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Article

Artificial intelligence integration in business: Study of employee competences in relation to the organisational needs

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ARTIFICIAL INTELLIGENCE INTEGRATION IN BUSINESS: STUDY OF EMPLOYEE COMPETENCES IN RELATION TO ORGANISATIONAL NEEDS

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Abstract

Artificial intelligence is a computational technology that has proved its ability to contribute to a wide range of industries such as healthcare, manufacturing, and finance. If properly integrated, it can increase the competitive advantage of a business and enhance the ways it conducts operations. In this regard, competences play an important role in safeguarding the efficient coexistence of employees with intelligent systems. The scientific literature made important contributions to determine what the key competencies when working with AI and how companies plan to adapt to the new technologies. While the papers provide a good overview of what the market requires, we consider that the view is very general, and it is not correlated with what AI integration means for a business. Understanding why strategic decisions are made requires a detailed analysis of the implications of AI in a working environment. The present study aims to communicate a wider perspective on why different levels of knowledge are required with respect to AI, what are the derived competencies and how they relate to various levels of authority in an organisation. Additionally, in this article, the authors make a leap from technical research, focused on AI applications in various fields, to a more general approach with interest in AI integration in business.

Keywords: artificial intelligence in business, competence management, level of knowledge and competences of the employees, AI-driven organisational needs, generative AI.

JEL Classification: O31, O32, O33



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Introduction

Artificial intelligence (AI) is a field concerned with developing systems that can simulate human-like intelligence by identifying patterns or by learning based on given training datasets (Han et al., 2018, Colliot, 2023). Considering its ability to quickly process inputs and adapt to variations, it was determined that it has the potential to actively contribute to a wide range of industries such as healthcare (Alia et al., 2023), economics (Rahmani et al., 2023), and manufacturing (Plathottam et al., 2023), therefore its recent popularity. In this regard, we have already seen the development of a large number of solutions which aim to use AI's capabilities on existing problems. For this reason, many leaders aim to integrate AI to support their business operations, considering its potential to bring significant revenue growth and increased competitive advantage (Perifanis and Kitsios, 2023). However, navigating this complex field seems to leave many people wondering how to practically achieve this goal and what implications it involves for the company, as Fountaine (2019) and Tse (2024) highlight in their respective studies.

Company culture, change management, and competence management are just a few of the key aspects which need to be well grounded to ensure the smooth integration of AI (Lemos et al., 2022). Furthermore, depending on the use case of AI in the company, a new infrastructure may be required to be installed (Haefner et al., 2023). Not addressing those factors will either result in employees being unprepared to work in the new environment, even opposing the changes, or the current infrastructure not being capable of supporting newer technologies. Preparing your employees is essential because many intelligent systems are still dependent on the human factor. Full automation is still rare; thus, humans find themselves coworking with intelligent systems, or even operating them (Ammanath et al., 2021). In this regard, we strongly consider that without proper skills and training, it is very difficult for people to know how to interact efficiently with AI, as well as to develop a positive mindset towards it. For example, if people fear or do not trust AI (Khogali and Mekid, 2023), the interaction will be problematic, and one will work against the other.

There are many research papers which discuss the problem of required competences and their evolution, as well as what companies should look for when recruiting (Lemos et al., 2022; Enholm et al., 2022; Santana & Daz Fernández, 2023; Sanders and Wood, 2023). Generally, the conclusions drawn are based on conversations or forms with, or completed by, people in executive positions of various companies. Competencies like digital skills, problem solving, technical abilities, and interpersonal skills are viewed as top markers for a well-rounded employee in the digital era. Although the insight offered is valuable, as it directly represents what numerous organisations look for when hiring, we consider that the view is very narrow and does not take into consideration what integration of AI really means for a company or even what it looks like in its various forms. Additionally, it is very important to determine the sufficient level of knowledge of an employee which should be regarded in relation to his responsibilities.

