The impact of automation and AI on business transformation

El impacto de la automatización y la IA en la transformación empresarial

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ABSTRACT: *This research analyses the impact of Robotic Process Automation (RPA) on organisations. Through a systematic review based on the PRISMA methodology, 11 studies published between 2020 and 2025 were examined, highlighting the implementation of platforms such as n8n and Make (Integromat). These results highlight six main areas of application, such as notifications and alerts, process optimisation, data processing, automation with GPT, voice agents, and customer service. These findings show that low-code/no-code tools significantly reduce human error, optimise execution times for repetitive tasks, and improve operational efficiency. The integration of AI, especially in GPT models, enables the creation of intelligent agents capable of understanding natural instructions and designing complex workflows. An average reduction of 20-40 hours per month in administrative tasks and significant economic savings were documented. RPA drives organisational digital transformation by freeing up human resources for strategic activities with higher added value.*

Keywords: *Robotic process automation, low-code platforms, systems integration, automated workflows, applied artificial intelligence..*

RESUMEN: *En esta investigación, se realiza un análisis del impacto de la Automatización Robótica de Procesos (RPA) en las organizaciones. Mediante una revisión sistemática basada en la metodología PRISMA, se examinaron 11 estudios publicados entre 2020 y 2025 que destacan la implementación de plataformas como n8n y Make (Integromat). Estos resultados evidencian seis áreas principales de aplicación como la notificación y alertas, optimización de procesos, procesamiento de datos, automatización con GPT, agentes de voz y atención al cliente. Estos hallazgos muestran que las herramientas low-code/no-code reducen significativamente los errores humanos, optimizan los tiempos de ejecución en tareas repetitivas y mejoran la eficiencia operativa. La integración de IA especialmente en modelos GPT permiten crear agentes inteligentes capaces de comprender instrucciones naturales y diseñar flujos de trabajo complejos. Se documentó una reducción promedio de 20 a 40 horas mensuales en tareas administrativas y ahorros económicos significativos, la RPA impulsa la transformación digital organizacional al liberar recursos humanos para actividades estratégicas de mayor valor agregado.*

Palabras Claves: *Automatización robótica de procesos, plataformas low-code, integración de sistemas, flujos de trabajo automatizados, inteligencia artificial aplicada.*

1.   INTRODUCTION

Currently, organisations have key operational processes that are complex and time-consuming. Organisations face operational inefficiencies characterised by time-consuming tasks, high operating costs and considerable scope for human error [1], which limits efficiency and competitiveness. In response to this, a solution that is currently emerging is automation, which is taking on an important role due to the short time it takes to perform activities with great effectiveness and reducing the margin of error that a human would have.

Likewise, AI has been designed to carry out activities, tasks, or a set of steps with the purpose of providing quick responses and streamlining processes [2]. These technologies are capable of collecting important information within their operating system for the execution of tasks. Currently booming and increasingly consolidated in various areas, their implementation not only allows for process optimisation but also improves decision-making, as they analyse large volumes of data at high speed, providing information on certain patterns that are valuable to a company [3].

But this goes further, as artificial intelligence is also becoming involved in the field of automation, becoming a critical component for companies seeking innovation and competitiveness. This allows for the scalability of operations without the need to increase manpower, thereby obtaining and providing added value in their services [4]. However, since it has become more accessible and less expensive, the use of AI in the field of IT development has increased exponentially, improving the experience of developers and their efficiency in development processes [5].

This context gives rise to the need to systematically analyse the impact of these automation technologies on modern organisations. The implementation of low-code/no-code RPA tools such as n8n or Make represents an emerging paradigm that requires rigorous academic research to understand its scope and effectiveness in different business contexts. The term "automation" refers to a method of operating anything automatically in order to save time, facilitate work, and minimise errors when performing repetitive and recursive tasks that should follow a specific procedure or methodology in our daily lives [6]. This shows how technology is advancing and how it simplifies daily activities. The implementation of artificial intelligence (AI) in information technology (IT) automation refers to the use of automation tools in key sectors that seek to reduce costs and improve decision-making by processing large volumes of data [7].

