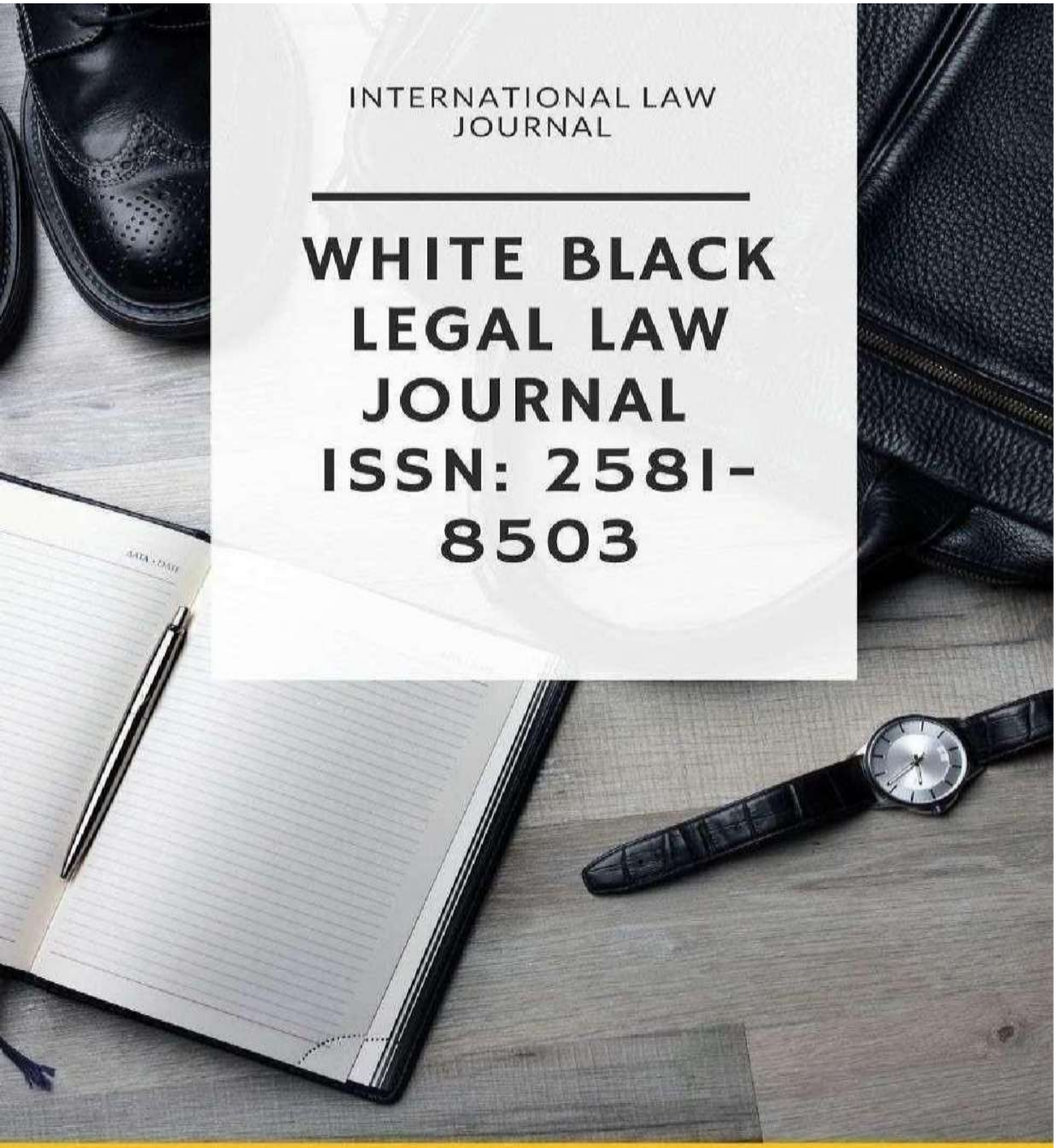

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AI-GENERATED WORKS AND CONTROL OF IP RIGHTS: ASSESSING POTENTIAL ANTI-COMPETITIVE RISKS IN EMERGING INNOVATION MARKETS

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ABSTRACT

This paper will analyze the interplay of the Copyright Act of 1957, Information Technology Act of 2000, Digital Personal Data Protection Act of 2023, and Competition Act of 2002 in regard to the legal and competitive challenges that may emanate from artificial intelligence-generated work under the Indian intellectual property framework. This paper discusses the uncertainty of authorship and ownership of AI-generated content, and the fear that the existing copyright doctrines, based on human creativity, may not be well adapted for the works that are generated independently by machine learning algorithms. It also discusses the role of AI developers and digital intermediaries in the legal architecture of the Information Technology Act including issues of content regulation, algorithmic transparency and liability.

Concerns have been raised about consent, data monopolization, and the moral use of personal data for training AI models.

Keywords: Artificial Intelligence, AI-generated works, Intellectual Property Rights, Copyright law, Data Protection, Competition Law, Anti-competitive practices, Digital markets, Algorithmic governance, Innovation policy, India.

CHAPTER 1

INTRODUCTION

Rapid development of artificial intelligence (AI) technology that raises complex legal issues that are at odds with existing intellectual property laws. Indeed, AI-based algorithms that employ machine learning, neural networks and generative models can be currently used to create unique literary works, art, music, and other innovations without any human intervention. Such developments have questioned the fundamental premises of authorship, as outlined in the Copyright Act, 1957 which identifies humans as the primary rights holders. Nowadays, legislators, scholars and industry representatives find it crucial to define ownership, responsibility and proper use of creations by AI. In addition, the increased use of algorithmic data analytics has prompted discussion concerning the regulation of platforms and other intermediaries according to the provisions of the Information Technology Act of 2000.

The Digital Personal Data Protection Act, 2023 aims at addressing privacy concerns as well as the management and use of personal data – topics that are increasingly significant due to their relevance to the creation of AI algorithms. The latter requires large amounts of information which could sometimes be highly personal or even confidential, thus posing potential challenges for user privacy and raising the issue of responsible algorithmic training. [1]Given that such dominant firms hold a significant share in the ownership of information, computation powers, and algorithms, there may be a tendency towards anti-competitive behavior which includes but is not limited to market foreclosure, exclusionary behavior, and abuse of dominance; hence, the Competition Act, 2002 is under scrutiny. In emerging innovative markets in which AI is both an innovation tool and a competitive advantage, ownership of intellectual property rights in works generated by AI could lead to even greater entrenchment of the existing market power.

