Artificial Intelligence and *Generative AI:*
governance, competitiveness, intellectual property, and labour market

Digital Public Policy, Regulation and Competition

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Telefónica

Index

1. *Executive* summary

The emergence of generative artificial intelligence

Artificial Intelligence (AI), a leading technology of the 21st century, is already transforming multiple sectors of our society and our business environment. Artificial intelligence is trained with the information, the data, that we generate when interacting with digital systems and services. This training translates into automatisms that free people from having to execute these tasks and facilitate extending productivity beyond human reach.

Generative Artificial Intelligence (GenAI) is the next stage in the evolution of AI technology. It is trained on vast amounts of digitised information, including many historical works of humanity, to create foundational models. These models allow interaction with natural language and are able to understand and respond accurately to user demands, generating relevant responses based on their extensive training. Depending on the type of data they have been trained with, they can understand and generate text, images and other content, with multimodal models being the most advanced in handling all types of content.

The adoption of GenAI carries risks due to the possible low quality of the training data, the lack of adequate privacy policies and copyright management. There are also risks due to illicit use by cybercriminals and social challenges such as changes in employment, environmental issues and inequalities in access to technology.

Models of AI governance

Effective AI governance combines regulation, international principles and self-regulation to address concerns about its negative impact on people's rights, democracy or the rule of law. It highlights initiatives such as the EU's Artificial Intelligence Act, which classifies applications by levels of risk and establishes obligations to ensure transparency and security. It also addresses the necessary coherence of digital regulations to balance the innovation and competitiveness of companies in the digital economy and the protection of people's rights.

1 Executive summary

2 The emergence of generative artificial intelligence

3 AI governance models: regulation, principles and self-regulation

4 Market competition and competitiveness

5 Intellectual property challenges in the field of generative AI

6 Impact on the labour market

7 A Navigation guide for responsible generative artificial intelligence

Market competition and competitiveness

The use of AI raises questions about competition in markets, with concerns about equitable access to resources such as data or computing capacity and talent retention. Concentration of these resources and vertical integration can create unequal competitive advantages on a global scale.

Intellectual and industrial property challenges in the field of GenAI

The rapid evolution of GenAI is creating intellectual and industrial property challenges, questioning traditional concepts and generating copyright and patent disputes.

Impact on the labour market

Widespread adoption of AI will transform the labour market, with a significant impact on the distribution of employment. Automation is expected to be particularly pronounced among middle-income workers, highlighting the need to design policies to reorient workers' skills towards future professions and move towards greater digital inclusion also in the workplace. ●
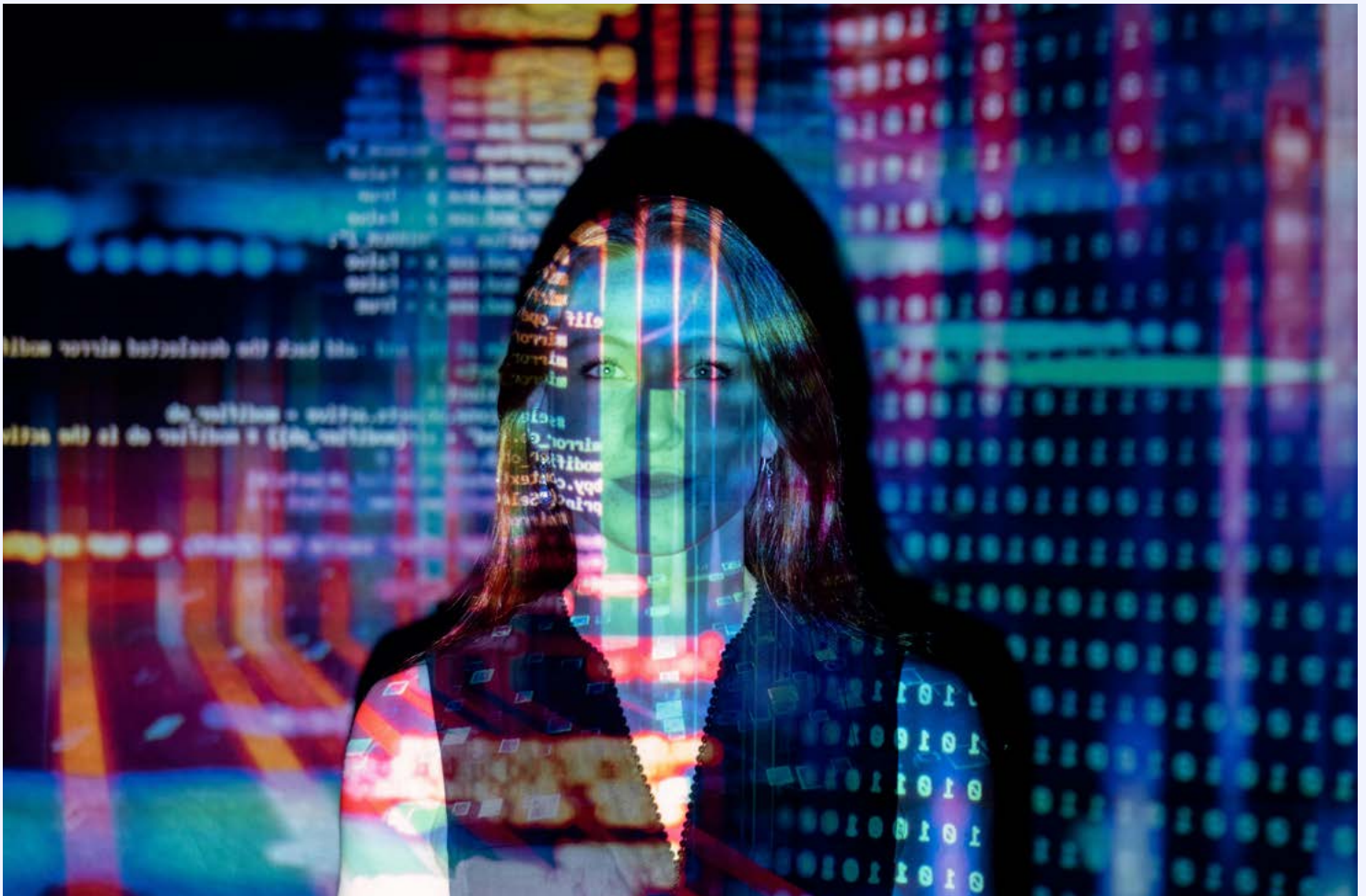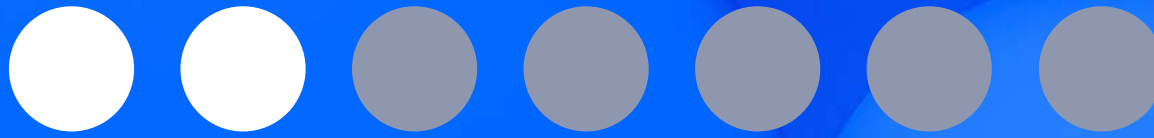
2. The emergence of *generative* artificial intelligence

Artificial intelligence (AI) has emerged as the most influential technology of the 21st century, with unprecedented potential to impact diverse sectors and be the cornerstone of productivity, growth, innovation, and well-being. From healthcare to finance, industry, education and transportation, AI promises to revolutionise multiple areas. It is also emerging as a key competitive differentiator. However, to realise these opportunities, it is essential to develop them within a framework of trust and accountability in their application.

Telefónica published a position paper on artificial intelligence in 2023, a vision that remains valid today. However, the accelerating advance of technology, especially with the advent of generative artificial intelligence (GenAI), and institutional responses have evolved since then, so here we will update our vision and proposals.

The GenAI we are witnessing today represents only the first phase of a technology that is far from reaching its full potential. Generative artificial intelligence

models mark the latest breakthrough in the field of machine learning.

We are recently experiencing the next stage in the evolution of AI, the so-called Generative Artificial Intelligence (GenAI). The GenAI we are witnessing today represents only the first phase of a technology that is far from reaching its full potential. Generative AI models mark the latest breakthrough in the field of machine learning. This evolution is trained on huge amounts of information, including many of the works generated by mankind throughout its history (provided they are digitised). Once the systems are trained, so-called foundational models are generated. When a person interacts with these models, he or she will be able to do so in natural language.
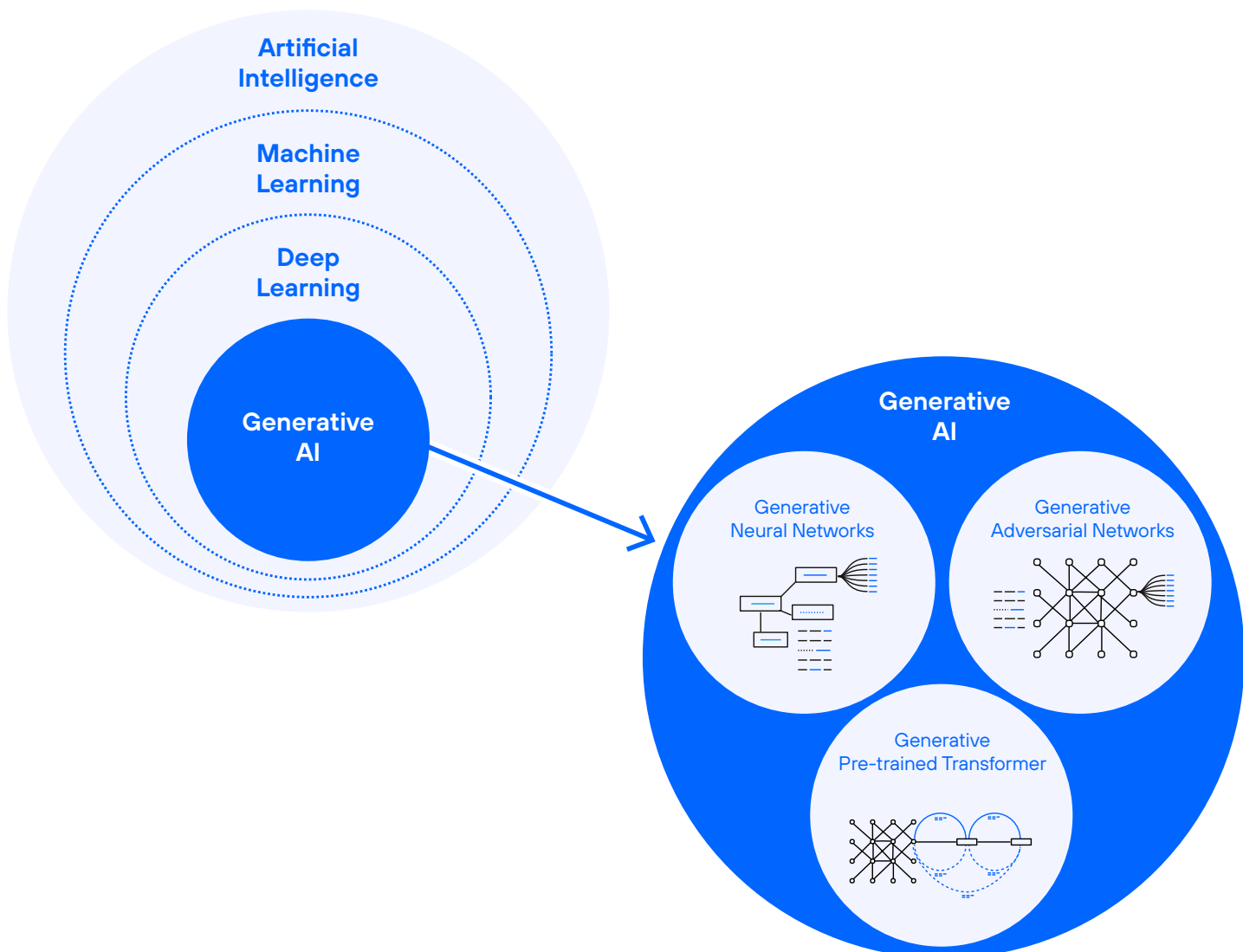
In general, these models will be able to understand precisely what the person demands, they will be able to readapt the information provided and requested and, furthermore, based on the extensive training that has been followed, they will be able to generate

1
Executive summary

2
The emergence of generative artificial intelligence

3
AI governance models: regulation, principles and self-regulation

4
Market competition and competitiveness

5
Intellectual property challenges in the field of generative AI

6
Impact on the labour market

7
A Navigation guide for responsible generative artificial intelligence

new responses that will be highly relevant to the interlocutor's intention.

