

# Exploring Economics Risks and Opportunities in Creative Industries Driven by Artificial Intelligence and EU Regulation

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## ABSTRACT,

*Artificial intelligence is quickly coming to revolutionize how people receive entertainment, and moreover how they work. Understanding how this will influence market dynamics and the future of innovation processes is important to both regulators and workers alike. This paper dives into the legal efforts which the European Union has implemented to combat misuse of both AI and data, such as the AI Act as well as the General Data Protection Regulation. Then the paper takes a closer look into how this will affect the current structure of the music sector, utilizing theoretical frameworks such as Schumpeter's Mark I and II. This study takes a quantitative approach, utilizing both a thematic content analysis for the legal documentation and an empirical case study which includes a discussion of a future scenario as a forecast method. Together, this study investigates how the policy discourse on Artificial Intelligence provides benefits and risks to the structural ecosystem of the music sector.*

Graduation Committee members:

## Keywords

risks, opportunities, EU, policy, regulatory, music sector, AI, profit, macroeconomics

# 1. INTRODUCTION

## 1.1 Context

Artificial Intelligence, also known as AI, is the future of technological innovation in both productivity and creativity development. As of now, language learning models, LLMs, are becoming increasingly common with widely accessible versions such as Open AI's 'ChatGPT'. The models take input from the user, such as for example a data set, who then asks prompts to guide the AI into providing meaningful output according to the user's explicit constraints. Due to the versatile applicability of AI and other models, it can come to play a vital role in the digitization of processes. To analyze the kinds of impacts which AI can yield on distinct aspects of the world and society, this study adopts a perspective which examines the pillars of the Triple Bottom Line: the impact had on people, the effects on the planet and environment, as well as the shifts in profit and monetary distribution. In this paper, the topic is narrowed down to the profit dimension, which will be used to investigate the primary focus of this study which is how artificial intelligence generates both economic risks and opportunities. AI's risks and opportunities in the macroeconomic sector have not been fully understood as of yet, but the market predicts soon these effects will take place and reshape the industry as we know it; This research will be conducted to explore this exact topic, and view how the integration of AI systems, in accordance to the development of related regulatory efforts, will look like and how they will come to promote economic change.

## 1.2 Literature Review

Currently the European Union sits at the industry 4.0, which refers to the digitalization of economic processes with more "efficient production technologies", which already aims to reduce the concentration of processes which require humans to fulfill certain tasks. The European Commission has already designed an industrial design concept which mitigates the economic effects on the value of human contribution to include more human-centric, ecological, and resilient aspects. However, with the development of AI, then economic concerns related to job availability and technological trust arise as Europe shifts into industry 5.0; further developments and integration of human-machine systems to better efficiency and productivity (Saniuk et al., 2024).

To mitigate the risks and impacts affiliated with the development of the technology, the European Union has created the EU AI act to quantify tech risk and provide guidance (Union, E, 2024). In addition to what the governments have been trying to accomplish, there are currently some discussions on the rise within the music industry surrounding the capabilities that AI could bring to the arts, and whether it will be working alongside the artists or against them. The topic is becoming more mainstream, and well-known, being talked about in places such as Forbes and Time Magazines; certain aspects of the music industry such as live performances are not necessarily under threat yet, but the issue arises that "AI-generated music can be indistinguishable from human-created music" (Henkin, 2024). Over 200 artists have already began a discussion surrounding AI's capabilities alongside the lack of copyright protection related to the possibility of using current music as training data for future musician replacement (DeVon, 2024). Moreover, how AI gets integrated into society, and more specifically the music sector of the EU, can have a significant impact on the existing regime of industrial dynamics such as how value is generated and where the primary processes of change are being led from.

While this does indicate that the European Union is investing significantly into the web and AI, it is the case that the United States happens to hold all of the most powerful AI models in the world; Germany's Siemens ranked 16<sup>th</sup> in the world in regard to the amount of AI patents granted. As there is a need for training data to develop the model, the value that is attainable from the language learning model is strongly correlated with both data collection and centralization (Franco et al., 2022); this indicates that companies such as Google, Amazon, and Microsoft currently have the upper hand when it comes to getting the most out of the tech. Europe still relies heavily on outsourced cloud services as it has not developed its own infrastructure sufficiently and those also happen to be primarily American, so there is a high dependency on external sources.

## 1.3 Research Goal:

The goal of this research is to explore and analyze the European Union's policies regarding the use of AI and gather an understanding of both the risks and opportunities that it can bring to the music industry. The primary aim of the study is to analyze the economic impacts that policies and regulations have on the development of AI. It seems to be the consensus that "AI excels at handling large amounts of data", which can be beneficial due to the increasing complexity of the incumbent systems; however, it is not so good when it comes to "Jazz and similarly complex genres" (*IFIP Advances in Information and Communication Technology*, 2021). This is then brings into question how much any kind of machine learning could compete and synergize with humanity in production, and ultimately the extent to which the artistic world and surrounding sectors would be molded by the integration of AI technology into existing processes. Furthermore, the policies that are currently in use heavily regulate what can be done with AI and even more so where and how, alongside consequences and punishments for misuse, which generates a significant impact in what the maximum potential for its use is.

## 1.4 Research Questions:

- 1) What are the economic risks and opportunities associated with applied AI, and how are they addressed in the European Union's policy and regulation discourse?
- 2) To what extent do these regulations enable or restrict AI's effects on economic growth and reshape the industrial concentration and structural ecosystem of the music sector?

## 1.5 Relevance:

Delving into the AI Act, it is the first attempt at trying to regulate the use of the technology. This has created a guideline for the risks and opportunities affiliated with integrating AI into different aspects of life and quantified so; with the risk level, then there are restrictions imposed on certain uses that can range from being fully acceptable, limited, or prohibited. An example of a high-risk development is utilizing it to further the possibilities associated with biometrics as it is considered sensitive data. Even then the ability to do so is possible, but a governing body will have to firstly allow its use, and then heavily monitor its creation and hence the agency producing it. Furthermore, there is an extensive list of requirements for the development and end-product such as on the transparency related to use, which can look like a disclaimer telling a client that they are using a chat service with an AI assistant. Lastly, and considerably one of the more impressive aspects of this act, the EU designed the regulations in such a way that it adapts to the future developments through adaptable rules and placing an

emphasis on developers' quality and risk management capabilities (AI Act, 2024).

The research question looks to answer what kinds of economic changes the music industry will experience due to the progression of AI development and how policy creation and discussion leads to further changes in the regime. The music industry is full of both individual musicians and sound engineering companies that try to maximize the monetary value of each composition while having to adhere to legal and regulatory constraints such as Intellectual Property Rights and Copyright. Because of the effect that AI can have on both the creative development of compositions and the industrial concentration of musicians, the future economic performance of the music industry greatly depends on the restrictions and guidelines provided by government agencies regarding the use and application of AI technologies.

This is a subscription-based service, founded and headquartered in Stockholm, that currently provides this service to over 602 million users while having 236 million that are currently subscribed (Spotify, 2024). Better yet, this company uses AI technology already in their service which is present in their 'DJ' innovation; Spotify uses an AI DJ which analyzes people's listening trends and creates personalized playlists for every user (Spotify, 2023). The software is capable of personalizing playlists based on factors such as genre, artist, and mood; moreover, they have created a dynamic and highly integrable voice for the AI DJ, which was developed in order to provide the most realistic voice possible when it reads text for the user. Overall, the European music industry is not only successful, prominent, and innovative, but also has widespread international outreach. As well, AI has already begun its integration process into the music industry.

Based on the information retrieved it seems likely that AI technologies will continue to be relatively centralized, providing mainly added value to already existing services, as those are the only actors that have the resources to develop and maintain the software. However, as the technology is already in use, the ability for it to spread in the market is also high as there is wide access to services such as ChatGPT and DALL-E, which is also still getting more popular on top of the fact that the quality of their output has, and will continue, to improve significantly over the next few decades. In the following, theory, section some main analytic concepts will be provided that explore these two possible scenarios of AI centralization and functional utilization.

## 2. THEORETICAL FRAMEWORK

### 2.1 Administrative and Managerial theories

The first theory is one taken from administrative frameworks created for understanding and modeling different industries. Here it will be applied to do exactly that for the regulatory and creative regimes.

*2.11 Socio-Technical Configuration* (Geels & Schot, 2007) – landscape, regime, niches (Heiberg et al., 2022). The reason for this framework is for conceptual understanding and explanation of the environment of this research. The landscape is the macro-environment in which the company, and its stakeholders, reside in. The regime is the set of regulations and strategies which are currently in use to mitigate issues present in the landscape. Lastly, niches are the kinds of innovations that spring up mostly from start-ups or similar small-scale projects which compete with the incumbents to alter the regime. This theory also provides a good understanding of how a regime can change

according to shifts within the landscape, and how niches can either overtake systems or succumb to them. This framework will be primarily used to understand the relationship between the industrial and regulatory regimes on the meso-level, with some understanding of what is happening in both the macro and micro levels.

### 2.2 Macroeconomic theories

To understand the economic implications of AI technology applications on and by the regime, macroeconomic theories surrounding productivity and concentration can be applied to analyze economic shifts and outcomes instigated by the policy and regulatory discourse as well as the organizational actors (BRYNJOLFSSON & UNGER, 2023).

#### 2.21 Productivity Growth:

##### 2.211 Low-productivity

The integration of the technology may turn out to be rather scarce, and due to this the use of AI may be limited to firm or task-specific activities. As well, the possibility of this technology not being developed to the set expectations is present in this perspective. May also be linked with governmental or regulatory issues.

