Beyond the Code: Understanding Professional Users' Perspectives on AI Implementation

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Abstract - While Artificial Intelligence (AI) has the potential to amplify economic productivity, and reduce expenses, it concurrently triggers investigations into the socially acceptable boundaries of its implementation. This study aims to promote a deeper comprehension of this issue by elucidating a better comprehension of actual AI usage for the professional proposes, the perceptions, the main risks, and the expectations for future usage on the lens of the professional users. The research commences with a descriptive and literature-driven exploration. Subsequently, it the foundational phase conducts an exploratory investigation via semi-structured interviews to managers and analysts who utilizes AI for professional purposes. Differentiation in usage was observed based on each participant's specific needs, ranging from text improvement to decision-making and programming. This study revealed patterns of usage, such as: perceptions, expectations, evaluations of AI's potential, as well as associated risks and concerns.

Keywords: Artificial Intelligence, Management, Technology Adoption, Organizational Challenges

1. Introduction

Artificial Intelligence (AI) seems to be the focal point of the transition to the Fourth Industrial Revolution. This transformation produces key inquiries questions concerning the future of work labor and its economic repercussions. While AI has the potential to amplify economic productivity, and reduce expenses, it concurrently triggers investigations into the socially acceptable boundaries of its implementation. This study aims to promote a deeper comprehension of this issue by elucidating a better comprehension of actual AI usage for the professional proposes, the perceptions, the main risks, and the expectations for future usage on the lens of the professional users.

The research commences with a descriptive and literature-driven exploration. as its foundational phase. Subsequently, it the foundational phase conducts an exploratory investigation via semi structured interviews to professionals. The sample comprised managers and analysts who utilizes AI for professional purposes. The participants were majority of male, aged between 18 and 28 years old. The interview transcriptions underwent rigorous analysis to discern prevalent patterns and correlations through data coding and categorization.

Differentiation in usage was observed based on each participant's specific needs, ranging from text improvement to decision-making and programming, even with a great number of different applications and tools utilized by the interviewees. In spite of, the difference of AI tools used, this study revealed patterns of usage, such as: perceptions, expectations, evaluations of AI's potential, as well as associated risks and concerns. Regarding risks, the study suggests consensus on concerns related to information security and result reliability. There also can be observed the potential increase of productivity achieved with the usage of AI. It became evident that there is ample room for exploration of AI, not only in financial sector, but across various sectors.

2. Literature Review

The management of any business involves systematic processes of planning, organizing, directing, and controlling the activities of a company or organization to achieve its objectives and goals. These processes encompass the supervision of all aspects of a business, from finances and operations to marketing and human resources [1]. Chiavenato [2] defines the word administration as "the way of governing organizations or parts of them". This definition also refers to processes of planning, organizing, directing, and controlling the use of organizational resources to achieve specific objectives efficiently and effectively. In this context, management is essentially about guiding something and taking actions for the progress of an organization.

The use of technology in management is not a new phenomenon [3]. Technology permeates the corporate environment, bringing innovations to various sectors. Whether they are technology companies or not, and even in sectors that may not primarily focus on technological development. Esse [4] discusses this use of technology through industrial revolutions, identifying the fourth industrial revolution as one that involves extensive use of technology, data, and interconnectivity. Consequently, the usage of Artificial intelligence (AI) seems to be a significant player in the corporate world and industry.

Artificial intelligence has proven to be a powerful tool in business management, with significant impacts on production lines and various sectors within organizational structures, including management boards and human resources management [5]. It is also suggested that AI can improve the efficiency and effectiveness of public management [6]. Moreover, AI has been employed to support decision-making, system management, and customer service, demonstrating its versatility and applicability across different areas of a company.

However, there is still much to explore in terms of how AI can be used in different business sectors. A gap of studies can be observed in some markets such as construction and building materials, financial services, and media [7]. The lack of research in this area reveals an ample room to explore AI usage in these sectors.