When these models have been trained with texts, they will be able to understand and generate texts. When images have been used, they will be able to generate images. And, recently, multimodal models

will be able to understand, readapt and generate all kinds of content.

This model allows the generation of different types of content whether text, images, code, music, video by creating patterns or models generated by training huge amounts of data.

1

Executive summary

2

The emergence of generative artificial intelligence

3

AI governance models: regulation, principles and self-regulation

4

Market competition and competitiveness

5

Intellectual property challenges in the field of generative AI

6

Impact on the labour market

7

A Navigation guide for responsible generative artificial intelligence

These systems can understand the needs expressed naturally by people, transform the information that accompanies those needs and generate original and complex responses that satisfy them. Their training is a very complex and computationally demanding process that usually involves enormous amounts of information. This implies, contrary to what happened with other AI solutions, that the information learned by the system is not directly related to the problem to be solved.

Therefore, when an answer is generated, be it text, audio, or images, it is not an imitation, but statistically the most likely one. As people become more specific to our needs, the level of originality varies. But in all cases the behaviour responds to the expression of those needs on our part, there is, for the moment, no autonomy or awareness that leads the system to generate one or another response.
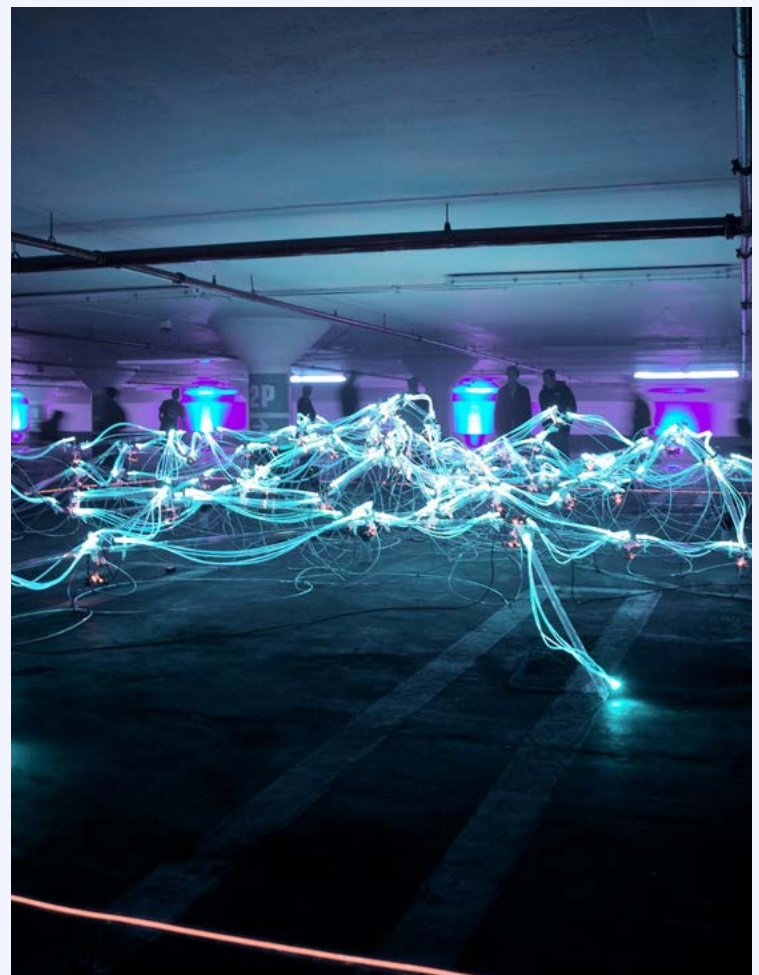
In terms of developing and deploying these models, only a few technology companies have the technical capabilities and financial resources to train them. These multinational companies have made investments and have access to essential resources such as data (e.g., search business, advertising, and social media), computing power (e.g., cloud), talent, etc. So far, these entities are well positioned to derive most of the value generated by GenAI by distributing systems internationally through cloud services or by integrating them into networked devices.

In any case, small language models (SLMs) are a more affordable alternative to large AI models. Although they have less capacity than large models, they offer advantages such as shorter training times, lower resource consumption and higher energy efficiency. This makes them ideal for use cases with limited resources or rapid deployment needs. In addition, they could democratise AI technology by allowing more companies and developers to create and use custom language models.

Historically, AI has relied heavily on opensource resources, such as models and libraries, for its development in both commercial and non-commercial contexts. And it has also used freely available data for training algorithms. This trend is now being reversed with the emergence of new commercial models.

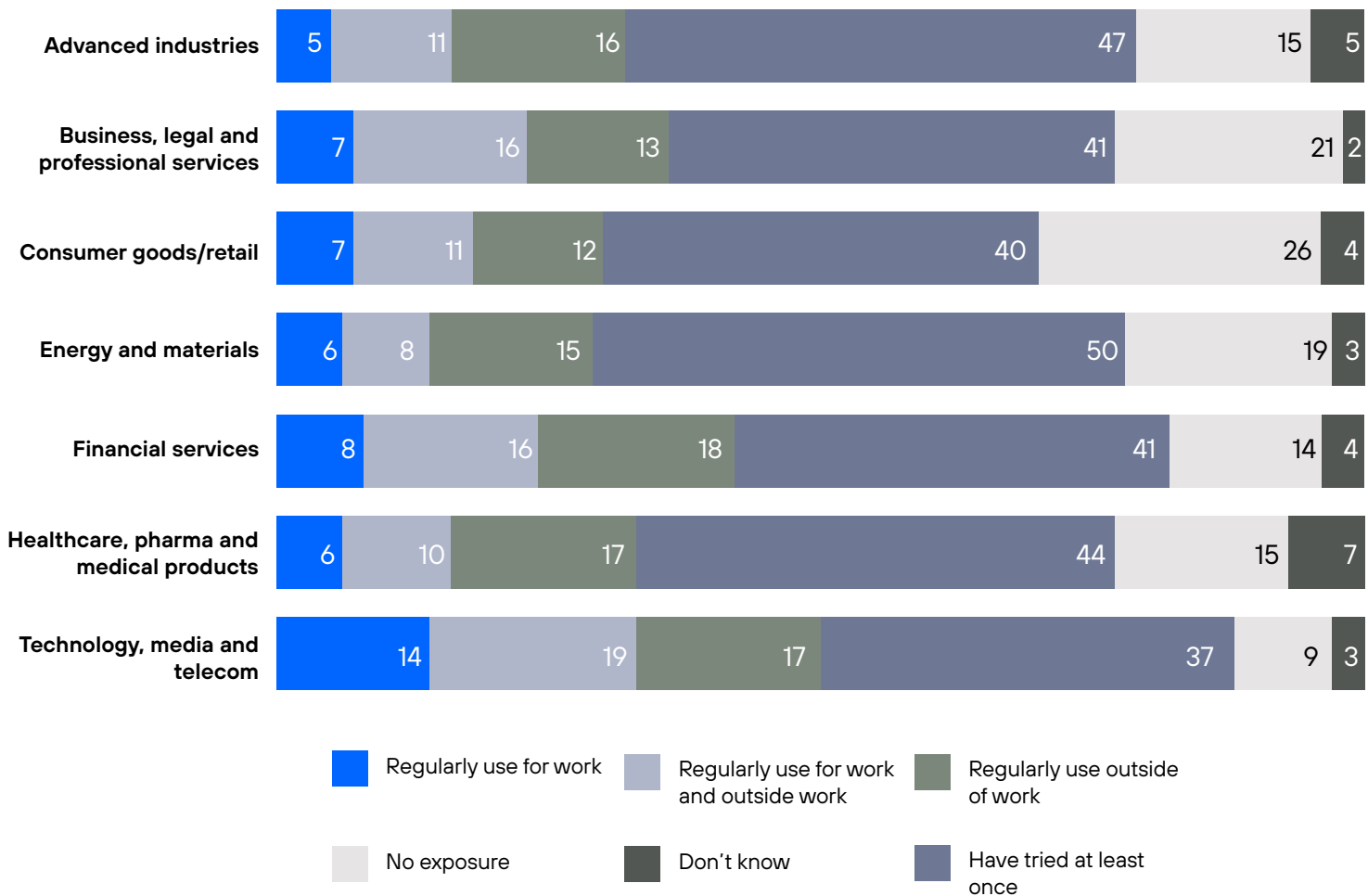## The road to the adoption of generative artificial intelligence

GenAI is seen as a technology with the potential to significantly increase productivity and growth in the global economy, especially in automation, data analytics and content creation. The adoption process will ultimately represent an unprecedented leap in industries and economic growth.

1 Executive summary

2 The emergence of generative artificial intelligence

3 AI governance models: regulation, principles and self-regulation

4 Market competition and competitiveness

5 Intellectual property challenges in the field of generative AI

6 Impact on the labour market

7 A Navigation guide for responsible generative artificial intelligence

It took more than a decade for the Internet to disrupt sectors such as retail, advertising, and media after reliable predictions were made in the 1990s. During this period, technological advances, cost reductions and the development of supporting infrastructures gradually facilitated wider adoption. In the case of GenAI, it is expected to have an accelerated trajectory, characterised by a wave of investment and business experimentation.

The state of AI in 2023: Generative AI's breakout year[1]

Industry	Regularly use for work	Regularly use for work and outside work	Regularly use outside of work	Have tried at least once	No exposure	Don't know
Advanced industries	5	11	16	47	15	5
Business, legal and professional services	7	16	13	41	21	2
Consumer goods/retail	7	11	12	40	26	4
Energy and materials	6	8	15	50	19	3
Financial services	8	16	18	41	14	4
Healthcare, pharma and medical products	6	10	17	44	15	7
Technology, media and telecom	14	19	17	37	9	3

■ Regularly use for work   ■ Regularly use for work and outside work   ■ Regularly use outside of work

■ No exposure   ■ Don't know   ■ Have tried at least once

Source: McKinsey. (2023). The state of AI in 2023: Generative AI's breakout year.

