United Nations Commission on Science and Technology for Development

Juan Felipe Betancourt and Sarah Daniela Ordoñez

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COMMITTEE GUIDE

UNCSTD

CCBMUN XXII

Contents

1. Presidents' Letter

Dear Delegates,

Welcome to this edition of CCBMUN! We're Sarah Daniela Ordoñez and Juan Felipe Betancourt, your presidents. We're excited to be part of this journey with you, and are confident that you'll find it enjoyable and meaningful. Our aim is for you to learn and gain a deeper understanding of the world around us.

Our own journey with Model United Nations began years ago, fueled by curiosity and a desire to engage with global issues and our future. As rookies, we navigated the challenges of preparing portfolios and delivering our opening speeches with shaky hands and nervous voices. Looking back, we cherish those early experiences with a nostalgic, proud gaze, recognizing how much we have grown and evolved since then. We remember the tears and laughter, the friendships forged, and the joy of making impactful interventions.

Leading you as delegates today is exciting for us, reminding us of our own journey and the dreams we've pursued. As presidents, we urge you to continue pushing boundaries and striving for excellence. Your role as delegates is to advocate for a better world, and we have every confidence that you'll rise to the occasion in our committee.

We encourage you to embrace the spirit of debate and dialogue with determination, patience, and discipline. Remember that the mind, like a parachute, only functions when open. So, stay open-minded, stay curious, and savour every moment of this experience. We look forward to seeing your contributions and personal growth in the debates ahead.

See you soon!

Sarah Daniela Ordoñez and Juan Felipe Betancourt
UNCSTD Chair
uncstd@ccbcali.edu.co

2. Topic 1: *Technology for family farming*

I. History/Context

As agriculture advanced, the environment of cultivated fields and paddocks became increasingly distinct from the natural habitats where plants and animals originally evolved. For plants, nutrient availability increased, plant density and genetic uniformity rose, and the focus of competition shifted from between different species to within the same species, especially due to the general decrease in crop species diversity, mostly caused by monoculture, where large areas are planted with a single crop species.

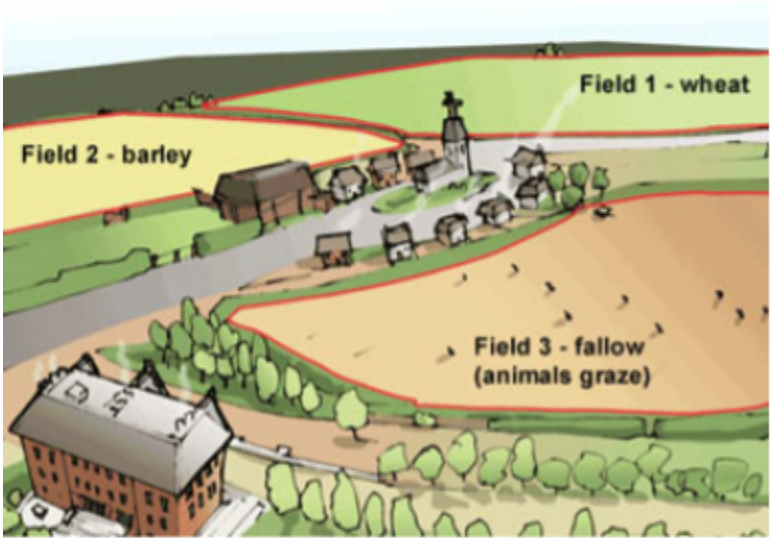

Figure 1: Medieval crop rotation system ((Jarrett, 2012)

The techniques, strategies and practices used in agriculture to maximise crop yields and minimise environmental damage, are referred to as agronomic practices. Examples such as tilling and crop rotation were introduced partly to enhance fertility and partly to manage natural pests, as rotation alters entire communities of fungal pathogens. Similarly, domestication provided animals with a more stable environment, with more resources available during tough times and protection from predators, but also introduced new risks from contagious diseases, all of which subtly influenced the evolutionary makeup of livestock.

“Smallholdings” or “small-scale agriculture” is a concept without a universal definition; it is often characterised by the family-operated workforce, the size of the working land and those who live on the land. Both the World Bank and the International Fund for Agricultural Development (IFAD) consider that the size of a small-scale farm is two hectares. In contrast, governments have their own definition of the dimensions. Some of them define the limit with not more than four tax/fiscal modules (Referred by Oxfam in Spanish as “módulos fiscales”). The extension of each module varies by region, going from two/three hectares to a hundred (Oxfam, 2011).

There have been many technological advances in farming over the past few decades. Nowadays, this technology includes sensors, robotics, satellite monitoring and data analysis. These methods increase the economic viability, productivity, safety, and environmentally friendliness of businesses. They are all useful, but difficult for smallholders to purchase, being primarily produced for the big industries.

Some governments have prioritised investments into industrial production and its technology. There has been a promotion of large-scale monocultures such as avocado, apple, corn, wheat or soy that are destined mostly for consumption. Other crops such as oil palm, sugar cane and sunflowers that are ultimately destined for the biofuel industry have also been a topic of interest regarding the investments.

Over the last few years, there have been some techniques and modifications that have led to significant changes in the appearance of plants and animals, as well as in their nutritional value (e.g. in potato, tomato, apple). There are examples such as domestication, selection, and hybridisation, both unconscious, which is when plants in close proximity cross-pollinate without human intervention, and conscious, which is the deliberate and controlled process managed by humans, often through selective breeding programmes. All those modifications (improvements) on Earth or the way it is worked are considered technological advancements. However, in modern terms, technology is often more sophisticated and includes advanced mechanisms.

Comparatively, there has been a decrease in economic support for “family farmers” or “smallholder farms”. This has caused a decrease in the total budget allocated to agriculture (in terms of Gross Domestic Product or GDP) in countries such as Colombia, Paraguay, Peru and Ecuador, where public spending on this area has decreased between 1 and 3% of the total budget. Conversely, Brazil and Bolivia have had a level of public spending higher than 10% (Oxfam, 2011a).

