificate). Also, in this section the links to his academic and scientific networks profiles can be accessed to.

In the right side the total number of publications, of delivered courses, of assisted events and of working years in the institution can be seen.

Finally, in the lower section of the window a table of the latest publications is portrayed.

Regarding the Security item from the dashboard this is shown in [Figure 8](#). This item is intended to be administrated by the risk management specialists. It allows creating new accounts, determining access to specific databases, keeping track of the logged-in users, changing accounts' passwords, and eliminating accounts.

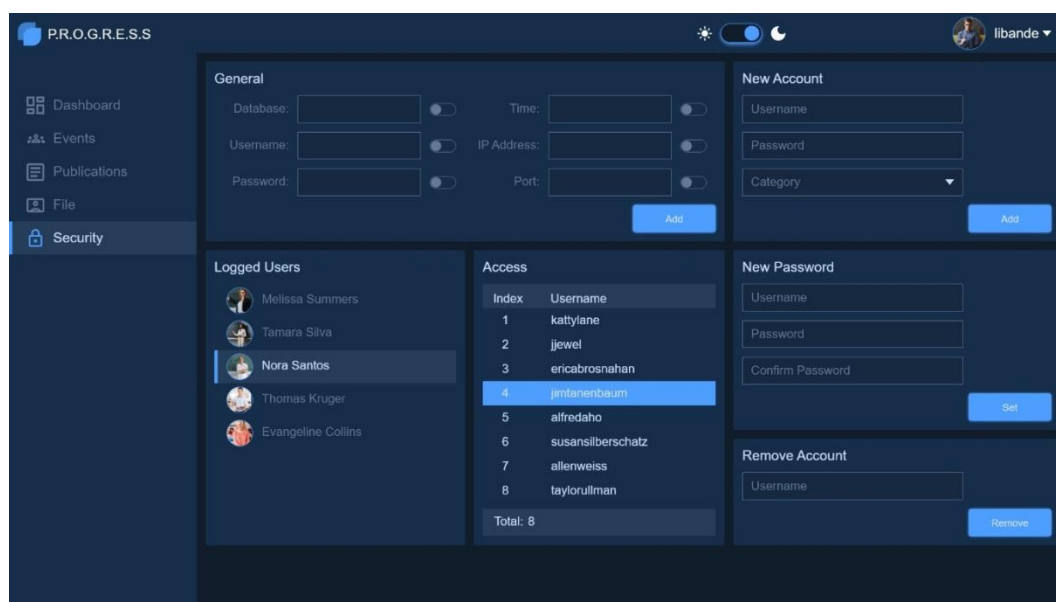


Figure 8. Security window.

By the time this article was submitted for publishing digitalization of teaching staff data was been carried out. Therefore, some of the information provided in the figures is surreal. However, it was decided to use it in order to illustrate the full spectrum covered by the software.

Overall, while designing the dashboard and the items that comprise it the functional requirements stated above were taken into account in order to secure their fulfillment.

Also, in this stage a group of wireframes were built as proposals for all the specialists and managers to decide which one better met their needs. For creating the wireframes, the tool Adobe XD was used.

4). Stage 4

At this point the construction of high-fidelity prototypes was started. Then, when the desired prototype was identified and approved the researchers moved on to the implementation stage.

5). Stage 5

In this last phase, the design of the relational database and the implementation of the approved prototype was initialized making use of the best programming practices.

2. Software Performance Evaluation

Once the software was designed and implemented the HR specialists and managers interacted with it for almost a month. Later, interviews were conducted to gather opinions on the software performance.

According to the specialists and the manager from the selection and recruitment department, the software helps them to identify areas in need of teaching staff with specific teaching categories.

On the other hand, the specialists and manager from the staff training and rewarding department stated that by using the software they can analyze the courses delivered by each faculty member to assign them to courses that align with their

expertise and past performance, ensuring high-quality instruction. Also, by reviewing staff publications and participation in events, it is possible to identify areas where faculties may benefit from additional training or professional development opportunities. In addition, the HR members can use this information to pair less experienced instructors with seasoned faculty members who have strong record of teaching and research, fostering a culture of mentorship. Moreover, the data can be used to create incentive programs for faculties that excel in teaching, research, or community engagement, motivating staff to enhance their contributions. Furthermore, it is possible to track which faculty members are actively participating in conferences and workshops, enabling them to organize similar events or encourage wider participation among staff. Finally, the software can facilitate benchmarking against other institutions by providing comprehensive reports on faculty achievements, helping the training department demonstrate the quality of their teaching staff to stakeholders.

