

Artificial intelligence: implications in the demographic and social equation

Inteligencia artificial: implicaciones en la ecuación demográfica y social

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Abstract

The objective of this essay is to expose the implications that artificial intelligence (AI) will have on the demographic and social system in today's world. It is highlighted that there will be changes in the biological and social determinants of the population in the near future. That is, artificial intelligence will influence in vitro births and there will be an increase in longer life expectancy at birth. Simultaneously, Latin America and Mexico will have greater challenges to adapt to such a situation given their diagnosis in their scores and indicators on AI recently made by ECLAC.

Keywords: Artificial intelligence, demographics and social.

Resumen

El objetivo de este ensayo es exponer las implicaciones que tendrá la inteligencia (IA) artificial en el sistema demográfico y social en el mundo de hoy. Se destaca que habrá cambios en los determinantes biológico y social de la población en un futuro próximo. Es decir, que la inteligencia artificial influirá en los nacimientos in vitro y habrá un aumento en la mayor esperanza de vida al nacer. Simultáneamente, América Latina y México tendrán mayores retos para adaptarse ante tal situación dado su diagnóstico en su puntaje e indicadores sobre la IA hecho recientemente por la CEPAL.

Palabras clave: Inteligencia artificial, demografía y social.

INTRODUCTION

The emergence of Artificial Intelligence (AI) will change our demographic system, specifically its fertility, mortality and international migration. Likewise, in the social dimension, in particular, in the production equation and by automating jobs, they could hinder or open windows of opportunities based on technological innovation, research and development, data management, governance, talent drain that will affect the educational system, and many other areas, creating new cultural schemes in the use of technology.

AI has been disturbing because they include the idea that we assign human qualities or a mind to artificial people, and this can cause cognitive dissonance and confusion since we don't know how to treat them. Although we cannot "see" them, the ability of programs like ChatGPT to express themselves like a human being gives some people an unsettling feeling of what interaction between humans and robots will be like.

Obviously this will not be discussed here, we will only expose some topics related to demography and its social dimension, starting from the description of the background of artificial intelligence; A section is included on artificial intelligence and implications for the demographic system; Also, artificial intelligence and implications in the social system in Latin America and Mexico.

A section on the work world could not be missing; Even artificial intelligence and other social areas in Latin America and Mexico, as well as the ranking by factor and subdimensions of artificial intelligence (AI) for Latin America, finally, the conclusions to our theme. All this using secondary sources, documents and texts reviewed or lowered from the Internet. This meant the selection of texts, the writing, detection of data and information necessary to prepare the document and thus make the diagnosis on AI in our continent.

BACKGROUND OF ARTIFICIAL INTELLIGENCE IN THE WORLD

The history of artificial intelligence in the world already has a good historical journey. Artificial intelligence has its background with Alan Turing, which, proposed the Turning test in 1950, later years, in 1956 for the first time the term artificial intelligence (AI) was used at the Dormount conference (Hanover, New Hampshire) Convened by John McCarthy. In 1958, Jhon MacArthy invented the LISP programming language, which was used for decades, two years later, that is, in 1960, the first computer

chess programs were developed in Massachusetts, United States. In 1966, the Massachusetts Institute of Technology (MIT) designed one of the first conventional chatbots to process natural language.

year later, 1967, the first expert system was developed, dendral that I interpret the molecular structure. In 1987, Ernest Dickmanns converts a Mercedes Benz truck into the first autonomous vehicle guided by artificial vision (Smith and Anderson, 2014; UNAM, 2019; Roser, 2022; Paniagua, 2023). In 1996, the intelligent agents who can perceive their surroundings, for 1997, the AI Deep Blue de IBM were born, expires the world champion Garry Kaparov in a chess game (Anyoha, 2017).

In 2011, Thomas Watson Senior International Business Machines Corporation (IBM), wins a human in a question and answer contest, Jeopardy Lab, in that same year, the voice recognition system was developed, whose form is the easiest for Make calls, send messages, access apps and the most used. In addition, take care of your privacy to the maximum to which Siri de Apple (Siri on the iPhone) was called. The following year, 2012, the Alexnet Convolutionary Neuronal Network was the first capable of recognizing an image and classifying it for its content, a great advance for deep learning. In 2013, Boston Dynamics created his bipedo robot (two feet) Humanoid Atlas.

In 2014, the Russian chatbot Eugene Ghootman passes the Turning test. In 2015, the Google company DeepMind develops AlphaGo, a computer program that beats the world Go champion, Lee Sedol. In 2017, Sophia becomes the first robot recognized as a citizen of Saudi Arabia. In 2018, the robot Atlas, from Boston Dynamics, learns to do parkour (overcome difficulties and obstacles). In this same year, Waymo starts with the first autonomous taxi service in Phoenix, Arizona. In 2018, Google's Alpha Zero teaches herself to play chess (Inside, 2023; Korolevich 2023).