PWC [8] asserts that the Gross Domestic Product (GDP) and productivity are already impacted by AI and will be further affected by these innovations. AI can affect particularly due to improvements in work routines and the automation of various tasks. PWC [8] also states in its research that 45% of profits in 2030 will come from AI driven product enhancements. For example, the usage of AI for a greater personalization, for a wider variety of offerings, for discovering new trends, and for other improvements that enhance customer satisfaction.

The Brazilian cosmetic companies, Natura and O Boticário, can also be cited as examples in the beauty sector. Both companies are employing AI in their projects. Natura uses AI tools to analyse customers' hair and skin to recommend personalized products. Both technologies were trained over the years with databases to recognize skin and hair patterns [9]. O Boticário also has projects for skin analysis to personalize fragrance lines information [10].

Gartner [11] claims that by 2026, artificial intelligence will reduce up to $80 billion in costs for consumer contact centers, such as call centers. Companies like Magazine Luiza, Carrefour, Natura's Nat, and Casas Bahia's CB already use humanized virtual assistants in contact centers [12]. This Ai usage can cut costs and reduce human attendants.

Conversational AI is not limited to consumers but has also been used by analysts and managers for various functions. An emerging example is the use of Chat GPT for decision-making. Gigante Consultoria [13] presents a case in which Chat GPT is used by a manager as a business analysis tool, assisting in case studies. The tool proved simple and intuitive in developing an application, proving extremely useful in project delivery.

Harvard Business Review and Accenture [13] conducted a survey with over 1,700 managers in various countries to identify trends in AI. The survey states that one of the most crucial areas to be automated is team management and the direction and control of teams. It emphasizes that AI should be treated as a colleague rather than just a tool. AI has the potential to improve decisions by obtaining millions of data points, which would be impossible through human effort alone. For instance, AI is used for report writing, where the Associated Press expanded its news and report delivery from 300 to over 4,000 using AI [14]. While the academic literature on AI is extensive, there is not much written about team management and the use of AI in the corporate environment specifically for management and decision-making in this rapidly changing scenario.

According to Peres, Jia, Lee and Sun [15], in the context of Industry 4.0, decision-making has increasingly been influenced by the application of artificial intelligence. One of the main focuses of AI has been the optimization of processes processes where decision-making is enhanced through intelligent and efficient use of data. This includes predicting and optimizing energy consumption, improving production efficiency, and forecasting demand. Successful implementation of of these strategies can result in more profitable, sustainable, and efficient manufacturing processes. However, the authors note challenges in AI use, such as legal issues and biases in algorithms, which are critically important in AI-based decision-decision-making, requiring mitigation actions, including additional data collection, adaptation of data processing, and auditing.

The use of natural language processing tools has become increasingly common. Noy & Zhang [16] study the impacts of recent advances in generative artificial intelligence, such as ChatGPT and DALLE, on production and labor markets. These systems, creating text or visual outputs from large training datasets, differ significantly from previous automation technologies that primarily focused on routine tasks. Creative and difficult-to-code tasks, such as writing and image generation, have largely avoided automation. However, this may change with the advent of deep learning techniques underlying AI generative systems.

Automation technologies can either completely replace humans in certain occupations or complement existing workers and increase their productivity. For example, a powerful generative writing tool like ChatGPT can completely replace some writers, allowing companies to automate reports, basic news articles, and press releases with minimal human supervision. Interestingly, the same tool could increase the productivity of writers and marketing professionals with greater technical expertise, automating some of their tasks and enabling them to focus on more creative and innovative writing (BBC, 2023).

Again, according to George, George, and Martin [17], technologies like ChatGPT have been widely used and have become extensively popularized, breaking out of the technical AI developer bubble. The authors argue that the future of search engines, like Google, relies heavily on ChatGPT. Important information can be extracted from this realization: AI will be intentionally used more, as it is already commonly used but often behind the scenes, without the user's full knowledge. Google, for example, already uses AI for searches through new types of inputs (photos, sounds, videos), for map improvements, for creating captions, and other functions on YouTube [18]. The key difference is the user's decision to conduct a search on Google or ask ChatGPT/Google Bard a question, putting AI in a more prominent role.