Against this backdrop, this study attempts to undertake an examination of the relationship between creativity generated by artificial intelligence, intellectual property rights, data governance, and competition laws in India. This study is aimed at critiquing the ability of the existing legal regime

[1] Ryan Abbott, The Reasonable Robot (CUP 2020) 23.

to address the challenges associated with AI-driven innovations or if there needs to be any reform or harmonization thereof. The focus will be on the balance between promoting technological innovation on one hand and maintaining a healthy competition on the other; while also considering the need for data governance and protection of individual and consumer rights.

1.1 Background of the study

Rapid developments in the field of artificial intelligence (AI), particularly AI technologies, have dramatically altered the scope of creativity, innovation, and ownership in today's digital economy. Traditionally, intellectual property laws have focused on human creativity and authorship. However, with the development of new AI technologies, AI is now able to independently create high-value products, including literary pieces, songs, visual arts, computer coding, and even scientific findings, which questions the notion of authorship enshrined in the Copyright Act, 1957. In the absence of any statutory provision in relation to AI-generated outputs, it becomes difficult to ascertain ownership and enforce the same due to the lack of clear legal status of these products. Furthermore, AI functions through the use of complex algorithms and large databases, which are created by multiple parties, including developers, users, and database owners.[2]

Apart from intellectual property issues, there have been more concerns about the regulation of the governance of these autonomous AI systems. The Information Technology Act, 2000 plays a crucial role in regulating digital intermediaries and online platforms that utilize or host AI-generated content. However, the existing provision was developed at a time when there was no consideration of autonomous AI systems and lacks provisions to regulate concerns such as algorithmic accountability, misinformation, and liability for the output of AI systems. In light of the increasing integration of AI systems with digital intermediaries, the question of how much protection these intermediaries can enjoy while having the control over the generation and distribution of content arises. Hence, there is a need for legal frameworks to examine whether there

[2] NITI Aayog, National Strategy for Artificial Intelligence (2018) 10.

is enough legal provision to ensure transparency and accountability in the utilization of AI technologies.

Furthermore, AI systems generate huge volumes of data including personal and sensitive data. The enactment of the Digital Personal Data Protection Act, 2023 will enable data processing control and protect individual privacy in India. Using personal data to build and run AI models poses many legal challenges related to permission, limitation of purpose, and minimization of data. There is also an increased concern over the concentration of data in the possession of a small number of powerful digital corporations, which could cause informational inequity and user-data abuse. The nexus between data protection and AI is that it impacts not only individual privacy rights but also the competitive nature of digital markets.

When viewed from the lens of competition laws, the emergence of large tech companies with their AI innovations threatens competition in the market. Newer market participants face the difficulty of large data sets and advanced computational facilities, which can serve as barriers to entry. With the use of AI in the marketplace, the Competition Act of 2002 becomes applicable for the prevention of such phenomena as market foreclosure, anti-competitive agreements, and abuse of dominant market position. When AI technologies become a part of the business practice, the company gets involved in algorithmic collusion, self-preferencing, and differential pricing practices. All these acts may negatively affect consumers' welfare and limit innovation.[3]

The primary purpose of the study is to conduct an evaluation of the linkages of AI-enabled products/services with respect to the law related to competition, data privacy, digital governance, and IP. This aspect of the study makes it unique. The study seeks to explore the implications of AI from the standpoint of regulation and laws to help identify deficiencies within the existing regulatory framework and examine the consequences of such shortcomings on innovations and competition. In this regard, the present study is highly important for India due to the fast growth of the digital economy and increased utilization of AI in various industries. The results of the present study will help enrich the discussion of the policy making process in the country in the

[3] Pamela Samuelson, 'Allocating Ownership Rights in Computer-Generated Works' (1985) 47 UPLR 1185.

area of reconciling the interests of safeguarding the rights of individuals, promoting technological innovations, and ensuring competitive markets.[4]

1.2 Conceptual Foundations of AI and Creativity

Many things have evolved in artificial intelligence from its theoretical birth through the current applications that involve it, transforming the nature of authorship, creativity, and originality within the creative industry sector. The initial purpose of artificial intelligence included addressing computational and logical problems. An artificial intelligence system refers to a computer system with the capability of reasoning and learning on behalf of human beings. Robots could accomplish some tasks through the use of written instructions. This marked the basis for artificial intelligence developments such as rule-based reasoning and symbolic reasoning. Nevertheless, with the evolution of machine learning and, lately, deep learning, artificial intelligence systems have transformed into very flexible and self-learning systems with the capability of analyzing vast volumes of data, identifying trends and providing results comparable to human intelligence. Within various sectors including software engineering, music, literature, filmmaking, advertising and art, artificial intelligence has transcended its previous status of being just an assistant to become the core of creativity. Indeed, particularly within these areas, this evolution has been key.

When generative AI models like neural networks trained on massive datasets came out, they completely transformed the way AI was used in many different industries. In contrast to traditional AI systems that rely on explicit programming, generative AI learns from existing data and generates new, original content based on patterns detected. This shift has allowed AI to create works that are expressive, imaginative, and practical—challenging the long-held belief that creativity is an exclusively human trait. Presently, AI is capable of producing complex software code, logical essays, symphonies, and lifelike paintings—often with little human intervention. Due to the paradigm shift happening in the creative industries, the line between machine-generated and human-generated innovation is becoming more blurry. The wide variety of creative domains that make use of AI allows for a basic categorization of AI-generated art. Academic writing, marketing

[4] Mark Lemley and Bryan Casey, 'Fair Learning' (2021) 99 Texas Law Review 743.

copy, stories, essays, and poetry are all examples of text-based material that makes use of AI systems. In order to understand and imitate human language patterns, these systems use natural language processing (NLP) techniques to generate content that is often indistinguishable from human-authored content. Artificial intelligence can create a wide variety of visual arts, including paintings, sketches, graphic designs, and even lifelike images. Such results are often generated using diffusion models or generative adversarial networks (GANs) that have been trained on large image datasets to create unique visual compositions.[5]

The capacity of AI to generate music in diverse genres, replicate the work of celebrated composers, or develop entirely new music genres exists. The use of AI-generated music has been steadily growing within mainstream artistic production, as evidenced by its increasing presence in video games, film scores, and commercial advertising. In much the same way, the advent of AI-generated coding has made itself valuable to software developers, offering services in code generation, debugging, and optimization. With their ability to analyze existing codebases and generate novel code fragments, these solutions have helped tremendously improve efficiency and productivity. Other forms of AI-generated art, such as animations, video, and even entire virtual worlds, have further extended the influence of AI on the creative industries. While AI possesses the incredible capability to generate artworks, there is one crucial distinction between works by humans and those generated by AI. Purposefulness, consciousness, emotions, and culture cannot be replicated through machines since the above concepts play a vital role in the human process of creating something new, and it is not easy for robots to replicate the same effect. Unlike in the case of the human process of creation, the computer is used to observe patterns in existing data and predict the future based on probabilities of those patterns. The computer does not comprehend anything in this process; it just produces a technically sound output without consciousness or intention or emotions.