Something similar can be seen on the continents of Africa and Asia, where the percentage of agricultural GDP public expenditure was 6.7 and 10.6 respectively (World Bank, 2007). In 2016 it was estimated that 500 million smallholder farming families were living on less than US$2 a day (World Bank, 2016), demonstrating a lack of government support for these people.

Small-scale agriculture is a key to food production in many countries, for example, over half of the nutritional resources consumed in South America are supplied in this way. Additionally, it creates many jobs in different countries of South America. In Bolivia, small-scale agriculture occupies 27% of the economically active population, while in Peru it is over 20% and 8% in Brazil (The Global Economy, 2022) Despite the large number of people working in agriculture in some countries, the contribution to the GDP may be small, for example in Bolivia it is 13.5%. Unfortunately, employment in this sector is often informal and poorly paid. For example, in Colombia in 2019, only about 15% of salaried agricultural workers had formal work contracts and were enrolled in the contributory health system.

The impact of agriculture on GDP is not something that only happens in South America, it is something crucial to Sub-Saharan Africa countries.

Figure 2.1. **Agriculture as a share of total GDP in 2014**

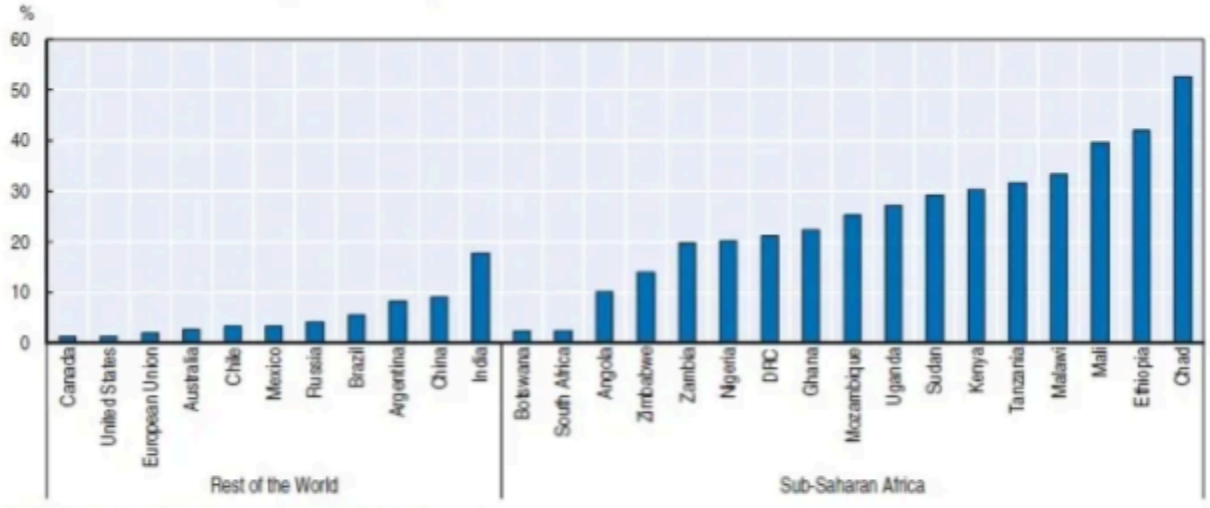

Figure 2: Agriculture as a share of total GDP in 2014 (Taylor, 2017)

"Despite producing much of what we eat – paradoxically – family farmers, many operating on a small scale, face hunger and poverty, especially in developing countries." (UNCTAD, 2023). Economic insecurity in South America affects mostly the rural population who depend on agriculture to survive. Women are often the most affected, yet the main producers, especially when the men go to cities to look for work. The inequality income distribution in the regions closely follows the high levels of land inequality. The traditional patterns of land distribution in Latin America have furnished a system of general landlessness or subsistence agriculture for most, and extensive standards to a small elite. At the same time, in much of Africa, large commercial farms with higher levels of technology are generally owned by a small national elite. In Europe, 93% of farms are family farms, about 65% of which are smaller than 5 hectares. Farmers receive government subsidies and support in more developed countries.

Economic growth and the reduction of poverty go hand in hand with investment in agricultural development. In spite of that, according to a study made by the International Food Policy Research Institute (IFPRI), investment in Latin America

and the Caribbean just reaches 1,14% of the added value in the region, being equivalent to 3.000 million dollars annually. Not only that, but 70% of this value is covered by just three countries: Brazil, Argentina and Mexico. While the investment in agricultural science and technology had a growth rate of 0.67% from 1991 to 2006, the added value grew with an average annual rate of 3%. To align with the international media, according to the IICA the region should double that investment (Oxfam, 2011:23)

In many smallholdings in developing countries, the high costs of transportation, lack of access to cost information, low production volumes, lack of infrastructure for storing and high levels of intermediation (when farmers have to sell to buyers for a lower price than if they could sell directly to consumers) mean that farmers struggle to earn a living. There are many aspects which could be covered with the development and distribution of technologies. For instance, the development and distribution of technology in storage processes will enhance product quality, not only by improving the quality of the products themselves but also by reducing post-harvest losses. Transportation costs are typically high, particularly in remote and rural areas; investing in technology to reduce these costs can eventually lower the final price of the product. Lastly, the lack of accurate cost information available to farmers can lead to inconvenient decisions regarding pricing, marketing, and production planning.

II. Current Situation

Today, family farms around the world make up about 80% of all the farmland in use. However, small and medium-scale agriculture has been neglected in many countries, due to the main focus of growth on industrial agriculture. Industrial agriculture is based on the implementation of new intensive technologies, mechanisation and mass production. Most advantages have been given to industrial agriculture, with credits and public policies being flexible for this industry (environmental protection, exports and important taxes, labour rights, among others) (Oxfam, 2011: 16).

