Artificial Intelligence for Human-Technologies-Economy Sustainable Development
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TIIM PIConf
Management, Knowledge and Learning International Conference
Technology, Innovation and Industrial Management Sustainable Development
23-25 May 2024 Lublin, Poland

Impact of IA on Organisational Culture

Rui Caldeira
Instituto Superior De Gestão, Portugal
rui.caldeira@isg.pt

Miguel Varela
Instituto Superior De Gestão, Portugal
miguel.varela@isg.pt

Vlad-Valentin Vîrjan
Bucharest University of Economics Studies, Romania
vlad_virjan@yahoo.com

Daniela Vîrjan
Bucharest University of Economics Studies, Romania
daniela.virjan@economie.ase.ro

SUMMARY:

The rapid evolution of Artificial Intelligence (IA) is significantly changing the organisational landscape, offering exciting opportunities but also imposing complex challenges on businesses. The successful integration of IA into an organisation is not just limited to the implementation of cutting-edge technology but involves a comprehensive transformation of organisational culture. This article explores the impact of IA on organisational culture, addressing the challenges and opportunities that arise in this process.

In recent years, organisations in general have increasingly turned to IA in the search for commercial advantage, given the explosion of data and the significant increase in computing power. However, organisations still face challenges in adopting and leveraging IA in their operations. The lack of a comprehensive understanding of how IA technologies create value for companies and what kind of value can be expected requires a holistic approach.

This study offers a systematic review of the literature, with the aim of explaining how organisations can take advantage of IA technologies in their operations and clarifying the mechanisms of value creation. Our analysis synthesises the current literature and highlights (1) the main facilitators and obstacles to the adoption and use of IA, (2) the typologies of IA use in the organisational environment, and (3) the first- and second-order effects of IA. The article concludes by identifying gaps in the literature and establishing a research agenda that points to areas that need to be explored in future studies. Several analyses in different studies suggest that IA is seen as a promising tool, most notably the study carried out by Professor Dr Álvaro Dias and his colleagues, entitled 'The Influence of Artificial Intelligence on Online Behaviour'."

Keywords: artificial intelligence, organisational culture, impact of IA

INTRODUCTION

Although Artificial Intelligence (IA) is not new, it has attracted considerable attention in recent years (Ransbotham et al., 2018). IA has been seen as a disruptive force for companies around the world and in a wide variety of sectors (Davenport and Ronanki, 2018). IA applications are expected to bring benefits in terms of business value, such as increased revenue, reduced costs and improved business efficiency (AlSheibani et al., 2020). A recent study by the MIT Sloan Management Review found that more than 80% of organisations see IA as a strategic opportunity, and almost 85% consider IA as a way to gain a competitive advantage (Ransbotham et al., 2017). In pursuit of this competitive advantage, many organisations are investing in IA technologies. However, despite the growing interest in IA, many companies face challenges in deriving value from it (Fountaine et al., 2019). The expected benefits of IA may not materialise, even when companies invest time, effort and resources in the adoption process (Makarius et al., 2020).

The introduction of IA into organisational operations brings with it a new set of barriers and challenges (Duan et al., 2019). Some of these include the need to connect expertise across different domains to develop accurate and meaningful models (Duan et al., 2019), identify, integrate and cleanse diverse data sources (Mikalef & Gupta, 2021) and integrate IA applications with existing processes and systems (Davenport & Ronanki, 2018). To capture the potential value of IA, organisations need to understand how to overcome these challenges, as well as the potential added value that these technologies can offer. However, recent IA research has focused more on the technological understanding of IA adoption than on identifying the organisational challenges associated with its implementation (Alsheibani et al., 2020). Although some studies have identified research gaps (Dwivedi et al., 2021) and analysed crucial aspects of harnessing IA technologies (Mikalef & Gupta, 2021), there is still a lack of a comprehensive understanding of how IA is adopted and used in organisations, as well as the main mechanisms for generating value.

In this article, we attempt to fill this gap by providing a synthesis of current knowledge and developing an agenda that can contribute to advancing our understanding. We have therefore conducted a systematic review of the existing literature and presented a narrative review, summarising the current body of literature and providing a comprehensive report that will guide future research (Templier & Paré, 2015).

In this article, we seek to understand the impact of IA adoption on operations and organisational culture, and how organisations can effectively harness IA technologies to create value by promoting behavioural changes and management systems.