1

Executive summary

2

The emergence of
generative artificial
intelligence

3

AI governance models:
regulation, principles and
self-regulation

4

Market competition
and competitiveness

5

Intellectual property
challenges in the field
of generative AI

6

Impact on
the labour market

7

A Navigation guide for
responsible generative
artificial intelligence

We are currently in an exploratory phase with different GenAI solutions. Across sectors we are assessing their feasibility, available data, underlying infrastructure, as well as available funding. However, adoption timelines vary significantly, depending on factors such as economic cycles, regulatory frameworks, corporate culture and management decisions. The diffusion of technology throughout the economy also depends on the people with the necessary skills for its development and implementation in different sectors.

Ultimately, while GenAI holds great promise, its full impact will unfold gradually, driven by a combination of technological advances, business initiatives and organizational adaptation. To really take advantage of these technologies, organizations need to transform. Not only at the infrastructure and architecture level, but also from an operational and organizational model.

The transformative potential of GenAI goes beyond its immediate applications. It stimulates innovation and the development of new products and services. While early adopters focus on increasing internal efficiency, future iterations are expected to generate new business opportunities.

Expectations are very high with an impact of between $2.6 and $4.4 trillion across sectors[2]. Some estimates indicate that around 75% of the value that GenAI use cases could deliver is in four areas: customer operations, marketing and sales, software engineering and R&D[3]. GenAI will have a significant impact across all industry sectors. The financial sector, the high-tech sector and life sciences are among the sectors that could see the greatest impact of GenAI on the percentage of their revenues. In any case, companies need to invest in artificial intelligence, and not only in generative AI or for further innovation, but mainly to remain competitive in the medium term.

The use of generative artificial intelligence in telecommunications companies

Telecommunications companies are actively harnessing the potential of generative artificial intelligence to improve and transform various aspects of their operations and services. GenAI offers unique capabilities that enable them to innovate in key areas such as network optimization, service personalization, process automation, increased resilience and security, and improved customer experience.

First, network optimization is critical to ensure optimal performance and reliable coverage. GenAI complements the way in which other AI solutions allow us to analyse large volumes of data generated during network operation. Traffic prediction models and the identification of bottlenecks are now reinforced with mechanisms that allow us to extract information from networks using natural language and find alternatives that improve efficiency and quality of service.

In addition, telecommunication companies are starting to use AI to personalise services according to individual customer needs and preferences, and also to support agents by providing them with appropriate responses and *next-best* actions during customer interactions. By analysing preference data, with users' consent, AI can recommend personalised offers and packages, thus improving customer satisfaction.

In the case of Telefónica, an ambitious AI adoption program has been launched, including an AI solutions strategy, standardisation of AI architecture, promotion of an AI culture, and boosting its application in networks. In addition, strategic partnerships have been signed with industry leaders such as Microsoft, Google, Meta, AWS, IBM, Salesforce, and Ericsson/Nokia, among others.

1
Executive summary

2
The emergence of
generative artificial
intelligence

3
AI governance models:
regulation, principles and
self-regulation

4
Market competition
and competitiveness

5
Intellectual property
challenges in the field
of generative AI

6
Impact on
the labour market

7
A Navigation guide for
responsible generative
artificial intelligence

To this end, six groups of use cases have been prioritised to:

1. improve the quality and productivity of frontline customer service,

2. increase engagement through hyper-personalised interactions,

3. improve B2B sales with efficient service request processes,

4. ensure an optimised network with predictive and adaptive capabilities,

5. optimise procurement and supply chain activities and

6. improve data intelligence and increase productivity across the enterprise with AI tools.

The roadmap to more efficient communications networks

In network and systems management, GenAI is being applied with a focus on virtual assistants and specialised co-pilots to support teams in charge of specific processes. These tools improve observability and diagnostics, enabling faster detection, analysis and resolution of faults or degradations in network performance.

Incident management wizards help classify and assign tickets to support teams, as well as recommend steps to resolve issues based on a technical and historical knowledge base. Technical knowledge is also being managed through co-pilots that allow more intuitive interaction with the network and systems. In Brazil, initiatives are being launched to simplify database access and queries through virtual assistants, streamlining the implementation of reports and *dashboards*.

In Spain, GenAI and Machine Vision tools are used in Network Planning and Design processes to automate infrastructure verification from photos

and documentation. Digital twin solutions are also being developed to optimise radio access network deployments, ensuring quality of experience for customers.

In the engineering teams, especially in test and labouratory, GenAI is implemented to certify the performance of network equipment from different vendors before it goes into production. This accelerates awareness of new components and improves test scenarios, ensuring fast and quality deployments.

In Brazil, a co-pilot based on cloud environment versioning configurations recommends necessary updates to keep the ecosystem up-to-date and secure, with the aim of automating these updates.

Together, these applications simplify and streamline access to and correlation of technical information, improving decision-making and network quality, and providing faster attention to problems.

1 Executive summary

2 The emergence of generative artificial intelligence

3 AI governance models: regulation, principles and self-regulation

4 Market competition and competitiveness

5 Intellectual property challenges in the field of generative AI

6 Impact on the labour market

7 A Navigation guide for responsible generative artificial intelligence

Making business intelligence more accessible with Generative AI co-pilots

Kernel, our digital ecosystem, in addition to being the technological base where we develop our digital services, allows us to generate business intelligence on the company's data. Kernel is also the guardian of our customers' privacy, incorporating Privacy by Design in all our products. To harness the full potential of GenAI, but to do so with full privacy, security and ethical safeguards, we are integrating these GenAI capabilities into the Kernel development *suite*, thus connecting large language models (LLMs) to our data, with a control layer, based on a technology called RAG (retrieval augmented generation), which allows us to effectively control what data is provided in each response, in line with our consent management and without the data having to be included in the training sets of the GenAI models. Creating this centralised AI model opens up the possibility to unleash the full potential of this new revolution, in a secure and trusted environment.

One of the use cases is the creation of trusted copilots to access our data in natural language and facilitate decision-making. This ability to assist a company agent or, independently, directly with the customer, is called the Copilot strategy. Telefónica already launched its first virtual assistant for customer relations in digital channels in 2017. With GenAI, we are working on new versions of Aura for customer relations and as a solution for our agents. One of the use cases is the creation of trusted copilots to access our natural language data and facilitate decision making, Aura Copilot. An example of this is the use case for streamlining data-driven decision making by operations teams for our in-home services. Through natural language queries, operations teams can get quick answers for informed decision making. For example, they can detect special needs of customer groups based on household characteristics, type of connected devices, customer segmentation, etc. This use case uses RAG (*Retrieval Augmented Generation*) technology, i.e., generative AI integrated in Kernel and trained with household data.

LIVE Call Centre Operators

Telefónica uses Generative AI to search for customer service support information in both processes and services to speed up the location of customer service support information. This improves management times, reduces training costs for new agents and can result in improved customer satisfaction. In Telefónica Brazil, we use GenAI as a co-pilot for call centre operators, called "I.Ajuda", where today the more than 11,000 operators in the entire call centre, both B2B and

B2C, have access to more than 3,000 work instruction documents and procedures in a transparent manner through GenAI in tools such as SalesForce and Genesys. From this tool, operators can find out in a conversational way how to resolve customer issues quickly and centrally, reducing the average service time and their *onboarding* process in the company. The results of the service time showed a reduction of 9% for the B2C segment and 4% for the B2B segment.
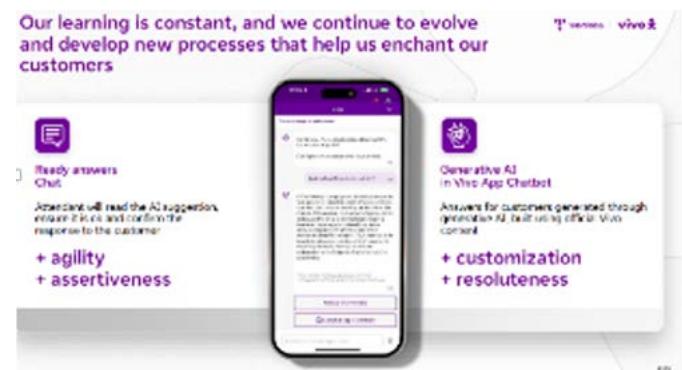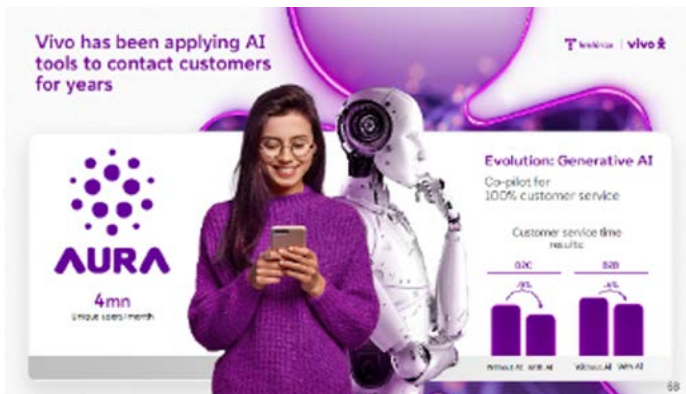
Process automation is another area where AI is having a significant impact on telecoms companies. From order management and billing to network maintenance and customer care, AI can automate repetitive and routine tasks, freeing up resources for more strategic and value-added activities.

On the roadmap to implementing the GenAI in telecommunications companies, its commitment to data governance based on ethical principles, data quality, compliance and security will be prioritised. These principles are ingrained in its DNA, ensuring data protection and regulatory compliance. At the GenAI level, it not only complies with ethical standards, but inspires the development and use of responsible innovation, participating in the creation of new standards of excellence in this constantly evolving field.
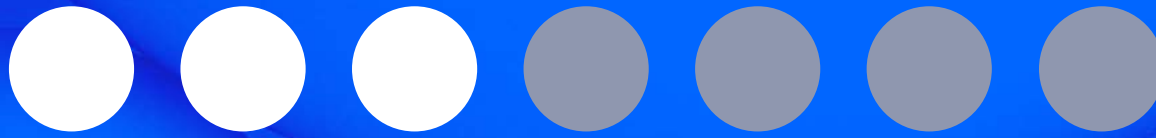
3. *Artificial intelligence* governance models: regulation, principles and self-regulation

Beyond the opportunities, Generative Artificial Intelligence (GenAI) presents several significant risks and challenges that need to be addressed with caution. Growing concerns about the potential abuse of this technology are evident, as GenAI has the potential to impact a wide range of domains, including human rights, the environment, health and security, democracy, market competition, intellectual property and the labour market.

Risks include inherent biases in the datasets used to train generative models, which may result in the production of discriminatory or prejudicial content. Reliance on historical data for the operation of the GenAI could perpetuate past decisions and biases, including discrimination against certain groups of people.

