

Gender equality & artificial intelligence in Latin America

A Landscape for AI Workforce Diversity in the Region

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Executive Summary

Women's reduced participation in the professions of the future demand a profound analysis to recognize its causes. The recent developments and promises of AI represent a unique opportunity to assess gender and inequality gaps in the region. The lack of coordinated initiatives to promote workforce diversity in the artificial intelligence labor market ecosystem in Latin America might not *per se* be the consequence of a lack of gender and diversity perspective. However, the lack of an overall strategy for IA is a chance to be one step ahead and develop intentional initiatives, actions, and regulation that is thought of as an integral package and not as an amendment. The risk, therefore, is that AI continues to develop without equality and inclusion, and this produces two major problems: the first is that it would maintain the lack of women in AI and that this leads to greater discrimination and the second that highly homogeneous organizations tend to have lower margins for innovation and disruption. Three major findings are key to this research: The subject of AI and inclusion continues to be a niche within a larger discourse of women in STEM, how diversity and gender equality are understood marks the type of policies, initiatives, programs that are configured by the ecosystem to solve these issues. We advocate an approach that is structural and broadly understands diversity. As such a structural problem would not be solved with a secluded initiative. Finally, actors of the ecosystem do not have clear channels of dialogue between one and the other. All of this is the state of Landscape for AI Workforce Diversity in the Region.

Research Question:

Are there initiatives to promote workforce diversity in the artificial intelligence labor market ecosystem in Latin America (LATAM)?

Key Words:

Gender Equality | Artificial Intelligence | Latin America | Workforce Diversity

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1.

Introduction

For centuries, women have experienced systematic discrimination and violence in the workforce. While women's representation in arenas such as politics has been rising, their representation and situation in the labor market remain contested (Ástgeirsdóttir, 2021). However, thanks to feminist movements, the gender equality and inclusion agenda in labor have obtained extraordinary global support in the last decades. For example, affirmative actions were introduced as compensation for the historical injustice suffered and represent society's commitment to redress it (Krook, 2009; United Nations, 1995). Besides all the advances, the labor market remains one of the last frontiers of gender equality, even in countries that seem like gender-equality paradises.

Simultaneously, the Fourth Industrial Revolution (4IR) emerged as a technological revolution that promised to alter how we live fundamentally, work, and relate to one another (Schwab, 2016). In this context, the 4IR represents a major crossroad in history. On one side, it signifies an opportunity for society to use technologies to mitigate historical gender inequalities. On the other hand, it may widen the gender gap if actions to remediate it are not taken.

These opposing forces are exemplified in the notion of labor "flexibility" as introduced by technology advancement (van Meel, 2011). For example, the technology sector is heavily associated with flexibility, defined as remote work, which was advertised as a means for women to gain traction in their career paths by presenting an opportunity for work-life balance (Meekes, 2021). However, labor "flexibility" is mostly used to demand more work hours, more expectations of productivity, and constant availability. This labor novelty, used as a measure of freedom from the imbalance of work-life, has introduced work directly into the private spheres of home and, therefore, is bringing about even more imbalance (Clayman Institute, 2008). As such, research has suggested a particular paradox, that is, of an industry heavily invested in innovation and problem solving but lacking diversity and vulnerable to stagnation of innovation, which is common in homogenous settings (Cech, 2021). This is the crossroad where technologies such as Artificial Intelligence (AI) lies.

AI is one of the key technological drivers of the 4IR, as defined by the World Economic Forum (WEF) (Schwab, 2016). AI is a technology that involves using computers to classify, analyze, and draw predictions from data sets, using a set of rules called algorithms. AI algorithms are trained using large datasets to identify patterns, make predictions, recommend actions, figure out what to do in unfamiliar situations, learn from new data and thus improve over time. The ability of an AI system to improve automatically through experience is known as Machine Learning (ML) (UNESCO, 2020).

AI holds the promise of solving some of society's most pressing issues and presents challenges such as inscrutable "black box" algorithms (Pasquale, 2015), coded bias (O'Neil, 2016; Eubanks, 2018), discriminatory effects (Nobel, 2018), unethical use of data, and potential job displacement (WEF, 2020). As Emily Chang describes in her book *Brotopia*, "all that world-bending technology

has been created largely by men. This technology is disrupting businesses from agriculture to manufacturing, finance, and real estate. And it's not slowing down. We face a near-term future of autonomous cars, augmented reality, and artificial intelligence. Yet, we are at risk of embedding gender bias into all these new algorithms (Chang, 2018)". The lack of diversity and gender perspective in the design, development, and adoption of AI places the historical advances on gender equality and inclusion at risk. Due to AI's potential impact on society, its lack of workforce diversity represents a threat to gender equality advances. The technology that is shaping our present and future seems to replicate structural discrimination from the past.

The intersection of gender and AI is a growing field of study. Gender and other biases entrenched in AI are becoming acknowledged as one of the five emerging trends in the technology and gender policy landscape (Dharmapuri and Shoemaker, 2021). Moreover, the Leverhulme Center for The Future of Intelligence proposes four areas of research on the subject: 1) bridging gender theory and AI practice; 2) development of law and policy surroundings for AI; 3) eliminating biased datasets; 4) promoting diversity in the AI workforce (Collet & Dillon, 2019).

Gender perspective can support the development of a more ethical, inclusive, and human-centered AI. This paper focuses on identifying how the Latin American AI ecosystem is promoting diversity in the AI workforce. Contrary to the origins of computing and programming, AI is becoming a male-dominated activity. "Initially, it was perceived as more clerical and low-skilled work. However, as the field became more culturally, economically, and socially valuable, the profession became more valuable. With this raised prestige, men moved in, and women were increasingly pushed out (Collet & Dillon, 2019)." From Ada Lovelace, the world's first computer programmer, to Joy Buolamwini, the Algorithmic Justice League founder, women have contributed to developing Artificial Intelligence (AI) technologies. However, according to the Gender Gap Report, the global share of women in data science and AI roles is hardly 32.4%, and, since 2018, it has reduced by 0.1% (WEF, 2021).