For many leaders, this idea remains vague or even difficult to materialise into a series of actionable steps. This is because few organisations have reached the point of advanced deployment of AI into their processes, and thus their insight is still limited. In other words, they are still learning and navigating on this path, as Ammanath et al. (2021) observed in their report. Although listening to industry leaders is essential to understand how they can

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navigate this unpredictable field, gaining insight into the why behind their decisions is much more valuable.

In the current paper we intend to offer a wider perspective on what AI is, and what it represents for a business, how it is integrated into a company, and what leaders should look for in their current or future employees from a competency perspective. By understanding this field in more detail, one can derive what specific skills people need. Additionally, we will try to offer insight into generative AI (e.g., ChatGPT), which became very popular because of its potential to summarise information and provide filtered answers in an instant (Tse et al., 2024).

In terms of structure, the literature review section (Section 1) discusses relevant scientific articles on the factors underlying the integration of AI in a company, how to train and prepare your future employees, and how to introduce changes in our organisation without creating instability. On the basis of these studies, the level of knowledge in the field and the research topics that are currently of interest were determined.

The methodology section (Section 2) presents relevant information on how the authors approached this study and the methods used in the research process. In addition, it uncovers ideas that the authors consider were not explored enough and need more attention. Section 3 contains a detailed analysis of the methods by which a company can thrive in a competitive market by integrating intelligent technologies. The focus is on the level of understanding of AI an employee must have with respect to his own function. Following the proposed recommendations, a company can avoid unnecessary costs related to unjustified investments. Section 4 analyses the relationship between AI and people and how this technology is used with respect to the level of knowledge an employee has.

1. Scientific literature review: Artificial intelligence in business

As the popularity of intelligent systems has risen over the last years, so did the number of papers concerning its integration in businesses (Lemos et al., 2022; Enholm et al., 2022; Santana and Daz Fernández, 2023; Sanders and Wood, 2023). People are interested in benefiting from the advantages brought by this technology to increase their competitive advantage, an indication captured in a report commissioned by Microsoft (Mller et al., 2019). In this regard, review papers such as Enholm, et al. (2022), provide valuable insight into how business value can be obtained and what are the focus points leaders should take into consideration. Additionally, the authors present three key enablers and inhibitors (technological, organisational, and environmental) which strongly influence the success of AI integration (Enholm et al., 2022). This argues that an organisation needs to be ready to accept and adapt to such changes, and that these changes cannot just be forced into the current environment.

Although all three enablers are mutually dependent, it seems that the relationship between AI and employees is the foundation of the integration process, a correlation studied by Zirar et al. (2023). The authors consider that this relationship is determined by the skills of the workforce, divided into technical, human (referring to interpersonal skills), and conceptual (working with ideas). Additionally, they discuss the importance of trusting AI among the employees. From all the publications, Santana and DazFernández (2023) offer a summarisation of themes and trends when it comes to competencies for artificial

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intelligence. More specifically, they present the directions in which people need to be trained to withstand the rapid evolution of technologies. For example, digital skills (Vuorikari et al., 2022) came out as a very important component in understanding and navigating the field of AI and data science. On the other hand, Sanders and Wood (2023) state in their study that human skills are more important than technical abilities, as the first one lays the foundation of workplace success. We agree that even if the organisation is ready to incorporate AI, from a technical perspective, as well as the environment allows it (regulations, laws, etc.), people still play a significant role in the strategy. If the workforce refuses to adapt or does not possess the right mindset or skills (the organisational culture is not ready), the change is not beneficial for the company and will most likely have a negative impact. On this topic, Rotman (2024) discusses why the fear of AI as a replacement technology may not be true based on past historical events.

In addition to the personnel of a company, top-level management must have the appropriate competencies, sufficient understanding of what AI is and how it can be leveraged (Mller et al., 2019). To become an AI-fuelled organisation, Ammanath et al. (2021) state that changes should be made only by leaders who have defined a clear business strategy. In this regard, the integration of AI should be led by top executives with the support of technical experts and not the other way around. Because intelligent systems represent a potential competitive advantage, companies are pressured to assimilate this trend as fast as possible (Tse et al., 2024; LABJ, 2023). However, without a clear strategy, organisations may put a lot of effort and resources into something which, in the end, may yield low performance and return on investment.