3. Materials and Methods

Regarding the methodology, the research is descriptive in nature, aiming to understand and elucidate information about a specific topic in detail, seeking to make a phenomenon known and explain it (Vergara, 2003). Additionally, the research can be classified as exploratory, as defined by Gil [19], in his book, with the intention of "providing greater familiarity with the problem, in order to make it more explicit or to construct hypotheses."

In terms of approach, the research is defined through a qualitative approach, meaning that the content of the candidate's response will be analysed, as opposed to a quantitative approach, where a statistical analysis of interviews would be conducted. The qualitative approach involves data immersion, identification of relevant themes and subthemes through coding, and the search for emerging patterns [2].

To collect data, a questionnaire script with opened questions was used. This instrument was chosen to better capture the nuances of the respondents' answers. The questions were formulated using the methodology suggested by Creswell [20] in qualitative analysis. There are 12 questions, some central and some sub questions, aimed at narrowing the study and focusing on issues of interest to the researcher, aligning with the research objectives. The questions also follow the author's recommendation to start with the words "What" and "How," conveying greater openness, fundamental in qualitative research.

For instrument evaluation, a pretest was conducted. According to Gil [19], the pretest does not aim to capture aspects related to the objectives of the survey; instead, it focuses on evaluating whether the instruments effectively measure what they were proposed to measure. The pretest involved two individuals.

The pretest assisted in refining the research questions, as there were questions with similar meanings and responses. It allowed these questions to be slightly modified, achieving the initial objective intended by the researcher.

For data collection, we selected AI users based on a simple survey in companies, at UFRJ, and related circles. Users were contacted through various means, and the interviews were conducted individually. The results were recorded in a document and later analysed by the researcher.

For data processing and analysis, we employed [21] content analysis, a qualitative research method aimed at and interpreting the content of various communication sources, such as texts, images, speeches, or interviews. The involves the systematic coding and categorization of the collected material, with the objective of identifying patterns, and underlying meanings.

Bardin's [21] proposed approach consists of three stages: pre-analysis, material exploration, and results treatment. In the pre-analysis, the researcher becomes familiar with the collected data and organizes it into units of analysis. During material exploration, the aim is to identify patterns and relationships through coding and categorization of the data. Finally, in results treatment, the data is interpreted and used to address the research questions.

4. Results and discussion

Table 1 shows the classification of the interviewees in this study.

Table 1: Profiles of the interviewees

Code	Gender	Age range	Company	Role
I1	Female	18 - 28	Marfrig S.A.	Trainee
I2	Male	28 - 38	Algar Tech	Manager
I3	Male	18 - 28	Nico Gym	Entrepreneur
I4	Male	28 - 38	Vobli	Tech Lead
I5	Male	18 - 28	Signal Capital	Analyst
I6	Male	18 - 28	BTG Pactual	Analyst
I7	Male	18 - 28	RAFT	Entrepreneur
I8	Male	18 - 28	BTG Pactual	Manager
I9	Male	28 - 38	AgeRio	Manager
I10	Female	28 - 38	FourPatinhas	Entrepreneur

Utilizing a simplified approach to categorization as proposed by [21], we can group the interviewees into subgroups based on their responses. The corpus of our re-search consisted of 10 interviews, although we conducted 2 additional interviews that were not extensively utilized due to the interviewees' lack of experience with AI. These will be employed solely for contextualization in categorization and potential counterpoints.

Most of the interviewees utilized AI without a very advanced level of technical knowledge. Chatbots appeared several times in the interviews and were perceived as significant innovations by the participants. All interviews mentioned ChatGPT in some capacity, with 9 out of 10 interviewees using it.