These tools, known as low-code tools, allow an easy integration and are useful because they save learning time. According to [8], it is seen that using

biodiversity APIs often requires learning a programming language and creating centralised software. On the other hand, it also says that the n8n tool allows us to overcome these barriers by creating complex workflows visually.

Similarly, the paper by [9] presents a system that automates both the construction and execution of workflows. To do this, they used n8n, integrating tools such as Google Sheets, Slack for automatic notifications, and Gmail to generate and send reports, demonstrating that the use of RPA allows for dynamic and intelligent decisions to be made during the process, significantly reducing the need for human intervention.

For all these reasons, it is important to consider the use of artificial intelligence-driven automations for the development of modern systems [10].

The research problem focuses on the lack of systematised knowledge about the real impact of RPA tools in different organisational areas. There is a gap in the academic literature regarding how these low-code/no-code technologies are transforming business processes and what specific benefits they bring to organisations.

Therefore, the main objective of this research is to identify and analyse the use of the most common RPA tools, specifically n8n and Make, determining which processes are being automated and what their impact is on the operational efficiency of organisations.

Due to this, we found various references in other research studies in which our objective will be to identify the use of the most common automation tools and what is being automated.

For example, [11] evaluates automation tools such as n8n, Make, Zapier, and Microsoft Power Automate, among others. This allows services to be connected via APIs, optimising the workflows of the company. It also highlights the importance of tools known as no-code or low-code, as these are easy to integrate. In conclusion, the use of these tools saves time and avoids human error in repetitive tasks.

Similarly, [5] analyses how the use of artificial intelligence in server infrastructure management can optimise virtualised environments such as Proxmox VE and Ceph. It mentions that the use of AI agents is important for real-time anomaly detection and for decision-making using techniques such as Retrieval-Augmented Generation (RAG) with technologies such as n8n. In conclusion, it demonstrates that AI-based automation strengthens security and reduces the operational burden on IT teams.

Likewise, [12] discusses automated agents that can automate complex workflows. Through the use of techniques such as Retrieval-Augmented Generation (RAG), using tools such as n8n for the creation of RPA processes.

In conclusion, the combination of LLMs with automation platforms allows the creation of intelligent agents capable of executing complex tasks efficiently.

Continuing with the line of research, this systematic review seeks to identify the impact of automation and AI on organisations, contributing to academic knowledge in the field of business information systems and digital transformation. This review consists of four sections: Methodology, Results, Discussion and Conclusions, with the aim of answering our research question.

2.   MATERIALS AND METHODS

For this research project, a literature review will be conducted using the PRISMA 2020 methodology, which provides the essential guidance through instructions and guidelines widely recognised by the academic community for conducting high-quality systematic reviews, seeking to reduce bias in the selection and synthesis of studies [13]. It also reflects advances in systematic review to report the results of meta-analyses or systematic reviews, as it uses flowcharts that have been developed based on various authors, contributing to improved quality and transparency [14]. This provides us with scientific support that guarantees greater validity of the results obtained.

The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) methodology establishes detailed guidelines for conducting systematic reviews, ensuring rigorous study analysis. This methodology establishes a search for various articles according to the line of research to provide an interpretation of the results [15].

For this research, the following question was posed: How does the integration of automated solutions contribute to improving efficiency and increasing productivity in organisations?

2.1 INCLUSION AND EXCLUSION CRITERIA:

The inclusion criteria considered for this research were as follows: articles published between 2020 and 2025 were included. The following search terms were also considered: "Robotic Process Automation (RPA) in make (integromat)", "Robotic Process Automation (RPA) in n8n", "implement integromat automation workflow", "implement n8n automation workflow", as shown in Figure 1. On the other hand, the exclusion criteria considered only freely accessible items, excluding sources of dubious reliability.

2.2 INFORMATION COLLECTION PROCESS

As we can see in Table 1 Search terminology in databases, we can demonstrate our search terminology by focusing on the repository of articles and publications in Google Scholar.

Table 1 Search terminology in databases.