The diversity in the AI workforce field analyses mainly two problems. First, the factors surrounding the lack of diversity in Science, Technology, Engineering, and Mathematics (STEM) education. Second, the harsh conditions on the AI labor market for diverse persons. Globally, most actions and initiatives have focused on the first problem by introducing STEM subjects at school and university to solve the lack of talent in AI. These actions are also known as solving the *supply pipeline problem* (e.g., Bohnet, 2018; Schlenker, 2015; Equals, 2020; European Commission, 2020). However, besides the broad initiatives from organizations to boost women's labor supply in STEM, e.g., programs to inspire more girls into these careers, women are still excluded from the AI workforce. For example, women, especially mothers, in STEM work more hours but have a higher probability of being out of the labor force (Schlenker, 2015). In this context, the present paper seeks to contribute to the second problem by answering the following research question: *Are there initiatives to promote workforce diversity in the artificial intelligence labor market ecosystem in Latin America (LATAM)?*

The AI ecosystem is composed of four main types of stakeholders that will be further analyzed in this paper: governments, companies, academia, and international governmental organizations. Within the environment of these stakeholders is where AI is created, developed, and implemented. Most actions on the factors contributing to diversity in the workforces focus

on examining the *pipeline problem*, or the lack of enough qualified applicants. This notion, parts from the belief that the AI ecosystem is intrinsically meritocratic and far from a “structural basis of inequality (Cech and Loy, 2010)”. However, a more profound notion of diversity goes beyond a matter of simply having more women in the AI ecosystem, but of looking at who can access the ecosystem, who thrives in it, and how the AI ecosystem itself understands what diversity is.

“It is not easy to talk about gender and AI in Latin America because there is little data around the subject,” stated the President of Centro México Digital and former Federal Under Secretary of Communications and Technological Development of Mexico, Salma Jalife (2021), in an interview for this research. In this context, the document has three objectives. First, feature the relevance and urgency of addressing the gender gap in the Latin American AI workforce ecosystem. Second, identify initiatives developed by stakeholders in LATAM to address the gender gap in the AI workforce. Third, establish policy recommendations for adoption at the regional level. The methods of collecting information to achieve these objectives are desk research and in-depth interviews with representatives of the governments of Argentina, Colombia, and Mexico were conducted. In addition, interviews with personnel in key positions in the Inter-American Development Bank, Conectadas-MX, C-Minds, and IALAB were held to understand their opinion of the research question. As stated there is little public data around the issue. As such this paper has privileged organizations and countries that have produced public information. The research was done also using the “snowball method”, where the actors interviewed on it identified and referred other key stakeholders. This is a consequence itself of the research problem as one that is under-explored, with little public data and insular communities (O’Reilly, 2009). For this reason, this is not an exhaustive research, and hope that it is the first of many more studies on the topic. The analysis focuses on revising the current state of women’s participation in the AI workforce and the visible strategies aiming to redress the imbalance of diverse profile careers in the AI ecosystem stakeholders in Latin America.

The future of the feminist agenda in LATAM should contemplate achieving gender equality in the AI workforce. While global awareness around the hazards that the AI workforce diversity crisis represents to gender equality, and therefore society, is emerging; the public acceptance and outrage about it are low. Based on Sandman (2018), ideally, this situation would demand surveillance and precaution advocacy policies from governments, companies, academics, and technologists involved in AI ecosystems. For this reason, identifying current initiatives on the matter is critical. Furthermore, understanding the relevance of bringing diverse perspectives to the AI workforce ecosystem in LATAM, the initiatives to promote it, and the challenges that diversity faces in the AI labor market are critical to achieving a more inclusive fourth industrial revolution.

2.

Relevance of the Lack of Workforce Diversity on AI

*“Does this sound like meritocracy?
Or does it look more like institutionalized bias?”*

Caroline Criado Perez, 2020

AI has enormous power around our lives and directly impacts access to services and opportunities. It assists decision-making for job recruitment, bank loans, medical diagnoses, judicial ruling, social media recommendations, university acceptance, virtual assistants, and expansion. Embracing AI promises considerable benefits for businesses and economies by contributing to productivity growth and innovation (Manyika and Bughin, 2018). For this reason, there is an urgent need for people from diverse backgrounds to participate in and lead AI systems' design, development, and deployment.

Recent studies demonstrate that machine learning algorithms can discriminate based on classes like race and gender (Buolamwini and Gebru, 2018). Gartner predicted that by 2022, 85% of AI projects would deliver erroneous outcomes due to bias in data, algorithms, or the teams responsible for managing them (UNESCO and WEF, 2021; Gartner, 2018). Juan Miguel Lavista from Microsoft stated in the book *Planet Algorithm*, “it is critical for us to understand that learning from data has risks that must be considered. If we learn from human behavior, we need to understand that AI and machine-learning models can learn good and bad things, including discriminating against people or groups. At the same time, AI and machine-learning models have the power to show that there is discrimination in the first place and can provide a path to fixing it (Beliz, 2018).” In this context, AI professionals develop such an essential task for the 21st century that cannot be left to the hands of a reduced and homogeneous part of the population.

The prejudices coded into the most general AI applications are rooted in gender imbalances in digital skills education and exacerbated by the gender imbalances of the technical teams developing frontier technologies by companies with significant gender disparities in their C-suites and corporate boards (UNESCO, 2020). “The math-powered applications boosting the data economy are based on choices made by fallible human beings. Some of these choices were no doubt made with the best intentions. Nevertheless, many of these models encoded human prejudice, misunderstanding, and bias into the software systems that increasingly managed our lives” (O’Neil, 2016). One of the steps to reduce bias in AI, is: “invest more in diversifying the AI field itself. A more diverse AI community would be better equipped to anticipate, review, and spot bias and engage communities affected (Manyika, Presten, Silberg, 2019)”.

Women’s reduced participation in the AI ecosystem is a problem. While equitable representation—in datasets and data science workforces—is essential, it remains window dressing if we do not also transform the institutions that produce and reproduce those biased outcomes in the first place (D’Ignazio and Klein, 2020). Though it is documented that by having more diverse teams,

biases are more likely to be identified and less likely to be replicated in these systems (Centre for Data Ethics and Innovation, 2020), the AI ecosystem continues to have a “diversity challenge” (Zhang et al., 2021). Yet, if done with a gender perspective, AI can positively change our societies by challenging oppressive gender norms (UNESCO, 2020, p. 4). Actively attending workforce diversity is critical for the gender equality & inclusion agenda and applying AI ecosystems in society.

Women data scientists and AI specialists can change the distribution of power. However, they face discrimination in their everyday work. The AI ecosystem is a deeply masculinized environment. From hackathons and memes (Brooke, 2019), managerial and leadership positions (EQUALS, 2020), up to research and development of knowledge about AI (Gomez-Mont, 2020), women are still underrepresented and discriminated against in the AI ecosystem. For example, in GitHub, a code-management platform with 56 million developers that helps with collaborative work, female users are less likely to accept their contributions if they identified themselves in their user profiles as women (D’Ignazio and Klein, 2020).

Developing policies to ensure safe workplace conditions for diverse individuals in AI is urgent. With a rapid expansion of employment in AI, the shortage of qualified labor has raised concerns and boosted the investment of policies to promote more girls with diverse backgrounds to study STEM. Women make up almost 50% of the overall workforce. Yet, just in the US, the proportion of women in STEM careers remains around 24% (WEF, 2020).

