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Benefits Associated with the Use of Artificial Intelligence in the Labor Sector

J.C. Martínez-Perales

Instituto Politécnico Nacional. Escuela Superior de Cómputo.
Av. Juan de Dios Bátiz, esq. Miguel Othón de Mendizábal,
Mexico City 07738, Mexico.

B. Luna-Benoso

Instituto Politécnico Nacional. Escuela Superior de Cómputo
Av. Juan de Dios Bátiz, esq. Miguel Othón de Mendizábal,
Mexico City 07738, Mexico.

J. Cortés-Galicia

Instituto Politécnico Nacional. Escuela Superior de Cómputo.
Av. Juan de Dios Bátiz, esq. Miguel Othón de Mendizábal,
Mexico City 07738, Mexico.

U. S. Morales-Rodríguez

Instituto Politécnico Nacional. Escuela Superior de Cómputo.
Av. Juan de Dios Bátiz, esq. Miguel Othón de Mendizábal,
Mexico City 07738, Mexico.

Abstract

This article analyzes the remarkable impact of Artificial Intelligence (AI) on the contemporary workplace, examining its potential to enhance operational efficiency and stimulate innovation. It focuses on fundamental transformations that have generated substantial benefits, such as the automation of routine tasks, optimization of human resource management, and the creation of new opportunities and labor inclusion. It also addresses ethical and social concerns,

such as job losses and equity in access to opportunities. [1] The study highlights the need for worker adaptability and analyzes effective collaboration between humans and AI systems. In summary, it offers a comprehensive view of the broad impact of AI on the world of work, detailing challenges and opportunities in a changing landscape [2] [3].

Keywords: Artificial intelligence, automation, innovation, technology and unemployment

I. Introduction

This article analyzes the implications of AI in the workplace, exploring its influence on human capital management and business financial efficiency. It also considers the new professions that have emerged, as well as their contribution to labor inclusion and task automation. Thus, it presents a comprehensive analysis of the benefits and challenges that AI presents in the world of work. The body of the article consists of four parts. First, there is the development section which addresses the implementation of artificial intelligence in work environments. Second, it discusses the role of AI in business environments. Third, the results section presents concrete examples of how AI has benefited leading companies such as Tesla and Amazon. Fourth, the conclusions close with a summary of the benefits and challenges identified in the integration of AI into the workplace [4].

II. Development

Artificial intelligence and its implementation in work environments?

Artificial Intelligence (AI) enables the optimization of production and business processes. Through its applications, it improves productivity, safety, and increases workflows. Implementation occurs mainly in the following fields:

II.1 Human resources management

Artificial intelligence in human capital management can be applied throughout the hiring process, used to evaluate interviews with less bias or prejudice than humans, and to assess verbal and nonverbal cues that may be useful in making the right decisions for the benefit of employees. It facilitates the evaluation of information on performance, salaries, and costs of the workforce in relation to business strategy.

In terms of performance monitoring, it can involve big data analysis using digital tools that help measure employee performance, talent management, and operations management [5].

II.2 Matching public employment services

AI is crucial for public employment services, improving the services they provide, refining and recommending better paths to employability, and optimizing matches between job seekers and available vacancies.

Likewise, through its tools, multiple dimensions of a job seeker can be assessed, and gaps between the profile of applicants and the demand of the labor market can be analyzed to guide them on their training needs.

II.3 Robotization: robots and chatbots

The possibility of enhancing automation through the use of technology goes beyond replacing humans in repetitive tasks by performing cognitive functions, giving rise to cobotization, or coworking between humans and machines, the convergence between artificial intelligence systems, robots, and human workers.

Cobots, or collaborative robots, are robots with integrated artificial intelligence that are safe to work with, equipped with sensors that allow them to stop or enter safe mode when interrupted [6].

Chatbots are systems capable of handling and resolving basic queries through text, generally applicable to customer service, enabling workers to take on more complex tasks.

II.4 Wearable technologies

Wearable technologies are devices worn on the body, with multiple technological (sensors) and connectivity features. Their application in work environments is carried out using GPS, radio frequency sensors, and glasses with virtual and augmented reality functions, which help train and assist workers in dynamic tasks. They can also be used to monitor work.