Database	Search terminology
Google Scholar	databases, "Robotic Process Automation (RPA) in integromat / n8n" AND "implement integromat / n8n automation workflow"), year:[2020 TO 2025]

Source: own elaboration

3. RESULTS

Figure 1 Inclusion and exclusion criteria shows the PRISMA flow chart with the process of identifying, evaluating, and selecting articles that are relevant to our research. Initially, 3,282 articles were obtained through Google Scholar, from which duplicate and unrecovered articles were excluded. Their relevance, quality, and content were then evaluated, and 11 articles were selected.

Figure 1 Inclusion and exclusion criteria.
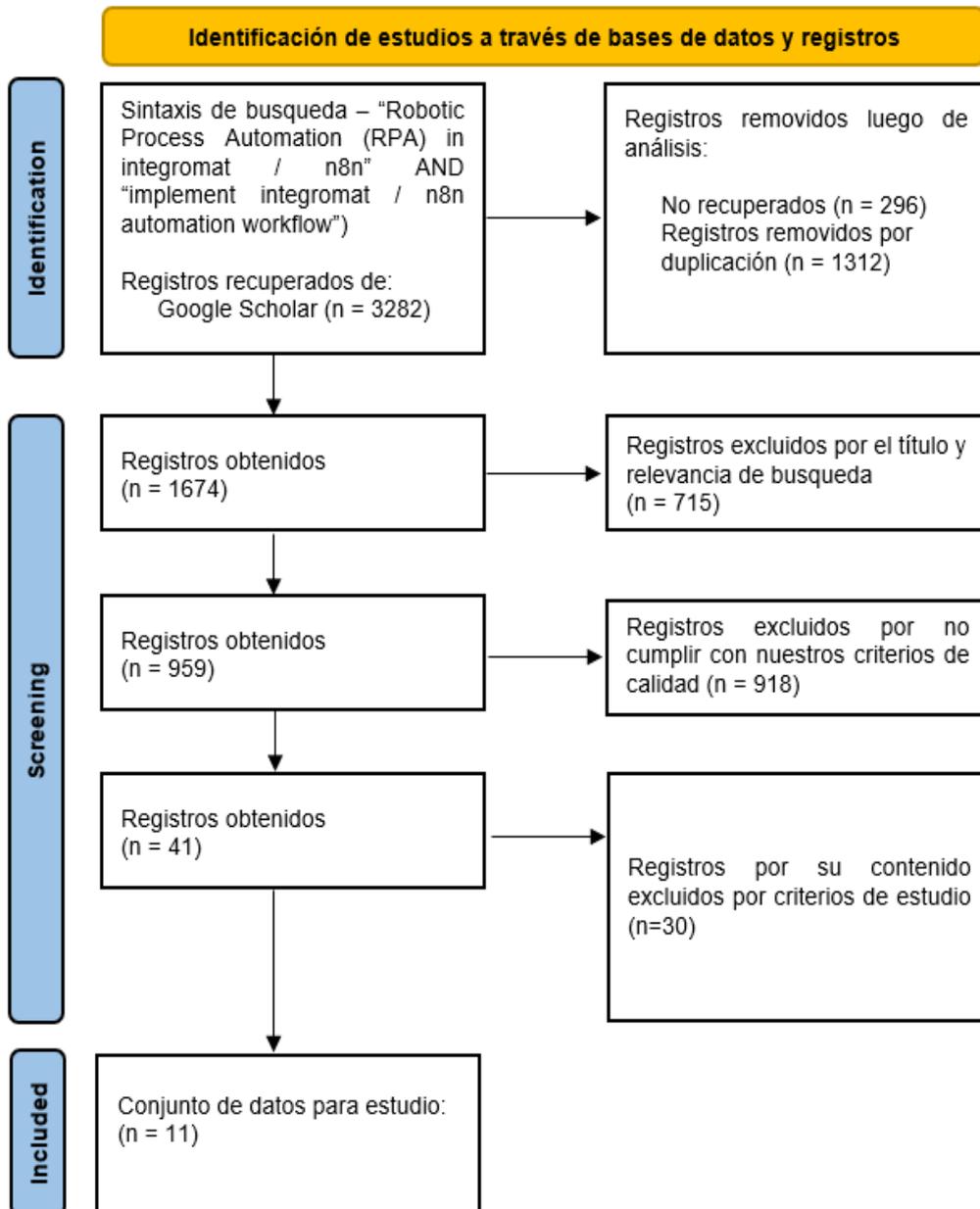
Source: own elaboration.