Governments of developing countries have been investing more in crops for exportation. The reason behind this shift is economic interests as they gain more money from selling crops abroad. Overall, it has been found that these sorts of policies can have a negative effect on domestic food supplies and availability of staple crops for local people. (Aragie et al., 2023) Governments subsidise these supplies instead of supporting small agriculture, which ultimately limits the capacity of family farmers to adapt and obtain adequate new technologies. For example, the political structure that supports agribusiness in Brazil has significantly impacted the country's socioeconomic situation. For example, tax exemptions on exports and subsidies for losses have boosted large-scale agricultural production, making Brazil the second-largest exporter of soy in the world. This growth has had a positive impact on the economy; however, it hasn't led to the increase of employment opportunities or environmental benefits. While some programmes have been supporting family farmers, they are still not enough.(Oxfam, 2011: 21).

However, recently governments have started to realise that small family farms are important for food security, and more interest is being shown in helping smallholders with technology such as drones, sensors, GPS and AI being utilised.

Examples of technology introduction in family farms

Small agriculture has shown its capacity to be an efficient way of food production. In China, for example, they achieved food security and economic development through various methods: allocating capital to improve infrastructure; a reform on land distribution; and maintaining the State's purchase of a portion of production at fixed prices. In this way, two hundred million family farmers escaped financial distress, and also became capable of feeding 1.3 billion people (Oxfam, 2011:26).

According to Oxfam, the FAO said that *"To feed a population of 9 billion people by 2050, global food production needs to increase by 70%. However, merely increasing production is not sufficient if food is not accessible to those who need it."* (Oxfam, 2011, author´s translation) Local markets and small producers

(specially women) play a prominent role in the production of the food for these markets. Additionally, there are also environmental and social limits to the expansion of industrial agriculture as the solution to feeding a continuously growing population, as demonstrated by the International Assessment of Agricultural Knowledge, Science, and Technology for Development (IAASTD), which emphasised the importance of moving towards a more sustainable agriculture model, where traditional and local knowledge plays a crucial role (Oxfam, 2011:26). This estimate for 2050 was modest, because by 2024 the current worldwide population is about 8 billion, meaning by the stipulated date, this number will be surpassed, potentially increasing the food sovereignty crisis.

These data show that investment in family agriculture is necessary for food security and reduction of financial vulnerability in regions that could benefit from agriculture. To ensure this, it is important to increase technological innovation to adapt to climate change, which tends to affect regions without enough economic resources to adapt. An investment in technology for small agriculture will ensure greater food security for these individuals and for the nation as a whole.

Examples of technology being used at the moment

Kenya: A satellite-based pilot project is being implemented for precision agriculture (which measures soil carbon and fertility to reduce fertiliser overuse by farmers). The initiative utilises mobile applications and SMS to offer timely guidelines on sowing and fertiliser application for smallholder farmers.

Saudi Arabia: supports farm families to be more capable of producing value-added agricultural products by providing modern machinery and production centres for raw material processing for the production of primary and secondary products (wool, dried fruits like apricot, grapeseed oil, cosmetics and cosmetic oils) that they buy from Iran.

Uruguay: Uruguay's Ministry of Livestock, Agriculture, and Fisheries is developing a digital inclusion strategy aimed at rural populations, with a particular focus on women farmers

China: The online retailer Taobao allows farmers to sell their products quickly without the need for intermediaries. This means that farmers can find a bigger market and make more profit from their products.

The Netherlands: Small farms use a range of technologies, such as hydroponics and LED lighting to improve production.

Israel: Drip irrigation was invented here, which allows farmers to deliver water directly to the roots of plants so that there is less water waste.

Figure 3 Farmer uses hydroponic systems for his organic farm (UNCTAD, 2023)

Points to take into account about the current situation:

- **Political structure:** The legal importance of *family farmers* implies the creation of a minister or a dependance with projects and programmes that have assigned a public budget to promote development, social inclusion and food security. Without a political structure designed to support smallholders, it is impossible for them to acquire the technology that they need to improve production. In addition other programmes should be implemented to protect family farmers: minimum wages for farmers; price stability in the marketing of the product; ensure the sale of what's produced: State should buy to supply to public institutions (such as implemented by Brazil with the Food Acquisition

Programme from family farming and the National Programme of Scholar Alimentation, which guarantee the purchasing of 36 million food resources to feed people who live in economic insecurity. The success of this programme was evidenced in the worldwide economic crisis of 2007- 2008 where food prices were protected in the country) (Oxfam, 2011). Another aspect to take into account what UNCTAD said as a proposal to narrow the tech gap for family farmers, *"UNCTAD calls for increased investments - both nationally and globally - in research and development to make technologies more affordable, accessible, and user-friendly."* (UNCTAD, 2024, author's translation)

- **Technology:** Technological innovation should be appropriate for the family farmers' necessities and for the type of land where they live. Examples of this might be improving the irrigation systems, updating farming equipment, making internet broadband available, and having adequate waste management facilities,particularly for those in remote rural areas.

- **Economic:** It is important to promote the sustainable use of resources, considering aspects such as the distribution of idle land, or the protection of small farmers rights to their land, as they often have no evidence of legal ownership of the land, which causes insecurity, especially in less developed nations. In more developed nations, farmers are often at the mercy of large food corporations which dictate what they can produce and push prices down , meaning that they may have to produce in ways that are bad for the environment and which do not give them proper incomes. In addition, the development of a credit system for small producers, with a gender emphasis to support women, could be beneficial in some parts of the world.

In conclusion, it is crucial for the governments to support family farmers by giving them the support that they need, not just in the technological aspect. They must consider which of the proposals are feasible for family farmers in their countries. Most of the countries in the world rely on small farmers for their food security, and so it is important that they are supported in ways that will make food production successful and sustainable.

III. Key points of the debate

- Importance of family farming for food security in the world
- Technology that can be used to help family farmers
- Lack of access to technology for small-scale farmers
- Disadvantages family farmers face when competing with industrial scale farms
- Government programmes to support family farmers
- International aid and investment for small-scale agriculture in developing countries
- Legal protection of women who work in small agricultural production
- Protection of small family farmers against intermediaries who may have a negative effect on their wellbeing

IV. Guiding questions

1. What percentage of farming is carried out in your country by family farms, and what sort of technology is used on these farms?
2. Are family farmers at a disadvantage compared to industrial scale farming in your country? If so, why is this?
3. What benefits could family farmers gain/have family farmers gained through the introduction of new types of technology in your country?
4. What benefits are there to the country of introducing new technologies to family farmers?
5. How could international aid be given to those communities of family farmers that cannot afford the new technology?