At the beginning of the second decade of the 21st century, that is, in 2020, in the context of the Covid-19 Pandemia, the Openai GTP_3 is launched, one of the largest artificial neural networks ever created capable of generating consistent and convincing texts. In 2021, Openai, presents an artificial intelligence program, generator of images from texts. By 2022 arrives the chatgpt, a Chabot service developed by OpenAi, which promotes the popularity of the generative AI.¹

Generative artificial intelligence (IAG) is a branch of artificial intelligence that focuses on the generation of original content from existing

¹ It is a type of artificial intelligence system (AI) capable of generating text, images or other media in response to commands.

data. In 2023, Microsoft, announced a millionaire investment in Openai, and integrates Chatgpt, in their Bing and Windows search engine. Also, launches GPT-4, a more powerful model of GPT_3. Google, Meta and many companies have announced investments, developments of AI for interaction (Giattino, Mathieu, Samborska, Broden and Roser, 2022). Regulatory experts and figures of the same industry such as Sam Altman warns about the dangers of AI and the urgency of regulating them (Moore, 2020; Benhamou, 2022).

ARTIFICIAL INTELLIGENCE AND IMPLICATIONS IN THE DEMOGRAPHIC SYSTEM

Artificial intelligence (AI) in the third decade of the 21st century, after the Pandemia of Covid-19² has broken into the human routine, has quickly accommodated in the spaces of human biology, that is, in fecundity and mortality and socially in the demographic system. The AI will allow analyzing the two trends: the evolution of technology and demography.

Both, expressed in the demographic equation, on the one hand, AI can detect earlier disorders such as birth defects, congenital heart disease or macrosomia, gestational diabetes, preterm birth, increase test-tube offspring, in vitro, etc.³ Added to this are the topics of cryopreservation, cryorobot, fertilization and vitro with three people that could lead to the in vitro baby boom, among many other aspects such as the generation that presents resistance to having children among other aspects of fecundity and the health of the woman.⁴

From in vitro fecundation, the British Louise Brown was born with her at the Oldham General Hospital on July 25, 1978. From this moment on we find data such as that of the European Society of Human Reproduction and Embryology, which maintains that More than eight million children have been born thanks to assisted reproduction techniques with a growing trend, since according to data from said entity in November 2018, it was estimated that half a million babies were born each year in this way.

² WHO argues that coronavirus disease (COVID-19) is an infectious disease caused by the Sars-Cov-2 virus (WHO, 2023).

³ Artificial intelligence improves the health of pregnant women and allows the early diagnosis of possible baby disorders, available in <https://www.criarconsentidocomun.com/inteligencia-artificial-en-el-embarazo/#:~:text=As%C3%AD%20han%20logrado%20confir-mar%20que%20el%20uso%20de,macrosom%C3%ADa%20la%20diabetes%20gestacio-nal%20y%20el%20parto%20pret%C3%A9rmino.>

⁴ Cryorobots Could Help Avoid Catastrophic Loss of Eggs and Embryos from In Vitro Fertilization, Available in <https://cnnespanol.cnn.com/2021/04/15/criorobots-ovulos-y-em-briones-fertilizacion-in-vitro-trax/>

Spain is recognized as the leading country in treatments of this type, although the British were pioneers, Spain is the most active country in Europe in terms of assisted reproduction, with almost 120 thousand treatments carried out in 2015 (last data available). They are followed by Russia, with just over 110 thousand, Germany and France, with 96 thousand and 94 thousand, respectively. These data do not include the United Kingdom, although it is estimated that the Louise Brown country makes about 60 thousand treatments a year (Eshre, 2023). These advances will give rise to the creation of artificial uters that will allow rebirth to babies in the world of human biology and artificial intelligence.⁵

Artificial intelligence (AI), in the case of mortality, could have an impact on prolonging life expectancy at birth,⁶ saving lives, diagnosing diseases, cheating death with cryogenization, which consists of the preservation at low temperatures of human beings that contemporary medicine can no longer keep alive; with AI we could reach transhumanism; It is a current that seeks to take control of the evolutionary process and maintains that an improved human being.

It is possible to cause multiple marriages, or posthumanism, which is a current that has the belief that the being as such does not come biologically from the human body and, therefore, can be transferred to another body or machine. That is, AI and these new currents of the human evolutionary process are in constant technological search for human improvement.⁷ (This goes beyond technology, but with technological advancement, we already have immense challenges to understand the future that awaits us. with human biology.

On the other hand, international migration is located in the social dimension of the demographic system. In the World Migration Report 2022 of the International Organization for Migration (IOM), in chapter 11, it refers to artificial intelligence, migration and mobility, while linking it to the repercussions on policies and practices. government-migrants.