Table 2 Analysis of academic articles shows a review of the selected works, detailing their main contributions and the areas in which they can be applied.

Table 2 Analysis of academic articles.

| N°	ARTICLE TITLE	CONTRIBUTIONS	AREA
1	"Robotic Process Automation (RPA) to SOC" [16]	In this research, we can see the implementation of n8n to receive and analyse security alerts issued by Wazuh. Thus, upon receiving a notification, n8n retrieves key information such as the IP address to analyse it using external services such as AbuseIPDB, and then compares it with TheHive to see if there have been any previous incidents. Based on the result, n8n creates a new incident case if it is new or reopens the case.	Notification and alerts.
2	"Proagent: From robotic process automation to agentic process automation" [9]	The implementation of artificial intelligence in GPT-based models is highlighted. To this end, specialised workflows were created in n8n to perform key activities within an office, such as sending emails, consulting databases and interacting with APIs. This demonstrates the extensive use of automation tools in conjunction with artificial intelligence to perform key routine tasks.	Automation with GPT.
3	"A Study on Deploying Large Language Models as Agents" [12]	It applies automation in industries, where n8n performed the function of receiving information from sensors and storing the information in Mongo DB for historical records, and in the event that irregularities were detected, it issued alerts and connected them with Grafana. This allowed for the optimisation of processes within the industry and improved decision-making.	Notification and alerts. Process optimisation.
4	"Stacy: A Voice AI Agent Conducting Risk Assessment for Small Business Insurance" [4]	Integrations are carried out with n8n under the name Stacy, an AI agent that uses Trillet. Its objective is to make calls and update customer status, with the aim of retrieving customer information from a Google Sheets spreadsheet. It also connects the information to a CRM to keep track of customers, thus facilitating a more efficient and faster workflow.	Voice agents. Customer service

5	"Implementatio n of the Kanban methodology in a development project within Namtrik Development" [17]	It automates processes within Namtrik Development using the n8n tool to process financial data from Facebook sales. N8N made it possible to optimise workflows and help identify bottlenecks, thereby allowing employees to focus on other areas of the company.	Data processing
6	"Design of a master data management plan for the unification of information between the central applications of the University of Chile" [18]	Implemented a system for updating personal data at the University of Chile. To do this, a form was created which, when filled in, was detected and validated with n8n using an API from the Civil Registry. In this way, the system automates processes and keeps all parties informed via email.	Data processing
7	"Effect AI powered Email Automation: An Analysis of Email Marketing Automation" [19]	The impact of implementing email automation in the current Shopify PeponiXL.nl web shop was examined. Artificial intelligence models such as chatGPT were used in iPaaS scenarios and workflows in make.com. Statistical graphs demonstrated the clear reduction in time when automating these repetitive tasks, as well as offering greater scalability and profitability.	Process optimisation.
8	"Improving SCDOT Project Delivery Through Identifying Potentially Suitable Locations for Mitigation and Standardizing Section 401/404 Permit Application Process" [20]	Web applications and smart forms were developed to improve project delivery for the South Carolina Department of Transportation (SCDOT). Automation technologies such as Integromat (Make.com) and ArcGIS Survey 123 were implemented. Flow automation included report generation, PDF document merging, and email notifications. The results demonstrated a significant reduction in time (20-25 hours per month for ESO staff and 30-40 hours for consultants), greater consistency in deliverables, and faster approval times.	Process optimisation. Notification and alerts.
9	"Monitoring, streamlining and reorganizing work with digital technology" [21]	This study examines how companies collect and analyse detailed employee data through systems such as ERP and CRM. This research focused on the company Celonis and how it uses process mining technologies and workflow automation through the	Process optimisation. Data processing