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3. Topic 2: *Regulation of self-learning AI systems*

I. History/Context:

AI is often referred to as *"a branch of computer science that allows computers to make predictions and decisions to solve problems"* (AI4All, 2024) or as *"computer systems capable of performing complex tasks that historically only a human could do, such as reasoning, making decisions, or solving problems"* (Coursera, 2024). However, organisations such as Karisma and UNESCO propose that this description is wrong: *"People tend to use the terms Artificial Intelligence (AI), automated decision systems (ADS), algorithmic systems, and machine learning (ML) somewhat interchangeably, in ways that can be frustratingly vague"* (UNESCO, 2021). *"The term AI is not only imprecise because we are still far from creating machines capable of thinking in the full sense of the word (beyond imitating the externalities of thought), but because it groups together a host of processes of different technical nature, degree of complexity, capacity, scope and potential to cause harm."* (Botero y de Brigad, 2022).

Karisma bases its argument on the book, "There is no such thing as Artificial Intelligence" by Luc Julia, one of the greatest experts on the matter worldwide, and also proposes "AI systems" or "Machine Learning" as a more accurate term for this technology. For these reasons, in both the guide and the debate, AI will be referred to as "AI systems" as it is a more adequate term.

The idea of artificial intelligence (AI) was well and clearly rooted in the minds of scientists, mathematicians and philosophers by the 1950s. Alan Turing, a British mathematician was one of the first to investigate what mathematical proof of feasibility of Artificial Intelligence Systems would look like. Turing conjectured that the only reason humans could solve problems and make decisions is because they take statistical information and models into account. This concept underpinned the 1950 paper, "Computing machinery and intelligence," in which

he proposed that the intelligence of machines be evaluated. A summer workshop in Dartmouth, England in 1956 was the beginning of research projects into AI.

The field of AI systems underwent significant expansion from 1957 to the 1970s. Over time, computers became more powerful, faster, cheaper, and more accessible. Early demonstrations, such as the General Problem Solver of Newell and Simon or Joseph Weizenbaum's ELIZA, seemed to be able to solve human-level problems. Some researchers believed that progress in these areas was undermined or limited by other flaws in computer or AI systems research that could prevent them from fully replacing humans. The US government invested heavily in this research through the Defense Advanced Research Projects Agency (DARPA). The most interesting types of machine the government wanted were machines that could transcribe and translate spoken language, and also machines that could process large quantities of data extremely quickly.

Over the decades, numerous foundational milestones of AI systems research were hit. In 1997, IBM's Deep Blue chess-playing computer programme won against the grandmaster and reigning world chess champion, Gary Kasparov. This game will be marked as the first time ever that a standing world chess champion was defeated by a computer and another major step of AI Systems decision making. That same year, Dragon Systems had designed a speech recognition package to run on Windows - another momentous event in the timeline of spoken language interpretation. It seemed that no problem was beyond the reach of machines. Human emotion itself could even be portrayed (as in Kismet, a robot built by Cynthia Breazeal in the 1990s which could perceive and express emotions).

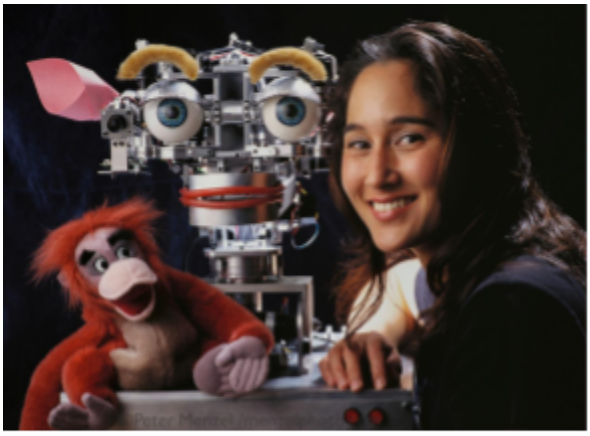

Figure 1: Cynthia Breazeal and Kismet (MIT)

Alan Turing (pioneer on modern informatics) proposed a criteria to define whether a machine is considered intelligent or not. The test purpose is to define if a machine can mimic enough a human to be recognized as one. *"Technology deeply marks the evolution of humans as subjects, therefore, it will never have a neutral character but an ambivalent one, according to its use"* (Benanti, 2016, quoted in Aguirre and Casas, 2022:50, author's translation). Artificial technologies have increased enormously over the past few years, and decision making about humans, enterprises and administrations is each time more controlled by stronger algorithms and their access to the "big data" shaping a way of life in which, *"the online and offline worlds closely combine and intertwine"* (Aguirre and Casas, 2022:47, author's translation). Big data is defined by Google Dictionary as *"extremely large data sets that may be analysed computationally to reveal patterns, trends, and associations, especially relating to human behaviour and interactions."*