This document highlights that, in the aspects of migration and mobility management, considering the place of departure, artificial intelligence (AI) technologies began to be developed and deployed many years ago. For example, several government authorities have taken advantage of emer-

⁵ This is the first artificial uterus that will allow babies to be “reborn” (and how it differs from the incubator), available in <https://www.bbc.com/mundo/noticias-50068965>.

⁶ Artificial intelligence will be able to predict our life expectancy, available in <https://blogthinkbig.com/la-inteligencia-artificial-sera-capaz-de-predecir-nuestra-esperanza-de-vida>

⁷ Cryogenization, transhumanism and avatars: can we cheat death in the future thanks to artificial intelligence?, available at <https://www.businessinsider.es/como-enganare-mos-muerte-gracias-inteligencia-artificial-829987>

ging technologies to establish electronic visa application platforms and perform pre-departure, entry, stay and return checks among other things through the use of biometric data.

AI prior to the migrant's departure includes official visa information chatbots; registrations in electronic visa application platforms; in automatic profile and security controls; in chatbots for private visa processing services; in the adoption of decisions on visa applications among others.

In its migrant entrance, information chatbots are present upon arrival in humanitarian contexts; Automatic verification of identity at borders with biodates; in automatic safety controls on borders with biodates; in the control of borders with drones operated by artificial intelligence; in behavior analysis to detect hostile intentions; in the elaboration of risk profiles.

During the migrant's stay in their destination, chatbots for information on immigration are considered; their registration on electronic visa application platforms; in decisions on migration applications, including asylum applications; in chatbots providing legal advice to refugees; in placement in refugee settlements; in the comparison of applicants and job vacancies; in facial recognition technology in mass surveillance to detect undocumented migrants (Mexico-United States border case); in psychological support chatbots; in the distribution of humanitarian assistance with the help of digital identification systems.

Upon return, the migrant-institution stands out in the use of the "smart cards" of migrant workers upon return in the countries of origin; community screening for forced return; the adoption of decisions on return through machine learning among other aspects.

In general terms, in said document (ECLAC, 2023), it maintains that the uses of artificial intelligence occur in all stages of the migration cycle, while allowing us to reflect on the main strategic challenges and opportunities that this important innovative sphere of technology, particularly as it relates to the "future of work" and long-term migration trends. While artificial intelligence certainly brings with it a number of benefits for policy and practice, it also carries a number of risks for state and non-state actors (including migrants) that must be managed carefully, especially with regard to regulation and human rights.

Finally, AI, in addition to influencing biology and human migration, there are different areas of the social aspects of the population in the world as Roser (2022) maintains. Especially the social dimension of work, education, sports, social networks, cultural among other aspects of human life in the 21st century with its ingredient of polarization and segmentation.

ARTIFICIAL INTELLIGENCE AND IMPLICATIONS IN THE SOCIAL DIMENSION IN MEXICO AND LATIN AMERICA

Work world

AI is changing and will change the demographic equation, as well as the production equation.⁸ Robotization and artificial intelligence are already impacting some part of the social dimension of the demographic system. For example, in work and business models in the deglobalized world, post-globalization, information age or liquid world. Bureaucratic, academic or other jobs will be destroyed. AI will have effects on the transformation of the segmented labor market in the world, specifically the United States, Latin America or Mexico.

For example, in occupational incorporation, which has been inherent to the information age, which today has been called the age of artificial intelligence, raises questions and challenges in the world of work. Artificial intelligence has potential and limitations; contributions in sectoral terms in the transformation of work, for example, in the health sector; in the transport; in the banking sector; in the educational sector among others (ECLAC, 2023).

This technology has and will have implications in the performance of tasks to such a degree that a list of tasks has been projected that will be replaced by artificial intelligence. For example, in Table 1, with data from the ILO (2023), the most affected activities will be support, administrative, technical, professional, sales and services, managers, agriculture, forestry and fishing occupations among others, including creativity, ethical decision making and empathy are in fashion today.⁹

Advances in technology can create and displace certain types of work, but historically they have been a net creator of jobs. In the future, with artificial intelligence, some countries¹⁰ or people will adapt to these changes by inventing new types of work and taking advantage of human capabilities. Technology will free some people from daily work, it will allow us to define new relationships with “work” in a more positive and socially beneficial way.

