

KNOWLEDGE WORKERS DEVELOPMENT USING ARTIFICIAL INTELLIGENCE

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ABSTRACT: The knowledge-based society is the current society, in which knowledge has become the most important resource, both for organizations and for people. The valorisation of knowledge will represent the challenge of the future. The application of knowledge-based management, the creation and development of knowledge-based employees is the challenge of current societies. Future knowledge-based employees are formed in educational institutions and develop in organizations that evolve with the accumulation and implementation of knowledge. The paper presents the importance of knowledge in today's world, what knowledge-based management is, who are knowledge-based employees and how artificial intelligence is used to form and develop knowledge-based employees. The paper also presents future research directions, resulting from the research topic discussed.

KEY WORDS: knowledge management, knowledge workers, artificial intelligence, digital tools

1. INTRODUCTION

The way of managing knowledge, technologies that modern society has today influences the development of society, people, employees, companies, and our lives in general.

Knowledge-based management is the one that manages knowledge both at the individual and organizational levels. It is defined as the process that uses, generates, and distributes knowledge, information [3], [4].

Knowledge-based employees (or knowledge workers) are the employees that any company wants. They have a solid theoretical training, practical experience, and who make of thinking a lifestyle and a way of working. These employees stimulate innovation and solve problems that arise in the companies they work. They are the brains of any organization. It is a challenge to implement knowledge-based management, which manages knowledge-based employees in organizations, which maximizes the skills, knowledge, and creativity of these special employees. Knowledge-based employees can add value to the enterprise, they can develop; can bring prosperity, evolution where they work. Knowledge-based employees are those who use knowledge to generate new

knowledge that generates personal and organizational benefits [5], [16].

Knowledge-based employees are those who work in areas such as [24]:

- ✚ research and analysis;
- ✚ creative field, design;
- ✚ technical specializations;
- ✚ consulting and counselling;
- ✚ management and strategy.

In today's digital age, where knowledge is always a click away, knowledge-based employees are invaluable, indispensable to any organization. They can continuously adapt to new challenges, are agile, can quickly assimilate new technologies, being able to help the organization they work for to face all events, to always find its place in the market, to develop.

Artificial intelligence is the attribution of specific human functions to a machine, such as: reasoning, the ability to learn, creativity, planning ability. Systems that include artificial intelligence can adapt, modify their behaviour depending on the environment in which they act, analyse the previous effects of their actions, and can function autonomously [17].

Generative artificial intelligence is machine-learning artificial intelligence, which recently has the ability to create text content,

following requests from the outside. There are also types of generative artificial intelligence that produce audio content, images, and videos. The one that has sparked people's interest and imagination is text-oriented conversational artificial intelligence. People use generative artificial intelligence to teach. It is as they would learn from a teacher, a mentor, a friend, like as from another human being. Generative artificial intelligence became very well-known and used after the appearance of a Chabot, based on a neural network model of the GPT-3.5 type generated by OpenAI, called ChatGPT. GPT stands for “generative pre trained transformer” and describes the type, the neural network architecture used in this artificial intelligence model [1], [18].

There are many questions today regarding knowledge management: *How can the organization use information effectively?, How can the company preserve the accumulated knowledge?, How can companies help knowledge-based employees manage knowledge?* but also *How can artificial intelligence help knowledge-based employees (knowledge workers) to train and develop?* We will try to answer these questions, with the help of specialized scientific literature, in the continuation of this paper.

2. KNOWLEDGE WORKERS DEVELOPMENT USING ARTIFICIAL INTELLIGENCE

2.1. Training future knowledge workers using artificial intelligence

Future knowledge workers, they are formed in educational institutions and beyond. The use of artificial intelligence in education means greater care, attention, and accuracy in the exercise of the teaching-learning act, compared to the implementation of traditional learning methods. The performances obtained by learners trained with the help of artificial intelligence are better those of learners trained with the help of traditional tools. The use of artificial intelligence in education is not widespread, perhaps also due to the lack of knowledge on the part of users. Although there are differences between human and artificial intelligence, there is still great potential to improve education (both face-to-face, mixed,

and virtual) with artificial intelligence [6], [8], [14].

Tools used in education based on artificial intelligence have the potential to personalize learning, generate personalized content, and provide real-time support. As tools with generative artificial intelligence, we distinguish ChatGPT, Fliki Ai, Leonardo AI, You.com, Humata.ai. These tools have the ability to adapt to the individual needs of learners and not only [14].

ChatGPT is a linguistic model, based on artificial intelligence. It is trained on a very large amount of data in the form of text (written by people). Its role is to build a dialogue similar to the human one. Using ChatGPT you get answers to questions, find your inspiration and become even more productive [15]. It is used for [19]:

- ✚ text writing, brainstorming sessions, text editing;
- ✚ data centralization, finding new ideas, can increase your productivity;
- ✚ it can generate code, perform repetitive tasks, teach you new things;
- ✚ it helps you discover your passions and can answer complex questions;
- ✚ you can chat with ChatGPT in real time;
- ✚ analyse data and create diagrams;
- ✚ help with complex tasks;
- ✚ create images;
- ✚ apple has integrated ChatGPT into IOS, IPadOS and macOS.

Fliki AI has revolutionized video creation. It converts text into professional videos by attaching human-like voice, through artificial intelligence. It is successfully used in social media, education, business, marketing, etc. [20].

Leonardo AI is a tool that uses artificial intelligence and it is used to create artistic works. It is used in interior design, photography, architecture, marketing, video creation [21].

You.com is an platform for enterprises that uses artificial intelligence. It helps enterprises by providing them with secure, accurate and flexible solutions. It can be connected and extract data in real time and provide accurate, secure and adapted solutions to the organization it has in contact with [22].