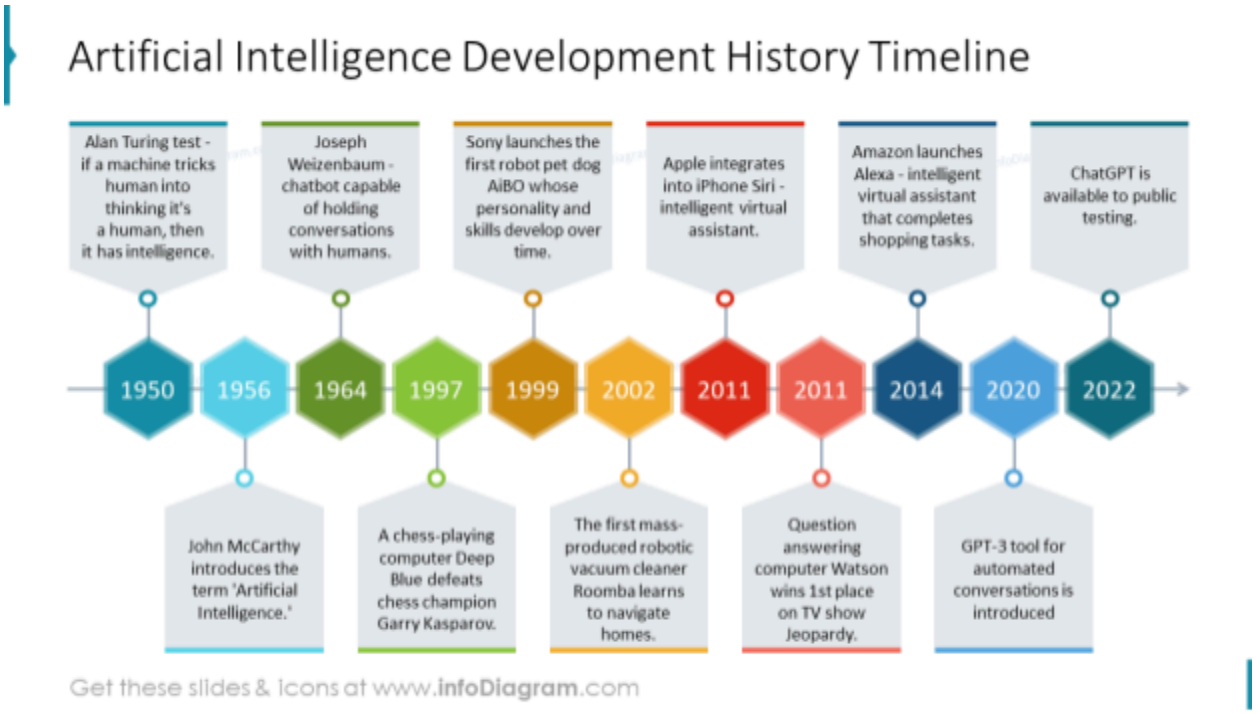

Figure 2: Timeline of AI (Info Diagram, n.d.)

Self- Learning Artificial Intelligence Systems differ from traditional AI systems. *"Machine learning is behind chatbots and predictive text, language translation apps, the shows Netflix suggests to you, and how your social media feeds are presented. It powers autonomous vehicles and machines that can diagnose medical conditions based on images."* (Brown, 2021). Self-Learning AI Systems power themselves and take out their information from a database that's feeding constantly from the information and the patterns of search and answer. Traditional AI systems are programmed with predetermined information and particular rules, while the algorithms of self-learning AI systems or generative AI are constantly being updated and can also create new ideas.

Day by day, information shared in social media feeds the algorithm that big technology companies use to control and influence society. In relation to the development of these technologies, there are divided parties that argue for or against them, such as Yuval Noah Harari that maintains an enthusiastic perspective regarding new technologies, while others, such as Elon Musk argue that AI can be a threat to humanity if not properly regulated.

AI, Algorithmic, and Automation Incidents and Controversies (AIAAIC) is a public initiative made up of individuals around the world who are concerned about transparency in the use of AI. According to its database, which monitors incidents involving the ethical misuse of AI systems, there has been a 26-fold increase in AI incidents and controversies since 2012, as seen in Figure 3. Noteworthy incidents in 2022 included a deepfake video depicting Ukrainian President Volodymyr Zelenskyy surrendering, and the use of call-monitoring technology in U.S. prisons. This surge reflects both the expanded application of AI technologies and a heightened awareness of potential misuses (Stanford, 2023).

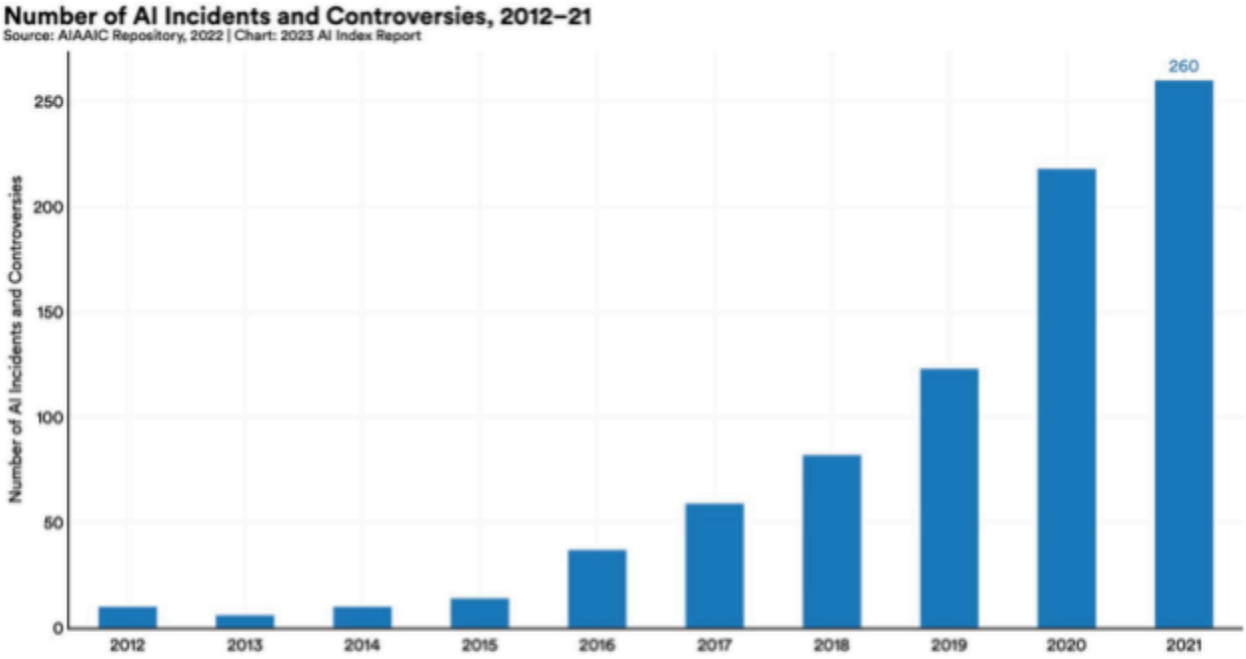

Figure 3: AI incidents and controversies (AIAAIC)