Based on this synthesis, we developed a research agenda, identifying areas that deserve to be explored in future studies.

ARTIFICIAL INTELLIGENCE

Artificial Intelligence (IA) had its formal origins in 1956 in the United States, at Dartmouth University, with the participation of notable names including John McCarthy, Marvin Minsky, Allen Newell and Herbert Simon. It is defined as a field of study that seeks to combine concepts from both cognitive psychology and computer science to develop artificial systems that exhibit characteristics of human intelligence (Gleitman et al., 1999).

However, the problem in defining Artificial Intelligence (IA) arises from the very complexity of the concepts that make it up: "intelligence" and "artificial." These definitions are not consensual and vary significantly according to the field of study and sometimes even within the same field. For example, Stephen Hawking defined intelligence as "the ability to adapt to change." But

without more precise contextualisation, considering that plants and microorganisms can successfully adapt to changes never experienced before, can we really consider them intelligent? The same dilemma applies to the concept of "artificial." Typically, something is considered artificial if it is manufactured by humans and cannot be produced exclusively by natural processes, without human intervention. However, the issue of Dolly the sheep, who was cloned from a "natural" sheep by humans, raises questions about what is natural and what is artificial. This leads us to conclude that, from the outset, the definition of what IA means has faced a great deal of discussion about how to define intelligence and artificiality, which generates multiple areas of uncertainty and makes a universal definition (in the sense of the general public) complicated (Monett, 2017).

Artificial Intelligence (AI) is becoming one of the most important disruptive factors in contemporary business. But what exactly is AI and what impact will it have on organizational culture? With this article we aim to address these and other questions, bearing in mind that it is not possible to provide all the answers, as AI is evolving rapidly, making it difficult to predict its future. Our intention is to start a discussion in order to understand the impact of this market disruptor and explore the cultural opportunities it offers.

IA also has the potential to enhance our humanity, as its basis lies in the analysis of data and behavioural patterns. This article explores the interaction between IA technology and behaviour, whether human or machine.

Martijn van Otterlo, author of "Gatekeeping Algorithms with Human Ethical Bias" and assistant professor of artificial intelligence at Tilburg University in the Netherlands, wrote: "Although I see many ethical issues, potential problems and especially problems of imbalance/misuse of power with AI (not even starting with singularity issues and out-of-control AI), I think AI will change most lives for the better, especially looking further ahead to the short horizon of 2030, because even the negative effects of AI can be considered predominantly 'good' by most people. (Anderson, 2018)

Barry Hughes, senior scientist at the University of Denver's Center for International Futures, commented: "I was one of the first test users of the ARPANET and now I can hardly imagine living without the Internet. While AI will be disruptive to 2030 and beyond, meaning there will be losers in the workplace and growing reasons for concern about privacy and AI/cybersecurity-related crime, overall I expect individuals and societies to make choices about use and restriction of use that benefits us." (Anderson, 2018)

Artificial Intelligence refers to the ability of machines to imitate cognitive functions associated with the human mind, such as learning and problem-solving. Currently, its main focus is on using algorithms to carry out complex tasks, such as recognising patterns and analysing data. However, we are moving towards a scenario where machines will interact with each other as well as communicate with humans, raising questions that involve myths, fiction and philosophy. For the public, the central threat is the so-called "singularity", when machines surpass human intelligence and can take over. This concept leads to discussions about artificial affects, emotions and values. Research is currently exploring the ability of machines to understand human emotions and adapt to provide specific responses, which has significant implications for business, such as customer service, problem-solving and demonstrating empathy.

There are various definitions of Artificial Intelligence, reflecting the complexities inherent in each area of knowledge.

Artificial intelligence is man's newest invention, a machine that can solve complex problems in almost all fields of activity, industry, telecommunications, the financial-banking system, transport, medicine, security, tourism, social media, etc. Artificial intelligence learns and

develops on its own, but depends on the multitude of information, codes and algorithms that enter and leave a system.

Some support the promotion of artificial intelligence, and others blame it. Those who advocate it claim that artificial intelligence will make people's work easier, will increase productivity and work efficiency, generate competitive advantages, will generate immediate and effective strategies, will be able to respond quickly to any problem, and will be the human being who will be able to control and monitor this technology so that he will be more creative, happier and more fulfilled. Another category of people is against artificial intelligence, arguing that artificial intelligence will destroy people's lives, they will lose their jobs, and if it is out of control, it will cause great losses and risks.