It is important to ask some significant questions concerning this difference since many issues are at stake here. The concept of originality, as understood in intellectual property laws, has been associated with a demonstration of skill, discretion, and imagination on the part of the author of the work. This becomes a problem when one tries to find out whether an AI machine is able to demonstrate such qualities as well. Moreover, attribution of authorship and ownership becomes an

[5] WIPO, WIPO Technology Trends 2019: Artificial Intelligence (World Intellectual Property Organization 2019) 12.

issue due to the collaborative nature of AI-generated creations since they involve contributions from humans, algorithms, and training data.

Generative AI models have many varied and transformative roles in innovation ecosystems. These technologies, which allow businesses and individuals to create contents faster than ever before, have been made integral to how the current digital economy functions. By reducing barriers to entry, democratizing creative tool access, and fostering new avenues for artistic expression, generative AI is driving innovation within the creative industries. For example, the creation of AI-driven platforms means that individuals with little skill in terms of technical and artistic ability can still create high-quality contents, thus involving a broader set of individuals into content creation. This democratization process could foster inclusion and diversity within the creative industry. The dynamics of innovation ecosystems are transformed by the advent of generative AI models. Businesses that develop and manage innovative AI technologies enjoy a strong competitive edge because they can use such tools to boost productivity, reduce costs, and create unique products and services. This advantage is augmented by the ability to train AI models on large and diverse datasets, since data has become an important asset for innovation. In this case, concerns over market dominance, competition, and access to resources come about since the resources for AI and data are concentrated among a few powerful firms. It becomes challenging for independent producers and smaller firms to compete with larger firms that have superior data assets and infrastructure.

Generative AI is also fostering innovation by combining artistic and technical practices. For instance, the use of artificial intelligence content is now helping in the creation of educational materials, entertainment applications, as well as campaigns in marketing and advertising. New business models and revenue sources are arising due to the intersection of creativity and technology, thus indicating the importance of AI in shaping the future innovation environment. It also highlights the need for regulations that can manage the complex interplays between technology and innovation.

The effects of generative AI on labor and employment within the creative industries represent another significant aspect of innovation systems. AI generates concerns regarding job displacement and human labor's value, despite the fact that technology possesses the potential to boost efficiency and inspire human creativity. The production of AI-generated material, which is faster and less costly to produce, is likely to present an increased risk to jobs in creative fields such

as writers, painters, singers, and designers. Such an occurrence necessitates a reevaluation of the role of humans in creativity, making clear the importance of skills such as critical thinking, emotional intelligence, and cultural understanding, which cannot be easily replicated by machines. The advent of AI-generated artwork presents ethical issues along with legal and business implications. [6]

It is necessary to consider issues such as bias in the AI training set, quality of AI-produced work, and the danger of using AI technologies for producing fake and potentially harmful material. Creating public trust, developing ethical standards in the use of AI technologies and openness of AI systems are all necessary prerequisites for the future success of artificial intelligence in creative industries. All these challenges emphasize the necessity to address AI-related concerns from an interdisciplinary perspective that will involve not only technological but also ethical and legal considerations. Lastly, the development of AI description and implementation in creative industries may indicate a significant shift that is happening regarding innovation and creativity. From its emergence as a computing technology, artificial intelligence has changed the way innovation processes occur, as well as the whole environment that surrounds them. The examples of different types of AI-generated products can show the great variety of potential applications of artificial intelligence in various spheres, as well as the differences between human and AI-generated products that prove the uniqueness of human creativity. The use of AI technology for generating innovative products is changing the game completely. It is critical to establish systems that can integrate technological advancement with moral considerations, transparent laws, and equitable business practices if we want AI's benefits to accrue in a fair, responsible, and long-term manner.

1.3 Literature Review

[6] OECD, Artificial Intelligence in Society (OECD Publishing 2019) 45.

Many scholars have analyzed the legal, economic, and competitive implications associated with the works created with the help of AI in response to the increasing use of artificial intelligence technology in the creation of innovative works. According to Samuelson (2017), one of the main concerns associated with the early research related to the intersection of IP and artificial intelligence is that traditional systems of copyright cannot handle non-human authors. Since copyright law is based on human creativity, it cannot differentiate works that were created without human input, causing doubts regarding copyright ownership and protection, according to some academics. According to Abbott (2020), copyright should either be granted to AI, considered as a separate author, or assigned to the actual author or user because of the need for financial incentive to conduct research in this field. The aforementioned discussion reveals the gap between theory and practice associated with law and the Copyright Act of 1957 that does not mention anything about AI-created works.[7]

Further researches also include the involvement of middlemen and platforms as important factors in the dissemination process of the output generated by the machine. Jack Balkin (2015), for example, emphasizes that the importance of the latter as information fiduciaries grows due to the rise in the responsibilities connected to algorithmic decision-making. It is particularly topical when discussing the Information Technology Act, 2000, under which intermediaries usually do not carry any legal liabilities. On the other hand, Frank Pasquale (2019) stresses the necessity to introduce more transparency into the algorithms in order to avoid manipulation and ensure justice as machines start gaining their autonomy. Overall, this part of the literature provides a growing consensus about the need to revise the intermediary liability regime to take into account the complexity involved in the development of the AI-driven content.

One should also mention a separate body of literature associated with the importance of the data and its processing as an input factor in AI systems. For instance, Shoshana Zuboff (2019) examines the notion of "surveillance capitalism" and the way big tech corporations collect personal data from individuals and use them to train AI models. The problem is also recognized by Julie Cohen (2012), who emphasizes the necessity of developing strict data protection mechanisms to preserve individual freedoms from being violated and exploited. The enactment of the Digital Personal Data Protection Act, 2023 in India has been perceived as a significant step towards overcoming the

[7] European Commission, White Paper on Artificial Intelligence (2020) 5.

challenges. However, according to academics, there remain difficulties with implementing the law effectively and achieving the proper balance between innovation and the exercise of privacy rights. In addition, empirical studies have shown that the accumulation of data by a limited number of monopolistic firms creates information asymmetries, which might impede smaller companies' access to information and distort the competitive environment.