II.5 Gig economy

The gig economy, also known as the collaborative economy, is based on specific jobs performed sporadically for various clients. Its main characteristics are working via the Internet, using a digital platform, and the decentralization of tasks [7].

This particular type of work helps independent workers to carry out tasks or projects for clients around the world, and to expand the connection between the supply of services and demand at a global level.

With the use of AI, it is logical to think that specific occupations or professions will benefit and emerge strongly.

The occupations that are causing demand to grow rapidly with the emergence of AI in the labor market are as follows:

1) AI and machine learning specialists.
2) Sustainability specialists.
3) Business intelligence and/or cybersecurity analysts.
4) Data scientists.

5) AI ethics specialists.

With the advent of AI, new professions are emerging, such as prompt engineers, whose main function is to act as a link between the technician and the product generated by the AI tool. Other professional profiles that will be needed are specialists in AI law, whose job is to establish the legal limits that this technology must have. All of these will be in high demand by companies, as they are professions that require specialized knowledge and experience in areas such as data science, natural language processing, and robotics.

It should be noted that the skills most in demand for these professionals are those related to programming languages such as Python, talent for data analysis and visualization, and the ability to manage Big Data.
In addition to technical and digital knowledge, it is important to consider the development of cross-cutting skills, including creative problem solving, analytical thinking, collaboration, negotiation, teamwork, and project management.

AI will also improve the inclusion of workers with functional diversity. Most people with disabilities (55.3%) believe that AI has great potential to boost their performance, facilitating their work performance and improving their efficiency.
Its application improves accessibility and promotion in jobs for people with functional diversity, removing barriers that hindered their access to the world of work [8] [9].
The above refers to a general approach to AI in the workplace, but now we will focus on how it works within a company and the benefits it can bring, particularly in the financial sphere.

III. AI in business environments

In an increasingly digital and competitive business environment, AI is positioning itself as an essential tool for companies in general.
The potential of AI in companies allows them to face economic challenges with confidence and identify opportunities for growth. Its application in finance provides numerous advantages and applications for companies.

The following advantages of using it can be found:

III.1 Increased efficiency:

Automating manual and repetitive tasks increases operational efficiency, allowing financial professionals to focus on higher value-added tasks.

III.2 Accuracy and error reduction:

AI algorithms are capable of processing data, statistics, integration, and document processing with greater accuracy, and algorithms that follow the same processes reduce human error, improving the quality of financial information.

III.3 Resource optimization:
AI identifies opportunities by seeking to optimize the allocation of financial resources and maximize business results.

III.4 Cost reduction:
Automating financial processes through AI reduces costs and improves the overall profitability of the company.

III.5 Better risk management:
The technology used makes it possible to identify more effective management in a timely manner, which helps protect the company's assets and reduce exposure to potential losses.

III.6 Innovation and competitiveness:
The application of AI in finance promotes an innovative mindset, helping companies stay competitive in an ever-changing environment.
In terms of its applications, it is also used to solve real challenges, including the following:

III.7 Data analysis and risk management:
Data analysis is crucial in the financial sector, as it provides valuable information for strategic decision-making. The use of AI seeks accuracy by utilizing advanced algorithms capable of processing large volumes of data quickly and accurately. Data analysis identifies patterns and trends that help detect investment opportunities, optimize resource allocation, and assess associated risks.
AI systems can understand and analyze texts written in natural language, including financial reports and internal and external contracts, facilitating the classification and analysis of large volumes of information. This contributes to more informed and accurate decision-making, helping companies anticipate market changes and make better financial decisions.

III.8 Automated accounts payable:
One of the common challenges in the finance department is the accounts payable process, as it involves reviewing and approving invoices, tracking payments, and managing suppliers.
AI plays a key role in processing automation. Companies are beginning to use algorithms and machine learning to identify and classify invoices, perform automatic compliance checks, and streamline workflows by automating tasks and workflows. In addition to reducing human error associated with manual activities, it also increases efficiency and accuracy in accounts payable processing.
AI tools implement rules and algorithms that guide the workflow through automated actions, such as sending payment reminders, generating financial reports, or issuing invoices, freeing staff from routine tasks and allowing them to focus on strategic and high value-added activities.