In their report, Ammanath et al. (2021) concluded that the advanced users of AI (referring to organisations which lead in the use of intelligent processes) have a strong strategy to guide their steps, as well as means to run changes in the organisation, through a combination of operations, culture, and change management. However, people still find it difficult to translate those principles into practical steps due to their limited understanding of AI (Mller et al., 2019). In her study, Lollia (2021) reinforces the fact that understanding what AI is, it is still a problem for most people. We consider that without a well-rounded understanding of intelligent systems, finding business cases, and collaborating with technical experts may prove difficult. Additionally, there seems to be a confusion between artificial intelligence and automation (Gaynor, 2023), which also leads to defining wrong use cases. In his article, Brown (2019) briefly presents a very important problem: Most people try to apply AI to problems that either do not need this technology, resulting in unnecessary costs, or are not applicable to the use case they have envisioned. On the basis of this idea, one should understand the importance of grasping a technology before being tempted to apply it to a wide range of problems, especially when it requires a significant amount of or resources to be invested.

In addition to human competency, understanding processes and having a well-defined business model is vital when trying to integrate AI (Enholm et al., 2022; Mishra and Tripathi, 2021). In support of this idea (Sanders and Wood, 2023) mentioned that your business model should be designed around AI otherwise you will encounter compatibility problems. Simply mixing AI with manual processes will not allow the technology to function at its full potential and will most likely interrupt the normal flow of information. Based on this indication, it is better to create a business model from the start that is

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compatible with modern technologies. Nevertheless, a large company cannot simply just start over again. In this regard, defining a process redesign plan, with clear business goals, should allow for a gradual change in procedures, as Sisney (2024) states in his article. For example, it is impossible for a medical centre to implement intelligent methods for patient data analysis if their data is collected and stored physically on paper. For this case, changing their business model would mean that all the documentation activities will be carried digitally in a custom database. Additionally, the AI system will receive its inputs through an automated programme that collects the data directly from the database. In his guide, Sisney (2024) gives a series of steps for companies to make changes in a safe environment, starting with a pilot stage until fully adopting the new methodology. Overall, this indicates that companies should have a good understanding of their own processes and how they can be reshaped to create an AI friendly environment. Identifying use cases for AI in the corporation (Holdsworth, 2024), followed by creating the appropriate environment, requires vision, creativity, and technical expertise. Furthermore, advanced leadership and leading skills are key to ensure vision is spread among all employees (Mller et al., 2019; Filipsson, 2014).

The present literature review offers the reader an overview of what the understanding of the researchers over AI integration, and its implications, and provides a sufficient foundation of the topic at hand. It is to mention that this section only includes part of the articles which were analysed. To our belief, the current perspective is too narrow and general to allow business professionals to navigate a field of such complexity. For example, the need to acquire digital and technical skills is not AI specific, but rather a requirement to work with various computer-based technologies. In the same manner, interpersonal skills requisite is not something determined by the integration of intelligent systems, but a long needed in the modern world. In the following sections we will try to offer more insight into AI applied in a business context, while pointing out necessary competencies and directions of study along the way.

2. Methodology

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To determine how to integrate AI in an organisation, as well as to understand how businesses develop their employees from a competency perspective, the authors relied on the study of the scientific literature, as well as other relevant sources. Using it as a starting point, it can be critically analysed if the current studies are sufficient or if there are other topics not yet researched. In our view, AI as a field is just starting to grow and thus is a subject of interest, which was also demonstrated in this paper.

To develop a database with scientific articles, the authors analysed a variety of well-known libraries such as: Nature, ScienceDirect, Elsevier, IEEE Xplore, Springer Link, Oxford Academic, National Centre for Biotechnology Information (NCBI), National Library of Medicine (NLM), MDPI Open Access Journals, ResearchGate, HAL Open Science, Springer Open, and O'Reilly.

The search process was manual, predominantly in English, and was based on keywords and key phrases that make the connection between the problem of employee competences, AI, business, and the interaction between people and AI (Table No. 1).