The connection between AI, IP rights, and competition law has attracted considerable attention among researchers, particularly regarding the establishment of market domination and anti-competitive practices. According to Ariel Ezrachi and Maurice Stucke (2016), there emerges the concept of algorithmic collusion which results in the erosion of competitive environments as AI technologies are enabled to develop pricing schemes autonomously without any human intervention. Their study highlights the inefficiency of contemporary antitrust regulations in dealing with such forms of conduct. Along similar lines, Diane Coyle (2018) argues that dominant firms can take advantage of network effects, data superiority, and economies of scale within digital markets, increasing the likelihood of market concentration. The Competition Act of 2002, designed to prohibit dominant firms' misuse of their positions and ensure healthy competition, might have to undergo reinterpretation in light of AI-based market structures. These issues are directly related to the legislation.

Furthermore, recent studies have considered the wider consequences of generative AI models within innovation systems. In particular, Erik Brynjolfsson and Andrew McAfee (2017) discuss the challenges posed by income disparities and job losses but emphasize the transformative impact of AI technologies in terms of increased productivity and innovative activities. Academic work on this topic emphasizes the fact that while AI can democratize creative technologies for everyone, it might also exacerbate the advantages of organizations with essential assets such as data, algorithms, or computing infrastructure. Ajay Agrawal et al. (2018) further elaborate on this binary, highlighting how AI reduces the cost of prediction, thereby altering the nature of decision-making and competition in different industries.

Ethical issues in relation to works created through artificial intelligence have been pointed out by researchers besides the legal and economic considerations. For example, Kate Crawford (2021) points out the extractive nature of the AI and discusses issues like bias, exploitation, and environmental impact. It becomes particularly relevant when discussing training data sets since they could produce biased outcomes while reflecting social injustices that existed within societies.

The literature stresses the importance of ethical governance alongside legislation.

1.4 Scope and Objectives of the Study

Scope of the Study

The scope of this study is confined to the legal, regulatory and competition aspects of AI generated works in the Indian context, with reference to Copyright Act, 1957, Information Technology Act, 2000, Digital Personal Data Protection Act, 2023 and Competition Act, 2002. It is concerned with questions of authorship, ownership, liability, data usage and anti-competitive risks that stem from control over AI technologies and datasets in nascent innovation markets. The research is primarily doctrinal and analytical with a comparative perspective but does not involve any empirical data collection nor technical development of AI systems. It is limited to the legal and policy analysis of AI in creative and digital industries and does not include broader technical, engineering or non-legal economic analysis.

Objectives of the Study

- To examine the legal status of AI-generated works under the Copyright Act, 1957.
- To analyze issues of liability and intermediary responsibility under the Information Technology Act, 2000.
- To evaluate the role of data usage and privacy concerns under the Digital Personal Data Protection Act, 2023 in AI development.
- To assess the potential anti-competitive risks associated with AI technologies under the Competition Act, 2002.
- To identify regulatory gaps and suggest reforms for balancing innovation with fair competition in AI-driven markets.

1.5 Hypothesis

1 The existing legal framework in India, namely, the Copyright Act, 1957, Information Technology Act, 2000, Digital Personal Data Protection Act, 2023 and Competition Act, 2002, is not equipped to deal with the challenges of authorship, ownership and control of AI-generated works due to absence of specific and comprehensive provisions for artificial intelligence.

2 Limited awareness, lack of regulatory clarity and weak institutional capacity are key factors that hamper enforcement of intellectual property rights, data protection standards and competition regulations in AI-powered markets.

3 The concentration of data, algorithms and AI infrastructure in dominant firms increases the risk of anti-competitive practices such as market foreclosure, abuse of dominance and barriers to entry into emerging innovation ecosystems.

4 Better legal provisions, regulatory coordination, transparency and accountability in AI systems will result in more effective governance of AI-generated works and mitigation of anti-competitive risks.

5 An integrated, balanced and harmonized legal framework on intellectual property, data protection and competition law will foster innovation while protecting fair competition and the public interest in the digital economy.

1.6 Research Questions

1 How does the Copyright Act, 1957 address (or fail to address) issues of authorship and ownership in AI-generated works?

2 What are the challenges in determining liability and intermediary responsibility for AI-generated content under the Information Technology Act, 2000?

3 How does the use of personal and non-personal data in AI systems raise concerns under the Digital Personal Data Protection Act, 2023?

4 To what extent do AI technologies and control over data contribute to anti-competitive practices under the Competition Act, 2002?

5 What legal and policy reforms are required to balance innovation, intellectual property protection, and fair competition in AI-driven markets?

1.7 Research Methodology

Nature of the Study

This study is purely descriptive and analytical in nature. The intention of this study is to investigate the evolution of the concept of authorship, ownership, and control of AI-generated content. It will also conduct a critical assessment of whether or not the existing Indian intellectual property laws are adequate in solving the issues arising from the use of AI technology in terms of intellectual

property and competition law.

Research Design

The research uses a qualitative research design approach with a focus on a thorough investigation of the law, judicial decisions, and literature. The research has been designed in such a way that it will investigate the conceptual, legal, and regulatory aspects of AI-created artworks, especially from the perspective of anti-competition issues.

Sources of Data

The study makes extensive use of secondary data sources. The sources include legislation like the Copyright Act, 1957; Information Technology Act, 2000; Digital Personal Data Protection Act, 2023; and Competition Act, 2002, as well as judgments, law reports, official publications, policy documents, publications from domestic and foreign bodies, scholarly articles, textbooks, and reliable web sources.

Method of Data Collection

The data has been collected systematically from legal sources, case law, research papers, and policy sources. Sources that are pertinent to the topic have been collected and analyzed in order to understand the prevailing legal system surrounding AI-generated content.

Method of Data Analysis

The gathered information has been analyzed by using the methods of doctrinal legal analysis and comparative analysis. In particular, gaps, contradictions, and uncertainties in the present legal framework have been analyzed through statutory provisions and judicial interpretations. Moreover, comparative analysis has been used in order to understand international legal trends in the area of AI, IP, and Competition Law and suggest reforms accordingly.