		Make.com platform. It details how these systems process work activity data to optimise processes, monitor performance and automate tasks. Its "Task Mining" technology records interactions on employees' computers. It concluded that these tools intensify work, reduce work autonomy and increase surveillance in the workplace.	
10	"Automatizace podnikových administrativníc h procesů v kontextu RPA a průmyslu 4.0." [22]	ANTEE s.r.o. implemented automation using Make.com as an RPA platform to optimise four administrative processes: automatic order invoicing through continuous monitoring of the new orders system, invoicing of domains nearing expiry, debtor management with automatic reminders, and automatic domain renewal after payment verification. The results showed a significant reduction in operating time and fewer errors, with documented annual savings of 344,800 Czech korunas.	Data processing. Process optimisation. Notification and alerts.
11	"Household water softener incentive pilot program" [23]	They conducted an analysis of the Salt Savers programme and its implementation of an automation system based primarily on ESRI GIS tools. Survey123 facilitated the capture of water softener inspection data using smart forms, guiding technicians with conditional logic. Meanwhile, ESRI dashboards and the "Citizen Problem Manager" solution gave administrators the ability to review reports and approve payments in real time. In addition, Integromat (Make) was integrated as a key support for automating the sending of PDF reports by email to homeowners, suppliers, and programme administrators, streamlining communication and improving process efficiency.	Notification and alerts. Process optimisation.

Source: own elaboration.

The results of the content analysis of the 11 selected articles reveal a clear distribution of RPA applications across six main areas, as shown in Figure 2 Distribution of RPA application sub-areas

Figure 2 Distribution of RPA application sub-areas.
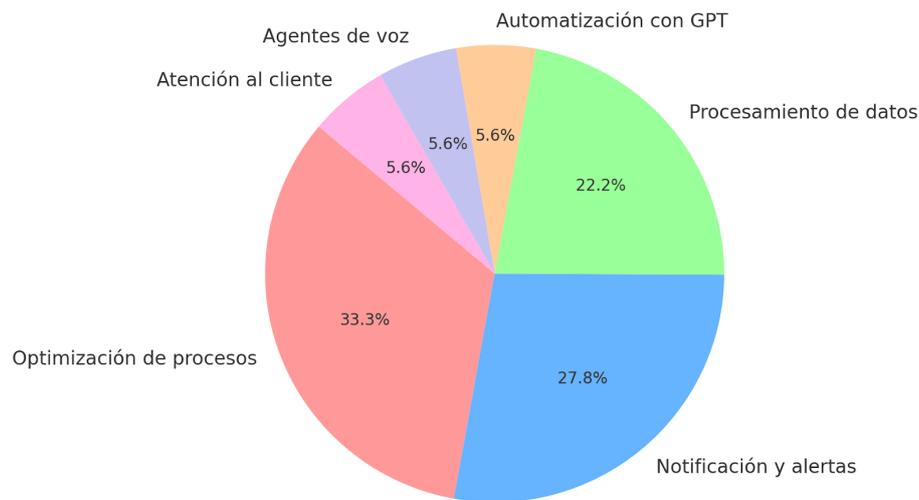
Source: own elaboration.

The data presented in this figure reveals that process optimisation represents the area of greatest application with 33.3% of the cases studied, followed by notifications and alerts with 27.8%. Data processing ranks third with 22.2%, while the areas of automation with GPT, voice agents, and customer service each represent 5.6% of the applications identified. This indicates that organisations are prioritising the automation of fundamental operational processes and communication and alert systems.

We will analyse each of the six areas identified, addressing the main characteristics and their benefits for the organisation:

Notifications and alerts:

RPA allows notifications and alerts to be generated in real time in different scenarios. For example, in the case of research applied to a clinic, a robot could monitor databases or manage systems to find errors, generate results, and automatically send emails, text messages, and internal reports to employees. This reduces risks and ensures that actions are decided at the right time, saving time and improving responsiveness. RPA tools could also be integrated into dashboards to provide monitoring and issue alerts, thereby improving key processes [24].

Automation with GPT:

We can also see how the remarkable advances in artificial intelligence have led to integration in automation, using models such as ChatGPT to enable the creation of intelligent models. This powerful combination not only allows key scheduled tasks to be executed, but also makes it possible to understand actions and generate natural language [3], opening the door to a vast world of automation applications in various administrative, medical and scientific contexts. For example, using GPT, you can automate mailings, summarise clinical reports, or interact with customers, all within an automated workflow. This combination of RPA and GPT significantly reduces the operational burden by automating key processes, improving accuracy and speed of communication.

