HOW CAN BUSINESS PROCESS MANAGEMENT SUPPORT THE DEVELOPMENT OF OMNI- CHANNEL SERVICES?

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ABSTRACT

Purpose - This paper investigated how Business Process Management (BPM) contributes to the development of omni-channel services.
Design/methodology/approach - For that, multiple case studies were carried out in different a contact center of the Brazilian Ministry of Education.
Findings - Results suggest that BPM may be an effective approach to structure processes before they move towards omni-channel implementations, especially in service organizations where process tangibility is an issue.
Originality value - We bridged two research streams (i.e., BPM and omnichannel services) that have been traditionally conducted in isolation. Although much has been studied in both topics, investigating their combination might lead to new insights to the body of knowledge that may have been neglected over the years.

Keywords: Business process management, Omni-channel, Services, Contact center, Multi-case study.

INTRODUCTION

Business Process Management (BPM) is an approach that combines business and information technology aspects with the ultimate objective of enhancing an organization's operations (Hammer, 2014). BPM helps improve the overall organizational performance, hence, becoming a relevant enabler for innovation and transformation. BPM moves away from the initial, cost-centered focus to support managers in the identification of new revenue opportunities and non- monetary value-creation alternatives (Vom Brocke et al., 2014; Dumas et al., 2018). In academic terms, BPM has gained the attention of several fields of knowledge, being a means to explore the organizational, technical, methodological, and cultural dimensions of company- wide and process-specific BPM capabilities (Kumar, 2018). Despite the advances in understanding BPM's benefits, many practitioners and academics still struggle to integrate BPM into existing management approaches and tailor it according to organizational purposes (Klun and Trkman, 2018).

At the same time, motivated by the digital transformation frenzy (Fettermann et al., 2018; Cañas et al., 2021), organizations have been searching for new solutions to obtain competitive

advantages. These digitalization-based initiatives vary from internal processes improvements (Rossit et al., 2019) to enhancement of customer-supplier relationships (Ruyter et al., 2019). Specifically with regards to the latter, a common approach has been the use of new digital technologies (e.g., Internet-of-Things, big data, artificial intelligence) to support the development of multiple, integrated ways (i.e., omnichannel) to foster the communication and collaboration between customers and suppliers (Veile et al., 2021; Bruni and Piccarozzi, 2022). Despite this fact, the development of omnichannel services often faces difficulties when ill- structured processes are found.

Such an issue raises the opportunity for the utilization of BPM as a supporting tool for the development of omnichannel services. However, literature evidence on this topic is still scarce and real-world applications have been poorly reported (Prodanova and Van Looy, 2019; Limois and Ce, 2023). This gap gives rise to the following research question (RQ):

RQ. How can BPM contribute to the development of omnichannel services?

To answer this question, this study aims at examining the contributions of BPM to omnichannel services. For that, we conducted a multi-case study in the contact center of the Brazilian Ministry of Education. Omnichannel has overtaken multichannel especially in contact centers (Bhalla, 2014; Picek et al., 2018). Omnichannel contact centers provide customers the same experience across all channels, while offering customer service agents a simpler interface and richer set of data (Gerea and Herskovic, 2022). We collected evidence from multiple sources of different services provided by this contact center, allowing the triangulation of findings.

The contribution of this work is two-fold. First, in theoretical terms, we bridged two research streams (i.e., BPM and omnichannel services) that have been traditionally conducted in isolation. Although much has been studied in both topics, investigating their combination might lead to new insights to the body of knowledge that may have been neglected over the years. Second, from a practical standpoint, we offer empirical evidence to managers of how BPM adoption may positively impact organizations that seek to increase competitiveness through the development of omnichannel services.

BACKGROUND

BUSINESS PROCESS MANAGEMENT

Business processes can be defined as a number of interrelated activities, crossing functional boundaries with inputs and outputs (Armistead and Machin, 1997; Lee and Dale, 1998). Hence, BPM visualizes these processes as relevant assets of an organization that should be comprehended, managed, and developed to facilitate and deliver value-added services/products to customers (Trkman et al., 2015). BPM may also be supported through the use of technologies, which raises the discussion about it from two different perspectives: people and technology (Vom Brocke et al., 2014;

Klun and Trkman, 2018). Nevertheless, it it important to differentiate BPM from BPM suite (BPMS). While the former is a professional discipline led by individuals, the latter is a technological suite of tools planned to enable BPM professionals achieve their objectives (Rahimi et al., 2016). Additionally, suites and solutions refer to means for automating business processes, whereas automation is just an aspect of BPM. Thus, BPM must not be confused with an application or solution devised to enable a specific process (vom Brocke et al., 2016; Zuhaira et al., 2021). Another common confusion is between BPM and project management. BPM usually has a broader scope, observing the entire end-to-end process. Project management focuses on individual tasks, referring to a one-time scope of work (Reijers, 2021).