III.9 Consulting financial programs on a tablet:
AI also offers tools for business intelligence and strategic analysis in the financial field, using algorithms and advanced analysis techniques. AI systems analyze complex financial data, providing valuable information for strategic decision-making (business intelligence) and strategic analysis.
It helps identify patterns and correlations in financial data, uncovering information relevant to the planning and execution of financial strategies. In addition to generating automated reports and analyses that summarize data clearly and concisely.
This allows companies to anticipate market trends, identify growth opportunities, and optimize financial management.

III.10 Fraud detection and audits:
Cybersecurity with the help of AI plays a decisive role in detecting fraud and conducting audits, as its algorithms analyze large amounts of financial data in real time, identifying suspicious patterns and detecting fraudulent activities, and can prevent document falsification in financing or credit applications.
AI can also improve auditing processes by using automated data analysis to identify high-risk areas, providing a more comprehensive and accurate view of financial operations. This simplifies the auditing process and facilitates compliance with financial regulations [10] [11].
AI can have the following applications for solving real-world challenges:

III.11 Voice recognition:
To improve service, convert voice to text with customer interaction statistics, such as sales calls in the contact center, and improve customer service.

III.12 Opinion analysis:
With AI-powered natural language opinion analysis, it identifies the sentiment in a given text, such as investment research, chat data opinions, and much more.

III.13 Recommendations:
Offers personalized service for financial products and service recommendations, such as investment advice, peer interactions, risk preferences, and financial goals.

III.14 Document processing:
Searches for and stores data for broad document processes, such as loan services and investment opportunity discovery, by extracting structured and unstructured data from documents through image recognition and analysis.
Generate statistics from images and videos that accelerate insurance claim processing by assessing property damage (real estate or vehicles), streamlining customer onboarding by verifying identity documents that meet customer acquisition costs.

III.15 Predictive modeling:
Predicts specific future outcomes with a high degree of accuracy using customer, risk, transaction, trade, and other data statistics, which are useful in fraud detection, risk reduction, and predicting future customer needs.

III.16 Cybersecurity:
Automate cybersecurity by continuously monitoring and analyzing network traffic to detect, prevent, and respond to cyberattacks and threats [12].

IV. Results

IV.1 How AI has helped companies like Tesla and Amazon

AI has been implemented in services such as customer service, replacing human interaction with more automated or robotic interaction. This has been evident for several years now, with the creation of autonomous stores such as Amazon Go, where there are no cashiers [13]. These supermarkets have cameras and motion sensors that track the products selected by customers, who also scan QR codes to pay later using a mobile app. The company's warehouses also use robots for logistics [14].
Amazon has invested in creating and offering courses to help people master these technologies. In recent years, it has created free courses to provide access to this world, starting in countries with great potential such as India, where it has been offering summer courses called "ML (Machine Learning) Summer School" courses for several years, preparing students for the industry by providing the basics of machine learning. These courses not only give students the opportunity to apply concepts to everyday life but also seek to promote interaction between students and scientists within the company [15].

These courses are already expanding, allowing students, with the help of the company, to gradually get closer to the industry through professionals in the field [16].

AWS (Amazon Web Services) are Amazon's cloud tools and services [17]. In addition, it also offers resources for working with AI, including Amazon CodeGuru Security, which is used for security codes, detecting and correcting vulnerabilities in them, Amazon Fraud Detector, which detects online fraud using detection models, among several others [18].
Having services available to consumers not only benefits Amazon, but also companies that use AWS, as they can enjoy greater security for themselves and their users. It is because of these types of services and their high-quality networks that AWS has surpassed Google Cloud and Microsoft Intelligent Cloud in cloud services, generating $60 billion in 2021 [19].

As can be seen in Table 1 of Amazon's Revenue from 2010 to 2011, the term refers to the amount of money a company receives from its customers in exchange for the sale of goods and services. It can be seen how the amounts have grown, from $34 million to $515 million. In recent years, there has been significant growth in the company's revenue, from 9.4% from 2021 to 2022, as well as 27.7% from 2020 to 2021 and 37.62% from 2019 to 2020 [20].