Humata.ai is an artificial intelligence application that works with files that it reads, summarizes, and compares documents, searches for answers, at the request of applicants. Any question asked will have an answer based on the content of the documents made available [23].

Collaboration between education experts and artificial intelligence experts is necessary, because the future is of technologies implemented in all fields, a future built by knowledge workers [7].

2.2. Developing knowledge workers using artificial intelligence

A current force that transforming technologies, industries, and employees worldwide is artificial intelligence. In order to develop and reduce costs, modern organizations are increasingly use artificial intelligence [2], [12].

Organizational reforms, as an impact of the use of artificial intelligence, also influence job creation, so that employees are directly involved in personalizing the roles they will have and that are most suitable for their interests, values, and skills. As organizations increasingly use artificial intelligence, there is an increasing match between labour market requirements and workforce capabilities, between the skills required by employers and the skills of the workforce [2]. That is why the most sought-after employees, both in the past and especially today, are knowledge-based employees (knowledge workers) [10].

Artificial intelligence, together with knowledge management and knowledge workers, share an interest in knowledge, in the learning process (the process by which knowledge are acquired) [11].

Artificial intelligence can develop knowledge workers, especially through retraining and upskilling. An artificial intelligence application – EdCast – personalizes training programs; comparing current skills with those needed in the future labour market. Thus, knowledge workers in organizations will be directed, trained, prepared to occupy other positions, to play other roles in the organizations of the future. In the future, we will talk about specialists (knowledge workers) in science and data

specialists. Data specialists will collect and prepare data sets, useful for creating machine-learning algorithms. Science specialists build knowledge graphs, which include knowledge, together with training data. This is how knowledge it is combined with artificial intelligence skills. Organizations need to take into account the connections between artificial intelligence systems and knowledge management activities [9], [15].

Tools that use artificial intelligence which are essential for employee development are [25]:

- ✚ Machine learning – uses machine learning, which allows a computer to understand and communicate using human language. It is a subfield of computer science and artificial intelligence.
- ✚ Generative AI – tools that use generative artificial intelligence are: ChatGPT, Google Gemini, Microsoft Co-Pilot, etc. These tools help knowledge-based employees learn quickly. They synthesize information, contributing to easier strategy design. Learning to use these tools will become essential for employees, just as knowing how to use the internet or email was necessary in the past.
- ✚ Computer vision – uses neural networks and machine learning and teaches computers to obtain information from visual inputs. Employees can use this tool to improve the functioning of the organization.
- ✚ Natural language processing – allows the computer to communicate using human language (uses machine learning). It is a component of virtual assistants, chatbots.
- ✚ Robotic process automation – uses intelligent technologies to automate repetitive tasks. For example, it can perform, instead of employees, various repetitive tasks such as: extracting data, filling out forms, moving files, etc. Using this tool, employees can focus on more important, creative tasks.

Knowledge-based employees can develop in areas such as [25]:

- + customer service – is among the top areas where generative artificial intelligence has been implemented. It develops the ability to talk to customers while checking databases built by artificial intelligence.
- + financial services – even if they are not fully understood, employees in the field use applications based on new technologies, which help them make investments more profitable.
- + human resources – organizations use artificial intelligence both in the process of applying for a job and in selecting the best candidate for a particular job.
- + healthcare – the healthcare field uses artificial intelligence technologies for the administrative field as well as in the process of establishing medical diagnoses, making the best decisions.
- + web development – generative artificial intelligence contributes to creating multiple possibilities for developing the web domain.

The ways to improve knowledge-based employees are [2], [7], [25]:

- + online learning – with the help of artificial intelligence technologies, personalized training programs can be created for each employee, these programs can combine artificial intelligence education with education specific to the field, the workplace.
- + on-the-job training – using artificial intelligence-based technologies, they can improve their knowledge, but also their skills in using digital technologies.
- + mentoring – artificial intelligence helps organizations identify the best mentors (by using different selection criteria), but also connecting mentors with beneficiaries of mentoring services, to create strong connections at the organizational level.

Improving the skills of knowledge-based employees and developing new skills are important because they help employees become more important to the organization, in essential areas and increase the loyalty of these

important, valuable employees to the company.

Knowledge workers in all fields, by adopting AI-based technologies, will receive support in managing routine, repetitive tasks, allowing them to focus more on creative activities. Knowledge-based work will be the basis of modern economies, and professionals, i.e. knowledge-based employees, will be the ones who will stimulate innovation in all fields, making organizations achieve outstanding performance [13], [24].

3. CONCLUSION

Understanding and implementing knowledge in today's world cannot be done (due to the very large volume of data, information and knowledge) except by using digital tools that include artificial intelligence. The users of these modern technologies are knowledge-based employees in partnership with knowledge-based managers (who implement knowledge-based management in organizations).

Future knowledge-based employees are formed in educational institutions and beyond. The use of artificial intelligence in education means greater care, attention, and accuracy in the exercise of the teaching-learning act, compared to the implementation of traditional learning methods. There are many tools used in education, based on artificial intelligence, which can personalize learning, generate personalized content, and provide real-time support.

Artificial intelligence can develop knowledge-based employees, especially through retraining and improvement. Thus, knowledge-based employees in organizations will be directed, trained, prepared to occupy other positions, to play other roles in the organizations of the future. Many tools use artificial intelligence and are essential for employee development.

Improving the skills of knowledge-based employees and developing new skills are important because it helps employees become more important to the organization, in essential areas and increases the loyalty to the company of these important, valuable employees. Along

with the development of employees, companies also develop.

As a future research topic, resulting from the current topic, we distinguish the *Development of knowledge-based managers through digital tools that use artificial intelligence*.

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