The utilization of BPM can help organizations streamline their overall workflows, resulting in enhanced efficiencies and cost-savings. The incorporation of advanced analytics, activity monitoring, and decision management capabilities, BPM is able to manage people, systems, information, and material to achieve the desired goals (Zelt et al., 2019; Baiyere et al., 2020). Moreover, it may be particularly helpful in accelerating the organization's digital transformation strategies (Reijers, 2021). There are three main types of BPM (Idogawa et al., 2023):

i. Integration-centric BPM: approaches processes that do not demand human involvement. These processes often rely on mechanisms that integrate data, such as human resource management (HRM) or customer relationship management (CRM);
ii. Human-centric BPM: focuses on human involvement, generally where approvals are necessary. Intuitive user interfaces with drag-and-drop characteristics enable individuals to assign tasks to various roles, facilitating follow-up along the process; and
iii. Document-centric BPM: centers around a particular document, such as a contract.

When organizations purchase a product or service, they must go through several forms and rounds of approval to reach an agreement between parts.

BPM is also known for addressing many information technology (IT) issues, supporting business drivers such as end-to-end management, data consolidation and visibility, increase of flexibility and functionality of existing infrastructure and data, integration with other systems and leverage service-oriented architecture, and establishment of a common language for business-IT alignment (Danilova, 2019; Maldonado et al., 2020; Beerepoot et al., 2023). Due to this versatility, there is a need for examining how BPM may contribute to the development of omnichannel services, which motivated our research.

OMNICHANNEL SERVICES

Omnichannel can be conceptualized as seamless and effortless, high-quality customer experiences that happen through various integrated physical and digital channels (Susanto et al., 2018). With the advent of I4.0 (Lasi et al., 2014; Bruni and Piccarozzi, 2022), the number of digital channels has exponentially increased potentially disjointing customer experience. Channels such as mobile devices, web and apps, contextual help, augmented reality, virtual reality, and chatbots have been utilized together with traditional physical channels, creating a complex matrix of possible responses to individuals (Shen et al., 2018). While multichannel is often defined as a non-integrated customers approach, omnichannel demands coherence and integration, vanishing boundaries between channels and offering customers a consistent brand experience (Murfield et al., 2017; Gerea and Herskovic, 2022). Similarly, the difference between omnichannel and omni-digital relies on the importance regarded to the strategy. With omnichannel, organizations focus on delivering the right content, through the proper channels, at the right moment, hence, providing the most value to customers. With omni-digital, organizations tend to offer a consistent customer experience throughout everything digital, regardless of the channel used (Sun et al., 2020).

The adaption to an omnichannel strategy requires organizations to understand customers' behaviors, such as the elements that may drive them to make certain decisions. Customers' expectations have also evolved along with technological advancements. Cicman et al. (2021) indicated that digital touchpoints are likely to affect more than 57% of the USA sales. Businesses that maintain contact centers, for instance, have been encouraging the increase in the number of channels through which customers can interact with the business, such as email, chat, SMS, and social media (Rosenmayer et al., 2018). In turn, the ones that have not ensured continuity across digital and physical touchpoints risk losing customers to competitors that do (Gao and Su, 2018). Additionally, omnichannel solutions enable organizations to tighten supplier controls and optimize their operations (Jones et al., 2021). Although omnichannel services are beneficial, organizations sometimes lose sight of customer-centric employees value in the customer journey, raising the importance of training employees. Overall, the development of digital processes of omnichannel services inherently yields more transparency, and customers can better verify whether they are being well-served (Komulainen and Makkonen, 2018; Zhang et al., 2019). Nevertheless, omnichannel services can raise additional challenges when utilized by organizations with highly complex products, services or processes, undermining customer experience and requiring overly well-trained and knowledgeable employees (Gerea and Herskovic, 2022). To mitigate those challenges, there is the need for properly designing internal and external business processes, which motivated the integration of BPM as a supporting tool for omnichannel services.