⁸ Technology, demographics and the jobs of the future, available at https://www.bbc.com/mundo/noticias/2014/06/140623_economia_trabajos_futuro_mj

⁹ <https://www.lavanguardia.com/opinion/20230225/8782438/chatgpt.html>

¹⁰ For example, it is said that in Mexico, nearshoring promotes robotics, available in <https://www.pewresearch.org/internet/2014/08/06/future-of-jobs/>

Table 1: Nine tasks that will be replaced by artificial intelligence

High and high risk tasks for GPT tools, according to occupation		
Occupation and tasks	Medio	Alto
Administrative support	58	24
Technicians	25	2
Professionals	25	1
Sales and services	18	4
Managers	13	1
Agriculture, forestry and fishing	7	1
Machinery operation	6	2
Crafts	3	0
Elementary occupations	3	1

Source: ILO, available at https://ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/publication/wcms_890761.pdf

Latin America (LA) comes into this, however, its diagnosis is not at all flattering, because its workforce is staying in the past (ECLAC, 2023). The relative penetration of technological and disruptive skills, associated with AI, is lower in LA (2.16 percent) than in the rest of the world (3.59 percent). Furthermore, most productive sectors have significant gaps compared to countries in the global north. However, the presence of AI skills has grown in recent years, but slower than the rest of the world. Unfortunately, according to the ILIA, there are no concrete measures taken by many governments to reverse this phenomenon.

Ultimately, as a segmented society, coexistence will continue between elite workers (highly specialized workers in AI) who will be the new heart of the new work organization and the precarious subordinates. That is, some highly skilled workers will be very successful in this new environment, but many more may be displaced into lower-paying manufacturing or service jobs at best, or permanent unemployment at worst if these are immigrants. Our education system is not adequately preparing us for the work of the future, and our public institutions, educational and economic policies are ill-equipped to handle these difficult decisions (Smith and Anderson, 2014).

ARTIFICIAL INTELLIGENCE AND OTHER SOCIAL AREAS IN MEXICO AND LATIN AMERICA

Therefore, it has also begun to be concerned in Latin America (LA) about the impact of AI on other social areas. In an approach, ECLAC (2023), presented the first Latin American Artificial Intelligence (ILIA)¹¹ Uruguay, Paraguay, Costa Rica, Ecuador, Panama, Brazil and Mexico.

The aforementioned study is made up of seven chapters. The first three refer to the dimensions of Enabling Factors, Research, Development and Adoption; and Governance that allow the construction of the index. The dimensions were built from a research that added data from open and comparable sources to evaluate the performance of the aforementioned twelve countries.

On the other hand, the document considers the material, social and cultural context of the region and analyzes five dimensions: enabling factors (elements that are necessary to develop a robust ia system in the country); research, development and adoption; governance (level of development of the institutional environment); perception (dominant topics in social networks and digital media); and future (academic trends and vision of experts from social impact).

RANKING BY FACTORY SUBDIMENSIONS OF ARTIFICIAL INTELLIGENCE FOR LATIN AMERICA

Artificial intelligence (AI) in Latin America for selected countries occurs between risks and promises in Latin America and the Caribbean. As for the enabling factors, they include three infrastructure subdimensions, data availability and talent development (Graph 4, Mexico occupies fourth place). Brazil as Chile get the best scores from their performance in infrastructure and talent development.

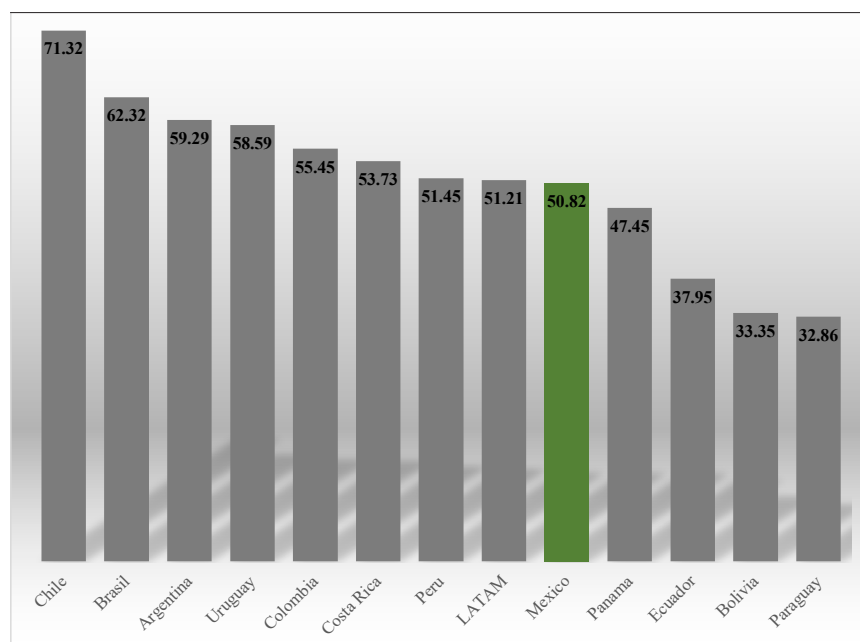
Mexico occupied the number nine place in terms of infrastructure which includes connectivity, computation and device; fourth in talent formed by literacy in AI, professional training in AI, advanced human capital and fugging of talents and fifth in data or data barometer, which are composed of availability, capacity, governance, use and impact (Graphs 1, 2 and 3).