##### 2.212 High-productivity

Unlike the perspective above, here AI would have been adopted in mass by various industries and would overtake on a lot of current professional duties. Moreover, in this perspective the technology will compliment human efforts, increasing productivity and the amount of work humans do that is considered creative or novel.

#### 2.22 Industrial Concentration:

##### 2.221 Lower-concentration

Under this perspective, the concept of open-source AI models is commonplace and allows for the resource to be widely accessible and utilized. One of the main effects this would have would be the significant increase in number of innovations coming out. In the way that the technology has been developed, it currently stands as proof of this that AI simply functions better when it is given the chance to perform the same task multiple times for various users and use the learning from it to then fine tune itself with every iteration.

##### 2.222 Higher-concentration

Opposing to the above paragraph, this perspective seeks to explain the scenario in which larger firms, such as Microsoft, are the only firms that utilize AI in their core business – this yields both the privatization of the technology as well as more centralization of wealth and innovation. Furthermore, it is also possible that the costs of operating the AI will become too expensive, and that it will also only benefit companies that have large client bases and complex processes.

#### 2.23 Schumpeter Mark I and II

To then analyze these in the context of possible outcomes the effect that policies have in shaping the regime, another theory from macroeconomics will be utilized – *Schumpeter Mark I and Mark II* – which looks at two perspectives of how change in markets happen. In Mark I, Schumpeter argues that the creation of new markets is “the driving force of the economic cycle”, which is to say that the market entry level is easy to attain for new firms. Inversely, in Mark II he argues that only larger firms have “sufficient financial resources” and hence are the only actors who can afford to accumulate creativity. In the context of this research, Mark I can be used to analyze the policy and regulatory effects yielding a lower industrial

concentration and high productivity scenario; Instead of the Mark II however, the theory of intellectual monopolies, which is a development of the Mark II, will be utilized to analyze the scenario in which there is high concentration and low productivity. In the Mark I the smaller actors lead the industrial changes which indicates that how AI gets adopted and used will be decided primarily by the individual, whilst in the Mark II big incumbents like record labels and the tech industry will make it for everyone else; productivity and industrial concentration are highly decided by who initiates the change initiative.

### 3. METHODOLOGY

#### 3.1 Research Design

This study is designed with an empirical qualitative approach. Data for this research is primarily retrieved from document, policy and regulation, analysis. To collect this data, the EU AI act and other relevant AI and data regulating policies will be utilized to create and then analyze a case study based on findings. This will include all relevant aspects of the policy discourse that bring forth effects on industrial concentration and productivity, with a focus on understanding whether that incentivizes Schumpeter's Mark I or II through changes in the regime. This will then be utilized to investigate the music sector in Europe, to grasp the different risks and opportunities that AI technologies bring regarding the theoretical framework.

#### 3.2 Data Collection and Analysis:

As mentioned, the data collection will be done by performing a document analysis on the regulatory documents which seek to regulate the use of development of Artificial Intelligence, to find out if that has an impact on the ability of the technology to be integrated into regime processes. These policy documents will be acquired from sources of regulatory bodies, such as from the public database of the European Commission. The documents that will be utilized are the following: EU Artificial Intelligence Act, Data Governance Act, The Charter of Fundamental Rights in the Context of Artificial Intelligence and Digital Change, and the General Data Protection Regulation. These documents were specifically chosen due to being regulations that directly address the use and processing of data, while shaping and having a direct impact on the EU's internal market; moreover, two of these documents, the AI Act and the Charter of Fundamental Rights, regulate the creation and use of AI. Then, an analysis will be carried out which utilizes key words and relevant ideas to retrieve data faster, data mining, from the very long documentation. Some keywords which will be used to data mine are Economy, Economic, Right(s), Copyright, Creative, etc...; all these related to the research goal of this thesis, and hence will help to swift through the documents in a more efficient manner. The relevant passages will then be copied onto an excel file, which will include all the data in a table which illustrates the keywords utilized, the themes and subthemes and the document which the articles pertain to. Once all the passages are accounted for, then they will be categorized under different themes which helps to sort the data and discuss the types of findings and their respective effects. The themes are extracted from the research goal and inclusion criteria for the documentation, focusing primarily on economic outcomes and data processing. Furthermore there will be subthemes, which are primarily focusing on augmenting the value of the themes by tying them to a direct theoretic concept for analysis; this includes differentiating between Schumpeter Mark I and Mark II, and how it links with other subthemes such as Higher or Lower Industrial Concentration. Then an interpretation of the findings will be carried out which analyzes the overarching ideas

stemming from the data collection phase, creating conclusions on how the policy discourse is ultimately incentivizing a particular economic outcome. Due to the lack of available academic literature on this topic, this study will not delve into the works of other researchers as thoroughly as with policies but will use the literature of the theoretical frameworks to then analyze the impact that the policies have by creating future scenarios, a foresight approach, based on dimensions such as economic and regulatory outcome. This research will be formatted into a mini empirical case study, which maps out the different findings from the documentation, and connects them with an assessment of risk and opportunities according to the guidelines provided in the theoretical framework section of this paper.

Furthermore, then data related to the music sector will be gathered primarily by desk research of interviews and other relevant literature regarding market dynamics, regime infrastructure and actors, as well the application of AI related to the internal processes. The interviews will be retrieved from online sources such as YouTube from official and reliable publishers such as music labels, artist spotlight interviews by music distribution companies, and news reports. The inclusion criteria are that the published video must be from a reliable source, directly addresses AI applicability, and discusses the impact on the music production and distribution process. The policy documentation findings will then be utilized to pinpoint the different aspects, processes, of the industry that would be impacted, and then create scenarios in which the effects and interdependencies are explained and analyzed. In this part, a discussion of the likelihood of either a Mark I or Mark II reality is discussed in depth, focusing on the policies which incentivize or hinder the ability of Artificial Intelligence to be integrated into the market in a decentralized manner, adding to the analysis section which only discusses the documentation, and which makes work-machine processes more efficient and productive. Then a focus on the music production market will be done, as they have a high risk and opportunity range when it comes to the applicability of AI which will also include a focus on National AI regulations and policies which will be analyzed in the same matter, content and thematic approach, as the EU AI act.

### 4. RESULTS AND DISCUSSION

#### 4.1 Findings

This section will detail what was obtained from the data collection phase, including the different documents and what information was retrieved from them that relates to the research questions posed in this paper.

##### 4.1.1 EU AI Act:

This document was the primary source of most of the findings relating to this research, and as well it is the most recent, coming out in 2024, which used the other documents in this paper as foundations for regulation and policy creation. The Act addresses the risks of AI, more specifically how it can harm people, impose on their fundamental rights, and ultimately hinder innovation and the circulation of the economy. The way in which the regulation seeks to define harm is as "material or immaterial, including physical, psychological societal or economic" and further describes economic impact as "divergencies hampering the free circulation, innovation, deployment and the uptake of AI systems and related products and services within the internal market"; Furthermore, this act

seeks to provide a better understanding of the benefits and risks related to the use of such technologies.

Through the utilization of high-quality data to train the specific AI models to optimize the solutions it can provide, this act wishes to promote socially beneficial outcomes in the various sectors of the economy. For this to be achievable, there is a strong emphasis on not only having high-quality data but also widespread, easily acquirable, access to such datasets. Simultaneously, this act places a strong significance on that these data sets must adhere to regulations regarding “intellectual property rights or trade secrets”; The way in which this will be monitored is by assigning the role of ‘deployer’ to some individuals who will be responsible for ensuring the AI systems are in accordance with the necessary legal obligations. While this is primarily to mitigate the risks of high-risk AI systems, that pose risks to for example health and safety among others, the monitoring is extended to general-purpose models, such as for text or audio generation, due to such risks as copyright infringement. For these, “text and data mining techniques may be used extensively in this context”, however, “any use of copyright protected content requires the authorisation of the rightsholder concerned” unless the content is being utilized in a scientific context. The intent behind this regulation is to “ensure a level playing field among providers” of these models where this acts as prevention of any gaining of a “competitive advantage”. Moreover, if the general-purpose model produces any kinds of “deep fakes” then transparency and disclosure of manipulation is a requirement; This, however, does not impede the creative and artistic sectors of freedom of expression.

Another important aspect of this act is the leeway it attempts to provide to SMEs, not only to be equal but also to not suffer the same consequences provided to bigger players. The penalties for infringements of this regulation are supposed to be “effective, proportionate and dissuasive” while considering SME’s “economic viability”. There is pressure by the EU on the European countries to “support and promote research and development of AI solutions”, and the way in which this will occur is by increasing competitiveness and growth in the internal markets; It’s called multi-stakeholder governance, and the hopes are that it will yield fair treatment of all relevant players in the market. AI regulatory sandboxes will also be created, a space where all types of researchers, such as SMEs and start-ups but also like research labs and innovators, will be able to go and experiment with AI under regulatory scrutiny.