METHOD

To answer the aforementioned RQ, we adopted a qualitative approach, which is coherent with the exploratory and descriptive nature of this research (Voss et al., 2002). We conducted a multi-case study since it allows the reinforcement of external validity and avoid observer bias, indicating more robust and testable findings (Barrat et al., 2011). The research method comprised four main steps: (i) case studies description; (ii) mapping the ‘as is’ scenario, (iii) designing the ‘to be’ state, and (iv) omnichannel opportunities identification and recommendations. These steps are subsequently described.

The implementation of a contact center service based on omnichannel can be greatly enhanced through the application of the proposed methodology for the dissemination and consolidation of BPM within the organization. This approach goes beyond mere process mapping and improvement steps, becoming a comprehensive guideline for managers seeking to achieve operational excellence in their customer service.

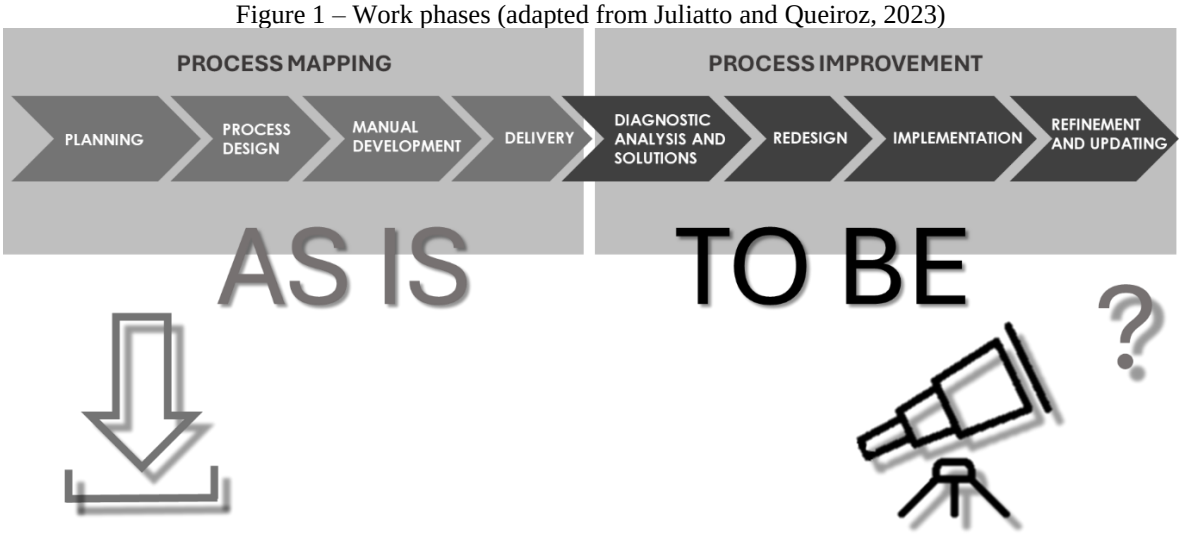
This methodology not only guides process mapping and improvement but also establishes a cycle of continuous improvement, strategically integrating processes, embedding organizational culture, and ensuring systematic updating. It is the result of integrating updated concepts of continuous improvement, risk management, and mapping tools, stemming from research in various public and private organizations, with emphasis on the Business Process Management Guide (CBOCK).

Furthermore, this methodology offers a comprehensive set of techniques and tools for planning, mapping, analysis, proposal of solutions, implementation, monitoring, and refinement of processes. One of its differentials lies in the ability to guide and instruct the work team, allowing activities to be carried out remotely, through video conferencing resources. This practice not only reduces implementation time and costs but also minimizes disruptions in the work environment and facilitates the participation of external specialists when needed.

Divided into eight interconnected phases in a cycle of continuous improvement, the BPM implementation methodology offers a comprehensive and structured approach to achieving operational excellence in omnichannel-based contact center services.

The following figure illustrates the methodology divided into its phases.

Figure 1 – Work phases (adapted from Juliatto and Queiroz, 2023)



CASE STUDIES DESCRIPTION

The case studies were performed in the Brazilian Ministry of Education, which is composed by four main departments that manage different sets of processes. As the Brazilian government introduced new initiatives for developing education in the country, the number of processes the Ministry of Education had to control and supervise significantly increased, raising the need for their thorough review and improvement. Despite this diversity, there is a central contact center that is responsible for providing support to users in general (e.g., individuals, organizations, or regional government). This contact center receives in average 150.000 demands per month, approximately, being inputted through multiple ways (e.g., telephone, email, platform, etc.). The average response time is 3.14 minutes and the average waiting time 2.23 is minutes. Nevertheless, the processes each department manage are relatively different in terms of number of activities and people involved, and duration, which increases the complexity of the contact center. Therefore, to consider such intricacies, we mapped various processes in each sub- division of the Brazilian Ministry of Education, as displayed in Table 1.