However, the factors that affect the score of each of the selected countries are diverse. It is also observed that Argentina, Uruguay, Colombia and Mexico are marginally located on the regional average (LATAM) in these

¹¹ Available in <https://estrategia.la/2023/08/27/indice-latinoamericano-de-inteligencia-artificial-ia-2023-presentado-por-la-cepal/>

measurements. The rest of the countries (where Peru) is located below the average for the three subdimensions except in the case of infrastructure (graphs 1, 2 and 3).

Graph 1: Score for the South Ivener of Infrastructure of Selected Countries from Latin America, 2023



Source: ILIA 2023, available in <https://indichelatam.cl/wp-content/uploads/2023/08/ILIA-2023.pdf>

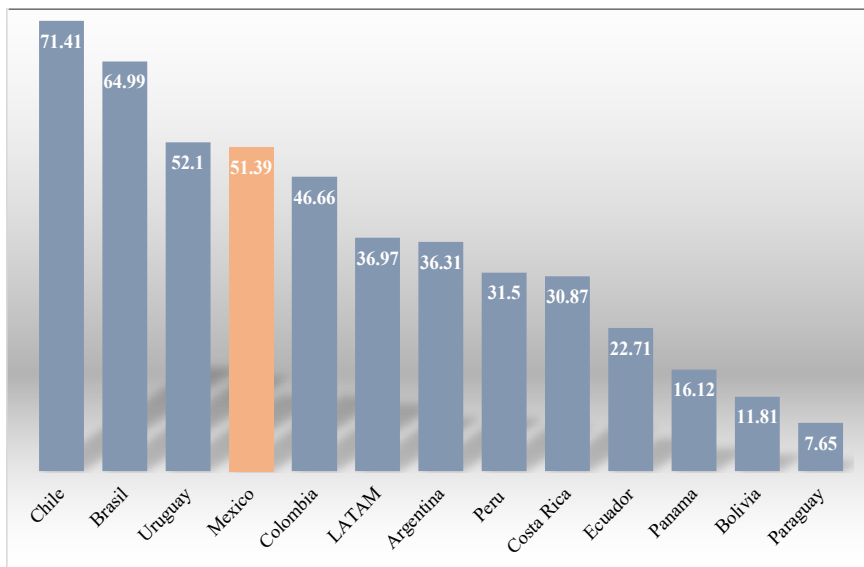
The segment in research, development and adoption. At the regional level, the research dimension (the volume, impact and productivity of the academic community of the country, at the regional level); adoption¹² and development¹³ is led by Uruguay (Graph 6), followed by Chile and Brazil (Graphs 5 and 7). Mexico instead was located in the fourth place in re-

¹² It measures the intensity with which the private sector integrates the AI and the mechanisms of the State to promote this integration. For that, it quantifies the number of companies that use the fundamental element of their business model to reflect the penetration of this technology in the private sector. On the other hand, it measures how governments are promoting AI through R&D spending and the promotion of investment in emerging technologies (ECLAC, 2023).

¹³ Innovation and development measures the level of development taking into account the number of registered patents and the activity on open source collaborative platforms (GITHUB). It also evaluates the ability to attract investments considering both the number and the size or size of these (ECLAC, 2023).

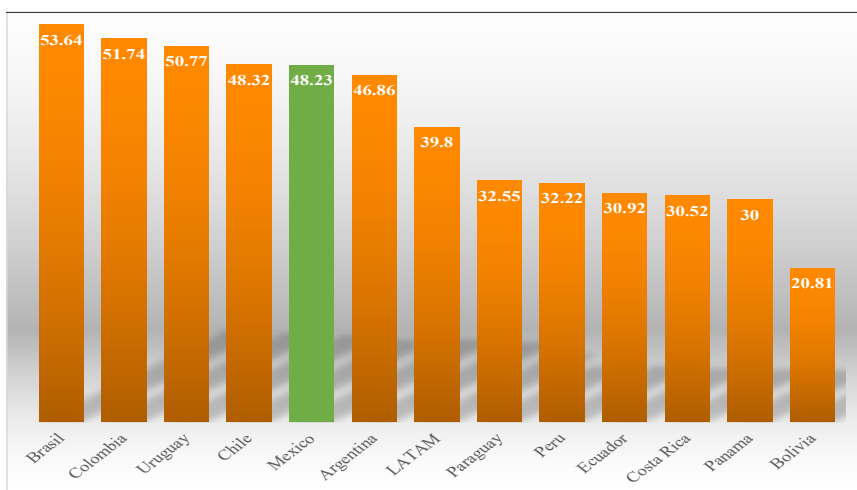
search with a 71.4 score, seventh in innovation and development with 18.5, as well as fourth for adoption with 43.9 in its score.