But without realizing it, our lives are already assisted or controlled by IA; practically every search engine is an IA, for example, Google, Yahoo, TiK-Tok, Facebook, Instagram, Bing, online shops, and many others. Basically, when you open a website, you are automatically connected to the internet and to an active GPS, so when you want to buy a product, and write a word, it registers on that platform and becomes a reference for a behaviour you have on that platform, and the online shop has all the necessary information according to the searches.

Data collection has become so big that you don't need to agree to "cookies" anymore, maybe only those who are just starting out anyway hold databases of all users (preferences, lifestyle) and all the information needed to make a profile. The algorithm doesn't care about the user's name, but what it can sell you, so IA learns what you like, what brings you the most joy, dopamine and adrenaline, and finds those goods and services that interest you and shows them to you continuously, then it records how you interact, how long you stay on a certain page, if you look, if you click, and even sneaks in other ads, for other products, among the pictures. IA, after a few clicks, reads your profile and determines your gender and your preferences based on certain behaviour.

It begs the question, do we need technology and IA? Surely the answer is YES. Do we want to live without technology? At the present time when the world is changing rapidly, I think NO. Does IA make us an inferior species? Even if we are superior beings, being on a different level of consciousness, because we have language, information sharing and cooperation, we are limited, we have limited senses, our working capacity is different, and our capacity to process and manage information is limited, and then we need IA to come and help us overcome these limitations. So what do we have to do? We need to use technology wisely in order to make our work easier, to satisfy our needs at the highest level, to make the best decisions and to establish the most efficient strategies for production, consumption, redistribution, management and control in different areas of human life.

We'll give some examples where IA has managed resources very well and delivered good results: In the job market, there are companies that use IA in recruiting staff, when corporations receive hundreds of CVs and need to make a quick decision on choosing the candidate that best fits a particular job, so the CV is chanted by certain keywords and IA decides whether to go ahead with the interview or save the contact to enter into a database; in art, with the help of IA it is easy to create a picture, a drawing, a song, to change your voice or your appearance, basically we feed an algorithm with our imagination and creativity, and that entertains us, and IA collects billions of data, information, images, pictures that it analyses and catalogues, so they will be able to find any landmark about any human being; in industry, with the help of industrial robots, any raw material can be turned into a finished product.

China is considered a world leader in IA research, controls and monitors hundreds of millions of surveillance cameras, sets social scores based on behaviours detected by surveillance cameras and

censors certain social media information, etc. ; in medicine, there are now surgeries that are equipped with smart machines to automatically make and analyse a diagnosis, machines that capture diseased cells very well (MRI), robots that perform laparascopic operations, smart watches that show, blood pressure, body temperature, measure blood oxygen, how much you move, how well you sleep, if you're in a fertile period, and if you have virus infections, so the Covid -19 vaccine benefited from IA, because computers were able to boost decades of research in just a few months; in the security of the banking system, IA scans a multitude of transactions and can scan those that look suspicious, block cards if you pass a certain number of attempts, analyse and send the customer the best banking offers and can do it globally in just a few minutes, reducing the contact between customer and bank to zero. These are just a few aspects of economic and social life where artificial intelligence is present and where the results are remarkable, contributing to the evolution of the economy and the quality of life.

However, we can conclude from our research that Artificial Intelligence is one of the most promising disruptors of modern business. IA is having a profound impact on many industries, transforming the way organisations operate, make decisions and interact with their customers. However, the successful implementation of IA goes beyond technology. It involves a fundamental cultural change in organisations.

ORGANISATIONAL CULTURE

Organisational culture is a topic of great relevance in academic studies and research, particularly in the field of management and administration. Defining and developing the theme "Organisational Culture" for a scientific article involves a systematic and in-depth approach to ensure that the reader clearly understands what organisational culture represents and its impact on organisations.

Thus, we understand organisational culture to refer to the set of values, beliefs, norms, rituals, traditions, behaviours and symbols shared in an organisation. It represents "the way things are done here" and influences the organisation's identity, its management practices, the behaviour of its employees and, ultimately, its performance and success in the marketplace. Organisational culture describes an organisation's personality and shapes the way it operates and makes decisions.