Amazon Annual Revenue (Millions of US $)		Amazon Quarterly Revenue (Millions of US $)	
2022	$513,983	2023-09-30	$143,083
2021	$469,822	2023-06-30	$134,383
2020	$386,064	2023-03-31	$127,358
2019	$280,522	2022-12-31	$149,204
2018	$232,887	2022-09-30	$127,101
2017	$177,866	2022-06-30	$121,234
2016	$135,987	2022-03-31	$116,444
2015	$107,006	2021-12-31	$137,412
2014	$88,988	2021-09-30	$110,812
2013	$74,452	2021-06-30	$113,080
2012	$61,093	2021-03-31	$108,518
2011	$48,077	2020-12-31	$125,555
2010	$34,204	2020-09-30	$96,145

Table 1. Amazon revenue 2010-2011
Source: https://macrotrends.net/stocks/charts/AMZN/amazon/financial-statements

Amazon Annual Gross Profit (Millions of US $)		Amazon Quarterly Gross Profit (Millions of US $)	
2022	$225,152	2023-09-30	$68,061
2021	$197,479	2023-06-30	$65,010
2020	$152,757	2023-03-31	$59,567
2019	$114,696	2022-12-31	$63,564
2018	$93,731	2022-09-30	$56,833
2017	$65,932	2022-06-30	$54,810
2016	$47,722	2022-03-31	$49,945
2015	$35,355	2021-12-31	$54,577
2014	$26,236	2021-09-30	$47,882
2013	$20,271	2021-06-30	$48,904
2012	$15,122	2021-03-31	$46,115
2011	$10,788	2020-12-31	$46,271
2010	$7,643	2020-09-30	$39,039

Table 2. Gross Profit
Source: https://www.macrotrends.net/stocks/charts/AMZN/amazon/gross-profit

There are some metrics, such as Gross Profit and Net Income, among others, which will be discussed later.
Gross Profit is the profit a company makes after deducting the cost of producing and selling its goods and services, as can be seen in Table No 2. In this regard, it also maintains impressive figures, with percentage increases of 32.85% from 2019 to 2020, 29.28% from 2020 to 2021, and 14.01% from 2021 to 2022.

Finally, we must discuss net income, which refers to the company's profit or loss after subtracting all types of expenses. As can be seen in Table 3, from 2021 to 2022 there was a decline of 108.16%, which contrasts with the increases of 56.41% and 84.98% from 2020 to 2021 and from 2019 to 2020, respectively. However, there appears to be growth so far in 2023 [20].

Amazon Annual Net Income (Millions of US $)		Amazon Quarterly Net Income (Millions of US $)	
2022	$-2,722	2023-09-30	$9,879
2021	$33,364	2023-06-30	$6,700
2020	$21,331	2023-03-31	$3,172
2019	$11,586	2022-12-31	$278
2018	$10,073	2022-09-30	$2,872
2017	$3,033	2022-06-30	$-2,028
2016	$2,371	2022-03-31	$-3,844
2015	$596	2021-12-31	$14,323
2014	$-241	2021-09-30	$3,106
2013	$274	2021-06-30	$7,778
2012	$-39	2021-03-31	$8,107
2011	$631	2020-12-31	$7,222
2010	$1,152	2020-09-30	$6,331

Table 3. Net Income
Source: https://www.macrotrends.net/stocks/charts/AMZN/amazon/net-income

Analyzing the autonomous vehicle project, this has been one of the most notable inventions in decades, and it is becoming increasingly realistic, with companies such as this one choosing to develop systems that can learn about their surroundings in order to drive a car without the need for a driver [21].

Tesla relies on the use of various cameras, radars, and sensors that collect information about the environment in which it is driving, creating a basis for predictions that help the car drive autonomously.
The machine's AI intervenes in real time as it faces critical situations. The FSD (Full Self-Driving) chip is a sophisticated technology implemented in smart cars, acting as the car's brain. The Dojo chip is responsible for training Tesla's AI [22].