Moreover, given the complexity of the challenges, the present moment is critical and decisive. Without early action, it may be too late to effectively address the challenges and risks associated with the development and implementation of AI and GenAI. It is therefore important to assess the opportunities and risks in each of the areas to get right a governance model that favours their development and adoption while mitigating negative impacts.

First, in terms of human rights, GenAI can be used to improve access to education and information by bridging the digital divide; it can improve medical care, emergency relief or the development of technologies adapted to people with special needs. However, it also raises challenges about privacy or mass surveillance if it is not used in an ethical and transparent manner.

In the field of democracy, GenAI can influence the formation of public opinion through the personalization of content or disinformation campaigns. For example, through the use of deepfakes that make it very difficult to distinguish between what is real and what is false and generate disinformation. All this can affect diversity of opinion and public debate.

In terms of market competition, GenAI can drive innovation and efficiency within firms by generating creative ideas, improving product customization, and optimizing business processes. However, it can also create barriers to entry for smaller firms and fuel the concentration of power in the hands of a few large corporations.

In the field of intellectual and industrial property, GenAI poses challenges related both to its forms of training for the use made of pre-existing works (*input*) and to the protection and ownership of the results obtained by its use (*output*).

Finally, in terms of the labour market, GenAI can automate routine and repetitive tasks, which can increase efficiency and free up time for more creative and strategic activities. However, it also raises concerns about job losses and the need to retrain workers for more specialised and higher value-added roles.

In this paper we offer our views on the many opportunities for AI and GenAI in the above fields, as

well as the ethical, regulatory, and societal challenges that need to be proactively addressed to ensure that it is used responsibly and to the benefit of society as a whole.

As new technologies unfold, they shape national economies by weaving them into a vast global economy. This process of interconnectedness is largely driven by advances in areas such as AI, which increasingly influence the way business is conducted, decisions are made and interacted with globally. In this context, the need for effective governance of AI and GenAI is critical.

These models comprise a variety of approaches, including regulation by government agencies, guidance through principles and proposed codes of conduct from international bodies, as well as self-regulation by the entities that develop and use them, whether public or private. Each of these components plays a critical role in ensuring that AI systems are developed, deployed and used in a responsible and ethical manner.

The three pillars of the AI governance model

1
REGULATORY FRAMEWORK

2
GLOBAL GUIDELINES

3
SELF-REGULATION

1
Executive summary

2
The emergence of generative artificial intelligence

3
AI governance models: regulation, principles and self-regulation

4
Market competition and competitiveness

5
Intellectual property challenges in the field of generative AI

6
Impact on the labour market

7
A Navigation guide for responsible generative artificial intelligence

The relevance of AI governance models lies in their ability to address the complex and evolving challenges presented by AI technologies. As AI systems become increasingly autonomous and pervasive, it is imperative to establish mechanisms to ensure that these systems operate in a manner that is transparent, accountable, and aligned with human rights and ethical values. By integrating regulation, guidance and self-regulation into comprehensive governance frameworks, society can harness the transformative potential of AI, minimizing the risks and maximizing the benefits for all.

The regulation of artificial intelligence: a crucial development

The regulatory environment surrounding AI is undergoing rapid evolution, driven by the need to strike a balance between innovation and the protection of individual rights, democracy, and the rule of law. In support of the latter objective, however, it is important to remember that in the age of innovation, technological transition is a constant. It is therefore essential that legislators adapt and create flexible and dynamic regulatory frameworks that foster an enabling environment for continuous innovation. Failure to do so could restrict the potential for technological development and slow down social and economic progress. In this approach, regulation should support, rather than slow down, technological progress and the improvement of the quality of life. Regulation that is not adapted to today leads to legal uncertainty and inconsistency.

In Europe, recent developments in the regulation of AI by the Council of Europe[4] and the European Union mark a new phase in the governance of this technology, reflecting an ethical and human rights-centred vision. The EU's legislation on artificial intelligence marks a new milestone, confirming once again its aspiration to enforce the so-called "Brussels Effect" [5].
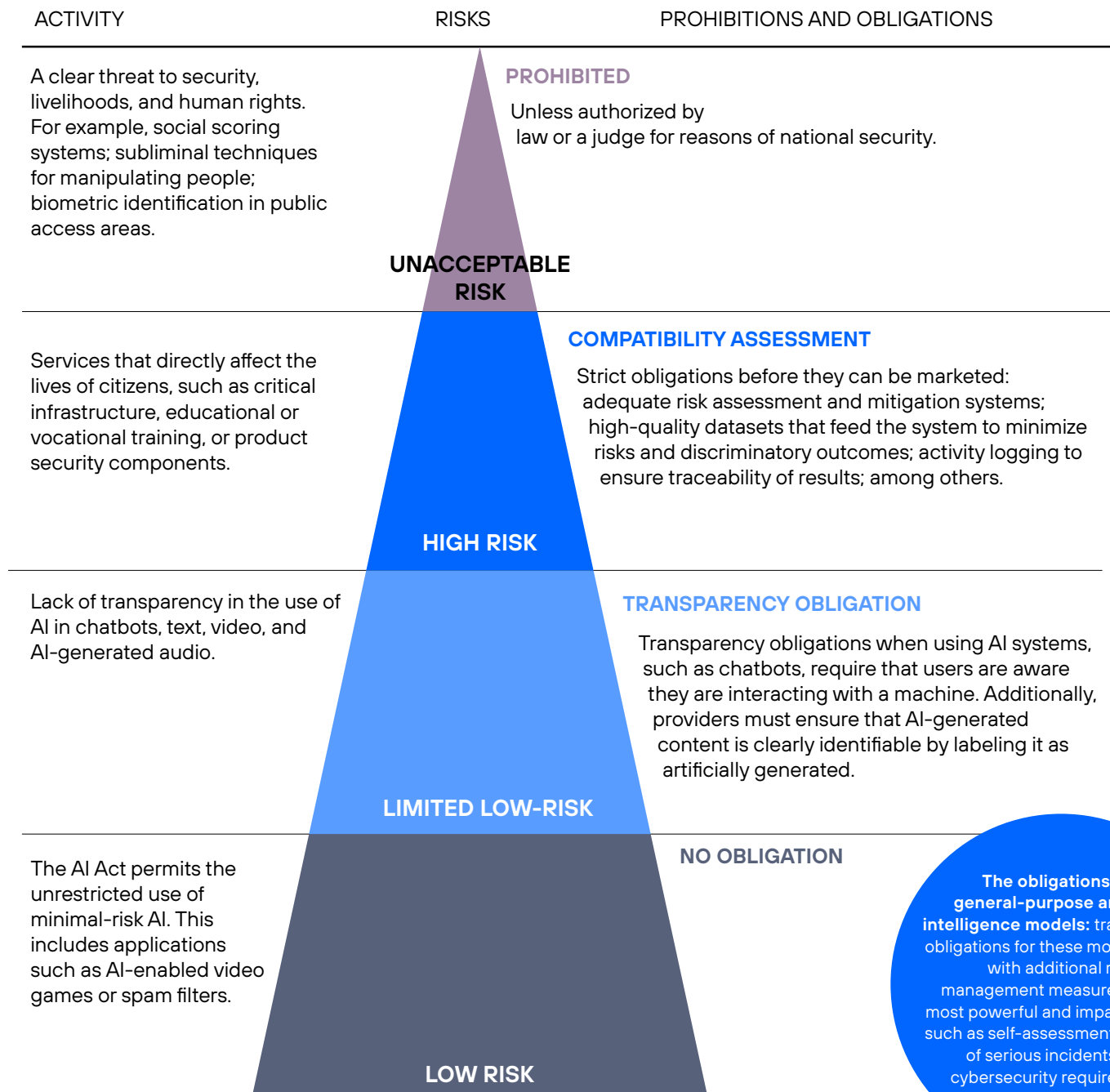
This legal framework establishes a risk-based classification system for AI applications, ranging from high-risk applications that directly affect citizens' lives to minimal risk applications such as spam filtering or video games. The novelty is that it also includes general-purpose artificial intelligence, with GenAI being a part of it.

1	2	3	4	5	6	7
Executive summary	The emergence of generative artificial intelligence	AI governance models: regulation, principles and self-regulation	Market competition and competitiveness	Intellectual property challenges in the field of generative AI	Impact on the labour market	A Navigation guide for responsible generative artificial intelligence

The EU AI Act introduces a risk-based classification system for AI applications. The main criterion is the level of risk posed by the AI application to individuals or society as a whole. The classification ranges from minimal risk to totally prohibited applications.

The classification of AI into four categories based on risk

ACTIVITY	RISKS	PROHIBITIONS AND OBLIGATIONS
A clear threat to security, livelihoods, and human rights. For example, social scoring systems; subliminal techniques for manipulating people; biometric identification in public access areas.	**UNACCEPTABLE RISK**	**PROHIBITED** Unless authorized by law or a judge for reasons of national security.
Services that directly affect the lives of citizens, such as critical infrastructure, educational or vocational training, or product security components.	**HIGH RISK**	**COMPATIBILITY ASSESSMENT** Strict obligations before they can be marketed: adequate risk assessment and mitigation systems; high-quality datasets that feed the system to minimize risks and discriminatory outcomes; activity logging to ensure traceability of results; among others.
Lack of transparency in the use of AI in chatbots, text, video, and AI-generated audio.	**LIMITED LOW-RISK**	**TRANSPARENCY OBLIGATION** Transparency obligations when using AI systems, such as chatbots, require that users are aware they are interacting with a machine. Additionally, providers must ensure that AI-generated content is clearly identifiable by labeling it as artificially generated.
The AI Act permits the unrestricted use of minimal-risk AI. This includes applications such as AI-enabled video games or spam filters.	**LOW RISK**	**NO OBLIGATION**

The obligations for general-purpose artificial intelligence models: transparency obligations for these models, along with additional risk management measures for the most powerful and impactful ones, such as self-assessment, reporting of serious incidents, and cybersecurity requirements.

1

Executive summary

2

The emergence of generative artificial intelligence

3

AI governance models: regulation, principles and self-regulation

4

Market competition and competitiveness

5

Intellectual property challenges in the field of generative AI

6

Impact on the labour market

7

A Navigation guide for responsible generative artificial intelligence

16

One of the key measures of the AI Act is the creation of real-world regulatory and testing spaces at the national level. These spaces will provide a safe environment for the development and training of innovative AI prior to commercialization. This initiative will not only encourage research and development of new technologies but will also support small and medium-sized enterprises in their journey towards AI adoption.

While the passage of the AI Act represents an important step, its implementation will be nuanced. The complexity of some legislative mandates will require continuous dialogue between the public and private sector to protect people's rights and promote innovation. It is therefore crucial that stakeholders work together to develop standards, codes of conduct and practices that reduce legal uncertainty, as well as challenges that may arise during the implementation of the law.

On the other hand, it is important to remember that this regulation is part of the EU's extensive digital regulation. Indeed, an unprecedented wave of digital regulation has been experienced. The EU Artificial Intelligence Act intertwines and complements other existing digital regulatory frameworks, such as the General Data Protection Regulation (GDPR), the Data Act, the Digital Markets Act (DMA) and the Digital Services Act (DSA) as well as cybersecurity and other sector-specific legislation. On a positive reading, these regulations form a comprehensive regulatory ecosystem that addresses various aspects of digital technology, including AI, with the aim of ensuring the protection of individuals' fundamental rights and promoting a safe and ethical digital environment.