**Table 1. EU AI Act findings**

Themes and Subthemes	Article
Economic Goals – Schumpeter Mark I, Higher Productivity	“To achieve that objective, rules regulating the placing on the market, the putting into service and the use of certain AI systems should be laid down, thus ensuring the smooth functioning of the internal market and allowing those systems to benefit from the principle of free movement of goods and services. Those rules should be clear and robust in

	protecting fundamental rights, supportive of new innovative solutions, enabling a European ecosystem of public and private actors creating AI systems in line with Union values and unlocking the potential of the digital transformation across all regions of the Union.”
Data Use Regulations – Schumpeter Mark II, Higher Industrial Concentration	“To achieve that objective, rules regulating the placing on the market, the putting into service and the use of certain AI systems should be laid down, thus ensuring the smooth functioning of the internal market and allowing those systems to benefit from the principle of free movement of goods and services. Those rules should be clear and robust in protecting fundamental rights, supportive of new innovative solutions, enabling a European ecosystem of public and private actors creating AI systems in line with Union values and unlocking the potential of the digital transformation across all regions of the Union.”
Procedural Standards – Schumpeter Mark II, For Intellectual Monopolies	“The right to privacy and to protection of personal data must be guaranteed throughout the entire lifecycle of the AI system. In this regard, the principles of data minimisation and data protection by design and by default, as set out in Union data protection law, are applicable when personal data are processed. Measures taken by providers to ensure compliance with those principles may include not only anonymisation and encryption, but also the use of technology that permits algorithms to be brought to the data and allows training of AI systems without the transmission between parties or copying of the raw or structured data themselves, without prejudice to the requirements on data governance provided for in this Regulation.”

Monitoring – Schumpeter Mark II, Higher Industrial Concentration	“Furthermore, deployers should ensure that the persons assigned to implement the instructions for use and human oversight as set out in this Regulation have the necessary competence, in particular an adequate level of AI literacy, training and authority to properly fulfil those tasks.”
Monitoring – Schumpeter Mark I, Against Intellectual Monopolies	“The penalties provided for shall be effective, proportionate and dissuasive. They shall take into account the interests of SMEs, including start-ups, and their economic viability.”
Innovation/R&D Promotion – Schumpeter Mark I, Lower Industrial Concentration, Higher Productivity	“Member States shall provide SMEs, including start-ups, having a registered office or a branch in the Union, with priority access to the AI regulatory sandboxes provided that they fulfil the eligibility conditions and selection criteria and without precluding other providers and prospective providers to access the sandboxes provided the same conditions and criteria are fulfilled.”
Risks – Transformation Transition	“General-purpose AI models could pose systemic risks which include, but are not limited to, any actual or reasonably foreseeable negative effects in relation to major accidents, disruptions of critical sectors and serious consequences to public health and safety; any actual or reasonably foreseeable negative effects on democratic processes, public and economic security; the dissemination of illegal, false, or discriminatory content”

#### 4.12 Data Governance Act:

This document could be considered as a precursor to the AI act, coming out on the 30<sup>th</sup> of May 2022 and seeking to provide tighter data regulations. It also mentions the importance of enabling SMEs, through “data access neutrality and data portability and interoperability”; Also promoting data access to SMEs and start-ups to ensure that it does not restrict competition or internal market operability by providing fair access. It seeks to create data-driven ecosystems which are

“independent from any player with a significant degree of market power” which allows for easier access into the economy regardless of company size and financial capability. The European Data Innovation Board, responsible for making this ecosystem function, will also include stakeholders from various sectors, which represent all relevant industries to acquire as much expertise as possible and further instill just treatment; Additionally, this act also seeks to provide competition in the economy on the premises of “quality of services” rather than the amount of data controlled. The primary goal of this regulation is to strive for data altruism, by shaping the European economy according to all relevant, data utilizing, sectors.

**Table 2. Data Governance Act findings**

Themes and Subthemes	Article
Economic Goals – Schumpeter Mark I, Lower Industrial Concentration	“The data economy has to be built in a way that enables undertakings, in particular micro, small and medium-sized enterprises (SMEs), as defined in the Annex to Commission Recommendation 2003/361/EC (3), and start-ups to thrive, ensuring data access neutrality and data portability and interoperability, and avoiding lock-in effects.
Innovation/R&D Promotion – Schumpeter Mark II, Higher Industrial Concentration, Higher Productivity	“Public sector bodies should be able to charge fees for the re-use of data but should also be able to allow re-use at a discounted fee or free of charge, for example for certain categories of re-use such as non-commercial re-use for scientific research purposes, or re-use by SMEs and start-ups...”
Monitoring – Schumpeter Mark I, Lower Industrial Concentration, Against Intellectual Monopolies	“Specialised data intermediation services that are independent from data subjects, data holders and data users could have a facilitating role in the emergence of new data-driven ecosystems independent from any player with a significant degree of market power, while allowing non-discriminatory access to the data economy for undertakings of all sizes, in particular SMEs and start-ups with limited financial, legal or administrative means.”
Economic Goals – Schumpeter Mark II, Higher Industrial Concentration,	“Where there is a level playing field in the data economy, undertakings compete on quality of

Against Intellectual Monopolies	services, and not on the amount of data they control. For the purposes of the design, creation and maintenance of the level playing field in the data economy, sound governance is needed in which relevant stakeholders of a common European data space need to participate and be represented.”
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#### 4.13 Charter for Fundamental Rights:

The Charter came out on the 21<sup>st</sup> of October 2020, and was a significant step which the EU took to ensure that the rights of the people would be upheld through the times of digital change and the integration of Artificial Intelligence models into society. A requirement for data protection and privacy is pushed for in this charter, mainly adhering to the principles presented in the General Data Protection Regulation. Similarly to the other acts, legal remedies that defend these values are regarded as of utmost importance; The commission views it as important that a truly “digital single market” is created to be able to protect the values of the charter and other relevant regulation, furthermore, to develop the EU’s digital sovereignty and ability to attain “sustainable growth and competitiveness”.

**Table 3. Charter of Fundamental Rights findings**

Themes and Subthemes	Article
Economic Goals – Schumpeter Mark II, Higher Productivity	“Digital technologies, including AI, are essential for European digital sovereignty, security, innovations and economic development and can contribute significantly to the protection and promotion of fundamental rights and democracy and the rule of law. To be digitally sovereign, the EU must build a truly digital single market, reinforce its ability to define its own rules, to make autonomous technological choices, and to develop and deploy strategic digital capacities and infrastructure. The digital transition is the EU’s most important enabler of sustainable growth and competitiveness.”
Procedural Standards – Schumpeter Mark I	“Appropriate safeguards need to be in place to ensure that these applications are in conformity with data protection and privacy laws, in particular the General Data Protection Regulation (Regulation (EU) 2016/679) and national data protection

	laws, as well as other fundamental rights.”
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#### 4.14 General Data Protection Regulation:

The GDPR was published, and put into effect on the 27<sup>th</sup> of April 2016, and was the first data protection regulation that set into place guidelines for how data can be accessed and collected. This regulation set in stone the need for the possessor of an individual’s data to be required to “provide the data subject with direct access to his or her personal data”. However, as with all of these documents, there is a caveat that states that the revealing, or sharing, of the subjects data should not “affect the rights or freedoms of others, including trade secrets or intellectual property rights”; this specifically allows companies to defend the right to keep data private if they can prove that it poses a threat to their business. Moreover, if the sharing of any kind of data poses a threat to the Union’s or a Member State’s economic situation, the legislative subject is allowed to “restrict by way of a legislative measure the scope of the obligations and rights”, which is to say that exemptions from adherence to copyright law can occur in certain jurisdictions depending on what they deem to be the appropriate measure.

As well like some other documents, the GDPR takes into account the need of “micro, small and medium-sized enterprises”, with “fewer than 250 employees” to be exempt from having to do record-keeping with regards to data usage. On the other hand, for enterprises which are working together, there is a requirement for auditability at any given moment the supervisory authority determines as a means of monitoring.

**Table 4. GDPR findings**

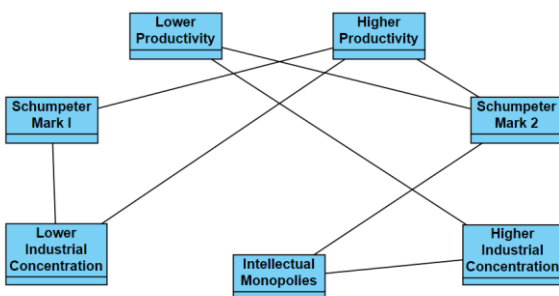
Themes and Subthemes	Article
Data Use Regulations – Schumpeter Mark II, Higher Industrial Concentration	“Those developments require a strong and more coherent data protection framework in the Union, backed by strong enforcement, given the importance of creating the trust that will allow the digital economy to develop across the internal market. Natural persons should have control of their own personal data. Legal and practical certainty for natural persons, economic operators and public authorities should be enhanced.”
Innovation/R&D Promotion – Schumpeter Mark I, Higher Productivity	“To take account of the specific situation of micro, small and medium-sized enterprises, this Regulation includes a derogation for organisations with fewer than 250 employees with regard to record-keeping.”
Economics Goals – Schumpeter Mark II	“Union or Member State law to which the data controller or processor is subject may restrict by way

	of a legislative measure the scope of the obligations and rights provided for... other important objectives of general public interest of the Union or of a Member State, in particular an important economic or financial interest of the Union or of a Member State, including monetary, budgetary and taxation...”
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## 4.2 Discussion and Interpretation

After extracting all relevant articles from the policy documentation, a thematic analysis was carried out. The first theme is ‘economic goals’, which entails the articles which refer to the aims which the commission, and the Member States, wish to achieve with said policy. The second is ‘data use regulations’, which are the articles that explicitly discuss how data should be acquired, processed, and used in practice. Then ‘Innovation and R&D promotion’, which are the aims and regulations relating to development of both the AI technologies and the entrepreneurial sectors. Moreover there is ‘monitoring’, which is how the EU plans to keep an eye on the players and ensure compliance with the proposed legislation. Also ‘procedural standards’, explicit methods, and practical standards, on how players need to handle data such as for example sharing access. Lastly there is ‘risks’, which are the articles that explicitly discuss the risks related to the deployment of AI technologies on various aspects of both professional and daily life. Sub-themes related to the theoretical framework of this study were then utilized to augment the relevance of the themes, while connecting them directly to the answering of the research questions. These include: Schumpeter Mark I or II, Higher/Lower Industrial Concentration, Higher/Lower Productivity, Against/For Intellectual Monopolies; Furthermore, subthemes related to the socio-technical configuration were Transformation, Technological Substitution, Reconfiguration and De-alignment and Re-alignment Transition pathways. While it there are interdependencies between subthemes, such as Schumpeter Mark 2 and Lower Industrial Productivity, there are exceptions present, found during the data collection phase, which demonstrated that policy instruments may advocate for two opposing subthemes simultaneously.