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Category	Keyword and key phrases	
Competencies needed for AI	Competencies for AI, skills required to work with AI, competencies required by top-level management, skills needed by AI product managers, basic digital competence, digital skills, digital competence frameworks, computer literacy, teaching computer literacy, critical thinking and AI, role of communication and interpersonal skills in the use of AI.	
AI integration in business	AI in business, business automation, business digitalisation, methods of AI integration, organisational strategy and AI, technical AI integration in business, AI algorithms suited for business, integration of AI in business processes, AI-fuelled organisations, structure your business around AI, AI infrastructure, AI methodology.	
Applications of AI	capabilities of AI, generative AI, AI-powered business intelligence, business intelligence, AI for task automation, AI in product lifecycle management, machine learning in business, deep learning, computer vision, AI in the energy sector, AI in HVAC systems, AI in economy, AI in medicine, AI in electronics, AI in IT, AI in manufacturing, AI in automotive, AI in semiconductors, AI in quality and process control, AI in management, AI in risk management, AI tools and utilities.	
Business strategy	Business processes, increase business productivity, business strategy and AI development, leverage AI, key performance indicators (KPIs) for AI in business, measuring success of AI implementation, prerequisites of AI in business, strategic thinking for AI, strategy development, cost of AI integration, change management and AI, competence management and AI, negative impact of AI in business, future of businesses and AI, AI and business value, organisational targets and goals.	
Interaction between AI and employees	worker and AI, interaction of employees with AI, ethical impact of AI, implications of AI in business, fear of AI, fear of AI replacing jobs, AI and fear of missing out, how employees are evolving, knowledge required to work with AI, level of knowledge and abilities to work with AI.	

 Table nr. 1. Keywords and key phrases used in the search process

Using this search criteria, there scientific articles belonging to various journals were identified which allowed the authors to determine the current level of knowledge with respect to AI integration in companies. The selected journals are enumerated to provide the reader with sufficient context for further studies. Scientific Reports, International Journal of Computer Vision, Journal of the American Medical Informatics Association, Journal of Business Research, Technology, Annals of Operations Research, Technological Forecasting and Social Change, Information Systems Frontiers, Procedia Computer Science, Journal of Innovation and Entrepreneurship, Technology in Society, Journal of Advanced Manufacturing and Processing, Electronics, Journal of Information, Economic Computation, and Economic Cybernetics Studies and Research, Neuromethods, Dementia and Neurocognitive Disorders, Journal of Informatics in Health and Biomedicine, Informatics, Review of Managerial Science, Journal of Innovation and Knowledge, Computers, SN Computer Science, Data and Information Management, Journal of AI,

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International Journal of Science and Research Archive, and Executive Level AI Knowledge.

Once the papers of interest were identified, several of them were excluded based on their relevance to the topic and their relationship with the subject at hand. Additionally, scientific review articles were used to obtain a more robust understanding of the field. In this regard, we can mention the following studies: (Ali et al., 2023), (Calderon-Monge and Ribeiro Soriano, 2024), (Enholm et al., 2022), (Haefner et al., 2023), (Lollia, 2021), (Plathottam et al., 2023). Besides scientific studies, Harvard Business Review was used as a valuable source of information, considering that the authors of this publication have access to latest data in the field of business administration, while also communicating the view of leaders and business top-executives on various topics. Similarly, sources such as IBM, Microsoft, or articles written by experts were considered based on their degree of quality and relevance. Once the articles were analysed, it was observed that most studies discuss the problem of competences without detailing the reasons why an employee would necessitate them. In most cases, the papers reach the same conclusion: an employee requires digital competences, as well as social abilities such as communication, critical thinking, and conceptual thinking. In addition to those, leadership, teamwork, and technical skills are also considered of interest. Although the competencies are listed in the scientific literature, they are not directly related to the subject of AI integration. However, to determine the evolution of competencies and the needs of organisations when adopting AI, it is mandatory to understand what integration is. Moreover, for a company to benefit from such studies, it is not sufficient to mimic decisions of other companies, but it needs to understand and tailor those decisions to its own needs. The current paper was based on these assumptions. To develop a classification which describes the level of needed competence in relation to company needs, the authors analysed how AI is integrated into an organisation and how it can transform the way employees are solving their daily tasks. Details were provided with respect to the stages of evolution a company must pass through, starting with digitalisation up to developing an infrastructure to accommodate more complex systems.