The robot that resembles a human being is the Tesla Bot, one of the company's many interesting future projects. Figure no. 1 shows what the Tesla Bot can do. It aims to function like a person, with the goal of performing repetitive, boring, and, more importantly, dangerous human tasks [23].

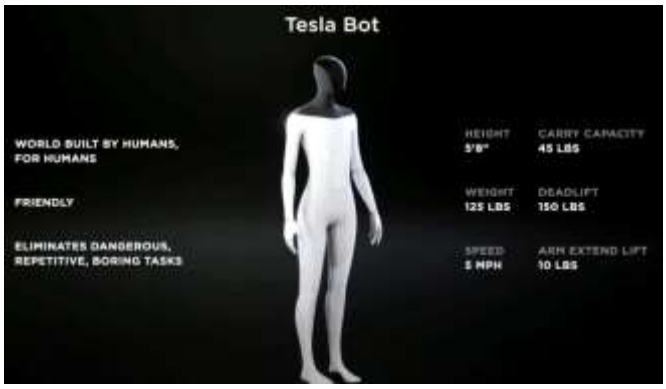
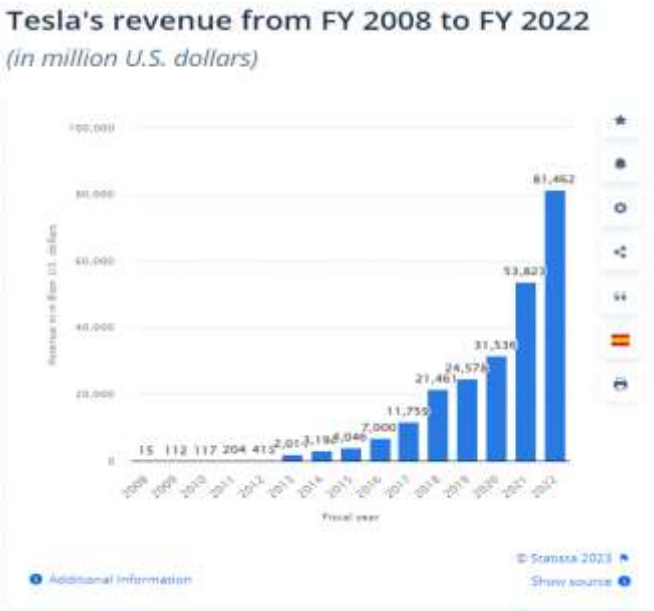


Figure 1. Tesla Bot
Source: https://www.tesla.com/AI

Tesla continues to experience significant growth in recent decades by applying its cutting-edge technologies, as it is committed to the development and application of AI in different industrial fields, making huge leaps forward, all thanks to its commitment to the future [24].

As can be clearly seen in graph no. 1, Tesla's 2022 revenue has had an impact on Tesla's income over the last four years, where since 2018 it has followed an upward trend, reaching $81.462 billion in revenue by 2022.



Graph 1. Tesla revenue 2022
Source: https://mx.investing.com/equities/tesla-motors-income-statement

V. Conclusions

The adoption and implementation of AI in the labor sector continues to show multiple benefits, as demonstrated throughout this article. Some of these are:

Better human capital management, profiling and recommending better employment paths by analyzing the gaps between job applicants and company demand:
Optimization of work results with the use of cobots and chatbots, as well as the use of wearable technologies and the gig economy that applies to working for multiple employers. Taken together, these findings show that the most sought-after and in-demand professions will be AI and machine learning specialists, sustainability specialists, business intelligence and/or cybersecurity analysts, machine learning engineers, data scientists, AI ethics specialists, and prompt engineers. In addition, these positions will promote inclusion for workers with functional diversities, eliminating the obstacles and barriers to employment that they commonly face. They must have the skills to use programming languages such as Python and the ability to manage Big Data.

Within a company, the application of AI will serve as an advantage for task automation, accuracy, and error reduction, optimizing and managing resources, and reducing costs, as well as reducing risks, innovating, and competing in any business market, facilitating the most complicated and effective tasks such as audits and fraud detection.

In addition to facilitating access and use of data by making it available on mobile devices, such as tablets, that have tools such as voice recognition, opinion analysis, recommendations, documents, and images. And the use of predictive modeling and cybersecurity.

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