The following categories were established during the grouping process in the study and Tabel 2 classifies interviewees in these categories.

o Does not use AI: Interviews with responses indicating a lack of AI utilization in a professional context, regardless of personal use.

o Uses AI with reservations: Utilizes AI tools but has many questions, objections, doubts, or criticisms.

o Uses AI with few reservations: Makes use of the tool and does not have many points against its usage, without clear objections in terms of security or usability.

o Uses AI and recommends to friends and family: Belongs to the "promoters" category, meaning that, in addition to using the technology, they actively promote its benefits to close associates.

Table 2: Categorization of interviewees

Does not use AI	Uses AI with reservations	Uses AI with few reservations	Uses AI and recommends to friends and family
I1, I2	I3	I4, I6, I8, I9	I5, I7, I10

There is a considerable diversity in the use of AI in the corporate environment, with professionals from various sectors. This diversity demonstrates that AI permeates various layers of businesses and impacts different sectors, revolutionizing the corporate world as a whole, similar to what was evaluated by Santhosh (2018), stating that technology breaks barriers, expands markets, and creates new opportunities.

In contradiction to the expectable that IT professionals could lead the usage of AI for professional purposes, some technology professionals, including programmers, managers, tech leads, and IT directors, could not be interviewed during the present study due to the absence of AI use in their daily work. Furthermore, from the responses of technology professionals, it is evident that AI is still not widely used within the technology field itself. In addition, [7] suggests that there is much room for exploring AI in various sectors outside of technology. George, George, and Martin [17] emphasize a breaking of the IT bubble, surprisingly noting that technology employees and managers do not use significantly more advanced technologies than people from other areas, indicating that although AI is reaching various sectors, its depth of use is still limited.

All interviewees admitted to using ChatGPT as one of the AI tools, primarily as a text handler and even as an advisor. Kalla and Smith [22] discuss the use of ChatGPT specifically for Q&A, which is reinforced in our study, as participants use it to clarify doubts on various topics such as life questions, scientific information, and code resolutions.

The use of the mentioned tools by users falls into two categories: assisting in decision-making or automating manual tasks. Santhosh [23] addresses the usability and versatility of AI. Interviewees use AI for various tasks, from organizing projects and writing emails to trend analysis and technical problem-solving. Examples of AI usage include ChatGPT, the most cited and employed by all participants. Other mentioned AI applications include slide creation, database and server optimization technologies with robots, and even RPAs, which are not necessarily AIs but automated processes through scripts.

An interesting observation was the usage of AI in health sector, specifically in animal health. Interviewee 10 uses an AI system to aid decision-making, where tests are exported to a cloud system for analysis similar to that of a doctor. This mirrors what happened several years ago with Watson [24], where medical articles were analysed, generating accurate diagnoses.

AI has positively impacted the productivity and efficiency of the interviewees. Tasks that used to take weeks are now completed in days or even hours, thanks to the speed and accuracy of AI. This is supported by interview results, including statements like "tasks that would take 1-2 weeks are done in 1 or 2 days." It was also raised the discussion that AI has been very helpful with routine tasks that take time and intelligence is not required. In line with this results, Noy & Zhang [16] analysed the impacts of natural language processing AI, with ChatGPT being the main tool used by participants. Noy & Zhang [16] claim that automations have focused on routine tasks, and creative tasks have not been impacted. To reinforce this aspect, interviewee I6 emphasized the importance of using AI as an aid in programming code. And also emphasized that creative aspects still coming from the human mind, while the writing and optimization of the code have increasingly been delegated to machines.

According to Peres, Jia, Lee and Sun [15], artificial intelligence strongly influences decision-making. During our research, one of the interviewees stated that AI is fundamental in decision-making, interviewee. Interviewee I7 affirmed that all business decisions are weighed with the use of AI. According to him, AI is a significant innovation and serves as a companion for decisions, bringing unexplored perspectives. Interviewee I4 also uses AI as a thinking partner on certain occasions. This is especially interesting as it aligns with [24] and [14], where AI is increasingly seen as a colleague and not just a tool, influencing decisions and even everyday personal matters of workers. However, for most of the interviewees, we observed that AI is still not considered the main driver of decision-making, only an aid and brute force for repetitive tasks.