1
Executive summary

2
The emergence of generative artificial intelligence

3
AI governance models: regulation, principles and self-regulation

4
Market competition and competitiveness

5
Intellectual property challenges in the field of generative AI

6
Impact on the labour market

7
A Navigation guide for responsible generative artificial intelligence

The GDPR is a central piece in this regulatory framework, as it sets standards for the protection of personal data across the EU. The AI Act aligns with the GDPR by requiring transparency in the use of data in AI systems, ensuring that citizens' privacy and data protection rights are respected. In addition, the interoperability between the AI Act and the GDPR ensures that AI systems comply with the privacy and security standards set by the GDPR.

The Data Act is another key regulation that seeks to facilitate data sharing and promote innovation in the digital economy. The AI Act can benefit from the framework established by the Data Act by allowing broader access to datasets for training AI models, provided that the necessary safeguards to protect privacy and data security are met.

Finally, the DSA regulates digital services and sets unprecedented standards for the accountability of platforms, especially larger ones, for illegal content, promoting online accountability, and thus preventing misinformation. The AI Act can complement the DSA by addressing specific AI-related issues, such as transparency in algorithms and liability for harm caused by faulty or biased AI systems.

The safety and reliability of artificial intelligence are crucial and derive from training, source data and the accuracy of models or possible challenges in relation to "hallucinations". Reliability standards are developed in particular in sector-specific frameworks. These are relevant and complex issues that require the collaboration of different actors, including the private sector, both for the implementation of best practices and for the determination of coherent guidelines on a global scale.

However, on a negative reading, it is observed that, on many occasions, the complex coexistence of the different regulations generates an added difficulty for companies to continue to innovate and maintain
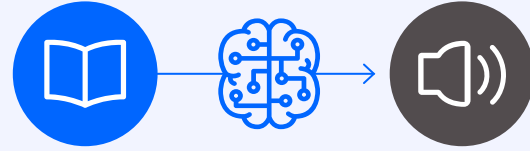
their competitiveness. Firstly, these laws impose strict requirements and standards, compliance with which discourages small and medium-sized enterprises, which make up more than 99% of the European business fabric. In addition, the complexity and scope of these regulations can hinder the innovation process by requiring a thorough understanding of the legal and technical requirements, as well as the implementation of specific measures to comply with them. This can slow down the pace of development and launch of new digital products and services, as companies must ensure that they are compliant with the regulations before they can go to market.

Beyond this, the interrelationship between different digital regulatory frameworks can lead to confusion and duplication of efforts for businesses operating in multiple jurisdictions within the EU. This can increase the administrative burden and costs associated with regulatory compliance, which can be an additional barrier to innovation.

In short, while these laws seek to promote the protection of individuals, cybersecurity, and the ethical development of technology, they can also create new barriers for companies seeking to further innovate in the digital environment. It is crucial to strike a balance between protecting fundamental rights and values and fostering innovation and economic growth in the digital age.

AI is gaining prominence in Latin America, reflected in recent events and policies. In October 2023, Chile hosted the first forum on AI[6], organised by UNESCO, CAF, and the Chilean Ministry of Science, focusing on the challenges and ethical implementation of AI.

1
Executive summary

2
The emergence of generative artificial intelligence

3
AI governance models: regulation, principles and self-regulation

4
Market competition and competitiveness

5
Intellectual property challenges in the field of generative AI

6
Impact on the labour market

7
A Navigation guide for responsible generative artificial intelligence

In addition, the "Santiago Declaration"[7] was signed by 20 countries[8] to promote ethical AI, establishing an intergovernmental Council. In March 2024, a summit in Montevideo discussed the new Digital Agenda eLAC2026[9]. and the ethics of AI. Countries such as Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Uruguay are making progress on AI strategies and legislation, with initiatives such as public consultations. Also noteworthy is the publication of the first Latin American AI Index (ILIA)[10], which analyses the state of AI in 12 countries, showing an increase in patents but low levels of investment in global comparison. The region is at a key moment to collaborate and advance in AI.

Principles, codes of conduct and self-regulation

Global ethical principles act as a compass in the responsible use of AI, including GenAI, focusing on transparency, fairness, accountability, and respect for human rights to ensure a positive impact on society and the environment. In turn, codes of conduct and self-regulation set standards of excellence and best practice in the development and use of AI and GenAI, fostering cross-industry collabouration and ensuring adherence to shared ethical principles.

Latin America, the United States, and the United Kingdom[11] have proposed governance models that address regional specificities, while at the international level, bodies such as the OECD, UNESCO, the United Nations, or the Hiroshima Process have developed principles and codes of conduct that transcend geographical and cultural boundaries. It is imperative to continue working together to develop norms and ethical standards to guide the development and use of AI worldwide, ensuring its benefit for societies and individuals, in full respect of fundamental rights.

In this context, self-regulation plays a crucial role as institutional timelines are not always synchronised with those of innovation. Public and private entities must establish internal standards and oversight processes to ensure that AI systems are designed and deployed in an ethical manner, respecting human rights, and avoiding potential harm. This allows for greater flexibility and adaptability as technology advances, enabling organizations to keep up with the latest developments and ethical challenges in the field of AI.

Update of Telefónica's AI Principles

The principles of Artificial Intelligence (AI), which we defined and published for the first time in 2018, are the ethical code that has guided us in the design, development, and implementation of commercial products and services, as well as in the internal processes of the company that integrate AI. Based on the experience gained in its implementation, as well as the evolution of technology and the regulatory context, we have decided that it is time to update them to adapt to the new challenges and opportunities that this technology presents in both business and social spheres. We believe it is important to incorporate our firm commitment to environmental protection, working to minimise its impact and enhancing the ability of AI to contribute to sustainable development, and thus we have added a new principle: "AI committed to the environment." Likewise, we have strengthened our principle of responsibility and accountability throughout the value chain, in line with current standards in the field, to ensure our approach to an ethical, sustainable, and responsible AI.

Telefonica's Artificial Intelligence Principles

Human-centered

We want AI to contribute to making our world more human, ensuring that AI respects and promotes Human Rights.

We are committed to preserve personal integrity, protect vulnerable groups and avoid the potential negative impacts of AI.

We believe human oversight is crucial to preserve autonomy, human dignity and liberty of choice.

Transparent & Explainable

We try to comprehend the logic behind the results achieved by models, so that we can increase user trust. We strive to maintain a fair balance between performance and explainability.

We make sure people are aware of their interaction with AI.

Fair & Inclusive

We promote the accuracy of results provided by our AI systems for fair and reliable decisions to be made.

We want to ensure that our AI is representative and accessible, inclusive and equitable.

We work to ensure that applications do not lead to bias and discriminatory impacts.

Respectful of privacy & security

We commit to respect the right to data protection and privacy. In addition, we use privacy by design methodology.

Following our security by design approach, we work to ensure solid and robust AI systems. We also believe traceability is essential to ensure cybersecurity of AI systems.

Committed to the environment

We promote AI as a differential tool to preserve the environment, foster sustainability and alleviate climate crisis.

We work to assess and minimize the environmental impact, reduce the carbon footprint and optimize the energy efficiency of AI systems.

With responsibility and accountability through the value chain

We strongly believe responsibility and accountability are irreplaceable by AI.
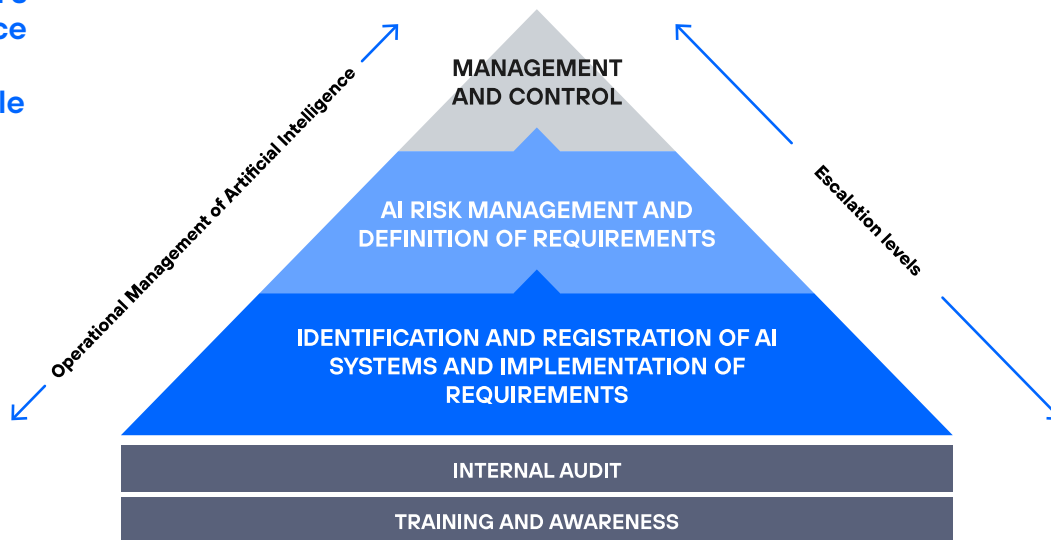
We work to ensure traceability of decisions made throughout the whole value chain, also when working with associates and third parties.

We have a governance model that defines roles and responsibilities and that allows us to identify and mitigate risks, as well as to ensure the auditability of AI systems.

Telefónica's Governance Model

Telefónica's governance model for responsible use of AI

MANAGEMENT AND CONTROL

AI RISK MANAGEMENT AND DEFINITION OF REQUIREMENTS

IDENTIFICATION AND REGISTRATION OF AI SYSTEMS AND IMPLEMENTATION OF REQUIREMENTS

INTERNAL AUDIT

TRAINING AND AWARENESS

Operational Management of Artificial Intelligence

Escalation levels

Telefónica began its commitment to the use of responsible AI in a formal way in 2018 with the adoption of ethical principles for AI. These ethical principles prompted the generation of the first procedures and requirements for compliance with each of them. Since then, we have come a long way, incorporating the technological changes of this technology to address the implementation of governance and risk control mechanisms that allow us to make the enormous advantages that AI brings us more reliable.

Our active participation in European reflection processes, such as the Trusted AI Assessment Checklist of the European Commission's Expert Group,

helped us to lay the foundations for the identification of AI requirements.

Telefónica has also had a consolidated Privacy Governance system in place for years, based on the implementation of a governance model based firstly on the capillarity and responsibility of the functional and business areas, secondly on risk orientation as a fundamental guide, and finally on the implementation of the corresponding mitigation measures.

In 2022 we created a preliminary governance model for ethical and responsible AI, testing new roles such as an AI "Ethics Expert Group", AI contacts in

1
Executive summary

2
The emergence of generative artificial intelligence

3
AI governance models: regulation, principles and self-regulation

4
Market competition and competitiveness

5
Intellectual property challenges in the field of generative AI

6
Impact on the labour market

7
A Navigation guide for responsible generative artificial intelligence

the most relevant areas - the "Responsible AI Champions" - and a "*Responsible AI Office*", tested a methodology for evaluating products and services, and initiated training and awareness-raising on Ethical AI for the different roles. In short, we put in place the necessary control mechanisms for the functioning of AI Governance.