Globally, women are under-represented in STEM. Reducing the gap in STEM education has a crucial role in achieving the 2030 Sustainable Development Goals (SDG) (Osorio et al., Nd). This perspective has created a reliance on thinking of problems with diversity and inclusion as a matter of getting enough women into STEM to solve diversity, representation, and inclusion issues. However, the data, desk research, and interviews signal a more complicated picture: it is not just about the low levels of women studying STEM but also the barriers to professional participation in the industry—the gender gap within the industry and a whole system that discourages women’s interest in the ecosystem.

According to the WEF Global Gender Gap Report, women make 26% of Data Scientists and AI professionals. In Latin America, the gender gap in frontier skills occupations persists; the percentage of men working in data science and AI is 74% in Argentina, 82% in Brazil, and 72% in Mexico, (WEF, 2019). Therefore, attending to the gender gap in the AI workforce should be a priority in the policies related to AI and gender in the region. To add complexity, the Latin American labor market has a large informal labor sector that is hard to account for (Arboleda et al, 2020). Due to its potential, it should be a matter of public concern about not having women working in AI.

Besides the lack of supply of talent, it is important to develop actions towards preventing discrimination in the workplace. For example, there is a pay gap for women working in technology. Using data from Mexico, women in the Mexican software industry experience a 30% gender wage gap (Mexico City Global Shapers, 2019). The gender wage gap in software shows that higher female quotas alone will not address inequality related to gendered behaviors in AI ecosystems (Vedres and Vasarhelyi, 2019). According to Criado Perez, more than 40% of women leave technology companies after ten years, compared to 17% of men. Furthermore, female technologists expressed that they did not resign for family reasons or because they did not

enjoy the work; they left because of “workplace conditions and undermining behaviors from managers” and a “sense of feeling stalled in one’s career” (2020). The adoption of AI requires rethinking the strategies to ensure that the few women that decide to enter STEM and AI have workplace conditions that support them to stay.

The establishment of solutions to reduce the inequalities generated by AI relies on the human capital that implements them. Gradually, global organizations are creating awareness around this harness. For example, UNESCO and WEF dedicated 2021’s International Women’s Day to have an active conversation with global leaders to understand the impact of AI on gender equality denominated “Girl Trouble: Breaking Through the Bias in AI.” In addition, UN Women and ITU launched *EQUALS partnership* to create a global movement where women and girls are equal participants in the digital technology revolution. Undoubtedly, the growing international concern about the impact of AI on gender is creating awareness of the hazards of the lack of diversity in designing, developing, and applying this technology. However, in developing countries, understanding the risks and opportunities of AI is an emerging public conversation, and therefore, outrage around its risks is relatively low. This is the case in Latin America.

Latin America has a paradox of representation. The region has higher participation rates of women in technology than other regions, yet still presents challenges with integrating them within the ecosystem. The “critical mass” approach refers that 30% of female participation in an institute can create a change. For example, that 30% was the *de facto* starting point in political quotas (Krook, 2009). Although 45% of scientific researchers in Latin America are women, surpassing all other regions, in STEM fields the number drops to 36% (Resource Foundation, ND). This outlier status is also represented in other areas, such as internet use, where Latin America is the only region in the world where more women use the internet than men (UIT, 2020).

2.1. Gender toolkit for AI

The different challenges presented to analyze gender equality and diversity in the AI ecosystem could be addressed by implementing a Gender toolkit for AI. Toolkits have become popular strategies due to their flexibility and set clear policies, practices, and procedures regarding gender equality and diversity (OECD, 2015). They also allow for a clear-cut form of analysis by addressing the different strategies and setting baselines on what they should accomplish. The first start for a gender toolkit for the AI labor workforce is to settle basic concepts such as gender mainstreaming, gender quotas, gender perspective, and intersectionality.

IALAB in Argentina and *Derechos Digitales*, an NGO specialized in monitoring and promoting Digital Rights in Latin America, report a lack of labor rights with a gender perspective and an absence of gender perspective in the AI labor force. *The supply pipeline problem* is constantly referenced in multiple papers on female participation and diversity in AI and STEM and used as a shortcut to describe the landscape of inclusion. However, the concept should be analyzed in a broader way and against concepts of gender mainstreaming and gender perspective.

Discussing labor *pipeline problems* addresses the problem of lack of representation of women and diversity in the AI ecosystem. Gender quotas are a powerful and effective strategy for increasing female participation (Bohnet, 2018; Pande and Ford, 2012). They have been

implemented in different fields to address the lack of representation. In the original design, gender quotas talked about achieving a “critical mass” of women in each field. Critical mass theory starts from the idea that a minority —if it brings together enough people— can lead to a qualitative change in working conditions and organizational relations. This, in turn, can accelerate a dynamic of change that favors the access of other people belonging to this minority and their progression in the hierarchy. The idea of critical mass was incorporated into gender mainstreaming efforts that arose from the Beijing Platform for Action (United Nations, 1995).

In July 1997, the United Nations Economic and Social Council (ECOSOC) defined the concept of mainstreaming the gender perspective in the following terms:

“Mainstreaming the gender perspective is the process of assessing the implications for men and women of any action that is planned, be it legislation, policies or programs, in all areas and at all levels. It is a strategy to ensure that the concerns and experiences of women, as well as those of men, are an integral part of the development, implementation, monitoring, and evaluation of policies and programs in all political, economic, and social spheres so that women and men can benefit equally from them, and inequality is not perpetuated. The goal of integration is to achieve gender equality.”

The representation of lack of diversity is a result of only a “pipeline problem” impacts how the initiatives to solve the lack of women’s representation in AI are articulated. Osorio et al. analyzed the data from the W-STEM project for 2018, an initiative integrated by 15 universities in Latin America under the auspices of the European Union. Their findings concluded that the average student population in STEM programs by gender was 31.78% female, with the lowest female population being 28.5% in Chile and the highest 32.3% in Colombia. This gender gap is more pronounced in engineering than in science programs. This is consistent with the data from other countries, such as the UK, where the most significant gaps exist in engineering and computer sciences (STEM Women, 2021). Osorio et al also disclosed that while there was a gender gap in the students enrolled in STEM, more women graduate than men. However, the desegregation showed gender parity in science programs, but in engineering, only 34% of graduates were women. In conclusion, LATAM has a nuanced gender gap in STEM with a unique potential. It is, evidently, more than a pipeline problem.

Affirmative actions are also key tools in the relation between gender and the AI labor workforce. The United Nations describes affirmative action as a “coherent packet of measures, of a temporary character, aimed specifically at correcting the position of members of a target group in one or more aspects of their social life, to obtain effective equality. (2002).” An affirmative action is focused on targeted groups perceived in positions or conditions of disadvantage.