This has brought concerns about the development and usage of Artificial Intelligence Systems to the public eye. Since the release of ChatGPT (a chatbot and virtual assistant developed by OpenAI) on November the 30th 2022, around 149 new AI systems have been developed (according to the AI index). By 2026, more than 80% of enterprises are expected to use generative AI APIs[1] or deploy generative AI systems-enabled applications in production environments, up from less than 5% in 2023. This panorama brings people such as Benanti to say that *"We are not even prepared to adequately process the information presented to us on social media and digital media (in many cases false or malicious with the intention of manipulating us)"* and proposes that Machine Learning (ML or AI systems will worsen it, and that education is fundamental to know how to manage this new environment (Aguirre and Casas, 2022:54, author's translation).

[1] *API´s*: API´s ("application programming interface") is a software mediator that allows apps to communicate between themselves. An API receives data from a server, catches data, deciphers it, and sends it back to a monitor (computer, cell phone… etc).

Due to these concerns, many countries started to create new regulations regarding AI usage, such as the ***European Union's AI Act***, which categorises AI systems based on their risk levels and imposes strict requirements on high-risk AI applications or the ***National Artificial Intelligence Initiative* Act** in the United States, that coordinates AI efforts across federal agencies. The European Union proposed regulatory frameworks to regulate AI in April 2021. The US Senate started contemplating regulations in September 2023. Concerns include infringement of human rights and data privacy, weapons in which decisions are made by computers not humans, and an even greater digital divide between more and less economically advanced countries.

Countries such as Colombia, Peru, Venezuela, Ethiopia, India, Nigeria and Bangladesh, for example, have had poor or non-existent regulations, as it is often considered that both the public and private sector should be treated in the same way. *"This is problematic because our relationship with the State – given that it deals with the rights of everyone – is different from the one we have with companies"* say Botero and de Brigad (Karisma, 2022). On the other hand, from the point of view of the private companies, *"Having overly strict regulations is a significant disincentive for the development of new technologies in an environment that, due to structural reasons such as education and resources, already has enough barriers to it"* (2022). These can generate unfairness and foster an environment of segregation, for example, in the approval of bank loans or health insurance, taking into account that private companies don't necessarily have the public interest as part of their mission statement.

II. Current Situation

AI systems have great economic importance to society, being expected to have an impact of US$15.7 trillion in the world by 2030. AI is being incorporated into sectors such as medical diagnosis, self-driving cars and customer support. Additionally, it provides job opportunities for those who wish to work on the development of AI systems.

However, as the uses of self-learning AI systems in society begin to increase, it becomes critical to develop effective regulations to address all its implications. As there is no standard approach, countries are implementing their own governance legislations and policies. According to the International Association of Privacy Professionals (IAPP), efforts include *"the development of comprehensive legislation, focused legislation for specific use cases, national AI strategies or policies, and voluntary guidelines and standards"*. (IAPP, 2024)

Common patterns in the development of these regulations can still be found. For instance, as self-learning AI systems are currently transforming, it is important to face the challenge of a balance between innovation and regulation of risk. Karisma, an organisation that advocates for digital rights and privacy in Latin America, explains this with an analogy. AI systems are like a knife, it can either be used to prepare delicious food or to hurt other people. That is why knives are not prohibited, but places where someone can carry one are limited (Botero y de Brigad, 2022).

The Organisation for Economic Co-operation and Development's (OECD) has stated some principles that have been reaffirmed multiple times, for example, during the 2023 Hiroshima Summit by the digital and technology minister of the G7 countries. As the OECD stated, these principles *"provide a blueprint for policy frameworks on how to address AI risks and shape AI policies"* (OECD, 2024). It considers the benefits of using self-learning AI systems, such as the boost to productivity, enhancement to scientific research, and improvement to environmental sustainability, healthcare and education. Simultaneously, it contemplates risks such as threats to privacy, security and fairness (2024).

To ensure the relevance, robustness and fit-for-purpose of the principles, there are certain key elements in the revisions (OECD, 2024):

- Addressing safety concerns: If something occurs to AI systems, causing harm or showing undesired behaviour, then there should be mechanisms to repair or decommission them safely.

- Addressing disinformation: In the case of generative AI learning misinformation, it is important to have a way to safeguard the information and ensure that the information self-learning AI systems are getting is accurate and updated.
- Cooperation and communication: There should be responsible cooperation, communication and business throughout the AI system lifecycle and with the users or stakeholders
- Transparency: Clarification in the information regarding the AI systems according to their transparency and responsible disclosure
- Jurisdictions: Jurisdictions should work together to promote the governance of the policy of AI systems, and promote the initiative worldwide.

The OECD is not the only organisation that is working on the regulations. UNESCO, the International Organization for Standardization, the African Union and the Council of Europe are also working on multilateral AI systems governance frameworks. The IAPP has also done a tracker to identify legislative or policy developments or both in a subset of jurisdictions. It can be observed in Figure 3, where those countries which jurisdictions are in focus, appear in red. If accessed through their page, then it is possible to see relevant information for each country in the tracker such as “Specific AI governance law or policy”, “Relevant authorities”, “Other relevant laws and policies” and “Wider AI context” (IAPP, 2024).