Figure 1. Interdependencies between economic theories



Although the regulations put an emphasis on a circular economy, it is notable that there are several clauses that particularly aid in a Schumpeter Mark II outcome. This can be

seen through procedural standards such as compliance with “anonymization and encryption” and overall “data governance”, as they require the ability to do which entails a sustainable financial standing and resources. Deployers are a type of these resources which are a monitoring requirement that is easier for larger firms to acquire and manage. In general, the regulation has a lot of articles that seek to lower the barriers between SMEs and access to high-quality data but it still is highly centralized within the firms who are able to generate and process the datasets; Unless an SME is doing scientific research, their general-purpose model cannot include copyrighted material while a bigger firm would simply buy off those rights to improve their model. As well, there is a strong emphasis on protection of intellectual property rights and trade secrets which can mean that the best models, with the best predictions and overall capabilities, are still going to be limited to the few with the resources to acquire creativity. This also significantly increases the possibility of a higher industrial concentration outcome, as it is highly interlinked with the Schumpeter Mark II, as one of the primary goals of this regulation is to promote innovation and R&D and if the capabilities are limited to a few firms that can then they will ultimately receive the majority of the attention by the Member States; There is incentivization from the commission for individual states to augment this policy through their own legislative additions, which can provide more leeway for lobbying and self-interest in regards to economic performance. Additionally, these regulations look to foster market growth and competition are usually connected with either transformational or re-configurational socio-technical transitions which are primarily acted on by the existing regime actors. This can be seen through open-source license models, where these innovations can quickly be integrated into existing, more complex, models that are owned by larger firms while leaving the original creator with the outdated, less capable, technology.

In terms of pro Schumpeter Mark I, the most significant aspect of these regulations is the innovation sandboxes which allow for all kinds of entrepreneurs to explore radical technologies without requiring all of the additional resources to mitigate legal and procedural obligations. Likewise, the proportional requirements and legal remedies do substantially help SMEs and Start-ups to stay afloat regardless of what complications they may face. The documents also seems to limit technological productivity very little, usually promoting the safe use of AI as much as possible. In this regard, the use of discounted fees for data re-use helps SMEs and Start-ups be able to acquire relevant data that they can utilize to improve their own capabilities. Lastly, while a double-edged sword, the committees being representative of multiple stakeholder groups can also greatly aid in better policy creation in the future by allowing a more correct analysis of market needs instead of just those of incumbents; This can greatly reduce intellectual monopolies and foster fair access amongst the different competitors.

## 5. EMPIRICAL MINI CASE STUDY

For the case study two videos were selected from YouTube, one by the news agency CNBC reporting on the impact of AI on the music sector, and another by famous musician and music producer Rick Beato discussing how the technology will with one swift sweep undercut human power in the songwriting

market. In this case study, the videos will be analyzed in relation to the macroeconomic and administrative theoretical framework, while providing possible future scenarios that may play out.

## **5.1 “AI Impact: How AI is transforming the music industry”**

### *5.11 Dissection of the video:*

There is a common understanding now amongst the actors of the music sector that Artificial Intelligence is going to drastically disrupt their future, and everyone is wondering how they can beat the curb and come out ahead (CNBC Television, 2024). Google has begun experimenting with AI music through a project called the “YouTube Dream Track” tool, which collaborates with big names such as Universal Studios; This is done primarily for two reasons, to adhere to copyright law and provide profit to both them and the artists. This is being implemented into “YouTube Shorts”, as a means of competition with TikTok, which will allow for content creators to compose unique, AI generated, songs with the voices of real artists such as Demi Lovato and John Legend inter alia. The Chief Digital Officer of Universal Studios seeks to drive innovation rather than attempt to hinder it, to find the opportunities it holds and ultimately come out in front of this disruptive avalanche. While these technologies are still in the making, being tested by a few select individual influencers whom YouTube has provided the access to, the goal is for the accessibility and usability of these tools to be widespread; This also provides artists a chance to live on through people’s individual creativity while allowing for them to set guidelines on the kind of content their name and voices can be affiliated with. The chance for smaller artists to make it big will also be diminished, promoting big names and allowing people to indulge in more content of the incumbents while not shining lights on new creative content from artists not signed with the record labels partaking in these general-use generative AI tools.

### *5.12 Theoretical Interpretation:*

This analysis of the AI impact takes an approach that strongly correlates with a Schumpeter Mark II, Higher Industrial Concentration, and Lower Productivity scenario. This report indicates that the current leading tech companies, which are developing general-purpose AI models for public use, will hold most, if not all, of the power in the music sector; They will own all of the necessary rights required to produce high quality output for its users, while receiving all of the revenue streams which can be re-invested into their own research and development. This will yield a reduction in new market entrants, as the average customer will keep listening to the same style of artists through customized generations. This begs the question; would people get tired of rehashing the same old artists and procure new ones?

With the versatility of AI, and its highly anticipated integration, it seems likely that in a decade this could indeed become a reality. As companies are already divesting funds into these models, it would also be safe to assume that there are multiple of such collaborations, by more companies than just Google, already in the works and set for launch in the coming years. Furthermore, the policy instruments, such as innovation sandboxes, still promote this scenario; Innovators cannot circumvent Union copyright law, and what is more is that

Member States will still opt for a more economical growth focused market structure as is permitted by the General Data Protection Regulation.

## **5.2 “I Told You This Was Going To Happen”**

### *5.21 Dissection of the video:*

Rick Beato commences the video by playing two songs, starting with a piece by Jacob Collier then an AI generated country rock track; Both tracks sound to have the same amount of processing, meaning both are of high production quality. Moreover, there is lack of distinguishable aspects between them that allows the listener to indicate that one is AI. Rick goes on to say that the AI track also sounds better than some of the tracks that he listens on Spotify for his audience also on YouTube (Rick Beato, 2024). However, his son with perfect-pitch, a phenomenon where individuals who learn to play an instrument during early childhood are able to identify pitches and assign them as a note of the 12-tone temperamental scale, easily identified the track as being AI generated. This, however, pertained to the fact that the voice in comparison sounded like it had an artificial “echo” to it. This was put to the test by Beato when his son and his friends listened to ten tracks, five AI and five composed, and only his son was able to correctly identify which tracks were AI generated. His wife, who does not have perfect-pitch, was also instantaneously able to identify which tracks were AI; It seems to be that some individuals can hear the difference and for those it is off-putting. The tool that is being utilized to make all of the songs shown in this video is called “Udio”, and it can produce anything from metal to cinematic scores; The AI can take any artist’s style, such as Ennio Morricone, and produce something that has never been created all the while preserving the essence of the original creator’s ingenuity. Rick, much like the CNBC journalists, feel as though the future that we are headed into will have customers bypass the composer to produce pieces for themselves, providing only revenue streams to the incumbent companies. That is also a question, as where the revenue streams go does not have to be to the labels any more than it could be to the AI companies, or simply no one profits and the economic structure of the music sector collapses. More likely than not too is that the production quality will also increase, ultimately rendering people such as his son unable to distinguish AI from human made. This will also allow people to create fully customized playlists, taking artists and styles that they gravitate towards and producing a limitless number of tracks which fit those parameters.

### *5.22 Theoretical Interpretation:*

Currently the ability to produce music utilizing AI tools is a reality and is considerably one of a higher productivity; It primarily helps artists to produce music and generate ideas, but ultimately complementing human effort. In the future it seems to be the inverse reality, where the efforts of yesterday’s artists will be utilized in their name to generate music for, all the while financially compensating, someone else. The technology has already developed to a substantial extent, and has in a rather short period of time since its introduction, and can be expected to sweep the market in the recent future. This would also yield a Schumpeter Mark II, Higher Industrial Concentration outcome as it would ultimately be the products of the AI companies and not belonging to any artist. Will this yield any effects on the concept of copyright law, such as intellectual property rights for AI tracks that an individual generates for themselves?

While it seems that we are not there yet as a society, one day this technology is almost guaranteed, unless some events reshape humanity's views on developing AI, to overtake the role of musicians in the process of music making, and people will prefer it over human compositions. Most innovations and socio-technical reconfigurations appear that they will be instigated by the regime actors, somewhere between Transformation and Reconfiguration transition pathways.