1.8 Limitations of the Study

Primary data sources for analysis include statutory laws, judicial decisions, academic writing, policy documents and industry studies. Hence, it becomes difficult to carry out any further empirical research on existing interpretations and viewpoints. There are constraints in terms of

lack of primary data, i.e. there are no interviews conducted among AI creators, lawmakers, policymakers and industry experts which would help capture the ground realities and industry practices concerning AI-generated contents and related regulations. Additionally, the study relies upon interpretation of legal texts such as the Copyright Act, 1957, IT Act, 2000, DPPDA, 2023 and Competition Act, 2002 that are constantly changing with emerging AI technologies. Thus, it makes the study prone to gap between theoretical and practical aspects of legal provisions. Besides, rapid development of technology and digital market for innovations serves as a constraint to the study due to technological progress, regulatory and international policy changes that can make parts of the analysis obsolete. Another constraint is the lack of technical study of AI technologies and models. Finally, although comparative references to international frameworks are contemplated, the focus is primarily on the Indian legal framework, potentially limiting the generalizability of findings across jurisdictions.

1.9 Chapterisation Scheme

Chapter 1: Introduction

The chapter is aimed at discussing the topic and its background, the relevance of AI to creative industries, and the issues involved in the research. The chapter describes what AI-generated works are, highlights the important considerations in regard to law and competition issues, and summarizes the existing literature on the subject. The chapter also provides the research problem statement, the research questions and hypotheses, the methodology of the research, and the limitations of the study.

Chapter 2: Conceptual Framework of AI-Generated Works and Creative Industries

In this chapter, we will discuss the definition and development of Artificial Intelligence within the context of creative industries. We will look at the kinds of products produced by generative artificial intelligence, which include text, visuals, music, and computer programs. The chapter will also look at how generative artificial intelligence influences the innovation ecosystem, paying particular attention to creativity and efficiency.

Chapter 3: Intellectual Property and Data Governance Framework in India

In this chapter, the analysis will be done on the legal regime concerning AI generated content in

India. The discussion in this regard will consider certain aspects of copyright law in the form of the Copyright Act of 1957, Information Technology Act of 2000, and the Digital Personal Data Protection Act of 2023.

Chapter 4: Competition Law and Anti-Competitive Risks in AI Markets

This chapter discusses the enforcement of the Competition Act, 2002, specifically in relation to the use of AI technology. In particular, this chapter considers the threats involved in the monopolization of information, algorithms, and infrastructure by analyzing such aspects as abuse of dominance, market foreclosure, barriers to entry, and algorithmic collusion.

Chapter 5: Critical Analysis and Comparative Perspective

In this chapter, the adequacy of the legal system in India for dealing with the issues related to the application of artificial intelligence will be analyzed. The problems related to the legal provisions in India for issues of Intellectual Property rights, data privacy, and competition will be examined. In addition, a comparative discussion on the various legal provisions in other countries like the EU, USA, and the UK will be provided.

Chapter 6: Conclusion, Findings and Recommendations

This chapter presents a summary of the key conclusions reached through the research work as well as an analysis of the legal, regulatory, and competition-related issues identified. Recommendations and legal solutions that will help develop the proper regulation of AI-generated products, as well as foster innovation and ensure competition, are provided. Further research directions are outlined and possible avenues for moving forward discussed.

CHAPTER – 2

CONCEPTUAL FRAMEWORK OF AI-GENERATED WORKS AND CREATIVE INDUSTRIES

The conceptual framework of AI-generated works in the creative industries shows a significant change in the creation, distribution and value of content in the digital economy. It's where technology, creativity and legal theory come together. Artificial intelligence (AI), particularly its generative form, has moved from a traditional supportive tool to an active participant in the creative process, capable of generating software code, visual art, music compositions and literary texts with minimal human input. This change challenges the traditional ideas of creativity that are associated with human intelligence, originality and intentional expression. As AI systems mimic—and occasionally surpass—human creative capabilities, the distinction between works created by humans and those created by machines becomes more and more blurred. This involves a re-examination of the fundamental legal and theoretical bases of the creative industries.

According to this view, AI-generated works are outputs of algorithmic processes based on big datasets, machine learning models and pattern recognition methods. Traditional creativity is powered by human knowledge and experience . AI works on data-driven mechanisms and learns from existing data to create new things that imitate or reinterpret known patterns and forms . The absence of direct human creation makes it difficult to apply existing intellectual property standards and raises important conceptual issues of authorship, originality and ownership. Further, the collaborative nature of AI systems, where engineers build algorithms, users contribute, and datasets act as raw material, produces a multi-level architecture of contribution that makes it difficult to identify a single author or rights holder.[8]

AI is changing the creative industries, creating new ways of production and creativity, and changing the traditional business models and industry structures. Creative industries, such as publishing, cinema, music, advertising, and software development, are increasingly using AI to increase productivity, save costs, and expand creative possibilities. Generative AI models have

[8] Salil Mehra, Competition Law in India (OUP 2020) 78.

allowed us to create content fast and at scale, empowering people and companies to achieve great results with minimal funding. This democratization of creative tools can enable a broader range of people to engage in creative creation, and can also promote inclusion and reduce barriers to entry. But it also raises questions about the possible loss of creative authenticity, the commodification of creativity and the displacement of human work.

Artificial Intelligence generated works are critical for the development of contemporary innovation ecosystems insofar as innovation goes, considering that computing capacity, data and algorithms provide companies with their key competitive advantages in this respect. Companies that possess the means of developing advanced generative models benefit from possessing large-scale datasets and state-of-the-art Artificial Intelligence technologies in the creative and digital sectors. As such, concentration of technical capabilities has a significant effect on the market dynamics and might result in the increased market concentration and exclusion of smaller firms. In the context of the suggested paradigm, the economic and competitive dimension of Artificial Intelligence is also important to take into account and recognize AI as a potentially distorting force on the market and innovation engine.

The paradigm also considers the wider socio-legal dimensions of the issue concerning AI-generated works including the aspects of governance, ethics and responsibility. Apart from the traditional legal analysis, it is important to consider issues of possible bias in the training data, transparency of the algorithm and legitimacy of AI-generated information. Also, it should be noted that the need for ethical and responsible application of Artificial Intelligence within the creative industry requires development of appropriate visionary regulatory framework. This concept enables one to examine the dynamics of AI works with respect to the prevailing laws, market structures, and the value systems within the society. The conceptual framework for creative industries and AI generated works as formulated will provide an overall framework to examine the changing dynamics with regard to creativity and technology. It brings out the various challenges with regards to the law, finance, and morality that accompany this dynamic and also shows how AI changes the concepts of authorship and inventions. The conceptual framework has put these AI generated works within the wider multidisciplinary context in order to examine their implications in the intellectual property rights, competition law, and creative industries.

