

Development of a Human Resources Management Platform at TCE-PE: A Needs Assessment Report

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Abstract. *This work outlines the needs assessment process conducted at the Court of Audit of the State of Pernambuco (TCE-PE), aiming to identify opportunities for technological innovation in people management. The work highlights the initial diagnostic phase that maps the challenges faced by the people management department. The findings provide a detailed overview of specific needs, laying a solid foundation for future technological interventions to optimize internal processes.*

Resumo. *Este trabalho descreve o processo de avaliação de necessidades realizado no Tribunal de Contas do Estado de Pernambuco (TCE-PE), com o objetivo de identificar oportunidades para inovação tecnológica na gestão de pessoas. O trabalho destaca a fase inicial de diagnóstico que mapeia os desafios enfrentados pelo departamento de gestão de pessoas. Os resultados fornecem uma visão detalhada das necessidades específicas, estabelecendo uma base sólida para futuras intervenções tecnológicas visando otimizar os processos internos.*

1. Introduction

The public sector, encompassing government entities and institutions under state control, plays an extremely important role in conducting government functions, regulating and providing public services [Lane 1993]. Identifying the needs of this sector is crucial for the formulation and improvement of effective public policies, allowing a precise allocation of resources and efforts to meet society's demands in an efficient and targeted manner [Nigro 1984]. However, the bureaucracy inherent in these organizations can slow down internal processes, compromising their effectiveness [Cardoso Jr 2011]. To overcome this challenge, the introduction of technology is relevant, providing greater agility to processes [Lins et al. 2023].

In this context, the Court of Auditors of the State of Pernambuco (TCE-PE), responsible for monitoring and auditing the state's public resources, decided to invest significantly in technological innovation. The objective is to streamline and improve its internal procedures, aiming for a more efficient and transparent administration of public resources. Therefore, this study focuses on the People Management Department (DGP), which plays a crucial role in direct interaction with employees and stands out in identifying and proposing solutions to the challenges faced. The ultimate objective is to optimize people management processes, automate tasks, integrate information, simplify data analysis and promote greater agility and effectiveness in related activities.

To boost research and innovation initiatives aimed at optimizing processes and strategies for professional development and employee performance management, TCE-PE established a technical

collaboration with the Federal Rural University of Pernambuco (UFRPE). Initially, an innovation team in People Management was formed, made up of professors and undergraduate and postgraduate students from the Department of Computing at UFRPE. This group of experts carried out a practical and interactive study to identify challenges and obstacles related to people management at TCE-PE, adopting Design Thinking techniques and qualitative research. This approach allowed a deeper understanding of needs and requirements, guiding project phases that presented positive results and promising perspectives. This article presents in detail the methodology used in the needs assessment phase, the results obtained and the valuable lessons learned during the process of seeking improvements in people management at the Court of Auditors.

2. Context

In the complex scenario of public administration, efficiency and transparency in resource management are crucial to ensuring the fulfillment of the State's responsibilities towards society. However, it is common to face challenges due to the bureaucracy inherent in government organizations, which can result in slow and less effective processes. To overcome these obstacles and promote more agile and efficient management, the introduction of technology becomes a fundamental strategy.

Digital transformation has become a crucial concept for organizations of all sizes and sectors, essential for adapting to the demands and expectations of an increasingly digital market. This process involves a comprehensive review of policies, processes, and services, aiming to create simpler and more efficient user experiences for citizens and frontline workers [Mergel et al. 2018]. In the public sector, pressure from political leaders and citizens has driven organizations to digitally transform their service delivery. However, many of these initiatives do not achieve the expected results. Critical success factors for digitalization in the public sector include the ability to make necessary strategic and operational adjustments, as well as involving internal and external users in the co-creation and co-production of digital services [Mergel et al. 2018, Jonathan 2020].

In the context of public auditing institutions, digital transformation is particularly relevant due to changes in the external environment, driven by technological advancements and demands for greater transparency and accountability. Although the private auditing sector has already made considerable progress in technological innovation, public auditing institutions are still in the early stages of understanding and implementing digital transformation. Studies indicate that many of these institutions confuse the mere adoption of technology with complete digital transformation, highlighting the need for appropriate strategies and resources for a true transformation [Otia and Bracci 2022].

The Court of Auditors of the State of Pernambuco (TCE-PE), as the body responsible for monitoring and auditing public resources, recognized the need to invest in technological innovation to optimize its internal procedures. In particular, the People Management Department (DGP) emerges as a focal point, playing a vital role in interacting directly with employees and identifying solutions to the challenges faced.