## **6. CONCLUSION AND EVALUATION**

### **6.1 Conclusion**

This paper was created with the intention of looking at how Artificial Intelligence was being regulated within the EU through the policy discourse, "What are the economic risks and opportunities associated with applied AI, and how are they addressed in the European Union's policy and regulation discourse?", and then narrowing it down to extend the scope to the impact it would have on the music sector, "To what extent do these regulations enable or restrict AI's effects on economic growth and reshape the industrial concentration and structural ecosystem of the music sector?".

Through a thematic analysis of the regulatory documentation, and a case study which gauged the consensus on the future of AI, a deeper understanding of the economic effects that the creation of general-purpose AI models are to have on the music sector's processes and outcomes was obtained.

### **6.2 Evaluation**

Although an analysis of the European Union's Artificial Intelligence Act, *inter alia*, was a good means of understanding the policy discourse, it was limited due to the international outreach that music has. It would be beneficial to further enrich this endeavor by contributing the policy discourse of other countries such as for example The United States, where a great deal of top-chart music gets produced, and as well where many the world's incumbent tech giants lie headquartered.

Another point which should be made is that while the economic impacts can be regarded as of utmost relevance, a solid understanding of other pillars such as demographic and psychological would contribute a fair amount to making this study more inclusive and thorough. A deeper understanding of how people opionate on the matter and how they are behaving towards it, possibly through large-scale surveys and test groups, would create a stronger induction of the future scenarios of AI integration; This could also help predict possible points of discussion for the European parliament, painting a better image of what policy instruments could come into play in coming years.

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## Appendix A – Table of Transition Pathways Made by Geels and Schot

Main actors and (inter)actions in transition pathways			
Transition pathways	Main actors	Type of (inter)actions	Key words
1. Transformation	Regime actors and outside groups (social movements)	Outsiders voice criticism. Incumbent actors adjust regime rules (goals, guiding principles, search heuristics)	Outside pressure, institutional power struggles, negotiations, adjustment of regime rules
2. Technological substitution	Incumbent firms versus new firms	Newcomers develop novelties, which compete with regime technologies	Market competition and power struggles between old and new firms
3. Reconfiguration	Regime actors and suppliers	Regime actors adopt component-innovations, developed by new suppliers. Competition between old and new suppliers	Cumulative component changes, because of economic and functional reasons. Followed by new combinations, changing interpretations and new practices
4. De-alignment and re-alignment	New niche actors	Changes in deep structures create strong pressure on regime. Incumbents lose faith and legitimacy. Followed by emergence of <i>multiple</i> novelties. New entrants compete for resources, attention and legitimacy. Eventually one novelty wins, leading to restabilisation of regime	Erosion and collapse, multiple novelties, prolonged uncertainty and changing interpretations, new winner and restabilisation

## Appendix B – Data Collected From the Legal Documentation and Thematic Key

<b>Themes:</b>	Economic Goals	Data Use Regulations	Innovation/R&D Promotion	Monitoring	Procedural Standards	Risks
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Document	Keywords and Sub-themes	Extract (Articles)
EU AI Act (13/03/24)	Economy, Restriction, <b>Against Intellectual Monopolies, Schumpeter Mark II, Higher Productivity, Lower Industrial Concentration</b>	AI systems can be easily deployed in a large variety of sectors of the economy and many parts of society, including across borders, and can easily circulate throughout the Union. Certain Member States have already explored the adoption of national rules to ensure that AI is trustworthy and safe and is developed and used in accordance with fundamental rights obligations. Diverging national rules may lead to the fragmentation of the internal market and may decrease legal certainty for operators that develop, import or use AI systems. A consistent and high level of protection throughout the Union should therefore be ensured in order to achieve trustworthy AI, while divergences hampering the free circulation, innovation, deployment and the uptake of AI systems and related products and services within the internal market should be prevented by laying down uniform obligations for operators and guaranteeing the uniform protection of overriding reasons of public interest and of rights of persons throughout the internal market on the basis of Article 114 of the Treaty on the Functioning of the European Union (TFEU). To the extent that this Regulation contains specific rules on the protection of individuals with regard to the processing of personal data concerning restrictions of the use of AI systems for remote biometric identification for the purpose of law enforcement, of the use of AI systems for risk assessments of natural persons for the purpose of law enforcement and of the use of AI systems of biometric categorisation for the purpose of law enforcement, it is appropriate to base this Regulation, in so far as those specific rules are concerned, on Article 16 TFEU.
	Right, Legal Framework	The purpose of this Regulation is to improve the functioning of the internal market by laying down a uniform legal framework in particular for the development, the placing on the market, the putting into service and the use of artificial intelligence systems (AI systems) in the Union, in accordance with Union values, to promote the uptake of human centric and trustworthy artificial intelligence (AI) while ensuring a high level of protection of health, safety, fundamental rights as enshrined in the Charter of fundamental rights of the European Union (the ‘Charter’), including democracy, the rule of law and environmental protection, against the harmful effects of AI systems in the Union, and to support innovation. This Regulation ensures the free movement, crossborder, of AI-based goods and services, thus preventing Member States from imposing restrictions on the development, marketing and use of AI systems, unless explicitly authorised by this Regulation.
	Right, Risk, <b>For Intellectual Monopolies</b>	At the same time, depending on the circumstances regarding its specific application, use, and level of technological development, AI may generate risks and cause harm to public interests and fundamental rights that are protected by Union law. Such harm might be material or immaterial, including physical, psychological, societal or economic harm.

	<p>Right, Regulatory Framework</p>	<p>Given the major impact that AI can have on society and the need to build trust, it is vital for AI and its regulatory framework to be developed in accordance with Union values as enshrined in Article 2 of the Treaty on European Union (TEU), the fundamental rights and freedoms enshrined in the Treaties and, pursuant to Article 6 TEU, the Charter. As a pre-requisite, AI should be a human-centric technology. It should serve as a tool for people, with the ultimate aim of increasing human well-being.</p>
	<p>Right, Internal Market, Benefit, <b>Technological Substitution + Reconfiguration Transition, Schumpeter Mark I, Higher Productivity</b></p>	<p>A Union legal framework laying down harmonised rules on AI is therefore needed to foster the development, use and uptake of AI in the internal market that at the same time meets a high level of protection of public interests, such as health and safety and the protection of fundamental rights, including democracy, the rule of law and environmental protection as recognised and protected by Union law. To achieve that objective, rules regulating the placing on the market, the putting into service and the use of certain AI systems should be laid down, thus ensuring the smooth functioning of the internal market and allowing those systems to benefit from the principle of free movement of goods and services. Those rules should be clear and robust in protecting fundamental rights, supportive of new innovative solutions, enabling a European ecosystem of public and private actors creating AI systems in line with Union values and unlocking the potential of the digital transformation across all regions of the Union. By laying down those rules as well as measures in support of innovation with a particular focus on small and medium enterprises (SMEs), including startups, this Regulation supports the objective of promoting the European human-centric approach to AI and being a global leader in the development of secure, trustworthy and ethical AI as stated by the European Council and it ensures the protection of ethical principles, as specifically requested by the European Parliament.</p>
	<p>Right, Value Chain, Benefit, <b>Schumpeter Mark II, Higher Industrial Concentration, Transformation Transition</b></p>	<p>In the context of the application this Regulation, AI literacy should provide all relevant actors in the AI value chain with the insights required to ensure the appropriate compliance and its correct enforcement. Furthermore, the wide implementation of AI literacy measures and the introduction of appropriate follow-up actions could contribute to improving working conditions and ultimately sustain the consolidation, and innovation path of trustworthy AI in the Union. The European Artificial Intelligence Board (the 'Board') should support the Commission, to promote AI literacy tools, public awareness and understanding of the benefits, risks, safeguards, rights and obligations in relation to the use of AI systems. In cooperation with the relevant stakeholders, the Commission and the Member States should facilitate the drawing up of voluntary codes of conduct to advance AI literacy among persons dealing with the development, operation and use of AI.</p>

	<p><b>Right, Resilience, Unlawful Use, Higher Industrial Concentration, Schumpeter Mark II</b></p>	<p>Technical robustness and safety means that AI systems are developed and used in a way that allows robustness in the case of problems and resilience against attempts to alter the use or performance of the AI system so as to allow unlawful use by third parties, and minimise unintended harm. Privacy and data governance means that AI systems are developed and used in accordance with privacy and data protection rules, while processing data that meets high standards in terms of quality and integrity. Transparency means that AI systems are developed and used in a way that allows appropriate traceability and explainability, while making humans aware that they communicate or interact with an AI system, as well as duly informing deployers of the capabilities and limitations of that AI system and affected persons about their rights. Diversity, non-discrimination and fairness means that AI systems are developed and used in a way that includes diverse actors and promotes equal access, gender equality and cultural diversity, while avoiding discriminatory impacts and unfair biases that are prohibited by Union or national law. Social and environmental well-being means that AI systems are developed and used in a sustainable and environmentally friendly manner as well as in a way to benefit all human beings, while monitoring and assessing the longterm impacts on the individual, society and democracy. The application of those principles should be translated, when possible, in the design and use of AI models. They should in any case serve as a basis for the drafting of codes of conduct under this Regulation. All stakeholders, including industry, academia, civil society and standardisation organisations, are encouraged to take into account as appropriate the ethical principles for the development of voluntary best practices and standards.</p>
	<p><b>Right, Risk, Protection of Personal Data, Schumpeter Mark II</b></p>	<p>The extent of the adverse impact caused by the AI system on the fundamental rights protected by the Charter is of particular relevance when classifying an AI system as high risk. Those rights include the right to human dignity, respect for private and family life, protection of personal data, freedom of expression and information, freedom of assembly and of association, and non-discrimination, right to education consumer protection, workers' rights, rights of persons with disabilities, gender equality, intellectual property rights, right to an effective remedy and to a fair trial, right of defence and the presumption of innocence, right to good administration.</p>

Right, (Self-) Employment, Economic Opportunity, **Schumpeter Mark II, Higher Industrial Concentration**

AI systems used in employment, workers management and access to self-employment, in particular for the recruitment and selection of persons, for making decisions affecting terms of the work related relationship promotion and termination of work-related contractual relationships for allocating tasks on the basis of individual behaviour, personal traits or characteristics and for monitoring or evaluation of persons in workrelated contractual relationships, should also be classified as high-risk, since those systems may have an appreciable impact on future career prospects, livelihoods of those persons and workers' rights. Relevant work-related contractual relationships should, in a meaningful manner, involve employees and persons providing services through platforms as referred to in the Commission Work Programme 2021. ■ Throughout the recruitment process and in the evaluation, promotion, or retention of persons in work-related contractual relationships, such systems may perpetuate historical patterns of discrimination, for example against women, certain age groups, persons with disabilities, or persons of certain racial or ethnic origins or sexual orientation. AI systems used to monitor the performance and behaviour of such persons may also undermine their fundamental rights to data protection and privacy.