2.1 Meaning and Evolution of Artificial Intelligence in Creative Industries

The definition and evolution of artificial intelligence in the creative industries mark a radical change in the way innovation, production, and creativity are seen in the modern age. Artificial intelligence can be defined as the generic term for the robot's capacity to do tasks requiring human intellect like learning, thinking, solving problems, perceiving and understanding language. In the creative industry, the use of artificial intelligence has shifted from mere support role to the dynamic creative entity that can create original products. The traditional creative industries which had depended heavily on creativity, emotionality, and cultural context included art, music, literature, film making, designing, advertisement, video games, and computer programming. However, there has been a radical change in the way things were done with the emergence of AI in various sectors to enable robots to be part and parcel of the process. AI began at the mid-point of the last century as part of computer science research . AI programs were created through rule-based programming to try and imitate human reasoning processes. The AI programs would solve problems by employing logical frameworks. Though these programs were quite useful in organized conditions, they did not have the flexibility necessary for innovation. As such, creativity can be described as a concept that is unclear, original and one that can generate ideas beyond normal boundaries. Therefore, these early AI programs were only useful for automation purposes and could not be applied within the context of innovations or creativity.[9]

The emergence of machine learning, a type of AI technology that allows machines to learn through data rather than just following programming, marks a significant milestone in the evolution of AI. Machine learning allowed for the application of training algorithms on large data sets to be able to see trends, make predictions and learn. The most important milestone in the evolution of AI applications in the creative industries was moving from rule-based algorithms to data-driven algorithms. In the field of music, for instance, algorithms based on machine learning could examine thousands of songs to detect rhythms, melodies, and harmonies. This will then allow them to compose music similar to what human composers create. The achievements of deep learning technology have set extremely high standards for the capabilities of AI technology in art. Deep

[9] N S Sreenivasulu, Law Relating to Intellectual Property (LexisNexis 2017) 102.

learning is characterized by the ability to process large amounts of data and find complex relationships between them. Most importantly, it relies on neural networks, which mimic the workings of the human brain. Deep learning technologies have been especially useful in the area of generative AI, where the focus is more on creating new things than analyzing existing ones. The most significant inventions in this field include the Transformer models and Generative Adversarial Networks (GANs). Generative adversarial networks are made up of two neural networks that work together in the production of output like images and movies. The transformer models have made natural language processing very efficient by enabling AI to create coherent sentences.[10]

These technological improvements have paved the way for AI to transition from a supplementary function within the creative industry into a co-creator or even an autonomous creator. Within the realm of visual art, artificial intelligence (AI) algorithms have demonstrated their ability to generate works of art such as paintings, drawings, and digital art pieces that rival their human counterparts in terms of beauty. They are trained through massive datasets of pre-existing works of art, acquiring techniques and aesthetic qualities which they can imitate and interpret. Similarly, AI can generate creative and linguistically articulate fiction narratives, poetry, and non-fiction articles. Commercial uses of AI include video game music generation, film scores, and advertising content creation. It should also be noted that the emergence of AI in the creative industry is highly correlated with the availability of information and computational capacity. The expansion of the internet and digitalization of information has provided massive amounts of data available for AI training. At the same time, technological advancements such as cloud computing and graphics processing units (GPU) have enabled efficient data processing. Such developments have reduced the entry barriers into the process of innovative use of artificial intelligence since the creation of powerful AI software was made easier and available to individuals and organizations. The other important trend in the development of artificial intelligence in the creative industries is the transition from automation to augmentation. Initially, the application of AI technology was used to automate mundane activities like editing, formatting and design work. With time and increased advancement in technology, AI technology has been used to augment human creativity with the help of AI software that allows individuals to expand their scope of imagination and innovation.

[10] T Ramappa, Intellectual Property Rights Law in India (Asia Law House 2021) 88.

For instance, graphic designers are able to generate different design options thanks to the use of AI. The same applies to writers as AI helps them with ideas and writing. Such co-interaction of human-AI, where the machine acts as an active collaborator rather than a passive instrument, can be viewed as another manifestation of the paradigm shift in creative production. Nevertheless, the introduction of AI into creative fields provokes serious philosophical debates on the nature of creativity. Traditionally, creativity was attributed to uniquely human traits like imagination, emotions, and intentionality. However, AI artworks are created through computational operations that lack human experience and consciousness. Thus, the question arises regarding whether AI systems themselves possess creativity or only replicate the latter via patterns of data. Some researchers suggest that the definition of creativity should not be based on the process but rather focus on the result, which is why AI-generated artwork can still be viewed as creative regardless of the absence of human intentions as long as it is novel and valuable. Others state that real creativity presupposes semantic understanding and awareness of the context, both of which are absent from artificial intelligence.[11]

AI's rise in the creative fields has made a huge mark in the economy. The capacity to crank out content quickly and cheaply has disrupted traditional business models and opened up new areas for innovation. Today businesses can respond quickly to changing consumer needs, personalize products and services and create huge volumes of information at scale. There are also increasing fears that greater use of AI will lead to job losses and a degradation of human labour. The output of these systems is similar, but generated in a shorter time, and this might change the nature of work and the skills needed in creative sectors. Additionally, the use of AI in the creative industries has brought to the fore the question of the importance of governance and ethics. There are many serious issues that include bias in the training data, the truthfulness of the information generated by AI and the potential for misuse of AI to generate harmful or misleading content. AI-generated deepfakes could generate realistic but fake images and videos, raising questions of trust and disinformation. And the use of copyrighted material to train AI models brings up the issues of intellectual property rights and fair use. These challenges require an integrated approach that includes not only technological development but also ethical and regulatory frameworks.

[11] Ministry of Electronics and Information Technology (MeitY), Report on Non-Personal Data Governance Framework (2020) 14.