Furthermore, by accumulating a critical mass regarding the applications of artificial intelligence in fields such as industrial (Nastac and Costea, 2004, Vezeteu and Nastac, 2023;), energy (Nastac et al. 2018, Vezeteu et al., 2021), bioinformatics (Cristea, et al., 2007, Popescu, et al., 2022;) medical (Awada, et al., 2018), environmental pollution (Nastac, et al., 2011, Popescu and Nastac, 2022) or financial (Dobrescu et al. 2014, Nastac, et al., 2017), the authors of the present paper currently have extended knowledge and insight on how AI can be integrated in organisations. Besides long-term forecasts in business, an important application, which was studied, is the estimation of the immediate future and the medium-short predictions (Nastac, 2013, Dobrescu et al. 2014), in which artificial intelligence tools can be successfully used at the management level of a business organisations. To identify the needs of the market for the developed intelligent systems, the authors conducted discussions with executive leaders from different economic sectors, especially in the electronics industry. The experience developed prior to this study facilitated the process of associating the subject of AI integration, in organisations, with the topic of necessary competencies of employees to work efficiently with AI. Overall, we aim to give the reader a way to navigate this field methodically while providing landmarks for future research, in their journey to integrate AI for the benefit of the organisation.

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3. Developing an AI-fuelled business environment

Integrating and leveraging artificial intelligence in a business requires different levels of understanding depending on the business objectives and the sector in which it operates. The top-level management needs differ from those of regular employees. Additionally, the level of knowledge of each employee should be aligned with the activities and tasks they are performing. In this regard, competence management should clearly identify and understand what core skills employees need to work effectively with AI (Lemos et al., 2022; Santana & Díaz-Fernández, 2023). This ensures that people know enough to do their jobs successfully and that they are not overwhelmed with unnecessary information. The more knowledge you possess of the field, the more advanced your competencies can become and thus the tasks you perform. In the next paragraphs, we will divide the level of knowledge into four categories, basic, conceptual, intermediate, and advanced, and we will, try to provide an understanding of why a certain level may be required in your organisation.

3.1. Basic level of understanding

When starting to build competence (basic level), a company should ensure that digital competences are in place (Vuorikari et al., 2022; Marsh, 2018) before going into more advanced concepts. Because AI is a computerised technology, it requires people to have digital skills prior to using it. Otherwise, individuals would simply not be able to gain access to intelligent applications and tools (Gallimore, 2024) that exist only in the digital world. For a company that envisions the transition towards digitalisation (Sinha et al., 2022) and later into AI, providing your employees with this level is a must. Furthermore, in our rapidly evolving society, not taking advantage of the available technologies will most likely result in a strategic disadvantage. If an organisation has difficulties in navigating this step, the European Commission published a very detailed framework that describes the knowledge, skills, and attitudes that citizens need to possess in this changing society (Vuorikari et al., 2022). The same principles and knowledge are applicable to the workforce of a company. In another report, Marsh (2018) focused specifically on skills for the digital workplace, providing insight into how to develop an understanding and how to prepare your employees for the transition. Competence management should play an important role in keeping employees up-to-date with the necessary information, based on a clear set of goals. On what digitalisation means for a company and how it can be achieved, Sinha et al. (2022) offer great insights into challenges and practical steps. Also, guidance on how to navigate this field is provided by Calderon-Monge and Ribeiro-Soriano (2024) in their systematic review of the literature, covering key aspects of digitalisation in business.