Concerning the staff performance specialists and manager, they explained that staff performance is evaluated annually using a form in which indicators like courses taken and delivered, publications made, and events participation are included. Therefore, this software significantly improves the quality of the evaluation process by facilitating it since the information is presented digitally rather than paper-based which might lead to information loss in certain stages of the process.

3. Contributions to Organizational Management and Performance

The software can provide analytics on faculty performance, course effectiveness and student outcomes, enabling leadership to make informed decisions regarding hiring, promotions and resource allocation. Also, centralized information about faculty expertise and activities can streamline communication

across departments, fostering collaboration and reducing redundancy in efforts. In addition, by identifying trends in faculty engagement and satisfaction through surveys and participation data, the university can implement targeted initiatives to improve retention rates. Moreover, the software can track faculty participation in professional development and teaching effectiveness, holding staff accountable for their contributions and encouraging continuous improvement. Furthermore, by analyzing faculty research interests and teaching methodologies, the university can align individual goals with institutional objectives, promoting cohesive approach to achieving strategic priorities. Besides, the software can help identify underutilized faculties or resources, allowing the university to optimize scheduling and course offerings based on demand and expertise. Additionally, by leveraging data on faculty performance and student feedback, the university can implement targeted improvements in teaching methods and curriculum design, ultimately enhancing student learning experiences. Finally, the software can provide insights into how the university compares to peer institutions in terms of faculty achievements and students success metrics, helping to identify areas for improvement and competitive advantages.

5. Conclusions

Digital HRM assists managers in their decision-making process as well as it provides a clear view of the employees' status to the organization. In the context of Universidad Central "Marta Abreu" de Las Villas digitalizing the teaching staff information offers a better understanding of their qualifications while making a significant contribution to organizational performance. Also, from the social perspective this software can help educational institutions tailor their curricula to better meet industrial needs and students' interests ensuring that graduates are well-prepared as future workforce. In addition, by showcasing faculties' involvement in community events and outreach programs, the software can highlight the role of educators in societal development, encouraging more partnerships between educational institutions and local communities. Overall, the software has the potential to create a more informed, connected and responsive educational ecosystem that benefits not only students and educators but society as a whole.

However, the authors suggest further research related to the software regarding:

1. the identification of risks from the perspective of the risk management department,
2. detailed study about the impact of P.R.O.G.R.E.S.S on organizational performance, and
3. the contribution of P.R.O.G.R.E.S.S to attain organizational sustainability.

Abbreviations

HR	Human Resource
HRM	Human Resources Management
SMAC	social, mobile, analytics and cloud
HRIS	Human Resource Information Systems
ATS	Applicant Tracking Systems
LMS	Learning Management Systems
ICTs	Information and Communication Technologies
P.R.O.G.R.E.S.S	Performance Analytics, Reporting and Insights, Operational Data Integration, Growth and Workforce Management, Resource Empowerment, Employee Experience Enhancement, Skill Development, Strategic Training Solutions
SRSp	Selection and Recruitment Specialists
SRM	Selection and Recruitment Manager
STSp	Staff Training and Rewarding Specialists
STM	Staff Training and Rewarding Manager
SPSp	Staff Performance Specialists
SPM	Staff Performance Manager
HRD	Human Resources Director

Conflict of Interest

The authors declare no conflicts of interest.

References

- [1] Aslam, H. D., Aslam, M., Ali, N., & Habib, B. (2013). Importance of Human Resource Management in 21st Century: A Theoretical perspective. *International Journal of Human Resource Studies*, 3(3), 87-96.
<https://doi.org/10.5296/ijhrs.v3i3.6255>
- [2] Lugo Austrich, Y., Rodríguez Gabaldá D. M., & Danel Ruas, O. O. (2020, July 08). ResearchGate. Retrieved from *Informatización de la sociedad en Cuba en tiempos de COVID-19*:
<https://www.researchgate.net/publication/342784217>
- [3] Adiazmil, S. A., Hidayat, M., & Basuil, D. (2024). Strategic Human Resource Planning in the Era of Digital Transformation. *Management Studies and Business Journal*, 1(1), 130-137.
- [4] Al Aina, R., & Atan, T. (2020). The Impact of Implementing Talent Management Practices on Sustainable Organizational Performance. *Sustainability*, 12(20), 1-21.
- [5] Arokiasamy, L., Fujikawa, T., Piaralal, S. K., & Arumugam, T. (2024). Role of HRM Practices in Organization Performance: A Survey Approach. *International Journal of Sociotechnology and Knowledge Development*, 16(1), 1-32.