Right, Access to High-Quality Data, **Transformation Transition**

High-quality data and access to high-quality data plays a vital role in providing structure and in ensuring the performance of many AI systems, especially when techniques involving the training of models are used, with a view to ensure that the high-risk AI system performs as intended and safely and it does not become a source of discrimination prohibited by Union law. High-quality data sets for training, validation and testing require the implementation of appropriate data governance and management practices. Data sets for training, validation and testing, including the labels, should be relevant, sufficiently representative, and to the best extent possible free of errors and complete in view of the intended purpose of the system. In order to facilitate compliance with Union data protection law, such as Regulation (EU) 2016/679, data governance and management practices should include, in the case of personal data, transparency about the original purpose of the data collection. The data sets should also have the appropriate statistical properties, including as regards the persons or groups of persons in relation to whom the high-risk AI system is intended to be used, with specific attention to the mitigation of possible biases in the data sets, that are likely to affect the health and safety of persons, have a negative impact on fundamental rights or lead to discrimination prohibited under Union law, especially where data outputs influence inputs for future operations (feedback loops). Biases can for example be inherent in underlying data sets, especially when historical data is being used, or generated when the systems are implemented in real world settings.

	<p>Right, Protection of Personal Data, <b>For Intellectual Monopolies, Schumpeter Mark II</b></p>	<p>The right to privacy and to protection of personal data must be guaranteed throughout the entire lifecycle of the AI system. In this regard, the principles of data minimisation and data protection by design and by default, as set out in Union data protection law, are applicable when personal data are processed. Measures taken by providers to ensure compliance with those principles may include not only anonymisation and encryption, but also the use of technology that permits algorithms to be brought to the data and allows training of AI systems without the transmission between parties or copying of the raw or structured data themselves, without prejudice to the requirements on data governance provided for in this Regulation.</p>
	<p>Right, Intellectual Property Rights, Obligations, <b>Higher Productivity</b></p>	<p>Along the AI value chain multiple parties often supply AI systems, tools and services but also components or processes that are incorporated by the provider into the AI system with various objectives, including the model training, model retraining, model testing and evaluation, integration into software, or other aspects of model development. Those parties have an important role to play in the value chain towards the provider of the high-risk AI system into which their AI systems, tools, services, components or processes are integrated, and should provide by written agreement this provider with the necessary information, capabilities, technical access and other assistance based on the generally acknowledged state of the art, in order to enable the provider to fully comply with the obligations set out in this Regulation, without compromising their own intellectual property rights or trade secrets.</p>
	<p>Right, Risks to Safety, <b>Schumpeter Mark II, Higher Industrial Concentration</b></p>	<p>Given the nature of AI systems and the risks to safety and fundamental rights possibly associated with their use, including as regards the need to ensure proper monitoring of the performance of an AI system in a real-life setting, it is appropriate to set specific responsibilities for deployers. Deployers should in particular take appropriate technical and organisational measures to ensure they use high-risk AI systems in accordance with the instructions of use and certain other obligations should be provided for with regard to monitoring of the functioning of the AI systems and with regard to record-keeping, as appropriate. Furthermore, deployers should ensure that the persons assigned to implement the instructions for use and human oversight as set out in this Regulation have the necessary competence, in particular an adequate level of AI literacy, training and authority to properly fulfil those tasks. These obligations should be without prejudice to other deployer obligations in relation to high-risk AI systems under Union or national law.</p>

	<p>Right, Transparency-related Requirements, <b>Schumpeter Mark I</b></p>	<p>The providers of general-purpose AI models that are released under a free and open source license, and whose parameters, including the weights, the information on the model architecture, and the information on model usage, are made publicly available should be subject to exceptions as regards the transparency-related requirements imposed on general-purpose AI models, unless they can be considered to present a systemic risk, in which case the circumstance that the model is transparent and accompanied by an open source license should not be considered to be a sufficient reason to exclude compliance with the obligations under this Regulation. In any case, given that the release of general-purpose AI models under free and open source licence does not necessarily reveal substantial information on the data set used for the training or fine-tuning of the model and on how compliance of copyright law was thereby ensured, the exception provided for general-purpose AI models from compliance with the transparency-related requirements should not concern the obligation to produce a summary about the content used for model training and the obligation to put in place a policy to comply with Union copyright law, in particular to identify and comply with the reservation of rights pursuant to Article 4(3) of Directive (EU) 2019/790 of the European Parliament and of the Council<sup>41</sup>.</p>
	<p>Right, Copyright, Intellectual Property Rights, <b>De-alignment and Re-alignment Transition, Higher Productivity, Higher Concentration, Schumpeter Mark II</b></p>	<p>General-purpose models, in particular large generative models, capable of generating text, images, and other content, present unique innovation opportunities but also challenges to artists, authors, and other creators and the way their creative content is created, distributed, used and consumed. The development and training of such models require access to vast amounts of text, images, videos, and other data. Text and data mining techniques may be used extensively in this context for the retrieval and analysis of such content, which may be protected by copyright and related rights. Any use of copyright protected content requires the authorisation of the rightsholder concerned unless relevant copyright exceptions and limitations apply. Directive (EU) 2019/790 introduced exceptions and limitations allowing reproductions and extractions of works or other subject matter, for the purpose of text and data mining, under certain conditions. Under these rules, rightsholders may choose to reserve their rights over their works or other subject matter to prevent text and data mining, unless this is done for the purposes of scientific research. Where the rights to opt out has been expressly reserved in an appropriate manner, providers of general-purpose AI models need to obtain an authorisation from rightsholders if they want to carry out text and data mining over such works.</p>

	<p><b>Right, Copyright, Free Market, Schumpeter Mark II, Higher Industrial Concentration</b></p>	<p>Providers that place general-purpose AI models on the Union market should ensure compliance with the relevant obligations in this Regulation. To that end, providers of general-purpose AI models should put in place a policy to comply with Union law on copyright and related rights, in particular to identify and comply with the reservations of rights expressed by rightsholders pursuant to Article 4(3) of Directive (EU) 2019/790. Any provider placing a general-purpose AI model on the Union market should comply with this obligation, regardless of the jurisdiction in which the copyright-relevant acts underpinning the training of those general-purpose AI models take place. This is necessary to ensure a level playing field among providers of general-purpose AI models where no provider should be able to gain a competitive advantage in the Union market by applying lower copyright standards than those provided in the Union.</p>
	<p><b>Right, Copyright, Summarization, Higher Industrial Concentration, Schumpeter Mark II</b></p>	<p>In order to increase transparency on the data that is used in the pre-training and training of general-purpose AI models, including text and data protected by copyright law, it is adequate that providers of such models draw up and make publicly available a sufficiently detailed summary of the content used for training the general-purpose model. While taking into due account the need to protect trade secrets and confidential business information, this summary should be generally comprehensive in its scope instead of technically detailed to facilitate parties with legitimate interests, including copyright holders, to exercise and enforce their rights under Union law, for example by listing the main data collections or sets that went into training the model, such as large private or public databases or data archives, and by providing a narrative explanation about other data sources used. It is appropriate for the AI Office to provide a template for the summary, which should be simple, effective, and allow the provider to provide the required summary in narrative form. With regard to the obligations imposed on providers of general-purpose AI models to put in place a policy to comply with Union copyright law and make publicly available a summary of the content used for the training, the AI Office should monitor whether the provider has fulfilled those obligations without verifying or proceeding to a work-by-work assessment of the training data in terms of copyright compliance. This Regulation does not affect the enforcement of copyright rules as provided for under Union law.</p>