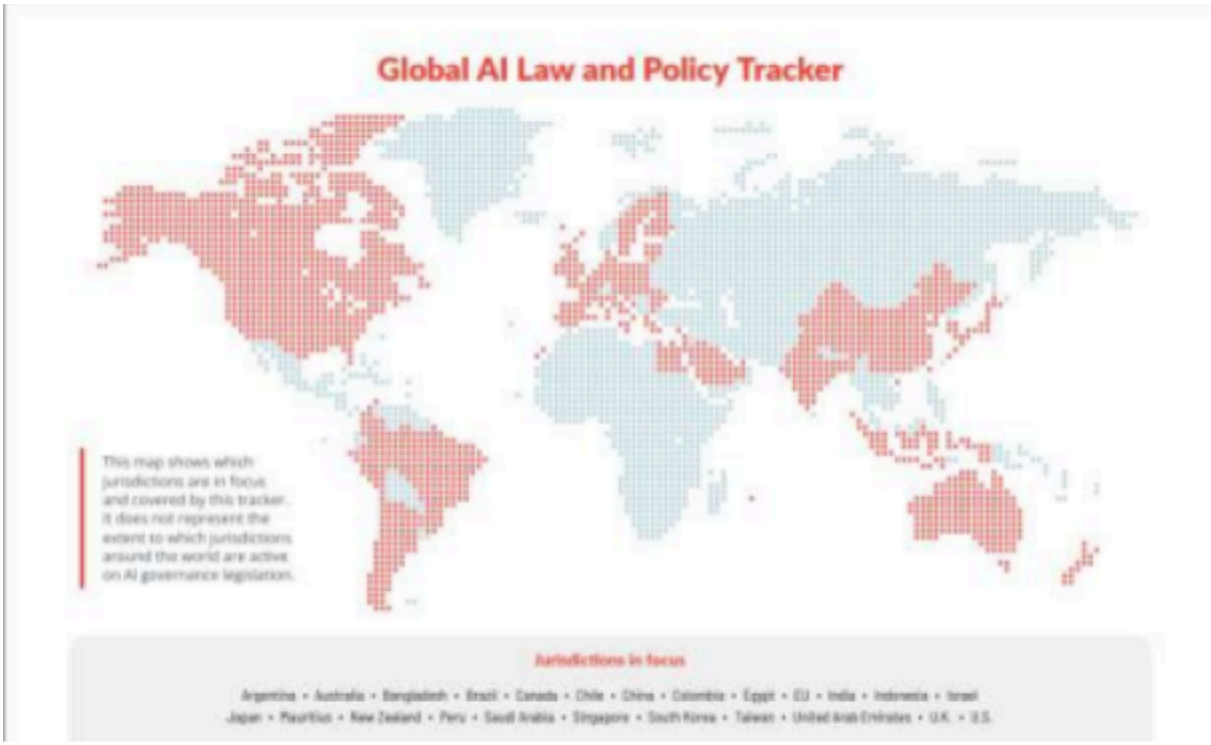

Figure 4 Global AI Law and Policy Tracker, 2024

Regarding other alternatives to AI systems regulations, UNESCO (United Nations Educational, Scientific and Cultural Organization) has expressed in its paper "Missing links in AI governance" that a possible solution would be the "AI audits", where an auditor given by the enterprise, by a second, or a fully external party (a third party) audits the usage and management of the development of the technologies.

UNESCO's perspective is leading reflections around pressing concerns related to the rapid development of AI systems from a human rights and ethics point of view. That's where UNESCO exposes that often, third-party auditors are neglected and vulnerable when auditing powerful technologies. *"This diverse group of auditors, who may be university or private-sector researchers, non-governmental organisations (NGOs), law firms, regulators or other public sector bodies, are often left to their own devices as they try to figure out what to*

do." (UNESCO, 2021). Workers are left to design and execute audits without guidance, support, protection or security of any type from policy makers.

"Despite the important impact these third-party auditors have had on deployed AI systems, they are not well supported in their work and are not afforded any legal protections." (Raji on Stanford, 2021). According to the same study, many companies avoid the scrutiny of outsiders who need access to their AI systems to audit them, even saying that some companies have even *"taken legal actions, such as pressing criminal charges under anti hacking laws or filing civil lawsuits to prevent auditors from collecting data."* It is then pertinent to remember that self-learning AI systems take their information out of the "big data" which, without regulations, could access external private information relating to the digital platform users.

Each country has their own approach to the regulation, with the similar patterns previously mentioned. The United States and China have been dominating the AI systems market and are the furthest along in the regulations. Both countries recognise the dangers to their citizens, and their need to position themselves as AI systems innovation leaders (2021).

On the other hand, the European Union focused more on data protection and human rights in general. Other countries are also focusing mostly on safety, such as the United Kingdom, which has organised the first AI Safety Summit in 2023, in order for governments and industries to evaluate the most significant risks from AI systems. In it, the countries publicly committed to *"endeavour to work together on the pace and direction of development"* regarding AI risks in a different intergovernmental statement signed by otherwise mostly the same states, called the Bletchley Declaration. While the declaration did not detail specific policy aims, an additional meeting will be held in South Korea before one occurs in France (ICT Africa, 2024).

One of the main problems with the regulations, starts from the education and lack of diversity in the development of AI systems. Those who are building AI solutions for our diverse population, are a homogenous group of technologists.

Women represent just under 14% of international AI systems researchers, a number that is even lower for people of colour in advanced STEM (Science, technology, engineering, and mathematics) roles. Black and Latinx instructors combined are just 6% of computer science (CS) faculty (Kapor Center, 2024). Black and Hispanic men and women make up under 11% of people employed in science and engineering jobs in the US (AI4ALL, 2024).

Due to this lack of diversity, there is a bias in AI system products that causes it to be either unable to help everyone, or to be actively harming underrepresented groups. Discrimination that occurs in our society, such as sexism or racism, are being built into AI products. To avoid this, everyone should have the opportunity to guide the creation of an AI system as a tool for good (AI4ALL, 2024).

This bias can appear in various stages of the AI system production. It often originates with the data collection, where it may produce a biased output if exposed to that kind of information. It may also originate in the data labelling, as annotators have different interpretations of the same label, or in the model training, where AI gets trained with a bias or discrimination if a lack of diversity is present on this stage (Chapman University, n.d). The problem is when this bias causes a certain type of discrimination. There have been cases in which AI systems copy racist behaviour from their mostly white developers. In 2018, MIT student Joy Buolamwini found out that facial recognition algorithms couldn't detect Black faces. Many cases of similar examples can be found, where AI systems produce discriminatory outputs (MIT, 2018).