The result: Telefónica's AI Governance Model

This whole process has enabled us to internally promote the drafting of an internal regulation, approved on 1 December 2023, which binds the Group's companies and employees and defines the Artificial Intelligence Governance Model, taking advantage of the best practices and lessons learned along the way:

Intense pervasiveness of governance in the business areas, which assume responsibility for cataloguing and implementing requirements for the AI systems they develop, acquire, use or market.

Strong coordination mechanisms at both functional and group level.

Clear risk orientation, risk identification and risk mitigation.

Scaling up decision making, incorporating ethical expertise on issues that require it.

Management of the AI governance that rests on the Compliance areas of the Telefónica Group.

1 Executive summary

2 The emergence of generative artificial intelligence

3 AI governance models: regulation, principles and self-regulation

4 Market competition and competitiveness

5 Intellectual property challenges in the field of generative AI

6 Impact on the labour market

7 A Navigation guide for responsible generative artificial intelligence

In short, policymakers must work in partnership with the private sector to develop flexible and dynamic regulatory frameworks that encourage innovation while protecting individual rights and promoting a safe and ethical digital environment.

Recomendations:

Flexible and dynamic regulatory framework: policy makers need to create regulatory frameworks that foster an enabling environment for continued innovation in technologies such as AI. The adaptability of these regulations is crucial to support technological progress and improve quality of life, while avoiding legal uncertainty and inconsistency.

Harmonization and coordination: It is important that digital regulations in the EU complement and do not overlap. Policy makers should work on harmonizing different regulatory frameworks, such as the Artificial Intelligence Act, the General Data Protection Regulation, the Data Act, the Digital Markets Act and the Digital Services Act, and sectoral legislations to avoid confusion and duplication of efforts for businesses.

Promoting innovation: Regulations must balance the protection of individual rights with the promotion of innovation and economic growth. Policymakers should look for ways to incentivise investment in emerging technologies such as AI, while ensuring the protection of citizens and online safety.

Ongoing dialogue with the private sector: It is crucial to maintain a constant dialogue between the public and private sector to develop standards, codes of conduct and practices that reduce legal uncertainty and address challenges that arise during the implementation of new laws and regulations. This collaborative approach can help find the right balance between protecting rights and promoting innovation.

Promoting self-regulation: Self-regulation by public and private entities plays a crucial role in the ethical and responsible oversight of AI development and use. Policy makers should support and promote self-regulatory initiatives that establish internal standards and oversight processes to ensure the ethical use of AI and prevent potential harm.

1 Executive summary

2 The emergence of generative artificial intelligence

3 AI governance models: regulation, principles and self-regulation

4 Market competition and competitiveness

5 Intellectual property challenges in the field of generative AI

6 Impact on the labour market

7 A Navigation guide for responsible generative artificial intelligence

4. *Market* competition and competitiveness

Competition for AI between regions and companies is intensifying, becoming a race for data, computing power, affordable energy, capital, and specialised talent. Both the development and integration of these technologies across enterprises will be critical to competitiveness, especially now with the generative AI.

This situation, and the transformative power of these technologies that extends to all facets of life today, reshaping economies, industries, and societies, has raised concerns about potential problems of competition and concentration of market power.

Key elements for the development and deployment of generative AI systems

Having access to certain resources and specific elements is key to being able to provide GenAI-related services. The main barriers to entry for its development or deployment are similar to the challenges that already exist in today's digital markets. These include, in the case of AI, access to relevant datasets, technological challenges (e.g. in terms of access to computing capacity and resources), the need for specialised skills and personnel, as well as access to green energy sources and capital.

Data is essential both in the initial creation and pre-training phase to build the algorithms or models, and in the later fine-tuning phase to improve the results. Critical factors include the scale and quality of the data. These may be openly available, but some companies may have exclusive access to a large amount of data, giving them a competitive advantage. The use of open data for learning raises challenges in terms of intellectual property, especially when carried out by machines.

In turn, computing power and the availability of affordable energy are necessary to build and train models efficiently. The use of renewable energy is also relevant to minimise environmental impact. Artificial intelligence computing power and energy form a crucial new duo. Artificial intelligence will trigger fundamental innovations in energy generation to meet these new needs, where the key will be the ability to mitigate the associated growth in carbon footprint.

1 Executive summary

2 The emergence of generative artificial intelligence

3 AI governance models: regulation, principles and self-regulation

4 Market competition and competitiveness

5 Intellectual property challenges in the field of generative AI

6 Impact on the labour market

7 A Navigation guide for responsible generative artificial intelligence

Access to specialised talent has become a battleground, with companies competing to attract the best AI experts through tempting contracts and aggressive recruitment strategies. Developing models requires a combination of talent and technical expertise. This involves not only data scientists and engineers, but also a diversity of experts for the development and application of business models. Competition for specialised talent can test regulators and competition authorities - although there are generally other parameters of competition to which competition authorities attach greater importance - especially when certain firms offer contracts to attract this type of talent, which could have implications in terms of competition and concentration of power[12].

Finally, access to capital is essential to drive AI innovation. Large technology companies and venture capital funds play a crucial role in providing funding to startups and emerging projects.

The challenge of competition for access to essential resources

The development and supply of GenAI systems is still at an early stage, with a large number of entrants, mostly in niche markets[13]. There is a strong demand for new and different models, especially those designed for industrial applications requiring a high level of security and reliability. Beyond general range models, companies are selecting and exploring models to provide specific capabilities, balancing various features such as performance and cost.

Open-Source generative AI systems and components, if properly adapted and maintained, offer alternatives to closed developments. For example, developers of services such as chatbots and other AI assistants can take advantage of the availability of opensource models, including through API-based offerings, to make specialised adaptations.

1
Executive summary

2
The emergence of
generative artificial
intelligence

3
AI governance models:
regulation, principles and
self-regulation

4
Market competition and
competitiveness

5
Intellectual property
challenges in the field
of generative AI

6
Impact on
the labour market

7
A Navigation guide for
responsible generative
artificial intelligence

26

But some of the resources essential for AI development are highly concentrated, in particular access to data, computing power (including chips or GPUs) and, at this point, specialised talent. And other resources mentioned are also particularly relevant, such as capital and the availability of energy sources. All these raise concerns about the environment, equity and market competition. Likely, access to these resources could become a point of competition between regions and companies, which could affect competition and the concentration of market power.

Entities with a large market share may, because of that position, be tempted to impose commercial conditions and obligations on their customers that violate competition rules. If firms with a strong position deny access to third parties or decide to set excessively high prices for these resources, competition could be weakened.

Similarly, acquisitions or mergers or the position in certain markets allow certain firms to expand into adjacent markets or to improve their position. Vertical integration generally offers a wide scope for efficiency gains along the value chain. However, it can also provide firms with a competitive advantage that is difficult to match. Competition authorities need to ensure that there is no abuse of dominance in the digital domain, and that these companies do not use their position to restrict competition. This could occur, for example, by limiting or denying access to key inputs to competitors, or by granting access on preferential, unfair or disproportionate terms, i.e. engaging in "*self-preferencing*" or self-serving practices.

On the other hand, access to capital will also be vital for the development of these technological proposals. In this regard, large technology companies, as well as venture capital, can provide funding to start-ups in a variety of ways, such as direct investments or by establishing commercial or strategic partnerships[14].
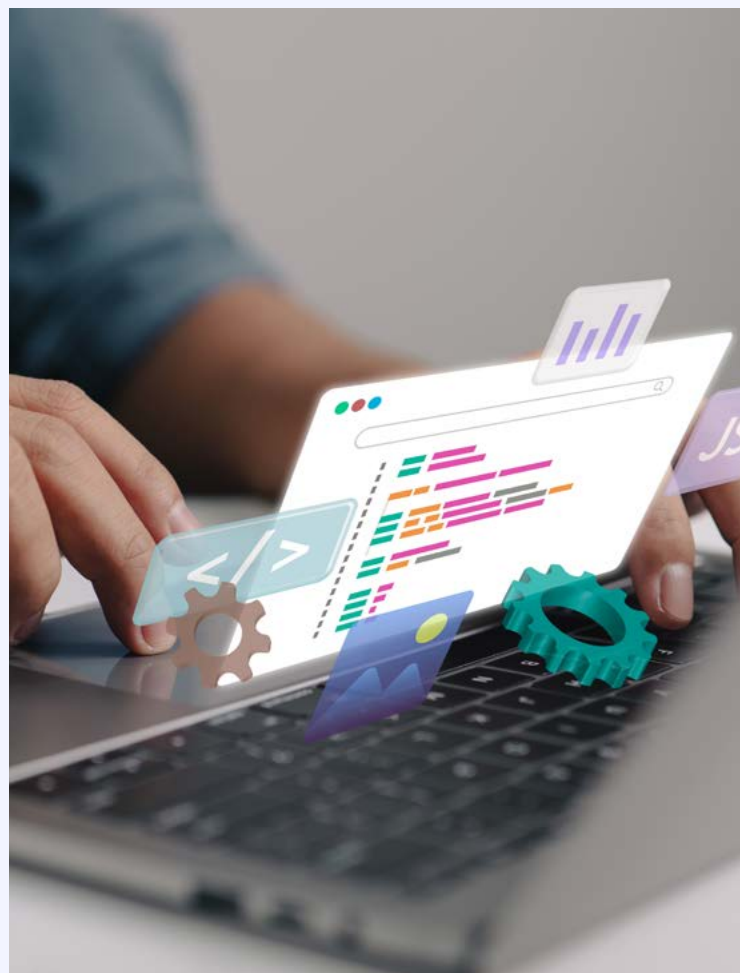
It is crucial to ensure that, going forward, new entrants in emerging markets, especially small and medium-sized enterprises, or start-ups, can benefit from equitable and affordable access to all the above-mentioned components. To this end, countries should pay particular attention to strengthening capabilities and access to the above resources (data, computing and energy capacity, talent and capital), as well as ensuring adequate levels of competition.