Used as a theoretical tool and framework, gender perspective concepts such as intersectionality or data feminism can support the development of more ethical, inclusive, and human-centered AI. For example, the intersectionality framework explains the privileges and penalties associated with intersecting systems of oppression (Hill Collins and Chepp, 2013, p. 59). In addition, data feminism introduces a new way of thinking about data science and AI. As stated by D’Ignazio and Klein:

Power is not distributed equally globally; those who wield power are disproportionately elite , straight, white, non-disabled, cisgender men from the Global North. The work of data feminism is first to tune into how standard practices in data science serve to reinforce these existing inequalities and second to use data science to challenge and change the distribution of power (D'Ignazio and Klein, 2020, p. 8).

In conclusion, gender mainstreaming, gender quotas, and affirmative actions represent a Gender Toolkit's basic concepts for anyone interested in the intersection of AI and gender. Governments in Latin America have implemented concepts such as gender mainstreaming and quota systems in different initiatives such as the constitutional reforms in Argentina, Bolivia, and Mexico in political representation. However, no such initiative exists in the AI ecosystem in the region. In this sense, it is important to develop a regional toolkit that analyzes AI's impact on gender, creating awareness of the hazards of the lack of diversity in the design, development, and application of this technology. Furthermore, shining a gender lens of AI can better picture how genuinely disruptive this field can be and what actions can be developed to harness it.

3.

Landscape of Workforce Diversity Initiatives in Latin America: A low outrage

Technology is political, and both can be feminist.

Maria Lab

Recent research in Latin America has urged ethical standards and responsible use for AI (Pombo et al., 2020). Few of them have specialized on the relevance of including gender perspective on the matter. However, there are some efforts of international institutions towards highlighting gender equality and part of ethical discourse. For example, the United Nations Ad Hoc Expert Group (AHEG) for the Preparation of a Draft text of a Recommendation the Ethics of Artificial Intelligence, mentions as an objective to “promote respect for human dignity and gender equality” and a complete policy area on gender (AHEG, 2020) Latin America requires adopting theoretical frames that allow regional leaders to address the challenge in more practical ways. As stated by Scrollini in Oxford’s AI Government Readiness Index:

AI techniques evolve in each context, and LATAM countries are among the most unequal globally, with little capacity to regulate these developments. For instance, the inclusion of automatic decision-making in welfare payments could well lead to excluding thousands of people in need. At the same time, with a long history of corruption and governance challenges, AI techniques are used to spot irregular patterns in public procurement, budgets, and public works. A problem in terms of data is representativeness and the potential for bias. Most LAC countries have indigenous populations that are not properly included in societal processes and are not included in administrative data. The same problem would extend to gender issues where women and non-binary genders run the risk of not being considered (or be explicitly discriminated against) depending on the context. Automating inequality could be a great risk (Oxford Insights, 2020).

Despite the evidence, the development of the AI ecosystem and gender equality are still perceived as separate affairs. As noted in the book *Planet Algorithm*, “Latin America needs to start relying on the human factor, on talent” (Beliz, 2018). However, this talent needs to be diverse, not only from diverse academic backgrounds but identities. Currently, there is still a low outrage around the hazards of the gender gap in AI. This explains why there are practically no specific policies or initiatives to assess it.

This chapter collects information, perspectives, and actions from governments, companies, academic institutions, civil society, and international governmental organizations. It characterizes the actions and initiatives of these stakeholders aiming to redress the imbalance of diverse profile AI careers in the region. As stated before, the research focuses on the actions regarding creating better workplaces for women and not on the previously described “pipeline problem.” Plus, it must be noted that some of these initiatives cross-pollinate each other’s fields of action, and especially with initiatives with a regional focus, we have multi-sector efforts.

3.1. Characterization of the initiatives in government

Globally, governments have slowly reacted towards the regulation and adoption of AI systems. Particularly in Latin America, there has been a growing interest in developing AI strategies and policies within the different governments since 2018. “AI offers real promise to governments in Latin America and the Caribbean but currently lacks the capacity and investment to emerging as a significant actor in space (Scrollini, 2020).” This explains why the public information around governmental initiatives is related to how to build a governmental AI strategy, but only a few of the documents lightly discuss gender equality policies on the matter. For this reason, “governments in the region might need to review the evidence and set up conditions for the use of these technologies as well as to make sure that such development will be inclusive and generate local and regional benefit (Oxford Insights, 2020).”

LATAM governmental initiatives to promote workforce diversity in the AI ecosystem are at a stage of emerging awareness. By the time of the publication of this research, Latin America had a higher number of countries with or developing national AI strategies - Argentina, Brazil, Colombia, and Uruguay have published a strategy, Chile is having one in development and Mexican Government (2012-2018) published one. While countries in the region are above the world’s average on the Oxford’s Government AI Readiness Index, the gender gap in the LATAM’s Artificial Intelligence ecosystem remains. According to Oxford Insights Responsible Use Sub-Index, LATAM’s responsible use of AI varies greatly across regions, governments face a problem of transparency and accountability, and therefore it is a key challenge to ensure AI is used in a responsible way (Oxford Insights, 2020). This is the case of Uruguay, Colombia, Argentina, and Mexico. These countries were chosen based on the combination of their relevance in the region, the publication of an AI initiative during the process of recruitment of information, and the availability of information. An in-depth look at every country within the region is worthwhile, the resources to do so lie beyond the scope of this research.

3.1.1. Uruguay

Currently, LATAM’s leader on the Government AI Readiness is Uruguay. “This is largely explained by its government policies to support AI, good IT infrastructure, the development of a national strategy on the matter, and human capacity built-in their private and academic sector (Oxford Insights, 2020).” Uruguay leads the top 10 Responsible Use sub-index, was the first LATAM country to deploy 5g, and even, in 2019, hosted Khipu, the first regional conference on AI (Khipu, 2019). Uruguay’s current AI strategy for the Digital Government has a pillar defined as “Capacity Development” which argues the necessity of “training staff in different capabilities” as follows:

It is important to prioritize training in multidisciplinary contexts, generating skills that enable us to understand all the difficulties, challenges, and impacts that arise when using AI in the services and processes of Public Administration. In addition to the technical and business profiles that are linked to Information Technology in the public sphere, there is a need to incorporate new profiles, such as those related to humanistic training, whose contribution is essential to improve the interaction between AI systems and their users (AGESIC, 2019).

Uruguay's Presidency recognition of the necessity of "developing a training program that includes the different disciplines related to AI, as well as the different profiles involved" represents a decisive step towards inclusion in the AI ecosystem. However, the strategy does not consider a specific line of action to assess the gender gap in the AI workforce.

In addition, Uruguay established the National Strategy for Gender Equality 2030 in which a line of action was to "develop alliances between educational institutions, research, and the items of the productive cabinet to stimulate trajectories of women linked to scientific-technological development and production (Consejo Nacional de Género, 2018)." As well, in 2019, in the framework of advancing the agenda of the Business Development Advisory Council, Uruguay's government considered pertinent to "review, from a gender perspective, the potentially relevant norms, programs and instruments for the development of female entrepreneurs and companies led by women and consider their specific needs (Transforma Uruguay, 2020)." The expected results of this review and policies are not reflected in the National AI Strategy nor the participation of women in the AI workforce ecosystem.