Graph 2: Talent subdimension score according to selected countries in Latin America, 2023



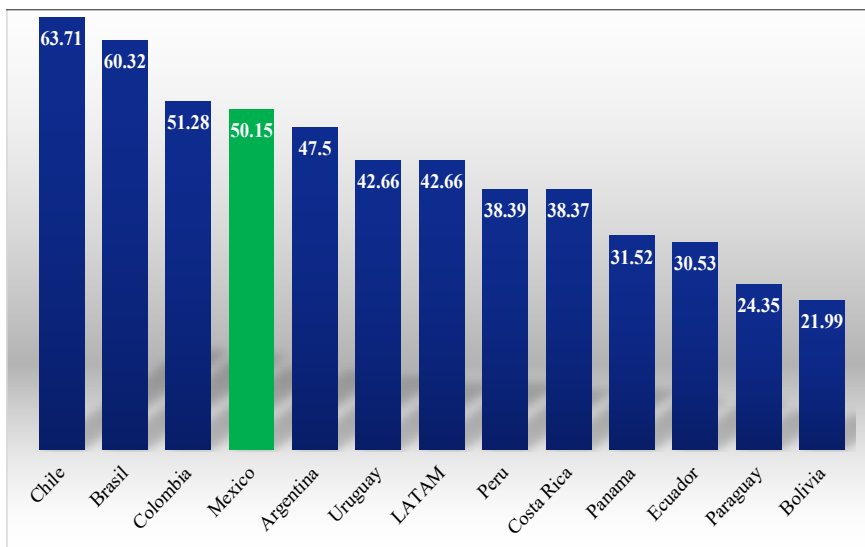
Source: ILIA 2023, available in <https://indicelatam.cl/wp-content/uploads/2023/08/ILIA-2023.pdf>

Graph 3: Score for data subdimension of selected countries for Latin America, 2023



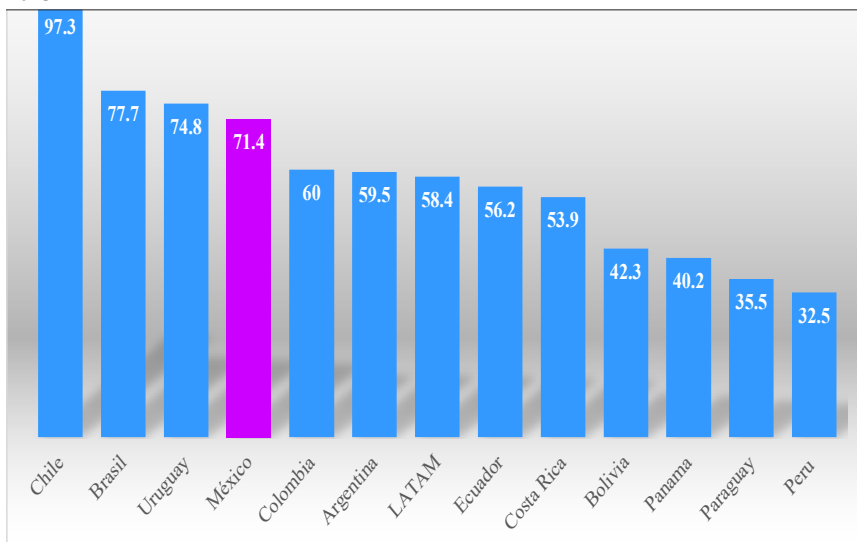
Source: ILIA 2023, available in <https://indicelatam.cl/wp-content/uploads/2023/08/ILIA-2023.pdf>

Graph 4: Sabilotent factors according to selected countries from Latin America 2023



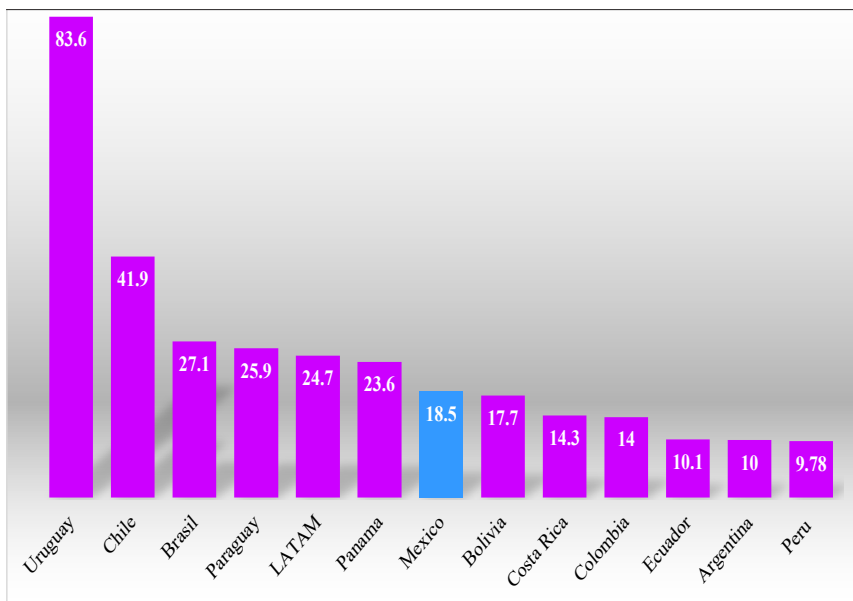
Source: ILIA 2023, available in <https://indicelatam.cl/wp-content/uploads/2023/08/ILIA-2023.pdf>