There is an added layer of complexity to the development of AI from the international nature of the creative industries, as different countries take different approaches to the regulation and protection of IP. Some countries are considering new laws to regulate the works created by AI while others are still applying existing laws that may not take into account the specificities of AI. This lack of harmonisation creates uncertainty for businesses, politicians and innovators, but also points to the need for international cooperation and communication. The rise of AI in the creative industries has cultural, legal and financial implications. AI systems are trained on existing data, which often embodies the cultural biases and preferences of the societies in which that data was developed. "AI-generated art could reduce diversity and inclusion in artistic expression by reinforcing existing cultural norms and biases. But if you arm people from all walks of life with the tools to create then AI can democratise creativity. This two-sided effect highlights the importance of thoughtful development and deployment of AI systems to promote inclusion and cultural diversity.[12]

The future of AI in the creative industries will likely be driven by continued innovation and integration. Better natural language processing, improved picture and video production, and more advanced music composition tools will further expand the potential of AI in creative fields. We expect that the human-AI interaction will develop along with a higher focus on collaboration and co-creation. New approaches to education and skill development will be necessary to educate people on how to effectively use AI technologies and leverage their capabilities. In conclusion , the definition and development of artificial intelligence in the creative industries is an evolving and complex process that has changed the landscape of creativity and innovation . AI has transformed the creation, distribution and consumption of creative works from its early days as a rule-based system to its current incarnation as a generative and adaptive technology. The advent of AI into the creative fields has ushered in new opportunities for democratization and creativity, but has also posed tricky questions of authorship, ethics and economic impact. As AI continues to evolve, it is important to develop frameworks that bridge the advancement of technology with the preservation of human creativity, cultural diversity and ethical responsibility, to ensure the benefits of AI are realized in an inclusive, sustainable and socially valuable manner.

[12] World Economic Forum, AI Governance: A Holistic Approach (2021) 9.

2.2 Types and Characteristics of AI-Generated Works (Text, Art, Music, Code)

Artificial intelligence has increased the range of creative output, by its ability to generate a wide range of material across many fields. AI generated works can be broadly divided into literature, visual art, music and software code. Each of these categories represents different technical processes and artistic results, but all of them are based on algorithmic design and data-driven production. Understanding the characteristics that differentiate these categories is important for analyzing the legal, economic and creative implications of these categories in modern innovation ecosystems. One of the most popular products of generative AI systems is AI-generated text. Some examples include articles, blogs, academic writing, poetry, screenplays and advertising copy. Such material is usually produced with sophisticated natural language processing (NLP) models that have been trained on large corpora of linguistic data. These systems take into account syntax, semantics, and contextual relationships to produce coherent and contextually relevant content. AI generated text is characterized by its ability to imitate human language patterns in a way that is very fluent and versatile . It is often difficult to distinguish AI generated text from human written text . And yet AI writing, for all its sophistication, lacks real meaning, emotional depth and subjective understanding because it is based on probabilistic predictions rather than conscious cognition. Another defining characteristic is scalability, AI can produce vast amounts of content in a short period of time, thus making it extremely valuable in industries such as customer service, digital marketing and journalism. The results are also taken from pre-existing data sets, raising issues of plagiarism, disinformation and originality.

AI-generated visual art includes digital paintings, drawings, graphic designs, logos, and photorealistic photos. These outputs are often produced with technologies such as Generative Adversarial Networks (GANs) and diffusion models that learn visual patterns, textures and styles from large picture datasets. The most fascinating part of art generated by AI is that it is capable of imitating and combining styles, creating anything from abstract art to photorealistic images. AI systems can generate many variations of a single idea, enabling rapid experimentation and creative exploration. These technologies have also democratized creative production, enabling people without formal experience to create good pictures. But there can be copyrighted works in the training of AI-generated art, which creates serious authorship problems. It is unclear if outputs are original works or derivative works.[13]

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range of material across many fields. AI generated works can be broadly separated into literature, visual art, music and software code. While each of these categories embodies distinct technical processes and artistic outcomes, they all share characteristics rooted in algorithmic design and data-driven production. In order to analyze the legal, economic, and creative ramifications of these categories in contemporary innovation ecosystems, it is important to understand the characteristics that set them apart. AI-generated text is among the most widely used products of generative AI systems. Some examples: articles, blogs, scholarly writing, poetry, screenplays, advertising copy. Such material is typically generated with sophisticated natural language processing (NLP) models trained on huge linguistic data corpora. Such models take into account syntax, semantics, and contextuality to produce meaningful text. One of the distinctive features of machine-generated writing is that it can reproduce human language structures effortlessly and flexibly, which makes it challenging to differentiate between human-authored texts and those produced using AI technology. However, despite the advanced capabilities of machine learning algorithms, artificial intelligence text lacks any sense of meaning and subjectivity since it is generated on the basis of probability predictions rather than conscious reasoning. The second unique aspect of AI-generated writing is that it allows for rapid scaling, enabling large volumes of text production, which makes it very useful in fields such as customer support, digital marketing, and journalism. On the other hand, the output generated by AI models raises concerns related to plagiarism, copyright violation, and misinformation because it is derived from previous data sources.

AI-generated visual art includes digital paintings, drawings, graphic designs, logos and photorealistic photos. These outputs are often made with technologies like Generative Adversarial Networks (GANs) and diffusion models that learn visual patterns, textures and styles from large picture datasets. One of the most remarkable aspects of AI-generated art is its capability to mimic and blend artistic styles, resulting in pieces that span from abstract designs to photorealistic pictures. AI systems can produce many iterations of a single idea, allowing for rapid experimentation and creative exploration. These technologies have also democratized creative

[13] Stanford University, AI Index Report 2023 (Stanford Institute for Human-Centered AI 2023) 33.

production, allowing people without formal experience to create good pictures. However, AI-generated art can involve copyrighted works used in training, leading to serious authorship difficulties.[14]

In conclusion, the kind and nature of works produced by AI demonstrate both the revolutionary capabilities and complicated issues associated with using artificial intelligence in the field of the creative industry. The potential for AI generated writings, art, music and programming code is huge in terms of simulation of creativity, but the question remains whether these products of AI are protected and what issues arise from their creation, distribution, and possible use for illegal purposes. As the technology becomes more advanced, there is a need to develop proper legal regulations.

2.3 Distinction Between Human Authorship and AI-Generated Content

With today's debates regarding creativity, originality, and copyright in the age of digitalization, the distinction between human and machine-generated writing appears significant. For centuries, writing was considered a creative, intellectual, emotional, and intentional endeavor conducted by humans. It has been at the heart of many laws around the world, including the Copyright Act of India (1957), which considers writers to be human beings who produce unique content through skill, judgment, and imagination. With the invention of sophisticated AI technologies capable of creating literary texts, artworks, music, and computer codes without human assistance, these basic assumptions have been called into question.