3.1.2. Colombia

"Colombia, Argentina, and Mexico have a group of leading digital businesses who could take advantage of the AI revolution, but several regulatory and capacity challenges stand in the way (Oxford Insights, 2020)." Colombia has a growing leadership in the technology sector. For example, it holds WEF's Centre for the Fourth Industrial Revolution, the tech accelerator Ruta N, and the Centre of Excellence for AI in Medellin. At the same time is home to LATAM's super app Rappi and is a growing leader in the development of talent for technology.

In addition, the government of Colombia published the National Policy for the Digital Transformation and AI (Política Nacional para la Transformación Digital e Inteligencia Artificial, 2019). With the objective, the country can "seize the opportunities and face the challenges related to the Fourth Industrial Revolution", the policy consists of 14 lines of action, a tentative budget, and a path for following steps (Presidencia de la República de Colombia, 2019). Even though one of the principles comprehends an "experimentation environment for developing talent policies," there are no specific actions in this policy towards reducing the gender gap in the AI workforce ecosystem.

Colombia has developed decisive national policies to solve the pipeline problem. In 2018, the Presidency of Colombia announced the program Mission TIC 2022 (Mision TIC 2022) to "train 100,000 Colombian youth and adults in programming, to face the challenges of the Fourth Industrial Revolution. In this mission, women and men will be chosen and trained to be part of the adventure that will propel the world forward (Government of Colombia, 2021)". Mission TIC 2022 is an example to replicate regarding the political will and interest from the current government to generate technology talent. In collaboration with organizations and through the Interacpedia platform, a start-up that focuses on connecting talent and organizations, the program has a section of "employability," which seeks to connect the talent of the students with companies interested in hiring them. However, it still concentrates only on the supply problem and does not have a direct policy to create better working conditions for women in technology.

“What we have is a lot of work,” recognized Helga Hernandez, Director of Appropriation of Technology at Colombia’s Ministry of Information and Communication Technologies (MINTIC). Since 2020, Hernandez has developed two major policies, Steam Girls (Chicas STEAM) and For Tic Women (PorTicMujer), both designed to strengthen the talents and vocations of Colombia’s women and to reduce the gender gap in the area. Steam Girls is created to train for free 5,000 girls and adolescents in science, technology, art, engineering, and mathematics (MINTIC, 2021). Moreover, For Tic Women has trained up to 35,000 Colombian women to develop their digital skills and thus generate new income, create digital content, and promote the exercise of their rights (MINTIC, 2021b). “There is a massive interest in training for artificial intelligence. One of the lessons learned was that we had to take the knowledge to the base and, therefore, we must work on digital literacy. We developed an alliance with IBM, and in the first training pilot, we reached 6,500 women!” In just one year, these policies passed from pilots to formal training.

Undoubtedly, these governmental training programs are a highlight among the LATAM’s governmental policies towards reducing the gap in STEM, and therefore a pre-course for AI. However, these policies concentrate on solving the important pipeline problem but miss on creating better conditions for women in AI. “It is not only about getting in but to stay. We have focused on access, but now the next level is: How do we make women comfortable in the workforce? How do we guarantee that the condition of women is not a barrier?” acknowledged Aura Cifuentes (2021), Director of Digital Government of Colombia, acknowledging this challenge. Leadership recognition on the matter is a first step towards solving not only the pipeline problem but supporting women in the workforce to stay in the AI ecosystem.

3.1.3. Argentina

First Argentina’s National Plan for AI (Plan Nacional de Inteligencia Artificial) was presented by the former government of Argentina in 2019. Amongst its objectives was its concentration in the development of talent through “formal education, promotion of highly qualified human resources and continued capacity building (Presidencia de la Nación de Argentina, 2019)”. The plan recognized the challenge talent shortage experienced by all countries and intended to act on the matter. However, as well as other AI strategies in the region, it does not mention any action to prevent a gender gap in the AI workforce.

After the 2019 election, “very little information is available at all surrounding the new administration’s approach to AI (Kendal, 2021).” Argentina’s government presented the National Program of Science and Technology in School, which is aiming to prepare young generations with future skills, including “national virtual courses in strategic areas and self-assisted courses for the entire population, starting with artificial intelligence and data science (Government of Argentina, 2021).” However, the same challenge remains; nonspecific action to reduce the gap in the workforce is stated.

“It is essential, enrich diversity and objectivity through the whole process. Today, men work in the development of technology and women in data analysis. That distribution can generate bias. We need women involved in tech-oriented careers but shifting distribution of women in the design of technology,” states Melisa Breda, undersecretary of Evidence-based Public Policies at Buenos Aires, Argentina City Government (2021). According to the undersecretary,

the city of Buenos Aires is an example of how local governments can launch programs to promote more women at local positions in government and develop tech talent. In addition, the office is working on the development of data-based policies with a gender perspective for the government of Buenos Aires. “There are areas in the government trying to solve gender gaps but no track of interactions of women with the government. We are working to integrate databases to provide better assistance in real-time (Breda, 2021).” The local case of the city of Buenos Aires shows how governments can introduce actions towards the career development of AI specialists in the public sector.

3.1.4. Mexico

In 2017, Mexico became the first country LATAM and one of the few countries globally to have a governmental roadmap for the development and adoption of AI (Santiso, Zapata, and Gomez-Mont, 2020). This action positioned the country regionally on the matter. However, after 2018’s shift of administration, the Mexican federal government shifted its digital policy priorities. The action is reflected in the latest policy paper of the Coordination of the National Digital Strategy (CNDS) (Gobierno de México, 2021), which does not mention specific actions towards developing an AI National Strategy. In this context, Mexico passed from a position of leadership to be ranked 55th on Oxford’s Government AI Readiness Index with a 49.36, above the world’s average, but in fifth place on LATAM, placed after Uruguay, Chile, Colombia, and Argentina (Shearer, Stirling, and Pasquarelli, 2020).

The President of Centro México Digital, Salma Jalife, noted, “introducing the gender perspective in AI systems was not really an awareness issue, by men who develop this technology, to take into consideration (2021).” Although there are no specific policies to assess the lack of diversity in the AI workforce. There are three visible policies on the matter. First, the National Institute of Women (INMUJERES) launched a free course for older women to learn the use of internet browsers, social networks, and other digital skills to reduce the digital divide. Although this policy doesn’t assess AI itself, it reduces the gap in digital literacy for older women.