We can write that organisational culture is one of the fundamental pillars of any company or institution, playing a critical role in the way organisations operate, grow and achieve their objectives. Over the last few decades, the study and understanding of organisational culture has emerged as an essential field of research in business management and administration. In this introduction, we will explore the concept of organisational culture and its profound importance, illuminating how culture has become a determining factor in the success or failure of organisations.

The importance of organisational culture transcends mere theory and academic research. Culture directly influences an organisation's performance and its ability to achieve goals and objectives. It has a significant impact on employee motivation, talent retention, productivity, innovation and customer satisfaction. Through its shared norms and values, organisational culture also provides a framework for conflict resolution and guides ethical and responsible employee behaviour.

With the growing emphasis on managing people and creating positive working environments, organisational culture has become an essential strategic tool for organisations. Understanding and effectively managing culture has become a competitive advantage for companies in an increasingly complex and ever-changing business world.

HOW IA INTERACTS WITH CULTURE

We foresee two main angles in which IA will have an impact on organisational culture. The first is that IA will help manage culture. The second angle is that IA will directly influence people's mindset and behaviour at work through the systems that will be implemented.

IA will help manage culture.

- Assessment of the current culture:

The aim of IA is to analyse large volumes of data to identify patterns. By analysing behavioural data sets, organisations will develop an accurate view of their culture. One can imagine a scenario in which data comes from a variety of sources, such as HR data, recruitment interviews, onboarding processes, performance management, business processes, leadership forums and real-time discussion threads, in order to build up a picture of the culture on an almost daily basis.

- Identifying the desired culture:

IA can predict the desired culture based on information from hundreds of thousands of internal and external sources. To do so, it can simulate various behaviour change scenarios and evaluate the resulting business outcomes.

- Developing a culture plan:

As well as identifying behaviours, IA will be able to identify systemic issues and their consequences, avoiding many of the current risks and facilitating the development of a culture plan. This will help focus on the right areas of cultural change and better predict the impact on culture and financial results. IA will also help identify cultural influencers in the business, as well as those who resist new behavioural and management patterns.

IA will facilitate audits of cultural systems and processes in place in the organisation. Regulators and boards of directors who currently put pressure on executives to address cultural risks will welcome the use of IA. Finally, the development of the culture plan will also be facilitated by the testing of initiatives, which can be modelled in the system to assess their effectiveness.

- Measuring culture is essential, whether it's to assess business results or behavioural changes in organisations. In this scenario, IA will play a significant role. The strength and intelligence of IA is derived from the data available to analyse patterns, making it essential to use tools to track and understand changes in behaviour.

What's more, IA will have a direct impact on people's mentality and behaviour.

THE IMPACT OF IA ON ORGANISATIONAL CULTURE

IA's high degree of sophistication means that it can enhance the performance of individuals and teams, optimise workflows and even complete tasks, allowing employees to focus on more meaningful activities. Careers that used to be monotonous can become exciting, as employees can work more efficiently and expand their areas of expertise, often exploring opportunities that were

previously out of their reach. As this reality takes hold in an organisation, employees feel empowered to perform functions that add value to the business through creative and innovative solutions.

The automation of routine tasks by IA has a direct impact on organisational culture. While mundane tasks are taken over by machines, employees are freed up to focus on more strategic and creative activities. This redefines roles and expectations within the organisation. Organisational culture needs to adjust to this new dynamic, promoting innovation and continuous learning.

IA offers the ability to make decisions based on accurate, real-time data. This requires the organisational culture to value data analysis and informed decision-making. The transition from an intuition-based culture to a data-driven one can be challenging, but it is essential in order to harness the potential of IA.