Once the company reached this initial milestone, it can now focus on developing a general understanding of what AI is for its employees. In broad terms, understanding that AI is a computer technology that mimics the way people learn and think should be sufficient. Additionally, being aware of which day-to-day tools use AI (e.g., search engines like Google or Bing, language translators, e-mail spam filtering and autocomplete features) allows people to see it in action and get a sense of what it can or cannot do (Cremer & Kasparov, 2021). The reason why many employees are sufficiently qualified with this level of knowledge is that AI is hidden behind an interface that facilitates communication with the smart system. Consequently, a company does not necessarily need to invest in advanced

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AI training for its employees. Good digital skills combined with a basic understanding of artificial intelligence should allow people to do their jobs effectively and to achieve company goals.

This stands true even for a more specialised company (e.g. automotive manufacturing) that works with complex equipment. Let us take an example: a mining company requires technicians to conduct maintenance activities on the equipment. In the integration process, the company installs new intelligent systems that track in real time the health status of the machinery (Vezeteu and Năstac, 2023). For this reason, the maintenance team does not have to check periodically the equipment themselves, but only reacts when the AI system triggers a warning or an alarm. To visualise the status of the equipment in real time, the data are made available to the technicians via a tablet or computer (user-friendly interface). From this example, we can conclude that the team only requires digital skills (to work with the system's interface), combined with their already existing technical expertise, which is not related to AI. Even if the intelligent system makes an error in its measurements (e.g. triggers a false positive), the technical team should be able to notice the discrepancy, only using their technical expertise. Furthermore, complete failure or malfunction of the AI system is outside of the team's responsibility and should be covered by the external company that developed the technology.

In this regard, many organisations should realise that they do not have to invest in complex training campaigns for their employees, as digital competency is more than sufficient when using AI tools in the company. By learning this lesson, they can save a significant amount of time and resources for something that is not required. Furthermore, if the organisation acquires new equipment or tools that use AI, it is very unlikely that the company responsible for the installation will not provide guidance and training on how to use the new infrastructure.

3.2. Conceptual level of understanding

The conceptual level, however, requires people to get a more detailed understanding of artificial intelligence. This may be vital either because they are involved in the integration process of AI, or they need to build knowledge for more advanced technical jobs. For the top level management, who is responsible for developing the vision, materialised through an AI strategy, the most important aspect is to understand how AI can impact the business (Mller et al., 2019). Keywords such as cost, efficiency improvement, company growth and return on investment should be seen in relationship with AI systems (Enholm et al., 2022). If top managers are not on board with AI and do not see its potential benefits, they will simply not invest in this technology. So, finding ways to leverage it for the organisation's benefit of the organisation is their first step. Additionally, setting clear goals and objectives is very important to allow the company to gain value through invested capital. From this perspective, competencies and skills such as leadership, critical thinking, problem solving, and communication are a must at this level (Miller et al., 2019, Santana and Díaz-Fernández, 2023). Furthermore, risk management and ethical awareness are important and should be navigated with care to avoid serious financial losses and other consequences in terms of regulations and public image damage (Blackman and Ammanath, 2022).

For mid-level managers and employees, the knowledge level should vary based on the assigned activities. If the company is nontechnical, an external company may be involved

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to offer support in integrating AI along the business operations and creating the necessary infrastructure. In this regard, mid-level managers will be responsible for aligning organisational AI goals with the teams, ensuring sufficient training and competency of the workforce, and monitoring key performance indicators (KPIs). Furthermore, driving continuous improvement is a key factor that will ensure the long-term success of the integration project (Ammanath et al., 2021). To accomplish all these activities, having an advanced understanding of the company's processes in relationship with the new intelligent systems. Competences such as interpersonal, managerial, and leadership skills are very important to ensure the vision is carried from the upper level to the employees. Furthermore, decision-making, and problem-solving abilities are necessary to be able to think analytically and critically about the relationships between processes towards achieving the top-level vision.

If the company operates in the IT sector, then its mid-level managers and regular employees may be directly involved in the transformation process of the organisation. Activities, such as finding new use cases for AI, require a conceptual level of understanding. In this regard, people should know the general principles of machine learning (Colliot, 2023) and then transition to artificial neural networks (Han et al., 2018). Learning how such systems train, process information, and provide output can be beneficial in building a strong foundation of AI. At this level, advanced mathematics and programming languages are not mandatory. It is important to get a good sense of what AI can do, what its frequent uses are and how they can be adapted to the current needs of the organisation.