	<p><b>Right, Copyright, Lower Industrial Concentration, Technological Substitution Transition</b></p>	<p>Compliance with the obligations applicable to the providers of general-purpose AI models should be commensurate and proportionate to the type of model provider, excluding the need for compliance for persons who develop or use models for nonprofessional or scientific research purposes, who should nevertheless be encouraged to voluntarily comply with these requirements. Without prejudice to Union copyright law, compliance with these obligations should take due account of the size of the provider and allow simplified ways of compliance for SMEs, including start-ups, that should not represent an excessive cost and not discourage the use of such models. In the case of a modification or fine-tuning of a model, the obligations for providers should be limited to that modification or fine-tuning, for example by complementing the already existing technical documentation with information on the modifications, including new training data sources, as a means to comply with the value chain obligations provided in this Regulation.</p>
	<p><b>Right, Deep Fakes (Audio), Editorial Control, De-alignment and Re-alignment Transition</b></p>	<p>Further to the technical solutions employed by the providers of the system, deployers, who use an AI system to generate or manipulate image, audio or video content that appreciably resembles existing persons, places or events and would falsely appear to a person to be authentic (deep fakes), should also clearly and distinguishably disclose that the content has been artificially created or manipulated by labelling the artificial intelligence output accordingly and disclosing its artificial origin. The compliance with this transparency obligation should not be interpreted as indicating that the use of the system or its output impedes the right to freedom of expression and the right to freedom of the arts and sciences guaranteed in the Charter, in particular where the content is part of an evidently creative, satirical, artistic or fictional work or programme, subject to appropriate safeguards for the rights and freedoms of third parties. In those cases, the transparency obligation for deep fakes set out in this Regulation is limited to disclosure of the existence of such generated or manipulated content in an appropriate manner that does not hamper the display or enjoyment of the work, including its normal exploitation and use, while maintaining the utility and quality of the work. In addition, it is also appropriate to envisage a similar disclosure obligation in relation to AI-generated or manipulated text to the extent it is published with the purpose of informing the public on matters of public interest unless the AI-generated content has undergone a process of human review or editorial control and a natural or legal person holds editorial responsibility for the publication of the content.</p>

	<p>Rights, Socio-economic Inequality, <b>Schumpeter Mark I</b></p>	<p>To ensure that AI leads to socially and environmentally beneficial outcomes, Member States are encouraged to support and promote research and development of AI solutions in support of socially and environmentally beneficial outcomes, such as AI-based solutions to increase accessibility for persons with disabilities, tackle socio-economic inequalities, or meet environmental targets, by allocating sufficient resources, including public and Union funding, and, where appropriate and provided that the eligibility and selection criteria are fulfilled, considering in particular projects which pursue such objectives. Such projects should be based on the principle of interdisciplinary cooperation between AI developers, experts on inequality and non-discrimination, accessibility, consumer, environmental, and digital rights, as well as academics.</p>
	<p>Right, Market Rights, Union Level, <b>Schumpeter Mark I</b></p>	<p>Since the objective of this Regulation, namely to improve the functioning of the internal market and promoting the uptake of human centric and trustworthy AI, while ensuring a high level of protection of health, safety, fundamental rights enshrined in the Charter, including democracy, the rule of law and environmental protection against harmful effects of AI systems in the Union and supporting innovation, cannot be sufficiently achieved by the Member States and can rather, by reason of the scale or effects of the action, be better achieved at Union level, the Union may adopt measures in accordance with the principle of subsidiarity as set out in Article 5 TEU. In accordance with the principle of proportionality as set out in that Article, this Regulation does not go beyond what is necessary in order to achieve that objective.</p>
	<p>Rights, Worker Rights, Member State Individuality</p>	<p>This Regulation does not preclude the Union or Member States from maintaining or introducing laws, regulations or administrative provisions which are more favourable to workers in terms of protecting their rights in respect of the use of AI systems by employers, or from encouraging or allowing the application of collective agreements which are more favourable to workers.</p>
	<p>Right, Human Oversight, <b>Higher Industrial Concentration</b></p>	<p>Human oversight shall aim to prevent or minimise the risks to health, safety or fundamental rights that may emerge when a high-risk AI system is used in accordance with its intended purpose or under conditions of reasonably foreseeable misuse, in particular where such risks persist despite the application of other requirements set out in this Section.</p>

	<p>Right, Government/Member State Participation, Innovation, Market Growth, <b>Schumpeter Mark I</b></p>	<p>The participants in the standardisation process shall seek to promote investment and innovation in AI, including through increasing legal certainty, as well as the competitiveness and growth of the Union market, and shall contribute to strengthening global cooperation on standardisation and taking into account existing international standards in the field of AI that are consistent with Union values, fundamental rights and interests, and shall enhance multi-stakeholder governance ensuring a balanced representation of interests and the effective participation of all relevant stakeholders in accordance with Articles 5, 6, and 7 of Regulation (EU) No 1025/2012.</p>
	<p>Right, Copyright, Intellectual Property Rights, <b>Schumpeter Mark II, Higher Industrial Concentration</b></p>	<p>draw up, keep up-to-date and make available information and documentation to providers of AI systems who intend to integrate the general-purpose AI model into their AI systems. Without prejudice to the need to respect and protect intellectual property rights and confidential business information or trade secrets in accordance with Union and national law...</p>
	<p>Economic, High Productivity, <b>Schumpeter Mark II</b></p>	<p>AI is a fast evolving family of technologies that contributes to a wide array of economic, environmental and societal benefits across the entire spectrum of industries and social activities. By improving prediction, optimising operations and resource allocation, and personalising digital solutions available for individuals and organisations, the use of AI can provide key competitive advantages to undertakings and support socially and environmentally beneficial outcomes, for example in healthcare, agriculture, food safety, education and training, media, sports, culture, infrastructure management, energy, transport and logistics, public services, security, justice, resource and energy efficiency, environmental monitoring, the conservation and restoration of biodiversity and ecosystems and climate change mitigation and adaptation.</p>
	<p>Economic Harm, Risks to Industrial Concentration</p>	<p>At the same time, depending on the circumstances regarding its specific application, use, and level of technological development, AI may generate risks and cause harm to public interests and fundamental rights that are protected by Union law. Such harm might be material or immaterial, including physical, psychological, societal or economic harm.</p>
	<p>Economic, Risks to Productivity, <b>Transformation Transition</b></p>	<p>General-purpose AI models could pose systemic risks which include, but are not limited to, any actual or reasonably foreseeable negative effects in relation to major accidents, disruptions of critical sectors and serious consequences to public health and safety; any actual or reasonably foreseeable negative effects on democratic processes, public and economic security; the dissemination of illegal, false, or discriminatory content</p>

	Economic, Member States	Notified bodies shall be independent of the provider of a high-risk AI system in relation to which they perform conformity assessment activities. Notified bodies shall also be independent of any other operator having an economic interest in high-risk AI systems assessed, as well as of any competitors of the provider. This shall not preclude the use of assessed high-risk AI systems that are necessary for the operations of the conformity assessment body, or the use of such high-risk AI systems for personal purposes.
	Economic, SMEs/Start-ups, <b>Schumpeter Mark I, Against Intellectual Monopolies</b>	In compliance with the terms and conditions laid down in this Regulation, Member States shall lay down the rules on penalties and other enforcement measures, which may also include warnings and non-monetary measures, applicable to infringements of this Regulation by operators, and shall take all measures necessary to ensure that they are properly and effectively implemented and taking into account the guidelines issued by the Commission pursuant to Article 96. The penalties provided for shall be effective, proportionate and dissuasive. They shall take into account the interests of SMEs, including start-ups, and their economic viability.
	Economy, <b>Schumpeter Mark I, Reconfiguration Transition</b>	Software and data, including models, released under a free and open-source licence that allows them to be openly shared and where users can freely access, use, modify and redistribute them or modified versions thereof, can contribute to research and innovation in the market and can provide significant growth opportunities for the Union economy. General-purpose AI models released under free and open-source licences should be considered to ensure high levels of transparency and openness if their parameters, including the weights, the information on the model architecture, and the information on model usage are made publicly available.
	SMEs, Start-ups, <b>Higher Productivity, Lower Industrial Concentration, Schumpeter Mark I</b>	In order to promote and protect innovation, it is important that the interests of SMEs, including start-ups, that are providers or deployers of AI systems are taken into particular account. To this objective, Member States should develop initiatives, which are targeted at those operators, including on, awareness raising and information communication. Member States shall provide SMEs, including start-ups, having a registered office or a branch in the Union, with priority access to the AI regulatory sandboxes provided that they fulfil the eligibility conditions and selection criteria and without precluding other providers and prospective providers to access the sandboxes provided the same conditions and criteria are fulfilled.
	SMEs, Documentation, <b>Schumpeter Mark I, Lower Industrial Concentration</b>	SMEs, including start-ups, may provide the elements of the technical documentation specified in Annex IV in a simplified manner. For this purpose, the Commission shall establish a simplified technical documentation form targeted at the needs of small and microenterprises.
	SMEs, <b>Schumpeter Mark I, Lower Industrial Concentration</b>	access to the AI regulatory sandboxes is free of charge for SMEs, including startups, without prejudice to exceptional costs that national competent authorities may recover in a fair and proportionate manner