Process optimisation:

Automation with RPA generally improves processes by reducing execution times for key tasks, such as administrative and repetitive tasks [6]. RPA facilitates communication between different systems, which facilitates improvements in development and also improves the quality of work by automating processes to minimise manual errors. This is known as resource optimisation, allowing human resources to be reallocated to other activities, which enables the digital transformation of organisations. In other words, RPA not only automates, but also optimises processes to make them more scalable and autonomous.

Voice agents:

Voice agents are a form of automation that personally improves communication between customers and businesses. According to the article, Robotic Process Automation (RPA) allows these agents to perform repetitive, rule-based tasks such as customer service and query management. The implementation of an RPA-based voice agent, such as Stacy. This system uses AI to conduct verbal interviews instead of written forms, which streamlines data collection. Stacy adapts its questions based on previous answers and the type of business. The results show a reduction in processing time and an increase in customer satisfaction, which tells us that process automation using voice agents optimises processes and improves customer satisfaction [4].

Customer service:

Customer service is also being transformed as companies automate repetitive and complicated tasks. Automation agents can interact with communication systems, such as chats and messaging platforms, to provide

more efficient and personalised customer service. This improves response times and reduces human error, saving time that can be used for other activities [25].

Data processing:

We can also take advantage of the rise of RPA tools for data processing in companies, as they allow large volumes of data to be captured for processing. By automating tasks such as extracting data from databases and entering information into systems, errors are greatly minimised. RPA agents can be integrated with various systems, allowing them to play a key role in processes. This automation capability improves efficiency and allows employees to focus on other activities such as decision-making [25].

The main objective of this research was to identify and analyse the use of the most common RPA tools, specifically n8n and Make, determining which processes are being automated and what their impact is on the operational efficiency of organisations.

This objective was successfully achieved by clearly identifying the most widely used RPA tools, confirming that n8n and Make are the predominant low-code/no-code platforms in the implementations analysed, appearing in all the selected studies. The results obtained revealed tangible improvements in operational efficiency, documenting reductions of 20-40 hours per month in administrative tasks, elimination of human error in repetitive processes, and significant economic savings. It was particularly valuable to identify how the integration of artificial intelligence, especially GPT models, amplifies traditional automation capabilities, enabling natural language processing and more sophisticated decision-making.

4. DISCUSSION

After conducting a thorough analysis of the research projects obtained, we noted that the integration of automation technologies contributes decisively to operational efficiency by eliminating repetitive and error-prone tasks, freeing up human and technological resources that can be directed towards strategic functions with greater added value, generating higher productivity, as demonstrated by various authors in different contexts and applications.

This research makes a significant contribution to the field of business information systems, as we provide a systematic review that specifically categorises the applications of low-code/no-code RPA tools such as n8n and Make. Unlike previous studies that focused on traditional RPA tools, this work identified six specific areas of application with accurate quantitative data, such as process optimisation (33.3%), notifications and alerts (27.8%), and data processing (22.2%), among others.

The differential value of this study lies in its focus on accessible platforms that democratise business automation, allowing organisations of various sizes to implement RPA solutions without requiring significant investments in licences or specialised programming personnel.

[16] implemented n8n to process security alerts issued by Wazuh, which managed to extract key information such as IP addresses and determine whether they were new threats or recurrences. This automation optimised response times and allowed analysts to focus on tasks of greater analytical value. Similarly, [12] demonstrates how these systems can detect irregularities in real time in industrial environments, enabling better decision-making, especially in situations where response speed is critical to preventing failures.

[9] with its "ProAgent" proposal, managed to transform the traditional paradigm by implementing LLM-based agents that not only execute programmed tasks but also design complete workflows based on human instructions. Similarly, [19] demonstrated how the integration of Make.com with ChatGPT allows for the automation of email communications tailored to the language of each customer, improving retention rates and eliminating the need for multilingual staff to expand into new markets.

[4] developed "Stacy", a voice agent for insurance risk assessment that extracts customer information from Google Sheets and connects it to CRM systems to improve tracking. This approach automates processes and improves the customer experience through more natural interactions and more efficient workflows.