Graph 5: Subdimension indicators Research from selected countries from Latin America 2023



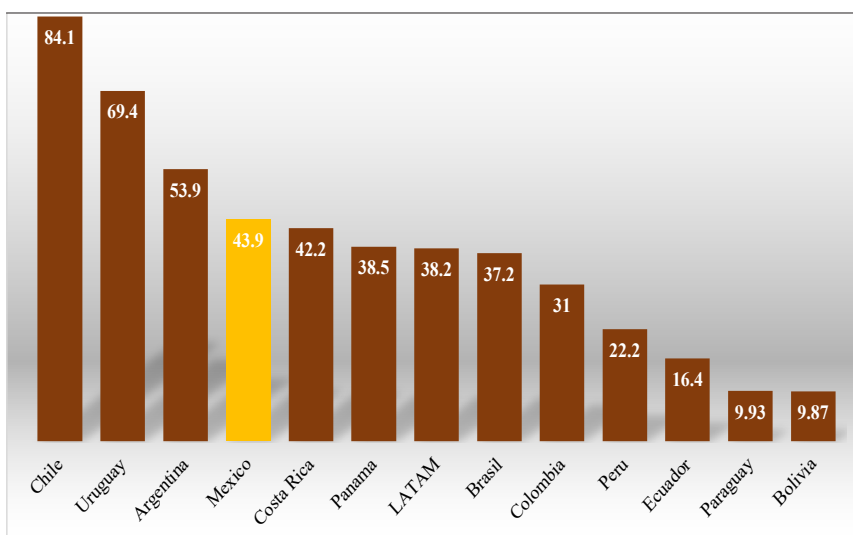
Source: ILIA 2023, available in <https://indicelatam.cl/wp-content/uploads/2023/08/ILIA-2023.pdf>

Graph 6: Average score for subdivision in innovation and development of selected countries in Latin America 2023



Source: ILIA 2023, available in <https://indicelatam.cl/wp-content/uploads/2023/08/ILIA-2023.pdf>

Graph 7: Average score for subdimension adoption of selected countries from Latin America



Source: ILIA 2023, available in <https://indicelatam.cl/wp-content/uploads/2023/08/ILIA-2023.pdf>

The results based on these indicators allow us to identify three segments or groups of countries. The first is made up of Uruguay and Chile. The second segment or group is made up of Brazil, Argentina and Mexico, which have scores above the average for the region. The rest of the countries are located in the third segment with scores below the average for the region.

In the aforementioned study he adds other findings, issues such as governance and suggests joint work in common interest and languages, similar social challenges, similar data sources, are all elements that can contribute to regional joint work that would have an impact that would have an impact Huge potential to access the AI Global Orchestra. Collaboration is key to advance. While, identifying an area of opportunity for investment, working in independence or dependence, skepticism vs optimism and working in a promising future.

CONCLUSIONS

Artificial intelligence has a good historical journey and that after the Covid-19 pandemic came to position itself as a disruptive element of human life. However, this was already happening as it is exposed in the brief background that is narrated here.

Likewise, as INEGI (2017) maintains, more than 80 percent of people 18 years of age or older in Mexico are interested in scientific and technological developments, in addition, their attitude towards their possible impacts is positive, it is learned from advances through knowledge and the perception they have regarding their own knowledge and understanding of various topics in science, technology and research; with substantive differences and gaps according to their demographic characteristics such as age, sex and level of education.

Even with this previous knowledge, he does not stop expressing his astonishment, fears and negative perception around artificial intelligence. It is clear that the disruption of AI creates areas of opportunity and risks in the demographic (fertility and the greatest life expectancy at birth) and social (migration, employment ...). For some, this is already producing, but at different rhythms in its penetration due to the great inequalities that exist between countries in enabling factors; research, development and adoption; governance; perception; and future as academic tendencies and vision of experts from social impact.

AI for Latin America has themes of common interests and languages, shared social challenges, similar data sources, these are all elements that can contribute to regional joint work that would have an enormous poten-

tial impact on accessing the global orchestra of AI. Collaboration between countries will be key to advancing AI in its demographic and social dimensions. This could lead the way in the not distant future in contributions to Population Papers Review.