	SMEs, Innovators, Enterprises, Public and Private Sectors, <b>Schumpeter Mark I, Lower Industrial Concentration, Technological Configuration Transition</b>	AI regulatory sandboxes facilitate the involvement of other relevant actors within the AI ecosystem, such as notified bodies and standardisation organisations, SMEs, start-ups, enterprises, innovators, testing and experimentation facilities, research and experimentation labs and European Digital Innovation Hubs, centres of excellence, individual researchers, in order to allow and facilitate cooperation with the public and private sectors
	SMEs, Penalties, Economic, <b>Lower Industrial Concentration, Schumpeter Mark I</b>	The penalties provided for shall be effective, proportionate and dissuasive. They shall take into account the interests of SMEs, including start-ups, and their economic viability.
<b>Data Governance Act (30/05/22)</b>	Economy, SMEs, <b>Lower Industrial Concentration, Schumpeter Mark I</b>	The data economy has to be built in a way that enables undertakings, in particular micro, small and medium-sized enterprises (SMEs), as defined in the Annex to Commission Recommendation 2003/361/EC (3), and start-ups to thrive, ensuring data access neutrality and data portability and interoperability, and avoiding lock-in effects.
	SMEs, Data Accessibility, <b>Higher Industrial Concentration, Schumpeter Mark II</b>	This Regulation should lay down conditions for re-use of protected data that apply to public sector bodies designated as competent under national law to grant or refuse access for re-use, and which are without prejudice to rights or obligations concerning access to such data. Those conditions should be non-discriminatory, transparent, proportionate and objectively justified, while not restricting competition, with a specific focus on promoting access to such data by SMEs and start-ups.
	SMEs, Innovation, <b>Higher Industrial Concentration, Higher Productivity, Schumpeter Mark II</b>	Public sector bodies should be able to charge fees for the re-use of data but should also be able to allow re-use at a discounted fee or free of charge, for example for certain categories of re-use such as non-commercial re-use for scientific research purposes, or re-use by SMEs and start-ups, civil society and educational establishments, so as to provide incentives for such re-use in order to stimulate research and innovation and support undertakings that are an important source of innovation and typically find it more difficult to collect relevant data themselves, in accordance with State aid rules.
	SMEs, Ecosystem, Economy, Market Power, <b>Lower Industrial Concentration, Schumpeter Mark I, Against Intellectual Monopolies</b>	Specialised data intermediation services that are independent from data subjects, data holders and data users could have a facilitating role in the emergence of new data-driven ecosystems independent from any player with a significant degree of market power, while allowing non-discriminatory access to the data economy for undertakings of all sizes, in particular SMEs and start-ups with limited financial, legal or administrative means. This will be particularly important in the context of the establishment of common European data spaces, namely purpose- or sector-specific or cross-sectoral interoperable frameworks of common standards and practices to share or jointly process data for, inter alia, the development of new products and services, scientific research or civil society initiatives.

	Innovation, Third Country, Data	...the Commission should be able to declare, by means of implementing acts, where justified because of the substantial number of requests across the Union concerning the re-use of non-personal data in specific third countries, that a third country provides a level of protection that is essentially equivalent to that provided by Union law. The Commission should assess the necessity of such implementing acts on the basis of information provided by the Member States through the European Data Innovation Board.
	Innovation, Stakeholders, Creative Sector, <b>Higher Industrial Concentration, Schumpeter Mark II, Transformation Transition</b>	The European Data Innovation Board should consist of a number of subgroups, including a subgroup for stakeholder involvement composed of relevant representatives of industry, such as health, environment, agriculture, transport, energy, industrial manufacturing, media, cultural and creative sectors, and statistics, as well as of research, academia, civil society, standardisation organisations, relevant common European data spaces and other relevant stakeholders and third parties, inter alia bodies with specific expertise such as national statistical offices.
	Stakeholders, Data Economy, <b>Higher Industrial Concentration, Schumpeter Mark II, Against Intellectual Monopolies</b>	Where there is a level playing field in the data economy, undertakings compete on quality of services, and not on the amount of data they control. For the purposes of the design, creation and maintenance of the level playing field in the data economy, sound governance is needed in which relevant stakeholders of a common European data space need to participate and be represented.
	Stakeholders, Data Economy, Business-to-Business, Business-to-Consumer, <b>Lower Industrial Concentration, Schumpeter Mark I</b>	The Commission could also encourage and facilitate the development of codes of conduct at Union level, involving relevant stakeholders, in particular on interoperability. Both in situations where data sharing occurs in a business-to-business context and where it occurs in a business-to-consumer context, data intermediation services providers should offer a novel, 'European' way of data governance, by providing a separation in the data economy between data provision, intermediation and use.
	Stakeholders, Data Altruism, Requirement for Registration, Data Processing, <b>Schumpeter Mark II, Against Intellectual Monopolies</b>	The Commission should, by means of delegated acts, prepare a rulebook in close cooperation with data altruism organisations and relevant stakeholders. Compliance with that rulebook should be a requirement for registration as a recognised data altruism organisation.
	<b>Charter of Fundamental Rights (21/10/20)</b>	Privacy law, Data Protection, <b>Schumpeter Mark I</b>
	Rights, Data Protection, Legal Guarantee	...the use of AI must respect fundamental rights and freedoms, must be in conformity with data protection and privacy laws and effective legal remedies must be guaranteed.

	<p>Digital Single Market, Competitiveness, Innovation, Economic Development, <b>Schumpeter Mark II, Higher Productivity</b></p>	<p>Digital technologies, including AI, are essential for European digital sovereignty, security, innovations and economic development and can contribute significantly to the protection and promotion of fundamental rights and democracy and the rule of law. To be digitally sovereign, the EU must build a truly digital single market, reinforce its ability to define its own rules, to make autonomous technological choices, and to develop and deploy strategic digital capacities and infrastructure. The digital transition is the EU's most important enabler of sustainable growth and competitiveness.</p>
<p><b>General Data Protection Regulation (27/04/16)</b></p>	<p>Economy, Data Protection, <b>Higher Productivity, Schumpeter Mark II</b></p>	<p>Rapid technological developments and globalisation have brought new challenges for the protection of personal data. The scale of the collection and sharing of personal data has increased significantly. Technology allows both private companies and public authorities to make use of personal data on an unprecedented scale in order to pursue their activities. Natural persons increasingly make personal information available publicly and globally.</p> <p>Technology has transformed both the economy and social life, and should further facilitate the free flow of personal data within the Union and the transfer to third countries and international organisations, while ensuring a high level of the protection of personal data.</p>
	<p>Economy, Internal Market, <b>Higher Industrial Concentration, Schumpeter Mark II</b></p>	<p>Those developments require a strong and more coherent data protection framework in the Union, backed by strong enforcement, given the importance of creating the trust that will allow the digital economy to develop across the internal market. Natural persons should have control of their own personal data. Legal and practical certainty for natural persons, economic operators and public authorities should be enhanced.</p>

	<p><b>Economic, Monitoring, SMEs, Higher Productivity, Schumpeter Mark I</b></p>	<p>In order to ensure a consistent level of protection for natural persons throughout the Union and to prevent divergences hampering the free movement of personal data within the internal market, a Regulation is necessary to provide legal certainty and transparency for economic operators, including micro, small and medium-sized enterprises, and to provide natural persons in all Member States with the same level of legally enforceable rights and obligations and responsibilities for controllers and processors, to ensure consistent monitoring of the processing of personal data, and equivalent sanctions in all Member States as well as effective cooperation between the supervisory authorities of different Member States. The proper functioning of the internal market requires that the free movement of personal data within the Union is not restricted or prohibited for reasons connected with the protection of natural persons with regard to the processing of personal data. To take account of the specific situation of micro, small and medium-sized enterprises, this Regulation includes a derogation for organisations with fewer than 250 employees with regard to record-keeping. In addition, the Union institutions and bodies, and Member States and their supervisory authorities, are encouraged to take account of the specific needs of micro, small and medium-sized enterprises in the application of this Regulation.</p>
	<p><b>Economic, Risks, Schumpeter Mark II</b></p>	<p>The risk to the rights and freedoms of natural persons, of varying likelihood and severity, may result from personal data processing which could lead to physical, material or non-material damage, in particular: where the processing may give rise to discrimination, identity theft or fraud, financial loss, damage to the reputation, loss of confidentiality of personal data protected by professional secrecy, unauthorised reversal of pseudonymisation, or any other significant economic or social disadvantage; where data subjects might be deprived of their rights and freedoms or prevented from exercising control over their personal data</p>
	<p><b>Economic, Entreprises, Higher Industrial Concentration, Higher Productivity, Schumpeter Mark II</b></p>	<p>A group of undertakings, or a group of enterprises engaged in a joint economic activity, should be able to make use of approved binding corporate rules for its international transfers from the Union to organisations within the same group of undertakings, or group of enterprises engaged in a joint economic activity, provided that such corporate rules include all essential principles and enforceable rights to ensure appropriate safeguards for transfers or categories of transfers of personal data.</p>
	<p><b>Economic, Restrictions, Schumpeter Mark II</b></p>	<p>Union or Member State law to which the data controller or processor is subject may restrict by way of a legislative measure the scope of the obligations and rights provided for... other important objectives of general public interest of the Union or of a Member State, in particular an important economic or financial interest of the Union or of a Member State, including monetary, budgetary and taxation matters, public health and social security</p>

	Economic, Monitoring	the mechanisms within the group of undertakings, or group of enterprises engaged in a joint economic activity for ensuring the verification of compliance with the binding corporate rules. Such mechanisms shall include data protection audits and methods for ensuring corrective actions to protect the rights of the data subject. Results of such verification should be communicated to the person or entity referred to in point (h) and to the board of the controlling undertaking of a group of undertakings, or of the group of enterprises engaged in a joint economic activity, and should be available upon request to the competent supervisory authority
	Copyright, Intellectual Property Rights, <b>Against Intellectual Monopolies</b>	Where possible, the controller should be able to provide remote access to a secure system which would provide the data subject with direct access to his or her personal data. That right should not adversely affect the rights or freedoms of others, including trade secrets or intellectual property and in particular the copyright protecting the software. However, the result of those considerations should not be a refusal to provide all information to the data subject. Where the controller processes a large quantity of information concerning the data subject, the controller should be able to request that, before the information is delivered, the data subject specify the information or processing activities to which the request relates.