Given this context, TCE-PE began a technical partnership with the Federal Rural University of Pernambuco (UFRPE) intending to boost research and innovation initiatives aimed at optimizing people management processes. A multidisciplinary team, made up of professors and undergraduate and postgraduate students from the Department of Computing at UFRPE, was formed to conduct a practical and interactive study to propose solutions to the problems faced by the court.

For this study, the research process began with an in-person workshop, bringing together TCE-PE leaders and employees to identify the challenges and needs related to the future People Management Platform. During the workshop, data collection methods such as forms and audio recordings were used to capture participants' perceptions of the systems and services offered by DGP. In addition to the workshop, an online form was sent to TCE-PE employees who were unable to attend in person, ensuring a more comprehensive representation of the team's needs.

The results of this research provided a deeper understanding of the needs and requirements of TCE-PE employees concerning people management. Based on this information, specific areas requiring attention and improvement were identified, guiding the development of innovative strategies and solutions to promote more effective and transparent administration of public resources.

3. Adopted Process

Improving people management processes is a central goal for organizations aiming for efficiency, productivity, and innovation. At the Tribunal de Contas of Pernambuco, this improvement is even more essential due to the strategic role played by this institution. To achieve this goal, this study employs a rigorous and comprehensive approach, based on the application of a mixed research methodology. This approach combines quantitative and qualitative methods, allowing for a complete and detailed understanding of the challenges and opportunities in people management. This article outlines the steps and procedures adopted in conducting this research, highlighting the importance of each phase and their interaction to achieve the proposed objectives.

Through detailed interviews and questionnaire analysis, we aim not only to identify gaps and areas for improvement in existing processes but also to understand the perceptions and experiences of the managers and professionals involved. This detailed understanding serves as the basis for proposing effective and sustainable solutions, aligned with the specific needs and realities of the Tribunal de Contas of Pernambuco. By adopting a sequential exploratory approach, starting with a qualitative investigation and expanding to a quantitative analysis, we hope to obtain valuable and informed insights into the challenges and opportunities in people management in this context.

3.1. Purpose of the Study

The ultimate goal of this study is to map people management processes, integrate information, facilitate data analysis, and promote greater agility and efficiency in related activities.

3.2. Research Type

This is a mixed-method study, combining quantitative and qualitative methods to gain a comprehensive understanding of people management processes.

3.3. Research Design

The study adopted a sequential exploratory design, following the guidelines of Galvao, et al. [Galvao et al. 2017], where the qualitative phase precedes the quantitative phase. Initially, interviews were conducted to deeply explore the perceptions of people managers. Then, a questionnaire was administered to a larger group to validate and expand on the qualitative findings.

3.4. Samples

The sample consisted of two distinct groups:

- **Interviews:** We conducted an in-person workshop bringing together TCE-PE staff with the intention of identifying the challenges and needs related to the future People Management Platform. The main questions were presented to the participants.

"What are the main problems identified in DGP's systems and services?" AND "What are your needs?"

- **Questionnaires:** After the interviews, we developed and distributed an online form containing the same questions to gather the perceptions and needs of employees who were unable to participate in person. This approach allowed us to obtain a more comprehensive view of the demands of TCE-PE employees, ensuring a more complete and inclusive representation, as we reached a greater number of employees through the online form.

3.5. Research Instruments

- **Recording and Transcription of Interviews:** The interviews were recorded with the participant's consent and subsequently transcribed for analysis.
- **Questionnaire Analysis and Synthesis:** The questionnaires were quantitatively analyzed using statistical tools to synthesize responses and identify patterns and trends.

3.6. Procedures

- **Workshop Preparation:** An interview script was developed based on a literature review and preliminary consultations. The interviews were conducted in person.
- **Questionnaire Development:** The questionnaire questions were formulated based on the interview results and pre-existing theories on people management and process automation. The questionnaire was distributed electronically through an online survey platform.
- **Qualitative Data Analysis:** The interview transcriptions were analyzed using thematic analysis, identifying relevant categories and subthemes.
- **Quantitative Data Analysis:** The questionnaire data were analyzed using descriptive and inferential statistics to identify correlations and significant differences in participants' perceptions. Each member of the research team was dedicated to sorting the responses by category, outlining the different problems and obstacles faced by employees during their daily activities. This categorization not only allowed for more in-depth analysis but also made it possible to identify recurring patterns and key points for intervention.

3.7. Ethical Considerations

All participants were informed about the objectives of the study, and free and informed consent was obtained. Confidentiality and anonymity of the responses were ensured.