They can also be implemented in administrative systems, which are useful for controlling documentation and processes, as was done in [4], where n8n was implemented in administrative systems, reducing time and errors in standardised procedures. Similarly, in T. Eliaš's research project [22], Make.com was used to automate billing, domain management, and reminders to debtors.

Our findings coincide with those of [3], which also highlighted the advantages of business digitisation through RPA**.** However, our study broadens its perspective by including specific integration with artificial intelligence models such as GPT, an aspect that was not addressed in depth in previous research.

In contrast to [6], which focused primarily on rule-based automation, our results demonstrate that low-code/no-code tools enable more agile and flexible implementations. It reported implementation times of several

months, while the cases analysed in our study show successful deployments in a matter of weeks.

Several of the studies analysed show positive impacts on customer service through automation. The study of [4] with voice agents improves the customer experience in the insurance sector, while [19] demonstrates how the automation of personalised communications in different languages increases customer satisfaction in e-commerce environment. These advances enable faster and more personalised responses without increasing the human resources required.

In the field of data management, information from different systems can be processed and merged into a single database, as demonstrated by [18], who implemented a system for the University of Chile that allows the validation and updating of personal data through a form integrated with the Civil Registry API, keeping all parties informed through automatic notifications. This demonstrates that data integration problems can be solved in complex environments.

This research has certain limitations that should be considered when interpreting the results. First, the search was limited to Google Scholar, which excludes relevant studies from other specialised databases such as IEEE Xplore, ACM Digital Library, or ScienceDirect. Additionally, most of the studies analysed correspond to specific implementation cases in particular organisations, which limits the generalisation of the results to different industrial or geographical contexts.

The results we obtained suggest that organisations should prioritise automation in process optimisation and alert systems, as there was a 61.1% success rate. Low-code platforms offer cost-effective alternatives to traditional RPA solutions, especially for SMEs, while their integration with AI exponentially enhances their capabilities. Strategically, RPA should be considered as a facilitator of digital transformation that is capable of freeing up human resources and allowing them to focus on activities with greater added value. However, it is important to consider the warnings in [21] about how these technologies, while improving efficiency, can reduce work autonomy and increase surveillance in the professional environment, especially with tools such as "Task Mining", raising ethical considerations about the balance between optimisation and workplace well-being.

5. CONCLUSIONS

In conclusion, our systematic review has demonstrated the relevance and transformative impact of RPA tools in various organisational environments. The integration of RPA with AI, in this case Chat GPT, constitutes an advance in process automation, as it has been possible to incorporate greater textual

understanding. This has led to the creation of hybrid systems that merge the productivity of artificial intelligence with the cognitive power of natural language understanding, enabling the creation of systems that can not only process unstructured information but also make contextualised judgements. This was evidenced by a reduction in operational workload and completion times, as well as a reduction in human error. This allows the employees of the organisation to focus on higher-value activities while repetitive tasks are efficiently automated.

The personalisation of interactions through voice agents and the management of large volumes of data are clear examples of how these tools are revolutionising organisational processes. From a data engineering perspective, these solutions have enabled automated processing pipelines that can handle multiple input formats, perform complex transformations, and distribute processed information to different target systems, all while maintaining data integrity and consistency throughout the flow.

In conclusion, these RPA tools represent an advance in business digitalisation, not only focusing on replicating human processes but also enhancing them.

AUTHOR CONTRIBUTION

Fabian Ruiz Santos: Conceptualisation, methodology, data analysis, literature search, content analysis, article writing, proofreading and final review of the manuscript.

Fernando Olivert Pantoja Payano: Literature search, data collection, content analysis and writing of specific sections of the document.

Alberto Carlos Mendoza de los Santos: Overall supervision of the project, methodological validation, critical review of the intellectual content, and approval of the final version.

CONFLICTS OF INTEREST

We declare that there are no conflicts of interest, financial or otherwise, that could have influenced the results or interpretation of this research. We have no personal or institutional relationships with organisations or companies that could be considered a potential conflict of interest in relation to the subject addressed in this study.

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