The main rea-son observed to this reduce usage of AI to decision making is the uncertainty and constant errors of the tools used.

The reliability and accuracy of information provided by AI were identified as concerns. Some interviewees the need to verify the accuracy of information provided by AI. This is evidenced by interview responses, such as learning depends on the quality of information provided to AI. Thus, everything depends on the source that the AI uses how this data is presented to it." Likewise, another interviewee said, "I usually use it as an initial guide, but always check the accuracy of information in aca-demic databases like PUBMED." The possibility of bias in technological data was ad-dressed by [25] and is already a known issue; AI models are constantly improved to eliminate these biases. What is interesting here is that even with potential error issues, interviewees continue to use the tools routinely.

The risks associated with AI use were also mentioned by interviewees. Information security and compliance issues were cited as concerns, as well as the possibility of AI providing incorrect or incomplete information. This is corroborated by interviewee I3, who mentions that "the greater risk is compliance, regulations contained in the General Data Protection Regulation (GDPR), and the use of this data placed in public databases illegitimately." Similarly, interviewee I4 mentions that "the risk is always information security since AI has access to a lot of sensitive information."

Surprisingly, interviewees I1 and I2, who do not use AI, did not state that security was the main factor for not using the technology, but rather the lack of time to study the tool and the lack of habit in its use. The importance of staying updated on best practices and trends in AI tool usage was mentioned regarding expertise. This is supported by I1, who states that "it is important within technology to study. New trends, tools, frameworks come and go all the time. Some solidify and become pillars for decision-making, considered differentials, others are just passing fads." Similarly, I2 mentions that "it is important to always be updated, as AI is constantly changing." The recognition of AI advancement by both a technology sector interviewee and another more "lay" interviewee shows that the need for information seeking is crucial for the proper use of AI. However, as mentioned earlier, the tools themselves do not seem to differ between expertise levels, but rather the quality of use, i.e., how queries and prompts (in the case of ChatGPT) are made.

5. Conclusions

Artificial intelligence plays a crucial role in the corporate environment. While this technology was already significantly impacting people's daily lives through improvements in maps, searches, and predictive text, its recognition and utilization in the workplace have been increasing.

AI, particularly with the advent of natural language processing tools like ChatGPT, has proven highly relevant in optimizing routines, as anticipated by the theoretical framework. Its power as a tool for improving corporate daily life has exponentially intensified.

This technology is increasingly influential in management, offering a myriad of benefits, including time savings and the provision of relevant information quickly and efficiently. Through the analysis of collected responses, it was observed that users perceive AI as a useful tool that aids decision-making and problem resolution.

Despite these positive perceptions, concerns about the accuracy and reliability of AI exist. Some users expressed the need to verify reproduced information before completely relying on it, indicating a certain level of scepticism or caution regarding its accuracy and reliability.

Regarding the assessment of users' perception regarding the use of AI, the results strongly indicate high confidence and acceptance in AI usage, implying that the inter-viewed individuals are quite receptive. It is noticeable through the responses that there has been a popularization of AI usage overall, especially for individuals outside the IT field and from diverse sectors, including respondents from the meat industry, advertising agencies, and even veterinary clinic networks.

Users' perception of the use of AI is largely positive, with many recognizing the value that AI adds to their daily operations. Users appreciate the AI's ability to save time and provide relevant information quickly and efficiently. They highlight the role of AI in facilitating decision-making and problem-solving, suggesting that AI has the potential to significantly enhance efficiency and productivity, enabling a focus on other tasks.