4. Results and Solution

In total, we received 103 qualitative contributions from TCE employees. Of this amount, 36 contributions were obtained during the workshop, through forms and audio recordings, while another 67 contributions were received through the online form after the event ended.

The collected data was subjected to a thorough qualitative analysis, using the Thematic Synthesis technique, which included rounds of discussion and validation among researchers. This approach resulted in a pragmatic categorization of data, using relevant keywords applicable to the context of employees' expressions, providing valuable information about specific areas that require attention and improvements.

After intense deliberations and adjustments, nine main problems were identified and categorized, each representing a significant aspect of organizational dynamics and the difficulties faced by employees. These results were presented to stakeholders, including institutional leaders and team members, for validation and further discussion.

To ensure classification accuracy and consistency, the categories were subjected to an inter-researcher agreement analysis. During this phase, constructive debates took place and refinements were made, aiming to ensure that the classification faithfully reflected the diversity and complexity of the challenges faced at TCE-PE.

Based on feedback received and stakeholder validation, a priority scope was established. This scope directed the focus of improvement initiatives, allowing the team to begin working strategically and efficiently on the problems identified as most urgent and impactful.

The workshop and online form enabled us to obtain and classify relevant evidence from TCE-PE employees (cf. Table 1 below). This structured outcome was the basis for extracting early requirements for the future platform, revealing how such techniques can be useful during business analysis activities from an information systems development project.

Theme	Synthesis
Integration	Create a platform that integrates all people management systems, organizing them by interests and customized access profiles according to the positions of the employees. It should consolidate procedures uniformly, allowing easy and centralized access to all DGP information and services.
Vacations and Leave	Create an integrated system that centralizes all employee leave-related information, allowing employees to easily check their available balances, deadlines, and specific leave types for timely utilization. This would include a detailed view of employee vacations, covering planned and unplanned periods, remaining days, and deadlines for each period for both employees and their supervisors.
Management and Information	Facilitate quick access to managerial reports, leave balances, team field days, scheduled and remaining vacation and leave periods for employees. Provide comprehensive information about employees, payroll, vacations, and leaves. Enable efficient monitoring of managerial goals to track team productivity on a daily or monthly basis.
Training	Facilitate the expression of training demands by employees in the work agreement, automatically integrating completed courses (internal and external). Simplify records and offer structured paths for desired topics, providing independence to employees.
Communication	Establish a platform for official announcements and implement automated chatbot support to streamline the flow of information. Provide direct access to People Management policies on the intranet, practical guides for systems, and details of pension legislation for permanent and commissioned employees.
Work Schedule	Allow employees to report occurrences such as absences and failures, simplify the turnstile system, and send email notifications about inconsistencies in records to avoid surprises in salaries.
Assignment of Activities Document (AAD)	Make the impact of AAD evaluations on performance evaluation scores more transparent by creating a checklist of normative criteria for evaluations and allowing summaries to be sent to evaluated employees.
Accessibility	Facilitate access to DGP's internal systems by integrating them and allowing access via the internet and mobile app, with a single login to unify the access path.
Process	Simplify people management processes through an intuitive and accessible system.

Table 1: Theme by Synthesis

The nine identified issues cover a broad spectrum of issues, ranging from integration and communication to process optimization and accessibility. Each problem area represents a critical aspect of people management within the organization, highlighting the complexity and multifaceted nature of the challenges faced.

Integration emerges as a fundamental requirement, calling for the creation of a cohesive platform that consolidates disparate systems and streamlines access to essential information and services. This integrated approach not only improves operational efficiency, but also promotes a more integrated user experience, aligning with modern expectations for centralized data management.

The need for a comprehensive leave management system highlights the importance of transparency and accessibility in HR processes. By providing employees with real-time access to leave balances, deadlines and relevant policies, organizations can empower individuals to make informed decisions while minimizing administrative expenses.

Likewise, the emphasis on training and development reflects a strategic imperative to invest in employee growth and skills improvement. By simplifying the process of expressing training requirements and tracking progress, organizations can nurture a culture of continuous learning and professional development, ultimately driving performance and innovation.

Effective communication emerges as an axis for organizational cohesion and alignment, requiring the establishment of robust channels to disseminate information and facilitate dialogue. The proposed platform for official announcements and automated chatbot support represents a proactive step toward improving internal communication and promoting transparency.

Furthermore, the focus on accessibility highlights the importance of meeting the diverse needs and preferences of users, especially in an increasingly digital landscape. By offering seamless access to internal systems across web and mobile platforms, organizations can ensure inclusion and flexibility, thereby increasing employee engagement and satisfaction.