Table 1 – Characteristics of the case studies

Sub-division	Number of processes mapped	Average response time (minutes)	Average waiting time (minutes)
A	23	3.22	1.15
B	26	2.18	2.01
C	32	3.87	2.87
D	30	2.93	1.95

MAPPING THE 'AS IS' SCENARIO

The objective of the phases described below is to accurately and thoroughly record the situation of each process in the contact center service, as it currently stands. It is of great importance in this methodology to identify and record the current situation of the processes of interest. Only in this way is it possible to observe the conditions that are favoring or hindering the execution of processes in the contact center. This enables the development of improvement solutions that can be measured and compared to highlight the progress made.

Planning is the cornerstone in structuring an omnichannel contact center service. This initial phase is essential to ensure that the project team fully understands the demand and the expected results by the contact center service manager. By aligning project objectives with the specific needs of the omnichannel service, planning establishes the foundations for successful implementation and guides the development of effective strategies.

By integrating risk assessment into this phase, the proposed methodology ensures that potential vulnerabilities are identified and addressed from the outset of the process. This is crucial to ensuring the security and efficiency of omnichannel contact center operations.

Through meticulous planning of activities, including understanding the demand, developing the activity plan, and aligning with the value chain, the planning phase sets the course for the project. It not only creates a common understanding among all involved but also establishes clear parameters for subsequent phases of omnichannel contact center implementation.

Therefore, the planning phase plays a key role in ensuring that the omnichannel contact center service is effectively structured and aligned with the needs and expectations of customers and the organization.

The second phase of the project is the process, focused on the contact center. It consists of understanding and mapping each process of interest identified in the previous phase (planning). The main objective of this stage is to create an initial sketch of the processes of interest in BPMN standard, representing the reality of the contact center. As a secondary objective, opportunities for process improvement pointed out by contact center managers during interviews can be identified.

In the design of the current process state (AS IS), the process name, activities, and interaction flows should be included. The process flow design is divided into three stages: in the first one, the project team seeks the commitment and engagement of those involved to ensure information

exchange among all. In the second stage, a global and horizontal understanding of the process is developed, constructing a scope diagram and a process sketch. In the third stage, the enhanced design of the current state is made using specialized BPMN software.

This phase marks the connection of the mapping team with the contact center managers around a shared objective. This initial approach can be used to align the most convenient communication channels for participants. Video conferencing may be desirable and more cost-effective, especially when participants are geographically distributed. The use of technological environments can be effective through screen sharing and real-time interaction.

The development of the manual is the third phase proposed for this process management methodology, focusing on the implementation of an omnichannel-based contact center service. It consists of an iterative process of describing activities and adjusting processes based on the map resulting from the previous phase.

The main product of this phase is a description of the activities of a process map, making it intelligible and detailed. However, as proposed in its execution, the production of the manual also provides a critical evaluation of the map's fidelity to the reality experienced in the organization and its necessary adjustment.

The document is produced from face-to-face or remote interviews with the process owner and activity executors. During these interactions, which characterize the elicitation activity, both the interviewer and the interviewee have access to the most updated version of the process map.

It is recommended to go through the process flow together, evaluating the coherence of each previously mapped activity using the 5W1H methodology (what, how, who, when, where, and why). This approach allows for identifying the adequacy of the mapped activity in the flow regarding operational reality, as well as unmapped activities and needs for adjustments in the flow sequence.

As the answers to the questions become consistent with the map, the document is completed, and a reliable process map is obtained. During the manual development, each activity to be described undergoes a critical evaluation by the process owner and their collaborators, facilitating the identification of associated risks, suggestions for improvement opportunities, and additional guidance.

These observations are carefully collected and recorded by the interviewer, resulting in a material with the standard defined by the organization itself. The manual development phase is conducted in a single stage and results in a material with the standard defined by the organization itself.

The delivery phase is a crucial step in the implementation of a contact center service, consolidating and finalizing the process mapping cycle. The work developed throughout the first three stages is reviewed and incorporated into the delivery document, which includes the process

flow design, the process manual, risk assessment, and identification of possible control points and process improvements.