Second, the Secretary of Economy’s launch of the *Data Mexico Challenge: Data with a gender perspective*. This challenge promoted the application of gender perspective in the use of public data sets published by the federal government with the objective, as stated by Minister Tatiana Clouthier, of “begin to make visible what seems invisible to many (Clouthier, 2021)”. Other avenues to pursue policies to promote workplace gender equality in AI include the third action: *Standards for Labor Equality and Non-discrimination*. Established in 2015 by the government of Mexico, they represent a policy that seeks to incorporate the gender perspective and non-discrimination in the workplace through recruitment, selection, mobility, and training processes; guarantee equal pay; implement actions to prevent and address workplace violence; and carry out co-responsibility activities between the work, family, and personal life of its workers, with equal treatment and opportunities (INMUJERES, 2015). This program continues in the current government and has certified 451 institutions from the private and public sectors. However, standards should be adapted to the challenges of the 4IR and develop specific actions depending on the industry.

In conclusion, the emerging policymaking around AI ecosystems in Latin America lacks specific actions to address the gender gap in this technology's workforce. In most cases, the actions lie in developing policies towards solving the pipeline problem but no precise actions towards stimulating diversity and gender equality within the ecosystem's labor market. For this reason, there is a broad area of opportunity on the policy perspective to harness the LATAM's paradox of representation in technology, and in specific, the emerging AI ecosystem.

3.2. Characterization of the initiatives in companies

Companies are articulated as the movers and shakers of the technological disruptions brought about by AI. However, there is little public information around the initiatives championed to address the diversity in the workforce within them in the region. C-Minds, a think tank with a heavy focus on LATAM that works within the industry, has reported that the industry does tend to characterize the problem of diversity and gender equality in AI as a “pipeline problem” (Gomez-Mont, 2021). Meanwhile, civil society warns that companies are not investing enough money nor interest in researching the problem at hand, instead free-riding the gender equality initiatives of governments (IALAB, 2021).

The desk research developed for this arrows that there seems to be a growing consensus within the technology industry to become involved in global initiatives spearheaded by IGOs. For example, Facebook, Google, TikTok, and Twitter have recently committed to building better ways to curate users' safety online with a focus on women's safety (Web Foundation, 2021). As part of the work to commemorate the anniversary of Beijing 1995, but also to update the global gender equality agenda, UNWomen launched the Generation Equality Forum (Generation Equality, 2021). In the wake of this Forum, the major big tech companies made commitments that could open a window towards a methodology to promote diversity in the AI workforce.

The commitments were stated as a framework for solving key issues for women online: how to curate their safety online and how to report violence online. They were developed during policy design workshops that brought together 120 experts from tech companies, civil society, academia, and governments from over 35 countries to co-create product solutions addressing specific problems based on persons of five highly visible women with intersecting identities. The process can be a methodological example of how big tech companies can approach major challenges in a way that promotes a gender perspective by engaging with an open, collaborative process where the experiences of those most impacted are at the center of designing solutions. In addition, this methodology emphasizes the urgency of a more diverse workforce that can properly engage and design for their user base.

The Generation Equality Forum has announced its commitment to provide business and digital skills, mentoring, and networking opportunities for 10,000 women in the tech sector by 2026. This has been done by the flagship Global initiative of EQUALS. EQUALS is a network of over 100 organizations, companies, UN agencies, and research institutions – whose founding partners include the International Telecommunication Union (ITU), UN Women, International Trade Centre, GSMA, and United Nations University. By addressing mentoring and networking issues, provides a diagnosis beyond a pipeline issue and sets a time goal to assess the diversity in the workforce.

However, Generation Equality is a global initiative promoted by Intergovernmental Organizations (IGOs) and not spearheaded by companies nor academia. Latin America’s AI ecosystem and businesses are emerging and recognize they have a challenge of talent. According to an MIT Technology Review and Everis research on *AI in Latin American Companies*, due to lack of talent, 39% of companies develop their in-house staff in skills and abilities necessary to carry out AI projects (2020). As stated in the same report:

All the companies interviewed agree that the lack of talent is one of the main challenges when developing more ambitious AI projects within the organization. This challenge involves not only finding professionals with the required skills but also retaining them in the organization (2020).

As stated by Cechs (2021), a homogenous workforce can hurt the ability of companies to innovate and respond to challenges. This is an added difficulty to the lack of talent exposed. Ovanessoff and Plastino have stated that AI is uniquely positioned to generate economic growth in the region (2017). As such, we identify an opportunity area for research in developing interviews to companies’ actions to promote workforce diversity. In specific, future research could compare, evaluate, and propose gender policies of companies in the AI ecosystem.

3.3. Characterization of the initiatives in academia

In an interview for this paper, IALAB stated that diversity in AI is still a nascent field in academia in the region, mainly thought of as an issue to be addressed by STEM departments, more focused on technical aspects rather than ethics, diversity, and governance. 95% of the principal universities in Argentina, Brasil, Chile, Colombia, Costa Rica, Ecuador, México, Paraguay, Perú, República Dominicana, Trinidad and Tobago, and Uruguay offer degrees related to AI, and 50% of those universities have either a laboratory or research center for it (Gomez Mont et al, 2020). IALAB is a one-of-a-kind organization in the region because its initiative is based on the law department of the University of Buenos Aires.

AI has been constructed as research or actions to be worked from STEM departments. IALAB seeks to challenge that notion, while also working specifically with the intersection of academia and government. Their research and work happen without much input from AI nor companies working in the ecosystem. Part of the focus is to challenge the idea of AI as something that should only be thought of as a “private sector” issue to be regulated by the government and to open the discussion towards the government as an active participant in AI (2021).

The most present approach to diversity in AI, in academia in LATAM is still articulated as a lack of women in STEM. In 2019, a consortium of fifteen universities started the “STEM project: Building the future of Latin America” to engage women in STEM. The project was funded by the European Union through the Erasmus+ program. The main objective of the project is to improve the strategies and mechanisms of attraction, access, and guidance of women in Latin American STEM higher education programs. W-STEM worked with universities in Colombia, Mexico, Costa Rica, Ecuador, and Chile (W-STEM, 2021).

As such, the initiative did not focus directly on workforce diversity, but on providing data about women in STEM, addressing the lack of female teaching staff in STEM departments. Paradoxically, the gender gap is wider in science faculty than in engineering faculty, where it is the opposite while talking about students in the departments. Female professors are 25.9% of the total number of professors in science programs and 40.9% of professors in engineering programs. This fact limits the access of female students to female role models and mentors. Previous studies have shown that female students taking math courses with female professors, as compared to male professors, felt more confident about their math skills (Osorio et al., 2020, p.4).

This panorama can heavily impact the prospect of students entering the workforce and thus limit the participation and retention of women in technology as well as AI. There is also a gender gap within the participation of those women in research: on average in the region, only 25.4% of the research done in AI is done with a woman as a co-Author. However, it should be noted that this is considered above average. In a study of 2019 of 11,000 publications done in international conferences only 18% of the authors were women (Gomez-Mont C., et al., 2020). Diversity in the AI academic ecosystem requires not only the development of further research on the matter but promoting diverse researchers with diverse backgrounds on its development.