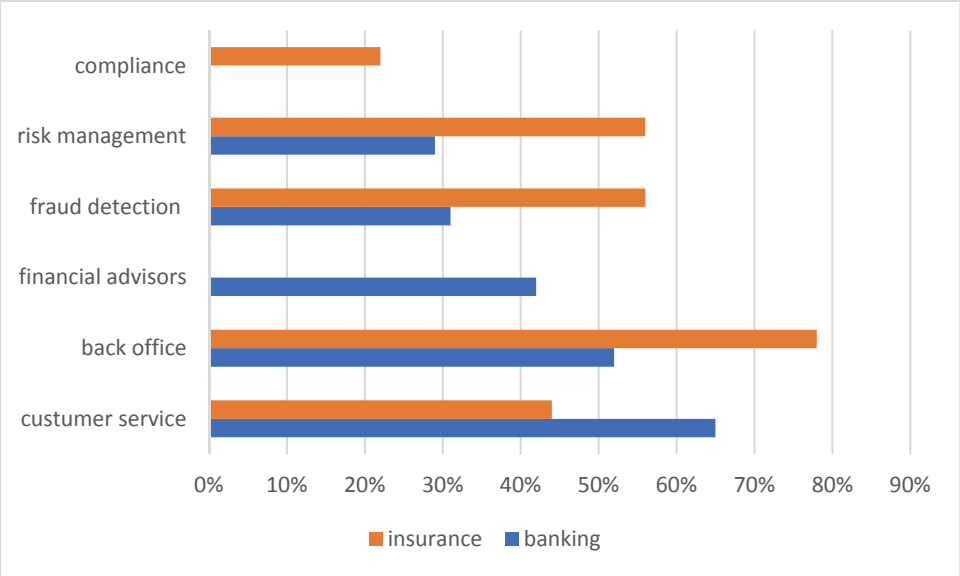
Collaboration between humans and machines is a growing reality in organisations. The organisational culture must encourage this collaboration, promoting an understanding of IA's capabilities and limitations. IA can complement human skills, creating more effective teams.

IA is constantly evolving, requiring employees to be continuously learning. The organisational culture must value learning and adaptation, encouraging employees to acquire new skills.

A Deloitte study of more than 3,000 C-Suite executives, carried out in partnership with the European Financial Management Association (EFMA), shows that the activities and functions in which companies believe IA could have the greatest impact on their organisation vary considerably by sector (Figure 1). This study also concluded that, overall, the adoption of IA in financial services is still in its infancy. Of the firms surveyed, 40% were still learning how IA could be deployed in their organisations, and 11% had not started any activities. Only 32% were actively developing IA solutions.

Fig. 1 Adaptation of the Delloitte study

Source: https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/financial-services/deloitte-uk-ai-and-risk-management.pdf



The research and the review are in line with the studies carried out by Prof. Alvaro Dias at IA, as well as the Delloite study we mentioned earlier.

METHODOLOGY

We chose systematic literature reviews for this first article on IA, and we will later develop articles comparing the perception of IA in different European countries.

Systematic literature reviews (SRs) are a way of synthesising scientific evidence to answer a particular research question in a way that is transparent and reproducible while seeking to include all published evidence on the topic and appraising the quality of this evidence. (Lame, 2019)

CONCLUSIONS

IA does not exist in a vacuum. Its successful application in companies depends on the proper integration of these tools with the organisation's strategy and business models, as well as the ability to absorb the new technology into the organisational culture. This is without ignoring the importance of adapting processes, technological infrastructure, the availability of talent, data governance policies and compliance with regulatory, ethical and compliance aspects. A company's readiness to adopt IA in its operations is intrinsically linked to its digital maturity.

Several aspects must be considered, but we will highlight two for further exploration in this article. The first aspect is business strategy. When applied appropriately in the right places and at the right times, IA has the potential to drive business transformation and even change or create new business models. The second and equally important point is the human factor and organisational culture. The leadership and involvement of senior management, adaptation to changes in processes, and new ways of carrying out tasks by members of the organisation are crucial to the success of IA initiatives.

IA applications vary from company to company, as each organisation has different business objectives, operates in different sectors and has varying levels of digital maturity. There is no single, plug-and-play solution for IA that can be implemented immediately and transform the organisation overnight. Many factors affect companies' ability to implement IA-based solutions, most notably the human factor. Leadership, attitudes, organisational culture and skills are more decisive than the availability of technology. While technology, data and computing power are essential, the human element plays a crucial role. One concern is executives' lack of understanding of the potential and limitations of IA technologies and effective communication between leaders and technicians, which can jeopardise senior management's engagement in IA strategies.

IA is redefining organisational culture in profound ways. Organisations that understand and embrace this impact are in a privileged position to thrive in the IA era. However, the adaptation process is not without its challenges. Organisational culture plays a key role in determining the success of IA integration.

Companies must therefore invest in creating a culture that is agile, data-driven and people-centred in order to make the most of the opportunities that IA offers.

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