Regarding the identification of risks involved in the use of AI technologies in management, many expressed concerns about Information Security, although this is not sufficient to deter technology use. Another point addressed was the occasional error and the limitation of data in natural language processing AIs, such as ChatGPT. Users mentioned occasional errors in their queries, requiring them to reformulate the query or consult other tools.

Another concern is related to the accuracy and reliability of the provided information. Some users expressed doubts about the accuracy of the information provided by AI, indicating that they feel the need to verify some of the information before trusting it completely. This suggests that, although AI is seen as a useful tool, there is still a certain degree of distrust or caution regarding its accuracy and reliability.

One of the main risks mentioned is compliance, particularly concerning regulations in the General Data Protection Regulation (GDPR). Users are concerned about the potential illegitimate use of data in public databases, which could lead to privacy violations and other legal issues.

Regarding differences in AI usage based on the audience's expertise, there was a clear distinction between the technical knowledge of professionals in computer-related fields and professionals from other areas. However, it is interesting to note that some tools appeared regardless of technical expertise, such as the use of ChatGPT, which was mentioned in all interviews. The analysis of responses suggests that the technical knowledge of a user can influence how they approach AI usage. Users with greater technical knowledge seem to have a more cautious and informed approach to AI usage.

Users emphasize the importance of understanding AI tools to optimize responses and avoid disclosing confidential information. They also highlight the need to stay updated on best practices and trends in AI tool usage, suggesting that continuous education and learning are fundamental for the effective use of AI.

While this research provided valuable insights into the use of AI in management, it also highlighted several areas that could benefit from future investigations. Firstly, it would be beneficial to delve deeper into users' concerns regarding the accuracy and reliability of information provided by AI. Future research could explore ways to enhance AI accuracy and increase users' confidence in the information it provides. Secondly, given the identification of various risks associated with AI use in management, future research could focus on developing and evaluating risk management strategies for AI use in this context. This might include investigating best practices for GDPR compliance and other relevant regulations, as well as strategies to prevent the illegitimate use of data. Finally, it would be interesting to further investigate how a user's level of technical knowledge in-fluences AI use. Future research could explore ways to improve education and training in AI for users of all technical knowledge levels to maximize the benefits of AI use in management.

Appendix A - Interview script

1: Como você utiliza a inteligência artificial na gestão empresarial e quais são os impactos na sua produtividade?

1.1: Quais são as principais ferramentas de inteligência artificial que você utiliza na gestão?

1.2: Como a inteligência artificial ajuda você na tomada de decisão e na resolução de problemas na gestão?

1.3: De que maneira a utilização da inteligência artificial tem afetado a sua produtividade e eficiência como gestor/analista?

2: Qual é a sua percepção sobre o uso da inteligência artificial na gestão empresarial?

2.1: Como você avalia a confiabilidade e a precisão das informações fornecidas pela inteligência artificial que você utiliza?

2.2: Quais benefícios você identifica ao utilizar a inteligência artificial na sua gestão?

2.3: Quais são os principais desafios ou problemas que você encontrou ao implementar e usar a inteligência artificial na gestão?

3: Quais riscos você identifica ao utilizar tecnologias de IA?

3.1 :Consegue identificar outros riscos, sejam operacionais ou de segurança da informação, que você associa à utilização da inteligência artificial?

3.2: Como você lida com os riscos associados à utilização da inteligência artificial na gestão?

3.3: Que medidas ou estratégias você adotou para mitigar esses riscos?

4: Como o seu nível de conhecimento técnico influencia a maneira como você utiliza a inteligência artificial na sua empresa?

4.1: Existem diferenças na maneira como você usa a inteligência artificial se comparado a outros analistas e gestores?

4.2: Quais são os principais desafios que você enfrenta ao adotar e implementar ferramentas de inteligência artificial, considerando o seu nível de expertise?

4.3: Como você se mantém atualizado sobre as melhores práticas e tendências no uso de ferramentas de inteligência artificial, especialmente considerando o seu conhecimento técnico?

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