This document, therefore, represents a significant milestone as it sequentially gathers all essential information for the effective operation of the contact center. If the project is solely focused on process mapping, this phase concludes with the delivery of the document. However, depending on the project's needs, the methodology can advance to process improvement stages.

The delivery phase can be subdivided into two distinct stages: material consolidation and presentation of results to the process manager and owner, as well as other participants involved in the previous mapping stages.

The material consolidation stage is of a technical nature and requires critical review by the mapping team. During this stage, the manual is revised and formatted according to the standards established within the organization. This includes carefully reading each activity described in the manual, traversing the flow sequentially, and conducting coherence tests of the process with one or more products.

The presentation stage is dedicated to formalizing the delivery of results to the process manager and owner. Pre-established standards are considered to ensure that the results can be easily incorporated into the organization's routine, facilitating a smooth and effective transition to the newly implemented practices and procedures

The practical results from applying the methodology, especially in the AS IS phase, some evidence of characterizing how the process is executed demonstrates the existence of several opportunities for improvement to be adopted for modifying the flows. Understanding how operations are currently offered made it possible to perceive alignment issues between routines and the utilization of currently contracted contact center services. Among the observed points, some can be highlighted for further enhancement in the TO BE phase, namely:

- The pathway offered for demand registration presents several derivations requiring user choices without proper clarification on the purpose of each choice.
- Attempting to reconcile the reception of various demands from multiple purposes without proper separation of issues and the lack of clear paths for issue resolution.
- Contact center service resolution involving multiple organizations, with different purposes and multiple user profiles in a single mode, making the process inefficient and ineffective, resulting in unmet requests, incorrect responses, and duplicate responses yielding different outcomes for the same demands.

In addition to these, other perceptions have been identified that emphasize the importance of applying the AS IS phase. Consequently, the subsequent TO BE phase allows clarity in defining

what needs to be done, when it can be done, who will be responsible, and what results can be achieved.

DESIGNING THE ‘TO BE’ STATE

From this point onwards, the work focuses on analyzing the documentation generated in the 'AS IS' phases, the observations recorded throughout the work, and the planning and implementation of proposed improvements to the workflows.

The phase of analysis, diagnosis, and solutions involves a critical examination of the process aimed at developing solutions aligned with the organization's strategic objectives. After having an updated "AS IS" flow resulting from process mapping, it is recommended to conduct a systematic analysis prioritizing critical activities, while also observing opportunities for improvement. Subsequently, improvements with the highest degree of impact or implementation need are prioritized, based on the organization management's evaluation.

The analysis, diagnosis, and solutions are divided into two stages: identifying critical activities and developing solutions. The stage of identifying critical activities aims to pinpoint the mapped activities in the process that have the greatest impact on quality, productivity, cost, execution time, among other strategically relevant issues. Furthermore, some of the critical activities have a significant impact on the organization's survival in case of failures, hence they deserve even more attention.

The second stage, developing suggestions, is intended to propose solutions to increase the efficiency, effectiveness, and safety of the process as identified in the Planning phase. In this stage, special attention is recommended for critical activities and the elimination of non-value- added activities. This work may involve radical transformations, with a predominantly systemic analysis of the old flow, or incremental transformations, with specific improvements in activities of the old flow. The direction and depth of the transformations are inherent parts of the analysis and creative process of the technical team, as they confront the presented demand, constraints, suggestions, and current state of the process.

Still in the second stage, the proposed solutions undergo a critical analysis regarding their technical feasibility, financial viability, and alignment with ultimate, strategic, and/or fault reduction objectives.

Expected outcomes of the Analysis, Diagnosis, and Solutions Phase include:

- Development of solutions for the mapped process.
- Validation of improvements to be incorporated into the design and elaboration of the process manual.

The objective of the process redesign phase is to update the process with the prioritized improvements from the previous phase, meaning it involves modeling the future state of the process with solutions validated by the organization's management. It is important to emphasize that all proposed improvements or manual updates must adhere to norms and regulations. This phase is divided into two parts: redesigning the process with the proposed solutions and developing process manuals. The redesigned flow should include the following information: flow numbering, process name, process objective, activities (flow), responsible areas, links between activities and documents or information flow (input or output), generated products, interface with other processes, legislation, policies, and rules to be considered during execution.

The process manual should document the step-by-step activities in a standardized manner, including activity descriptions, roles and responsibilities, systems and tools used, expected outcomes, as well as presenting flows in a didactic format. Complex or critical activities, defined by management and the process owner, should have a higher level of detail and explanation. The process flow redesign phase consists of two stages: redesigning the process with proposed solutions and developing process manuals or critical activities.