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Recommendations

Promoting fair competition: Given the concentration of essential resources such as data, computing power, specialised talent and capital in the hands of a small group of companies, it is crucial to ensure that competition law rules are respected. It is particularly relevant that authorities:
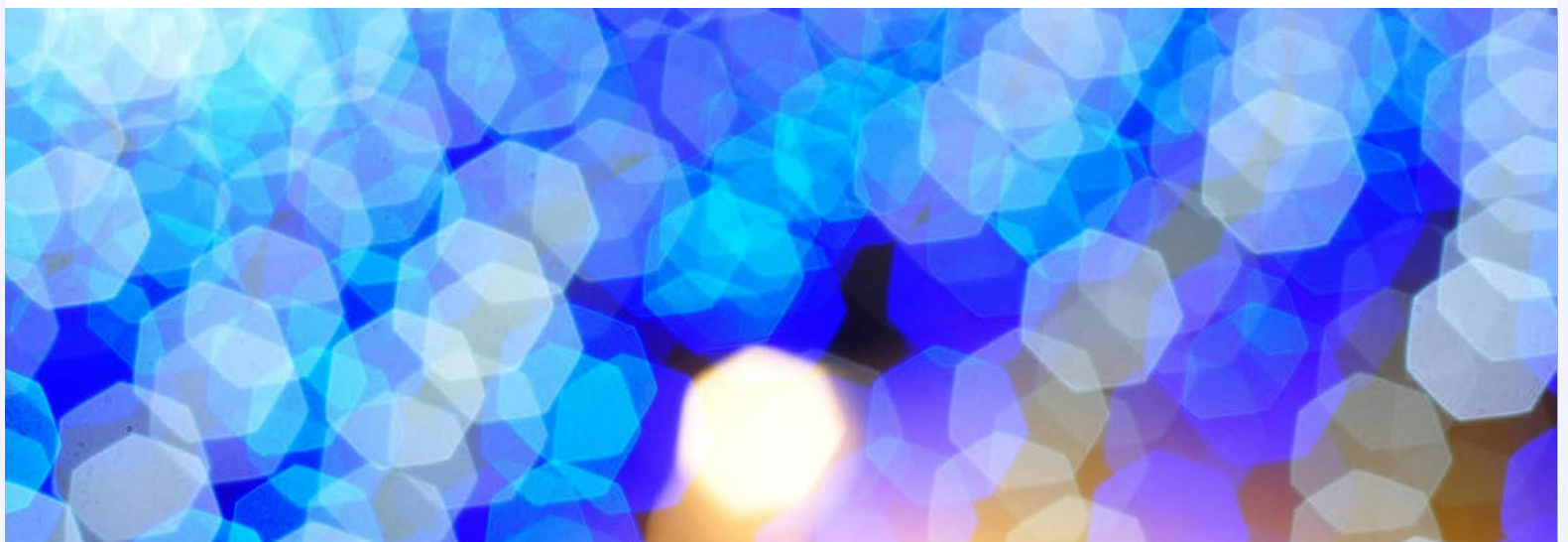
- monitor for potential abuses of dominance;
- ensure fair access to key resources;
- take these aspects into account when analysing mergers and acquisitions.

Stimulate diversity and innovation: Diversity of business models and innovation in the field of artificial intelligence (AI) should be supported and encouraged. This could be achieved by promoting opensource models and supporting startups and emerging companies to ensure that there is a wide variety of players in the market.

Strengthen regional capabilities: It is important that regions invest in strengthening their capabilities in terms of access to resources such as data, computing capacity, specialised talent and capital. This could involve establishing education and training programs, building technology infrastructure and encouraging investment in local businesses.

1
Executive summary

2
The emergence of generative artificial intelligence

3
AI governance models: regulation, principles and self-regulation

4
Market competition and competitiveness

5
Intellectual property challenges in the field of generative AI

6
Impact on the labour market

7
A Navigation guide for responsible generative artificial intelligence

5. *Intellectual* property challenges in the field of generative AI

Copyrights and generative artificial intelligence

The current debate on copyright, triggered by the rapid rise of technology, has taken on a not insignificant prominence in the field of GenAI.

Rapid advances in GenAI have resulted in a wide range of affordable and easily accessible tools for the generation of content of all kinds. Thus, the development of this technology and its increasing involvement in the creative industries has opened the door to a highly relevant debate on intellectual property.

In essence, the questions revolve around two axes. On the one hand, there is the question of how the rightsholders of pre-existing works that are used in the training of the GenAI (*input*) are affected. To generate an asset, the GenAI requires learning from other pre-existing works. Without the data inherent in these pre-existing creations the system is unable to develop its creative intelligence. This is where the debate arises as

to whether the learning of GenAI requires authorization from the rights holders of pre-existing works used for its training or whether its use without authorization can be covered by any exception under current legislation.

On the one hand, the question arises as to the protection afforded to those assets that are generated by the GenAI when it acts autonomously or without relevant human intervention (*output*). As stated at the international level, only in cases where a work has been created by a human being is it recognised as protected by copyright, which would exclude content generated by GenAI without the decisive intervention of a human being in the creative process.

Existing legal frameworks were designed to embrace and empower human creativity. GenAI blurs the lines between human and machine, challenging the traditional foundations of copyright and presenting a complex set of challenges for those who train and use GenAI.

Patent rights and generative artificial intelligence

In the technological field, AI in its more classical, non-generative form has been successfully used to innovate products and services for more than 20 years.

In the field of patents, as they are governed by certain criteria, such as technical character and inventive step attributable to technical features. The question arises whether algorithms are patentable.

European law, establishes that the right to a patent belongs to the inventor or its holder, and is transferable in various ways. Therefore, it is only possible to designate a human being as the inventor, with no place for a legal entity and much less an AI as inventor, reserving the capacity of invention to processes of human creativity.

Taking this into account, the role of GenAI in the creation of the invention is crucial, i.e how much the inventor brings to the innovation to make it sufficiently differential, how much the AI on which it relies.

Patent offices already use AI in their patent management and examination processes, resulting in faster examination processes and better prior art information.

In short, effective industrial property protection in the era of GenAI requires a proactive and collaborative approach that combines technological innovation with cooperation between the different actors in the business and regulatory ecosystem.
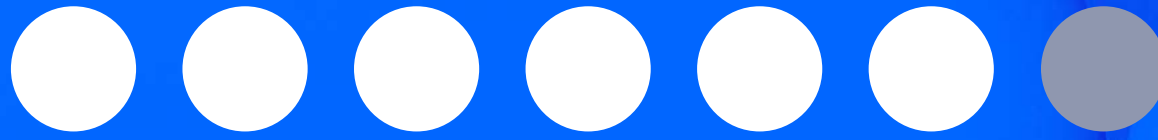
Recommendations

Require a solid understanding of the intellectual property challenges of developing Generative AI by fostering flexible and adaptable environments in different regulatory frameworks.
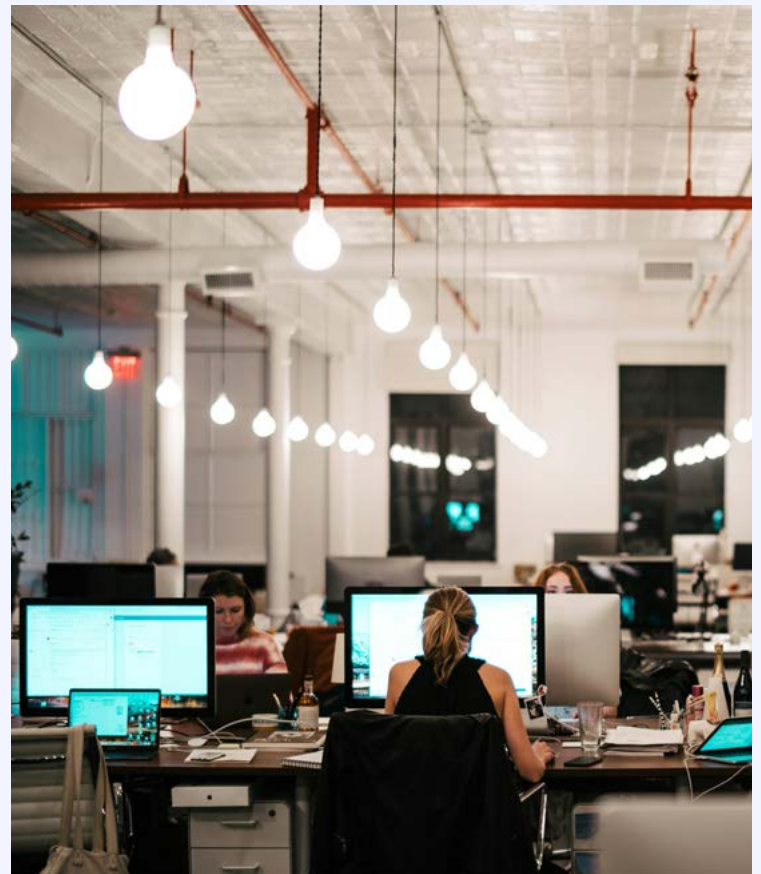
Promote continuous dialogue between the public and private sector with the aim of balancing the potential challenges arising from the implementation of this technology.

1 Executive summary

2 The emergence of generative artificial intelligence

3 AI governance models: regulation, principles and self-regulation

4 Market competition and competitiveness

5 Intellectual property challenges in the field of generative AI

6 Impact on the labour market

7 A Navigation guide for responsible generative artificial intelligence

6. *Impact* on the labour market

Artificial intelligence (AI) is set to profoundly change the global economy. AI and GenAI are transforming the labour market by automating tasks, complementing human jobs, and creating new job opportunities, especially in advanced technological sectors. However, they may also exacerbate economic disparities, benefiting skilled workers more and increasing income inequality and labour polarization[15]. These technologies tend to favour economies with advanced digital infrastructures, while regions with fewer technological resources face greater challenges. To mitigate these effects, it is crucial to implement education and lifelong learning policies, improve social safety nets, incentivise inclusive innovation, and foster public-private partnerships.

The disruption of the global labour market by AI introduces changes in job roles, skill requirements and employment patterns. While these technologies offer opportunities for increased efficiency and innovation or productivity gains, they also raise concerns about job displacement. AI generates in productivity, a new measure of potential AI complementarity suggests that, of these 60% of jobs, about half may be negatively

1 Executive summary

2 The emergence of generative artificial intelligence

3 AI governance models: regulation, principles and self-regulation

4 Market competition and competitiveness

5 Intellectual property challenges in the field of generative AI

6 Impact on the labour market

7 A Navigation guide for responsible generative artificial intelligence

31

affected by AI, while the rest could benefit from enhanced productivity through AI integration. AI will also impact not only the automation of routine tasks, but also the disruption of high-skilled jobs, a trend that could be more pronounced in advanced economies[16].

The World Economic Forum's (WEF) *"Future of Jobs Report 2023"*[17] estimates that 19% of the workforce could have more than 50% of their tasks automated by AI. However, it also predicts that the demand for AI and machine learning specialists will have a positive impact on job creation, with 40% more specialists needed in the field, which translates into approximately one million new vacancies.

50%
of the tasks automated by AI

40%
more specialists needed in the field, approximately 1M new vacancies
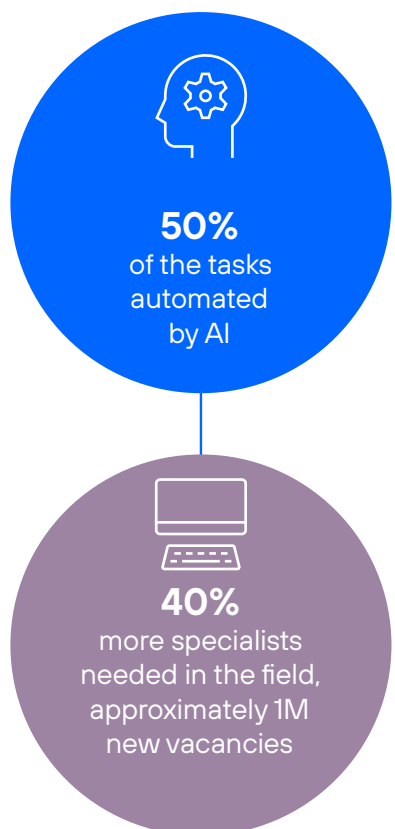
In advanced economies, AI is likely to affect a greater proportion of jobs - around 60% because of the deep understanding of AI technologies which will accelerate its deployment. In the European Union, a European Parliament report suggests that up to 54% of jobs could be affected by automation, with significant variations between countries. The most affected sectors include manufacturing, transport, and logistics. For example, in Germany, the integration of industrial robots did not have a significant negative impact on local labour demand due to strong labour protections, allowing workers to remain employed by changing roles internally[18].