- [6] B. E., S., & Rathod, V. G. (2019). Digital HR, Technology at the fore-front: An Overview. *Journal of Emerging Technologies and Innovative Research (JETIR)*, 8(2), 1-9. ISSN-2349-5162.
- [7] Bir Kaur, S., Singh, G., & Kumar, R. (2023). Digital human resource management: paving the way for success. *International Research Journal of Modernization in Engineering Technology and Science*, 5(6), 3719-3727.
- [8] Bodaño García, J. A. (2022). The informatization of society as a policy of the Cuban state. *Opuntia Brava*, 14(4), 55-69.
- [9] Bruegge, B., & Dutoit, A. H. (2010). *Object-Oriented Software Engineering. Using UML, Patterns, and Java™* (Third edition ed.). United States of America: Pearson Education.
- [10] Chatterjee, S., Chaudhuri, R., Vrontis, D., & Siachou, E. (2022). Examining the dark side of human resource analytics: an empirical investigation using the privacy calculus approach. *International Journal of Manpower*, 43(1), 52-74.
- [11] Chijiwa, H. (1987). *Color Harmony: A Guide to creative Color Combinations*. Ohio: Rockport Publishers.
- [12] Cicala, G. (2020). *The Project Managers Guide to Microsoft Project 2019*. Wilmington: Apress.
- [13] Conțu, E. G. (2020). Organizational performance – theoretical and practical approaches; study on students' perceptions. *Proceedings of the International Conference on Business Excellence*, 14(1), 398-406.
- [14] Daft, R. L. (2016). *Management* (Twelfth edition ed.). Boston: CENGAGE Learning.
- [15] DeCenzo, D. A., Robbins, S. P., & Verhulst, S. L. (2013). *Fundamentals of Human Resource Management* (11th ed.). Kendallville, Indiana, United States of America: Wiley. <https://doi.org/ISBN:978-0-470-91012-2>
- [16] Demeke, B., & Tao, C. (2020). Concept & Perspectives of Organizational Performance Management: Organizational Performance. *International Journal of Academic Multidisciplinary Research (IJAMR)*, 4(8), 89-96.
- [17] Dessler, G. (2017). *Human Resource Management* (15th ed.). Kendallville, Indiana, United States of America: Pearson Education, Inc. <https://doi.org/ISBN:978-0-13-423545-5>
- [18] Dundon, T., & Rafferty, A. (2018). The (potential) demise of HRM? *Human Resource Management Journal*, 28(3), 377-391.
- [19] Folan, P., Browne, J., & Jagdev, H. (2007). Performance: Its meaning and content for today's business research. *Computers in Industry*, 58(7), 605-620.
- [20] Forbes Insights. (2016). *How Digital Transformation Elevates Human Capital Management: Turning Talent into a Strategic Business Force*. Jersey: Forbes Insights.
- [21] Fuertes, G., Alfaro, M., Vargas, M., & Gutierrez, S. (2020). Conceptual framework for the strategic management: a literature review—descriptive. *Journal of Engineering*, 20(8), 1-21.
- [22] Galitz, W. O. (2007). *The Essential Guide to User Interface Design. An Introduction to GUI Design. Principles and Techniques* (Third edition ed.). Indianapolis: Wiley Publishing.
- [23] Ion, E.-I., & Criveanu, M. (2016). "Organizational Performance – A Concept That Self-Seek To Find Itself. *Annals - Economy Series*, 4, 179-183.
- [24] Iyobhebhe, I., Sharon, J., & Fowosere, S. O. (2024). Strategic Management Practices as Fundamental to the Achievement of Organizational Performances. *African Journal of Social Sciences and Humanities*, 7(1), 106-118.
- [25] Lethbridge, T. C., & Laganière, R. (2005). *Object-Oriented Software Engineering. Practical software development using UML and Java* (Second edition ed.). New York: McGraw-Hill.
- [26] Lidwell, W., Holden, K., & Butler, J. (2003). *Universal Principles of Design*. Massachusetts: Rockport Publishers.
- [27] MacDonald, D. (2019). *Practical UI Patterns for Design Systems: Fast-Track Interaction Design for a Seamless User Experience*. Victoria, Australia: Apress.
- [28] Mazurchenko, A., & Maršíková, K. (2019). Digitally-Powered Human Resource Management: Skills and Roles in the Digital Era. *Acta Informatica Pragensia*, 8(2), 72-87. <https://doi.org/10.18267/j.aiip.125>
- [29] Mijatović, M. D., Uzelac, O., & Stoilković, A. (2020). Effects of human resources management on the manufacturing firm performance: Sustainable development approach. *International Journal of Industrial Engineering and Management*, 11(3), 1-8.
- [30] Molotkova, N., Makeeva, M., & Khazanova, D. (2019). Digitalized Personnel Management. In V. Molotkova, *Global Challenges and Prospects of the Modern Economic Development* (Vol. 57, pp. 757-767). Future Academy. <https://doi.org/10.15405/epsbs.2019.03.75>
- [31] Momoh, J. I., & Itohan, I. (2023). THE EFFECT OF STRATEGIC MANAGEMENT PRACTICES ON ORGANIZATIONAL COMPETITIVENESS. *International Journal of Research and Development (IJRD)*, 8(5), 12-15.
- [32] Patterson, D. (2023). *Human Resources Management* (3rd ed.). London: Fanshawe College Pressbooks.
- [33] Pearson Education. (2011). *Strategic Management: Concepts and Cases*. New Jersey: Pearson Education.
- [34] Project Management Institute. (2017). *A Guide to the Project Management Body of Knowledge* (Sixth edition ed.). Pennsylvania: Project Management Institute.
- [35] Robbins, S. P., & Coulter, M. (2012). *Management* (Eleventh edition ed.). New Jersey: Pearson Education.
- [36] Saravanan, S., & Abinaya, S. (2017). HRM Role in Organization Performance. *International Journal of Advance Research and Innovative Ideas in Education*, 3(6), 1789-1794. ISSN(O)-2395-4396.
- [37] SCRUMStudy. (2016). *A Guide to the Scrum Body of Knowledge (SBOK™ Guide)* (Third edition ed.). Arizona: SCRUM study.