5. Lessons learned

Throughout the collaboration process between TCE-PE and UFRPE to enhance people management processes, several crucial lessons were learned:

1. **Stakeholder Engagement:** Active involvement of leaders and employees from the outset was essential to align initiatives with strategic objectives. Engaging stakeholders not only ensured their buy-in but also fostered a sense of ownership and commitment to the project's success. Their input provided valuable insights into the organization's priorities and helped tailor solutions to meet specific needs.
2. **Comprehensive Data Collection:** Employing diverse data collection methods, such as workshops, focus groups, surveys, and online forms, enabled a holistic understanding of employee needs. By gathering data from various sources and perspectives, including both quantitative and qualitative data, a comprehensive picture of the challenges and opportunities within the organization was obtained.
3. **Rigorous Data Analysis:** Applying rigorous qualitative analysis techniques, such as Thematic Synthesis, facilitated precise identification of patterns and key issues. By meticulously examining the collected data, themes and trends emerged, allowing for deeper insights into the root causes of problems and informing the development of targeted solutions.
4. **Interdisciplinary Collaboration:** Working with a multidisciplinary team enriched problem-solving with diverse perspectives. Bringing together experts from different fields, including HR, IT, psychology, and business management, encouraged innovative thinking and creative problem-solving approaches. This interdisciplinary approach ensured that solutions were robust and addressed the multifaceted nature of organizational challenges.
5. **Stakeholder Validation and Feedback:** Incorporating stakeholder feedback enhanced the relevance and acceptance of proposed solutions. By soliciting input from those directly affected by the changes, the solutions were tailored to meet their specific needs and preferences. Stakeholder validation also fostered a sense of inclusivity and transparency throughout the project.
6. **Establishment of Priorities:** Setting clear priorities based on problem severity allowed for effective resource allocation. By identifying and prioritizing the most pressing issues, resources could be directed towards areas with the greatest potential for impact. This strategic approach ensured that efforts were focused on addressing the most critical needs of the organization.

7. **User-Centric Solutions:** Prioritizing user experience promoted greater engagement and adoption of implemented solutions. By designing solutions with the end-users in mind, usability and accessibility were prioritized, leading to higher levels of acceptance and satisfaction among employees. User-centric design also encouraged ongoing feedback and iteration to continually improve the user experience.
8. **Commitment to Continuous Improvement:** Maintaining a mindset of continuous improvement ensured solutions remained relevant to evolving needs. Recognizing that organizational needs and priorities change over time, a commitment to ongoing evaluation and refinement was essential. This iterative approach allowed for the adaptation and optimization of solutions to meet changing circumstances and emerging challenges.

These lessons underscore the importance of a collaborative, data-driven, and user-oriented approach in improving people management processes at TCE-PE.

6. Conclusion

The collaboration between the Court of Auditors of the State of Pernambuco (TCE-PE) and the Federal Rural University of Pernambuco (UFRPE) generated valuable insights to improve people management at TCE-PE. Analysis of employee contributions revealed clear challenges and expectations related to people management systems, highlighting key areas such as onboarding, vacation, management, training and accessibility that require special attention.

These results not only identify specific issues, but also establish a solid foundation for implementing effective solutions. The creation of an integrated platform, the centralization of information about vacations and absences, the facilitation of access to management reports and the efficient implementation of communication emerge as key aspects capable of significantly transforming the employee experience.

The inclusive approach, which involves in-person participation in workshops and the collection of insights through forms, reflects the commitment to faithfully representing the needs of employees. This research not only identified challenges, but also outlined a path for improvements in the people management system, providing a valuable guide for future implementations and highlighting the continued importance of innovation and partnership between public and academic institutions in the pursuit of efficiency and transparency in public resource management.

6.1. Future work

For future research, it is recommended that more in-depth studies be carried out in key areas, such as systems integration, vacation management, training and accessibility. These studies can provide more detailed and specific insights for developing targeted and effective solutions. Furthermore, exploring the practical implementation of the suggestions presented during the needs assessment process is critical. Closely monitoring the results obtained with these implementations will allow for necessary adjustments and refinements to ensure the effectiveness of the solutions adopted.

Furthermore, it is essential to continue collaborative efforts between the Court of Auditors of the State of Pernambuco (TCE-PE) and the Federal Rural University of Pernambuco (UFRPE). This partnership is vital to sustain the progress made to date and to continue improving people management in line with employees' evolving needs. The continuity of this collaboration will provide an environment conducive to the exchange of knowledge, the development of new solutions and the implementation of best practices in human resources management at TCE-PE.

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