3.4. Characterization of the initiatives in civil society and international governmental organizations

As occurs globally, the actions to solve the gender gap in LATAM’s AI ecosystem are mainly conducted by women in civil society. “Put it simply, men in the industry do not understand or consider relevant to assess the problem. The actions to solve the challenge are trying to fix the women, instead of fixing the industry,” declared Elena Estavillo from *Conectadas*, an organization in Mexico that promotes women in technology sectors and create the appropriate conditions that allow their inclusion and leadership with equal opportunities in the public, private, academic and social spheres.

Similarly, international organizations such as the Inter-American Development Bank (IDB) have supported initiatives that focus on redressing the imbalance in education and careers in STEM, such as *Laboratoria* or *SheWorks* (Parga Fuentes and Baratier, 2021). In 2016, IDB invested USD900,000 in *Laboratoria*, an organization that encourages women in LATAM to develop their skills for the digital age, while investing in *SheWorks* in 2020 to launch a platform to train women to work in the Gig economy.

Another example is Maria Lab. A self-identified feminist hacker collective from Sao Paulo, Maria Lab focuses on feminist technologies, gender, and race-based violence online as well as Internet-Governance. The project heavily focuses on creating educational materials and research to raise technology awareness to women, transgender, and non-binary people. Similarly, Derechos Digitales is an organization founded in 2005 in Chile. With a Latin American outlook, Derechos Digitales focuses on three main areas: freedom of expression, privacy, and copyright, and right to knowledge issues. They do this by focusing on the defense and development of digital rights in the region. Likewise, Fundación Karisma, a Colombian organization, focuses on the

protection and advancement of Human Rights and Social Justice through technology. It seeks to question social injustices in technology with a gender lens. Approaches focusing on the impact of technology in women's lives are important in the long term however initiatives that address diversity or inclusion in the short term are missing.

More global initiatives that work within the region, such as A+ Alliance, point to the need to critically examine the data from a gender perspective to ensure that the implementation of algorithmic systems is an opportunity to correct the historical inequality faced by women. Another data-driven action is that of the *Latin American Initiative for Open Data* (Iniciativa Latino Americana por los Datos Abiertos, ILDA), which approaches the topic from precisely the intersection of Open Data and AI but not from diversity in AI. In most of the initiatives explored, diversity or AI are presented as sub-projects within bigger scope projects. AI, and thus diversity in it, remain niches.

Another example is the actions of Coalition IA2030.mx, a Mexican civil society initiative to foster and develop a national AI plan. Ia2030 recognizes that discriminatory practices that are the product of the implementation of intelligent autonomous systems have severe repercussions at the social level, such as reinforcing stereotypes (such as gender), lack of population representation, perpetuating social inequalities, and unequal access to opportunities. From an ethics perspective, Ia2030 defines that equality and non-discrimination rights are at risk by IA systems (Coalición IA2030Mx, 2020). However, IA2030Mx does not mention workforce diversity as a guiding action to meet the ethics and bias challenges. The research signals the relevance to boost the number of people who have not had a dominant presence in AI investigation. However, it does not define how these actions should be developed. There also seems to be an interconnectedness on who composes the international governmental organization and civil society.

As occurs globally, currently, the generation of awareness towards the gender gap in Mexico's AI ecosystem is mainly conducted by women in civil society. "Put it simply, men in the industry do not understand or consider relevant to assess the problem. The actions to solve the challenge are trying to fix the women, instead of fixing the industry," stated Elena Estavillo (2021), former President of the Federal Institute of Telecommunications and currently the founder of *Conectadas* (2021). For this reason, the lack of specific policies that fix the challenges in the IA workforce ecosystem is key.

4

Discussion: Only a pipeline problem?

Diversity is not just about equalizing numbers or fulfilling quotas.

Clementine Collett & Sarah Dillon

The current initiatives among the AI ecosystem stakeholders related to gender and AI focus on the *pipeline problem*. Focused on the long term, the initiatives seek to boost the supply side and “fix women” instead of “fixing the job market”. In other words, they focus on training and developing women’s capacities instead of providing secure, inclusive, and fair places to work for them.

The participation of women in AI and the tech industry as a “pipeline” problem does not address how this approach could potentially promote gender stereotypes. While women do participate in AI and the tech industry at lower proportions than men, as stated previously, it must be noted that AI and the tech industry struggle in general to meet their human capital needs.

For some, the struggle for having enough qualified personnel in the field goes beyond a gender matter. According to the Global AI Talent Pool Report, there is a general lack of qualified personnel (2018). However, this can also signify why precisely, diversity is needed. A diverse workforce is a massive opportunity to enrich the qualified pool of candidates. Bohnet, in her study of designing diversity, acknowledges that just getting more women into studying STEM will not solve diversity problems; the allocation of those women into the workforce is also an issue that needs to be attended to. In her study of quotas, she contends that quotas can help women who are already qualified to apply for jobs without a diverse workforce. However, her research does recognize that diversity needs to be worked with the stakeholders in the initiatives, both for overrepresented and underrepresented groups. Otherwise, diversity initiatives risk failures by not addressing the culture where they are implemented (2018). For this reason, active and coordinated initiatives of governments, companies, and academia are needed.

Through examinations of the digital output produced by multiple civil society initiatives in the region, it can be said that breaching the gender gap in AI, as well as concerns regarding a lack of Workforce Diversity on AI, is not within the main agenda of civil society in the area. Most of the initiatives in civil society tend to pursue a more generalist agenda, with issues ranging from gender and race-based violence on the internet, a lack of diversity in technology in general but not specifically to AI, or ethical concerns within AI that do not deal with gender bias in the workforce inherently. Most of the initiatives in civil society focus on the broad areas of feminism in technology, such as violence and bias, ethics in its implementations, as well as outreach initiatives disseminating knowledge about the intersection of feminism and technology, but

not in specific nor practical approaches to inclusion or diversity in AI (Derechos Digitales, 2020). This represents an area of opportunity in the development of civil society initiatives towards promoting workforce diversity in AI.

The AI ecosystem requires leaders that recognize the relevance of creating a more inclusive labor market. Even though LATAM presents advances in the political gender equality agenda, women are still underrepresented in the workforce and economic sector, as well as still being victims of gender-based violence in different areas, including those related to technology and AI.

5.

Conclusions

Well, nobody has ever complained (...) The women seem to be happy doing that, so that's just what they do.