Expected outcomes of the Redesign Phase include:

- Updated process flows.
- Updated process manual reflecting the future state.
- Updated spreadsheet of critical activities.

The implementation phase aims to put into practice the redesigned process, approved by the organization's management, through the execution of processes by the responsible parties, so that the proposed solutions effectively result in gains for the organization. Planning involves having prioritized solutions, redesigned processes, and studying the necessary resources, such as information systems and training for those involved. During the monitoring stage, the process is measured and validated. Data is also collected to feed performance indicators to ensure that the process achieves the expected results and is aligned with predefined parameters. This enables the identification of faults or even future incremental improvements to enhance the process. Thus, monitoring constitutes a continuous stage carried out by the process manager with the main purpose of predicting future situations and taking preventive actions. The implementation and monitoring phase consists of two stages: planning and monitoring implementation. It should be noted that implementation itself is not the responsibility of the BPM team, but rather the specific responsibility of process owners and personnel involved.

Expected outcomes for the Implementation Phase include:

- Implementation plan for process improvement actions.
- Process performance report (diagnosis of the process situation).

After consolidating the improvements resulting from a development cycle (project), it's crucial to document and formalize its deliveries. This stage involves gathering lessons learned from the improvement project and process mapping, as well as storing and sharing them with process stakeholders, and depositing materials into a specific repository within the organization for universal access. Consequently, at the end of the project cycle, it's expected that process stakeholders perceive the benefits achieved through BPM application, such as: improved routine suitability, optimized execution time, cost reduction, process visibility, ease of access to routine documentation, among others. Additionally, by the end of the first cycle of changes, it's also anticipated that employees are better equipped in process management and more engaged in continuous improvement pursuits.

Over time, any process is subject to the need for changes, whether due to external pressures (policies, strategies, technologies, etc.) or internal factors (perceived opportunities for improvement, changes in staffing, etc.). Hence, after process mapping completion, monitoring procedures need to be active to assess change and process update requirements. To ensure that adjustments or solution implementations are incorporated into diagrams and documentation, any change impacting the process must be communicated to the team responsible for updating flows and process manuals. Thus, depending on the change's intensity, the team should assess the need to initiate a new cycle of project stages or simply execute corrective actions at an operational level.

Expected outcomes for the Refinement and Update Phase include:

- Formal project closure document.
- Lessons learned list.
- Next steps: initiation of a new cycle or closure of the current cycle.

CONCLUSIONS

The execution of the project to enhance contact center services in government agencies, as described in the methodology and objectives, has the potential to generate several positive outcomes. These results impact both the involved government agencies and society as a whole. Among the potential outcomes, the implementation of improvements resulting in more effective public service, with quicker and more accurate responses to users' demands and inquiries, stands out.

By providing better quality service, the satisfaction of end users, including students, teachers, and citizens in general, is likely to increase, strengthening confidence in governmental institutions. Promoting transparency in communication and facilitating access to relevant information should enhance the trust relationship between government agencies and society.

Identifying and eliminating inefficiencies in service processes can lead to a more efficient operation, saving resources and reducing operational costs. Similarly, the implementation of Business Intelligence (BI) systems should enable managers to access real-time data, facilitating decision-making based on solid information.

With the implementation of performance metrics and continuous monitoring of the contact center service through omnichannel, government agencies can be more accountable for the quality of services provided, demonstrating a constant commitment to improving public service quality and contributing to the strengthening of the image of government agencies.

Offering more efficient service can lead to a reduction in complaints and repetitive demands, easing the workload of contact center teams, improving operational efficiency, and resulting in savings of public resources, which can then be directed to other priority areas.

In summary, practical results are characterized by:

- Identification of inefficiencies, bottlenecks, and challenges.
- Understanding of flows and activities related to the citizen service journey.
- Incorporation of citizens' demands and needs, aiming to adjust services according to societal expectations.
- Provision of real-time monitoring tools and implementation of Business Intelligence (BI) systems for data collection and analysis related to the execution of the contact center service contract.
- Improvements in work processes using information technology, aiming to increase efficiency, quality, and agility in public service.
- Metrics and performance indicators to assess the effectiveness in service execution and enable decision-making based on solid data.
- Promotion of a culture of continuous improvement in contact center service provision, through knowledge transfer, encouraging collaboration among involved agencies, and promoting excellence in public management.

Availability of data: The data that support the findings of this study are available from the corresponding author, GT, upon reasonable request.

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