- [38] Sharma, A., & Meet, M. K. (2023). Human Resource Digital Transformation (HRDT): A Study Of Innovation And Capability Through Digitalization And Individual Factors. *Educational Administration: Theory and Practice*, 29(3), 394-412. ISSN: 2148-2403.
- [39] Stephan, M., Uzawa, S., Volini, E., Walsch, B., & Yoshida, R. (2016). Digital HR. Revolution, not evolution. In D. D. LLC, *Global Human Capital Trends 2016. The new organization: different from design* (pp. 97-119). New York: Deloitte University Press.
- [40] Stephens, R. (2015). *BEGINNING: Software Engineering*. Indianapolis: Wiley.
- [41] Strohmeier, S. (2020). Digital human resource management: A conceptual clarification. *German Journal of Human Resource Management*, 34(3), 345-365.
<https://doi.org/10.1177/2397002220921131>
- [42] Stull, E. (2018). *UX Fundamentals for Non-UX Professionals*. User Experience Principles for Managers, Writers, Designers, and Developers. Ohio: Apress.
- [43] Ta, V. A., & Lin, C. Y. (2023). Exploring the Determinants of Digital Transformation Adoption for SMEs in an Emerging Economy. *Sustainability*, 15(9), 1-13.
<https://doi.org/10.3390/su15097093>
- [44] Tidwell, J., Brewer, C., & Valencia, A. (2020). *Designing Interfaces. Patterns for Effective Interaction Design* (Third edition ed.). Canada: O'Reilly.
- [45] Wheelen, T. L., & Hunger, J. D. (2012). *Strategic Management and Business Policy: Towards Business Sustainability* (Thirteenth edition ed.). New Jersey: Pearson Education.
- [46] Yusuf, M., Riban Satia, H. M., Bernardianto, R. B., Nurhasanah, N., Irwani, I., Kurniasih, D., & Setyoko, P. I. (2023). Investigating the effect of digital HRM and digital innovation and the SMEs performance in Indonesia. *International Journal of Professional Business Review*, 1-14. ISSN: 2525-3654.