3.3. Intermediate and advanced level of understanding

Intermediate and advanced levels are necessary if you plan to develop AI models or if you work for a company that specialises in AI. This requires knowledge of programming languages such as Python, MATLAB, and Java, as well as a good understanding of various mathematical fields (e.g. linear algebra, probability and statistics, and calculus) which are involved in artificial intelligence (Charan, 2023). At this point, an employee should know data analysis and have a good understanding of algorithms. In terms of AI expertise, understanding in detail how the training process takes place and what are the different algorithms behind AI (Sarker, 2021), how machine learning and neural networks process information, as well as working with libraries and tools to develop AI systems. Additionally, understanding different subfields of AI such as natural language processing (NLP) (Nadkarni et al., 2011), deep learning (Sarker, 2021), computer vision (Bhatt et al., 2021) and generative algorithms (Gupta et al., 2024) will give the expert a wider perspective on applications and integration possibilities. Considering the fast evolution of this field, staying on top of the market and following the latest technologies is important to stay up to date with the latest trends in the field. As can be seen, to reach this level of knowledge, an employee is required to build his technical expertise. Nevertheless, people who require such levels of understanding already have a formal education in IT or related fields (e.g., engineering degree), and they only need to be brought up to date with respect to the processes and culture of the organisation they are working for.

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From the above analysis, we can determine that the required knowledge and competence greatly differ (Table no. 2) with respect to the role held in the company and the types of AI tools that the workforce is going to use.

Levels of authority	Description	Competences required / Level of knowledge
Top-level Management	Executive management responsible for establishing the strategy and direction of the organisation (e.g. CEO, CFO, CTO).	Conceptual understanding of AI, strategic planning, leadership, and vision.
Middle-Level Management	Control of departments or divisions in a company. Responsible for translating strategic goals into actionable plans and resource management.	Conceptual understanding of AI, leadership, interpersonal skills, decision-making, strategic thinking.
Operational Management	Team level management, competence control and evaluation of employee's work.	Conceptual to advanced understanding of AI, leadership, team management, and interpersonal skills.
Employees (non-IT)	People who do not have a technical background in IT and who perform tasks outside this field.	Basic understanding of AI, digital skills, and interpersonal skills, job experience.
Employees (IT/AI)	Experts who work for companies that involve them directly in the AI integration process or develop AI solutions as part of their job.	Advanced to intermediate understanding of AI, technical expertise, interpersonal skills.

Table no. 2. Required competencies for different roles

4. Artificial intelligence in relation to human expertise

With the advancement of AI, there seems to be a common concern that this technology is going to replace many jobs. This constant fear directly affects how people perceive artificial intelligence and influences the way in which they interact with it (Rotman, 2024; Khogali and Mekid, 2023). If employees are afraid to be replaced, it is very unlikely that they will respond positively when the company starts to integrate it into their processes. This is one of the reasons why, in the previous section, we emphasised the importance of ensuring sufficient competencies and allowing the culture of the organisation to adapt in time to the changes to come. This trend of mistrust also comes from a misunderstanding of the true capabilities of AI (Cremer and Kasparov, 2021). When looking at the news in the mass media it is easy to get the impression that artificial intelligence is a mature technology that was designed to replace humans, as a more efficient and cost-effective alternative. However, this is not entirely true, and the reality is that, at this point, AI should be viewed as an assisting technology, rather than a replacing one (Sanders and Wood, 2023, Svanberg et al., 2024). Currently, intelligent systems have the capability to help people to work more efficiently and to provide support in their jobs. For example, the development of intelligent data analysis tools did not result in the extinction of data analyst jobs, but in a

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transformation of how the activities are solved. Experts are using algorithms to gain detailed insight into the available data and then draw conclusions based on their own field experience. Therefore, professionals make use of AI to enhance their capabilities and skills and assist them in their jobs.