BIBLIOGRAPHIC REFERENCES

Anyoha, Rockwell, 2017, *Can Machines Think?*, available in <https://sitn.hms.harvard.edu/flash/2017/history-artificial-intelligence/>

Benhamou, Salima, 2022, *La transformación del trabajo y el empleo en la era de la inteligencia artificial: análisis, ejemplos e interrogantes*, disponible en <https://www.cepal.org/es/publicaciones/47985-la-transformacion-trabajo-empleo-la-era-la-inteligencia-artificial-analisis>

Carazo, José Antonio, 2017, *El impacto de la robotización y la inteligencia artificial en el mercado laboral*, disponible en https://capitalhumano.laleynext.es/Content/Documento.aspx?params=H4sIAAAAAAAAAEAMtMSbF1CTEAAiN-TEExMTI7Wy1KLizPw8WyMDQ3MDSyNztbz8INQQF2fb0ryU1LTMvNQUk-JLMtEqX_OSQyoJU27TEEnOJUtdSk_PxsF/JPi4SaUJCYYV-2QW19h6AAhHdL-f8olxVIXMAoDDwOnoAAAA=WKE

CEPAL, 2023, *La inteligencia artificial puede contribuir a la transformación de los modelos de desarrollo en América Latina y el Caribe para hacerlos más productivos, inclusivos y sostenibles*, disponible en <https://indicelam.cl/>

Darlington, Keith, 2017, *Comienzo de la era de la Inteligencia Artificial*, disponible en <https://www.bbvaopenmind.com/tecnologia/inteligencia-artificial/el-comienzo-de-la-era-de-la-inteligencia-artificial/>

ESHRE, 2023, *Unexplained infertility. Guideline of European Society of Human Reproduction and Embryology*, available in <https://www.eshre.eu/Guidelines-and-Legal/Guidelines/Unexplained-infertility>

ILO, 2023, *Generative AI and Jobs: A global analysis of potential effects on job quantity and quality*, available in https://ilo.org/wcmstp5/groups/public/---dgreports/---inst/documents/publication/wcms_890761.pdf

Giattino, Charlie, Mathieu, Edouard, Samborska, Veronika, Broden, Julia and Roser, Max, 2022, *Artificial Intelligence*. Published online at OurWorldInData.org, available in <https://ourworldindata.org/artificial-intelligence>

INEGI, 2017, *Demografía y sociedad. Percepción sobre ciencia y tecnología*, disponible en <https://www.inegi.org.mx/temas/pecyt/#:~:text=Informaci%C3%B3n%20sobre%20el%20nivel%20de%20conocimiento%20que%20tienen,como%20son%20edad%2C%20sexo%20y%20nivel%20de%20escolaridad>

Inside, Alana, 2023, *Inteligencia artificial: una breve historia de su evolución en el mundo*, disponible en <https://blog.alana.ai/es/alana-por-la-innovacion/inteligencia-artificial-una-breve-historia-de-su-evolucion-en-el-mundo/>

Korolevich, Sara, 2023, *Insights from American Workers: A Comprehensive Survey on AI in the Workplace*, available in <https://checkr.com/resources/articles/ai-workplace-survey-2023>

Moore, Phoebe V., 2020, *Inteligencia artificial en el entorno laboral. Desafíos para los trabajadores*, disponible en <https://www.bbvaopenmind.com/articulos/inteligencia-artificial-en-entorno-laboral-desafios-para-trabajadores/>

OIM, 2022, “Informe sobre las Migraciones en el Mundo 2022”, en capítulo 11 - *Inteligencia artificial, migración y movilidad: Repercusiones en las políticas y prácticas*, disponible en <https://publications.iom.int/es/node/4136#:~:text=El%20cap%C3%ADtulo%20analiza%20los%20usos%20de%20la%20inteligencia,y%20a%20las%20tendencias%20migratorias%20a%20largo%20plazo.>

OMS, 2023, *Enfermedad por coronavirus (Covid-19)*, disponible en [https://www.who.int/es/news-room/fact-sheets/detail/coronavirus-disease-\(covid-19\)](https://www.who.int/es/news-room/fact-sheets/detail/coronavirus-disease-(covid-19))

Paniagua, Esther, 2023, *Breve historia de la Inteligencia Artificial*, disponible en https://www.nationalgeographic.com.es/ciencia/breve-historia-de-la-inteligencia-artificial_19310

Roser, Max, 2022, *The brief history of artificial intelligence: The world has changed fast – what might be next?*, available in <https://ourworldindata.org/brief-history-of-ai>

Smith, Aaron y Anderson, Janna, 2014, *AI, Robotics, and the Future of Jobs*, available in <https://www.pewresearch.org/internet/2014/08/06/future-of-jobs/>

UNAM, 2019, *La evolución de la inteligencia artificial*, disponible en <https://www.fundacionunam.org.mx/unam-al-dia/la-evolucion-de-la-inteligencia-artificial/>

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