D'Ignazio, C. and Klein, L. F.
Data Feminism

The objective of this paper was to explore the Artificial Intelligence ecosystem in Latin America to analyze the different strategies, programs, and policies that have been implemented to promote diversity and gender equality. To achieve this, we analyzed the initiatives of governments in Uruguay, Colombia, Argentina, and Mexico, and key actors in academia, international governmental organizations, and civil society organizations. These key actors were involved either in the four countries with government actions analyzed or had self-labeled as having a Latin-American scope of action. To do so, we developed interviews with members of government, international organizations, and academics. In addition, primary sources were explored, such as technology plans, work plans, and initiatives presented. Finally, the findings of this research were contrasted against the existing literature to give context to the panorama presented. The governments and key actors identified in this research are a sample of the situation in the region. As such all of them revealed similar environments and challenges within the context of this research. The commonplace of these commonalities can be inferred within the same variables, such as the existence of policies, interactions of academia, civil society, etc. However, we deeply recommend that more studies be done in order to ascertain this. As such, we identified three major findings.

First, more research is needed. The subject of AI and inclusion continues to be a niche within a larger discourse of women in STEM. On one side, topics such as violence against women in digital spaces, feminist internet, or open government attract more attention. On the other hand, the lack of an equality and inclusion agenda is a consequence of the fact that there is not an agenda developed in terms of AI.

One of the critical resources for understanding and addressing the challenges of AI has been the development of Indexes, such as the Oxford Insight's *AI Readiness Index* and the International Research Development Centre, country AI responsibility index, as measured by the Responsible Use Sub-Index and *Country consideration of gender in NAIS*, as characterized by the Stanford Artificial Intelligence Index Report. For this reason, pursuing a Readiness for Diversity in AI Index that measures how prepared a country is to pursue diversity in AI and, therefore STEM, would be an important next step in future research in the subject. A more in-depth exploration of the entire region would be a desirable objective in an investigation with a temporality greater than that presented in this research project.

Second, a gender toolkit for stakeholders in the ecosystem is required. How diversity and gender equality are understood marks the type of policies, initiatives, programs that are configured by the ecosystem to solve these issues. Most initiatives in LATAM praise the “meritocratic” approach, which favors the interpretation of the diversity problem as a “pipeline problem”. This approach understands that the AI ecosystem only needs more women and underrepresented groups to study STEM to solve it. Moreover, these underrepresented people need to train or acquire the “right skills” to be able to work or influence the AI ecosystem. This is an approach that favors intervention in individuals or “fixing women”. However, our research explores the solutions in the short term by focusing on the practices that make it difficult for women, and other underrepresented groups, to access and succeed in the AI labor ecosystem.

We recognize that our approach is structural and broadly understands diversity. The concept of broad gender diversity and equality is also based on gender mainstreaming tools. Gender mainstreaming is part of the proposal for a gender toolkit, to be able to deal with these spaces of inequality. Gender mainstreaming is the incorporation of women in all decision-making spaces and as the focus of policies, programs, and initiatives. In the words of one interviewee, it “looks for initiatives that do not seek to fix women, but rather to reform the system.” Women are not the ones that should be fixed, but the industry itself. “As a woman, I don’t like to be a percentage. I would like to know that I won the position because I am competent. It is not about percentages but being able to compete in the same conditions as a woman does. But for that, we need to ensure that women get the equal opportunity to fight for the position (Jalife, 2021).” Besides training, the industry needs to guarantee places to work that embrace diversity.

Third, a structural problem would not be solved with a secluded initiative. The LATAM AI ecosystem has promoted actions such as creating national AI strategies, establishing ethical and responsible standards, and promoting more girls to study STEM or solving the pipeline problem. However, all these unconnected policies and actions in countries such as Argentina, Colombia, Mexico, and Uruguay do not assess the risk of the gender gap in AI. More so, the unconnected nature of the policies goes against the lessons learned in government: isolated actions do not generate large returns. This lack of an agenda also means that what is found in most cases is that there are only isolated actions to remedy inequality in AI. This is an area of opportunity since it implies that we are in time to make more strategic interventions to develop both. Another finding is that the actors of the ecosystem do not have clear channels of dialogue between one and the other.

In conclusion, the recent developments and promises of AI represent a unique opportunity to assess gender and inequality gaps in the region. The lack of coordinated initiatives to promote workforce diversity in the artificial intelligence labor market ecosystem in Latin America might not *per se* be the consequence of a lack of gender and diversity perspective. However, the lack of an overall strategy for IA is a chance to be one step ahead and develop intentional initiatives, actions, and regulation that is thought of as an integral package and not as an amendment. The risk, therefore, is that AI continues to develop without equality and inclusion, and this produces two major problems:

1. Maintain the lack of women in AI, and that this leads to greater discrimination, for example, the development of algorithmic discrimination.

2. That AI lacks as highly homogeneous organizations tend to have lower margins for innovation and disruption.

The future of the feminist agenda should contemplate the challenges and opportunities to gender equality presented by developments of 4IR technologies and, in specific, AI. If used as an opportunity to address bias and discrimination, AI can boost the path to equality. Change does not happen by default but by design. Using gender perspective and introducing workforce diversity at the center of the AI strategy can help to prevent the widening existing social gaps.

5.1. Recommendations for Stakeholders

The government, as well as members of the AI ecosystem, should address this problem intentionally and introduce the following measures as part of a precautionary advocacy campaign towards reducing the gender gap. As a first proposal, we suggest the following recommendations to stakeholders.

5.1.1. Policy Recommendations for Policy Makers

- Enforce standards on labor equality in the AI ecosystem.
- Reassess AI national strategies and policies roadmap with a gender perspective.
- Develop specific gender policies that consider the impact of AI on equality & inclusion.
- Improve the capacity building on gender equality in the AI ecosystem stakeholders, government officials. Making a special emphasis on the leadership level.
- Establish AI fellowships, executive education programs, and training for mature women.

5.1.2. Policy recommendations for AI companies.

- Train in Gender and Diversity to current members of their company.
- Recruit diverse profiles, guaranteeing 30% of diverse profiles in all the teams and levels within the company.
- Develop more inclusive labor policies within the company that creates open and inclusive workplaces.
- Eliminate any possibility of a gender wage gap.
- Invest in gender and diversity research and initiatives.
- Provide more public data regarding the diversity initiatives within them.
- Harness the power of open data. Women thrive in organizations with open codes of conduct, evaluation, wages, and benefits.

5.1.3. Research recommendations for AI academics.

- To generate more information on the impact of AI on the gender equality agenda, academia should develop more research that helps understand the hazard.
- Pursue a Readiness for Diversity in AI Index, which would measure how prepared a country is to pursue diversity in AI, and STEM.

5.1.4. Recommendations for Civil Society

- Harness the pipeline problem through the development of initiatives that help women thrive in the sector.
- Develop initiatives that seek to fix the system.

5.1.5. Recommendations for a woman in data science and AI in Latin America.

- Promote diversity and inclusion policies within the organizations you participate in the ecosystem.
- Network, network, network. Allies are everywhere.
- Openly seek leadership positions in the AI ecosystem.
- Invest time and resources to continue working towards diversity.
- Recommend women and diverse leaders to leadership positions. Sorority always pays.

6.

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