What is interesting is that the relationship with AI depends not only on the job type, but also on the experience held by the employee. This idea was pointed out by Sanders and Wood (2023), who observed that the more expertise you have in your respective field, the more likely to use AI as an assistant. However, newer employees (who have less experience) tend to become more dependent on such tools to compensate for their limited knowledge. For them, AI is more than an assistant; it provides direct support in making decisions. This can be analysed by looking at people behaviour when using generative AI (e.g., ChatGPT), a conversational technology capable of producing text, images, audio, and video, based on previously learnt datasets. By processing natural language (NLP), it can allow for seamless conversations with users, making it user-friendly. In addition, the answers it provides are generated based on its own restructuring of the information, and not just a reuse of what it has learnt in the past. Although it may seem like the perfect tool, users should be aware that generative AI does not provide expert knowledge and is prone to mistakes. The problem is that many applications such as ChatGPT are so articulate in their answers, that it can easily deceive people into forgetting it is not 100% accurate.

Considering the competence problem, an expert can use generative AI to help summaries a topic or to gain insight. However, once the algorithm provides its output, the employee will run it through his own filter and critically analyses the answer he received. By doing this, it minimises the possibility of allowing errors of the algorithm to get into his workflow. On the other hand, people with less experience tend to use generative AI more as a virtual teacher, in many cases not questioning the answer it provides. In this regard, companies need to understand that this technology is already existing and people are using it extensively. For this reason, the best approach is to embrace it and train your employees to use it effectively and safely. In comparison with other AI tools, generative AI can solve a wide variety of tasks such as content creation, text analysis, and code writing in different programming languages and many more use cases (Davenport and Mittal, 2022). Additionally, it has a friendly interface, and it receives inputs in our natural language, which makes the interaction straightforward. In this regard, defining what level of understanding is necessary to operate such tools becomes more difficult. Up to this point, we have seen that AI tends to be specialised in one single task, but this is not the case anymore with these algorithms. We consider that having a conceptual to intermediate level of understanding allows users to use these tools to their full potential. Being aware of how intelligent models are trained and how they function allows people to be aware of the limitations of the tool. Furthermore, knowing how these models process information will most likely allow you to optimise your input and moderate your expectations in terms of output. However, people with a basic level of understanding, who possess digital skills, can use it and benefit actively in the process. However, they must rely strongly on their field expertise and critically analyses the outputs of the system. Not understanding what is behind the interface can create problems when entrusting the system too much. Overall, we suggest that companies, which plan to give access to generative AI for their employees, focus on developing their critical and creative thinking, ethical awareness (e.g. intellectual property), field expertise, and an appropriate level of understanding of how this technology

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operates. In addition, organisations need to pose the question of privacy and security. When using public tools such as ChatGPT, for business purposes, employees may include confidential information in their conversation with AI. To avoid this possibility, either teach employees about different levels of confidentiality and data privacy or integrate a specialised generative AI in the company, which only runs on the internal servers.

Conclusions

This paper focused on offering a wider insight into how artificial intelligence integration affects the workplace and what are the key factors which should be tracked by a company. By initially studying the scientific literature, we were able to determine that there are few articles which discuss the required competences in strong relation with AI integration in its various forms. Understanding that companies are still trying to uncover how to practically implement AI, by finding relevant use cases, allowed us to focus our attention on how this transformation should concern different levels of authority. In this regard, we discuss various situations that determined the required level of knowledge required and the associated competencies of the workforce of an organisation. Supporting companies in shaping their vision and defining a competency management plan will ensure that people are not overtrained, adding unnecessary costs. Additionally, we touched upon the relationship between how employees view AI, as an influencing factor for future interactions. Fear of being replaced is still problematic, however, it was determined that through proper training it can be shown that AI is more inclined to support experts. By effectively using such tools, they can considerably increase productivity and gain new insights. With respect to generative AI, it was presented what problems it may bring if not treated with care, as well as how companies should prepare their employees to gain a competitive advantage. In general, this paper offered the reader insight into how AI integration should be conducted in relation to human competency, as a means to allow organisations to thrive in this rapidly evolving market.

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