According to AI4ALL, a US-based nonprofit organisation, AI systems can improve the human experience and be a more diverse, creative and powerful problem solver if people of all identities and backgrounds work together at it. In their own words, we have to *"change the definition of who can be a leader in AI"* (AI4ALL, 2024).

This lack of representation is something that should be taken into account for the regulations, to avoid previously mentioned problems of discrimination. However, in order to achieve this, it's crucial to understand the barriers for getting into AI

systems. According to multiple organisations, such as AI4ALL (2024) and Kapor Center (2024), there are four main barriers that have been identified in the USA, where much of the new technology is produced:

1. **Access: Lack of Awareness and Exposure**

- This problem begins at school. For example, less than half of schools in the US teach computer science. In schools located in high poverty areas, the percentage is even lower, for instance, only ¼ of students are able to attend any CS course in their school (AI4ALL, 2024).
- Something similar is seen on science courses, where Black, Latinx, and American Indian native students receive less opportunities for complex maths and science courses, compared with their peers. High poverty schools students also show this lack of access to advanced maths and science subjects (Kapor Center, 2024).
- There is an image of computer science (CS) being solitary and with lack of interaction and connection to social problems. It is important to implement a curriculum that is both engaging, and culturally relevant to the interest of those historically excluded groups (AI4ALL, 2024).

2. **Interest: Lack of Technical Training, Confidence, and Feelings of Belonging**

- Lack of early exposure to related concepts, few relatable role models and lack of peer-to-peer support from other AI systems developers and colleagues, are some of the barriers that have been preventing underrepresented groups in this field. With a stigma and stereotype threat, they question their belonging in that academic field and environment (AI4ALL, 2024).

3. **Persistence: Lack of Professional Networks, Role Models, and Community**

- For underrepresented groups, there is a lack of access to programmes or social networks that connects them with internships and workforce opportunities (AI4ALL, 2024).
- Lack of historically excluded groups in CS contribute to the lack of peer

networks, mentors and role models for students with different backgrounds (AI4ALL, 2024).

- To promote retention and persistence of students in the STEM pathways, it is crucial to have access to direct college admissions support and peer networks (AI4ALL, 2024).

4. **Financial barriers: Lack of economic resources.**

- Compared to white students, students of colour are more likely to not finish college due to the need to work in order to support their families and themselves. Black graduates have nearly double the amount of student debt in comparison with white graduates (Kapor Center, 2024).
- Undocumented students are unable to receive economic aid, restricting their access to higher education (Kapor Center, 2024).

There is another aspect that should be considered for the regulations of those who develop AI. Without limitation, it can be a coercive instrument for liberty and humans. The Korean philosopher, Byung-Chul Han, stated that self-regulating AI systems could be a psychopolitical instrument that may affect liberty and be dominant. Due to the transparency of the digital world, Han affirms that all of our information that we are given constantly, and that is getting analysed by different AIs to learn patterns and such, ends up in politics (Aguirre y Casas, 2022).

Recently, a new ethical dilemma has emerged. The digital platform “Instagram”, now powered by Meta, allegedly “stole” art from the private and public accounts of its users to feed its algorithms. The platform had avoided external audits from third parties in order to hide this fact.

To train an AI model to produce images, developers need to show it a huge number of example images. Such a library of examples is called a data set. OpenAI, the creator of Dall-E 3, has kept its training data secret. [...] These images were scraped from the internet. Data scraping automatically pulls files from webpages. Often, no one asks permission or checks what these files contain. Thousands of artists’ names and works have been found in the

data set. Illegal or harmful images and people's personal photos are also among those data. (ScienceNews, 2024)

Self-learning AI systems, and the companies that power them, are taking information from third parties and users to "improve" the work capacity of the machine. However, in recent years, controversies about how the information is taken have appeared, jointly with the debate on whether the insurance of a regulation or the direct dismantling of the tool, are needed.

Lastly, it is important to understand the impact of self-learning AI systems in the economy, focusing on job opportunities. In 2013, an investigation discovered the impact of technology, especially AI systems, on employment. Results were really worrying, as it is expected that many jobs are going to be replaced by machines. Not only those that are considered of low training such as cashiers, taxi drivers, and caretakers, but even those which require years of study like economics, calculus, graphic designers, traders and others. As Bill Gates, founder of Microsoft said, we are entering an era of *"substitution by a programme"*.

In the United States, for example, based on a study from 2016 it is expected that AI systems could cause the unemployment of half the country by 2050. It was something controversial, as one of the pillars of modern society, jobs, is becoming compromised in all the economic sectors (Sadin, 2022).

III. Key points of the debate

- Problems, incidents and controversies that AI systems have presented
- Ethical problems on how the AI systems are impulsed and "fed the algorithm" environmental consequences and social inequality
- The influence of AI systems on the political environment and decision capability and its threat to a nation/group sovereignty

- Economic value of the work force and the displacement of jobs: law of supply and demand and productivity rates
- Opportunities and tools given by AI systems
- The lack and flexibility of validity of the regulations regarding the continuous advance and evolution of self-learning AI systems
- Management of private data and privacy violations
- The possible creation of regulatory clauses that adapt to both the ethical basis and public interest

IV. Guiding questions

1. Is your country a leader in the development of self-learning AIs? If so, what research and development has been done?
2. What are the laws or regulations in your country regarding both the development and the usage of self-learning AIs, if any?
3. What type of self-learning AI is your country interested in investing in and/or implementing?
4. How would your country ensure that self-learning AI will not violate citizens' privacy or lead to identity theft or falsification?
5. How does your government regulate the power and influence of big technological companies in the country? Will self-learning AIs cause this to be a bigger problem than it already is?
6. How will your country face the situation of social and cultural changes due to implementation of self-learning AIs?
7. How should self-learning AIs be regulated? Should it be an international consensus, or will leading countries in the development of the AI have a regulatory monopoly.

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