Additionally, the International Monetary Fund (IMF) projects that the technology will affect 40% of jobs in emerging market economies and 26% of jobs in low-income countries. In Latin America, the impact is equally complex. Although exposure to AI is lower compared to advanced economies, the lack of adequate infrastructure and a sufficiently skilled workforce could exacerbate existing inequalities, limiting the ability of these countries to reap the benefits of AI[19].

To harness AI's potential fully, countries should invest in AI innovation and develop adequate regulatory frameworks to optimise benefits from increased AI use.

Worker Retraining Opportunities

The changing employment landscape creates an urgent demand for retraining and skills upgrading. To address this pressing need, it is crucial to implement training strategies that span multiple levels and approaches.

First, it is imperative that workers acquire competencies in technical and digital skills. This means not only becoming familiar with programming, but also developing skills in data analytics and AI tools. The WEF in its report on the future of work points out that this technical training will be essential for employees to be able to interact effectively with advanced technologies

1
Executive summary

2
The emergence of generative artificial intelligence

3
AI governance models: regulation, principles and self-regulation

4
Market competition and competitiveness

5
Intellectual property challenges in the field of generative AI

6
Impact on the labour market

7
A Navigation guide for responsible generative artificial intelligence

and thus increase their productivity in an increasingly automated work environment.

However, the crucial role of soft and creative skills in the age of AI cannot be overlooked. While routine tasks can be easily automated, capabilities involving creativity, critical thinking and interpersonal skills are less susceptible to machine replacement. Therefore, training programs should include a focus on developing these skills, which will allow workers to remain relevant in a constantly evolving labour market. Research conducted by the OECD supports this notion, highlighting the importance of non-technical skills for future career success.

In addition, the idea of lifelong learning should be promoted as an essential component of modern working life. This implies the creation of learning systems that allow workers to regularly update their skills and knowledge. From online courses to vocational training programs offered by companies and governments, there is a wide range of resources available to facilitate this retraining process. In the European Union, the European Commission has launched initiatives such as the "Skills Pact"[20], which seeks to bring together businesses, workers and governments to boost digital skills training. In addition, 13.2 billion euros from the European Social Fund Plus (ESF+) have been earmarked for vocational education and training programs. In Latin America, the IDB has promoted programs such as "Labouratoria"[21], which trains women in coding and technology skills, helping them to integrate into the technology sector. Also, the "Plan Ceibal"[22] in Uruguay provides digital skills training to students and teachers, preparing future generations for the digital labour market.

In short, meeting the challenges posed by AI and GenAI requires a holistic approach to training and skills development. From technical and digital skills to soft and creative skills, to the promotion of lifelong learning, educational strategies need to be implemented to prepare workers for a future of work characterised by rapid technological evolution and increasing automation.

To manage the transition and maximise the benefits of AI and GenAI, policy makers should consider the following actions:

Effective implementation of these recommendations can help mitigate the risks associated with AI and AIGA, harnessing their benefits to build a more dynamic and inclusive labour market.

Recommendations

Boost education and training:
- invest in STEM (science, technology, engineering, and mathematics) education from basic to advanced levels, ensuring that the future workforce is prepared for a technology-driven work environment.
- Create tax incentives and subsidies for companies that invest in training their employees.

Entrepreneurship and labour protection policies:
- create incentives for entrepreneurship and,
- develop policies to encourage job transitions for displaced workers with retraining and reskilling programs.

Fostering digital inclusion: implementing policies that reduce the digital divide, ensuring that all sectors of society have access to technologies and the necessary skills to use them.

International and public-private partnerships:
- establish international partnerships to share best practices and,
- develop job training programs by fostering public-private cooperation.

7. A Navigation guide for *responsible* generative artificial intelligence

AI Governance and the GenAI

1 Flexible and dynamic regulatory framework:

development of rules that promote an enabling environment for AI innovation, adapting to technological advances in which people's rights are protected with an implementation model that generates legal certainty.

2 Harmonization and coordination:

rules in the digital area should complement each other, avoiding overlapping and seeking to harmonise different regulatory frameworks to avoid duplication of efforts and the creation of barriers.

3 Promotion of self-regulation:

support for self-regulatory initiatives that establish internal standards and oversight processes to ensure the ethical use of AI and prevent potential harm.

4 Ongoing dialogue with the private sector:

it is crucial to maintain a constant dialogue between the public and private sector to develop standards and practices that reduce legal uncertainty and address the challenges of implementing new laws and regulations.

1   **2**   **3**   **4**   **5**   **6**   **7**

Executive summary   The emergence of generative artificial intelligence   AI governance models: regulation, principles and self-regulation   Market competition and competitiveness   Intellectual property challenges in the field of generative AI   Impact on the labour market   A Navigation guide for responsible generative artificial intelligence

For a balanced competition in the markets

1 Promoting fair competition:

it is crucial to ensure that competition rules are respected in the face of the concentration of essential resources in the hands of a small group of companies. This involves monitoring potential abuses of dominance and ensuring fair access to key resources when analysing mergers and acquisitions.

2 Stimulate diversity and innovation:

it is recommended to support diversity of business models and innovation in AI. This would be achieved by promoting *Open-Source* models and supporting startups and emerging companies to ensure a wide variety of players in the market.

3 Strengthen countries' capacities:

it is important that countries invest in strengthening their capacities in terms of access to resources such as data, computing power, specialised talent, and capital. This could involve training programs, building technology infrastructure, and encouraging investment in local businesses.
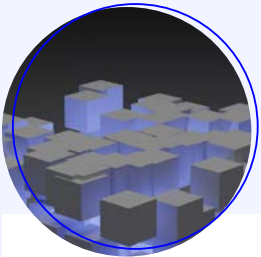
For an intellectual and industrial property of the 21st century

1 Require a solid understanding of the intellectual and industrial property challenges:

Generative AI development by fostering flexible and adaptable environments in different regulatory frameworks.

2 Promote continuous dialogue:

between the public and private sector with the aim of balancing the potential challenges arising from the implementation of this technology.

For an inclusive labour market

1 Invest in skills development:

investments in education, training and life-long learning programs should be prioritised to equip the workforce with the skills needed to adapt to an AI-driven economy. It is also important to highlight and value human skills that are irreplaceable by AI.

2 Put in place public policies to support digital inclusion in the workplace:

public policies should be developed and implemented to limit the potential impact on inequality and establish retraining programs to support workers affected by AI-driven automation. This will ensure a smooth transition to new job opportunities.

1 Executive summary

2 The emergence of generative artificial intelligence

3 AI governance models: regulation, principles and self-regulation

4 Market competition and competitiveness

5 Intellectual property challenges in the field of generative AI

6 Impact on the labour market

7 A Navigation guide for responsible generative artificial intelligence

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4. The Council of Europe: guardian of Human Rights, Democracy, and the Rule of Law for 700 million citizens. https://www.coe.int/en/web/portal/home. This treaty establishes a legal framework to ensure respect for Human Rights, Democracy, and the Rule of Law throughout the life cycle of AI systems. It takes a risk-based approach and although the agreed text will not be binding on the private sector, governments will be required to assess potential risks arising from the use of AI by companies, excluding national security or research activities.

5. The "Brussels Effect" is a term coined by Annu Bradford and refers to the global influence of regulations and standards set by the European Union (EU). The EU has emerged as a global regulatory authority because of its large market and its ability to set standards. EU standards only become global when the output or conduct of firms is not divisible, i.e. when a firm's benefits from adhering to a single standard outweigh the benefits of laxer standards in other markets. Together, these conditions explain why the EU is the only regulatory regime that can exert unilateral regulatory influence on global markets.

6. Chile will host the First Latin American and Caribbean Ministerial and High Level Summit on the Ethics of Artificial Intelligence. https://www.unesco.org/en/articles/chile-will-host-first-latin-american-and-caribbean-ministerial-and-high-level-summit-ethics

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8. The agreement brought together ministers, digital and AI policy makers from Argentina, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Peru, Paraguay, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Uruguay and Venezuela.

9. Cepal. (2024). Delegates from 14 Countries in the Region and Other Actors Met in Montevideo with Sights Set on the New Digital Agenda for Latin America and the Caribbean eLAC2026. https://www.cepal.org/en/news/delegates-14-countries-region-and-other-actors-met-montevideo-sights-set-new-digital-agenda

10. The ILIA is carried out by CAF, AWS, Google, CENIA, IDB, OAS, UNESCO, APTA, LinkedIn, GitHub, Birs, Amexcomp, CETIUC and the government, agencies and universities of Chile. https://indicelatam.cl/

11. Thus, the US president issued an Executive Order for secure and trusted artificial intelligence at the end of October 2023, and as a result of the UK summit, the Bletchley declaration was signed on 1 November to address risk identification and policy from a shared vision. "Many risks arising from AI are inherently international in nature, and so are best addressed through international cooperation. [...] All actors have a role to play in ensuring the safety of AI: nations, international fora and other initiatives, companies, civil society and academia will need to work together." Bletchley Declaration, 1 November 2023.

12. For example, Microsoft's decision to hire co-founders and staff of the startup Inflection, rather than acquiring the company or subjecting itself to potential competition controls, as well as the situation at *OpenAI* during the 2023 crisis with the dismissal of Sam Altman, illustrate this dynamic. This option is emerging as an alternative to the traditional acquisition of companies to obtain talent. "*We buy companies to get great people*", said Meta CEO Mark Zuckerberg in 2010.

13. List of Generative AI Startups collected by DealRoom. https://app.dealroom.co/lists/33530

14. One example is Mistral's partnership with Microsoft. https://azure.microsoft.com/en-us/blog/microsoft-and-mistral-ai-announce-new-partnership-to-accelerate-ai-innovation-and-introduce-mistral-large-first-on-azure/

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1 Executive summary

2 The emergence of generative artificial intelligence

3 AI governance models: regulation, principles and self-regulation

4 Market competition and competitiveness

5 Intellectual property challenges in the field of generative AI

6 Impact on the labour market

7 A Navigation guide for responsible generative artificial intelligence

37

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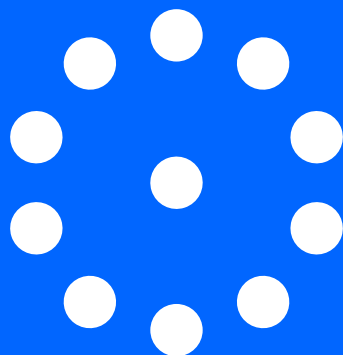
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