Human writing is characterized by intentionality and deliberate creativity. Human artists intentionally engage in an ideation process that draws on their own experiences, cultural background, emotions and subjective interpretation, to create works that have meaning and purpose. The process requires not only technical skill, but also creativity, critical thinking, and the ability to communicate complex ideas. But AI-generated content is created through algorithmic

[14] James Grimmelmann, 'There's No Such Thing as AI Authorship' (2020) 39 Columbia Journal of Law & the Arts 403.

processes that depend more on data-driven learning than cognitive consciousness. AI systems are designed to analyze massive amounts of data, identify patterns and deliver results based on statistical probability. Because AI lacks consciousness or cognitive agency, these outputs, though they may appear creative and coherent, are without any real knowledge, purpose or awareness.[15]

Another important aspect of differentiation is the source of creativity. By definition, human creativity is original, representing the author's unique point of view and intellectual contribution. Even when artists are inspired by previously created works, human artists re-interpret and re-create ideas in a way that is determined by their personality. In contrast, AI generated content is derivative when it is created based on patterns learned from previously collected data. AI is only as good as the data it was trained on. It can create new combinations and variants, but at the end of the day it's the data that matters. This raises some pretty fundamental issues in the realm of copyright law since, typically, at least some degree of human creativity is required for a piece of writing to be classified as original work.

The issue of authorship attribution further underlines the contrast between human writing and AI generated one, as the latter may have multiple participants who made the creation happen: the creators of the algorithms, providers of training data and people providing prompts and instructions. Thus, while in case of human created work it would be quite clear who the author is and what his/her rights and responsibilities would be, in case of AI it might be very hard to establish who exactly is entitled to claim any ownership and rights in regard to the work. Current laws, such as Copyright Act of 1957, do not apply to the described situation and leave a lot of space for interpretation.

One more important distinction is the difference between liability and accountability. Human created work implies the person's responsibility and accountability. Culpability can be assigned because their acts are done with knowledge and purpose. But AI systems operate unintentionally, which creates difficult liability problems when AI-generated information is harmful or illegal. Platforms, users or developers could be liable but the lack of a clear author makes enforcement and accountability processes difficult.

[15] Ryan Abbott, 'I Think, Therefore I Invent: Creative Computers and the Future of Patent Law' (2016) 57 Boston College Law Review 1079.

What makes AI-generated material different from human-written works is the emotional and expressive quality of creativity. Much human work is culturally relevant, emotionally deep, and individually expressive in ways that are subjectively appealing to viewers. These elements are essential to the literary and artistic value, as they reflect the author's views and life experiences. AI art can imitate the emotional tone and style of human art, but it is not created from actual emotions or experiences. Instead they are imitating emotional expressiveness based on learned patterns. The outcome may be technically impressive but without any genuine emotional resonance.

The difference between human-made and AI-made material has major implications from an industrial and commercial point of view. In the past, human authorship has meant hard work, skill and sharing the proceeds through intellectual property rights. Conversely, AI-generated content represents an automated creative process, where the generation of content can be done in large volumes with little to no involvement of human effort. Such a development may have implications for the traditional creative industry sector in terms of employment and compensation. While technology can boost productivity and opens up new realms for creativity, AI might lead to the commodification of creative outputs and greater competition for human creators. The difference is particularly marked in terms of legal protection and recognition. The Copyright Act of 1957 generally requires that a work have a human author in order to be protected by copyright law. If the work is not sufficiently humanized, AI-generated works would be unprotectable, and stakeholders seeking to profit from such works would thus be left in the dark. Some countries have attempted to solve this problem by treating the person who commissions the creation of the work as its author, but these methods are limited and inconsistent. This highlights the need for reform of the law to reflect the special qualities of material generated by AI.[16]

What also makes up part of the difference is control of the creative process. In human authorship, every layer of the creative process is a choice, and thus the creator has complete influence over the output. Control over AI-generated content is often indirect and mediated through training data, settings, and prompts. Even if users can steer the outcome, there is a certain amount of unpredictability built into the generative process of the AI system. That raises the question of how much authorship users can claim when all they are doing is providing suggestions instead of doing

[16] Feist Publications Inc v Rural Telephone Service Co 499 US 340 (1991).

the piece themselves. Ultimately, the difference between work produced by artificial intelligence and work produced by humans raises much larger ethical and philosophical issues surrounding the concept of creativity and the place of technology within society. As artificial intelligence becomes increasingly advanced, the line between work done by humans and work done by machines becomes blurred, forcing the questioning of traditional definitions and conventions. With this new reality in mind, it is important that law, economics, and ethics keep pace so as to maintain their relevance in this complex age of artificial intelligence.

2.4 Role of Generative AI Models in Creative Production and Innovation Ecosystems

Generative AI models have turned out to be a disruptive force within today's innovation and creativity environments, as they have completely redefined how content is created, distributed, marketed, and sold. They have the capacity to create novel content within a number of different fields including text, imagery, audio, videos, and even programming. They use advanced machine learning methods such as deep neural networks, transformers and diffusion architectures. While traditional automation technologies support only repetitive or rule-based operations, generative AI is a creative engine that can make unique outputs based on patterns found in mammoth data sets. The major shift in the role of technology in creative industries is from being an aide to being an autonomous or semi-autonomous producer. Now, AI is seen as an active agent in the creative process, not just a tool. Generative AI models boost productivity, scalability and experimentation in creative output. What used to be time-consuming, resource-intensive and require specific skills can now be produced quickly with little human input. For example, designers can generate lots of graphic designs in seconds, authors can generate a draft or ideas in a flash, and musicians can generate background scores or melodies that suit certain themes or moods. This feature accelerates the creative process, providing artists more time for conceptual thinking, curation and refinement and less for manual execution. Moreover, the generative AI technology helps in developing a culture of iteration and experimentation through which users can go beyond the limits of creativity and experiment with various possibilities. The core benefit that generative AI technologies provide is democratizing creativity. Through the use of these tools and technologies, the costs associated with entering the creative industry become low. In other words, the technology makes it possible for individuals who do not have any form of professional skill in creativity to still produce creative outputs. This democratization aspect of the technology is important because it encourages

diversity, fosters user-generated content, and questions the existing gatekeeper system.[17]

At the same time, generative AI models are integral to innovation ecosystems that rely on data, technology, and creativity to secure a competitive advantage and foster economic growth. As part of innovation ecosystems, companies utilize AI to enhance decision-making processes, increase output, and invent new products or services. Specifically, generative AI allows experimentation and prototyping at high speeds and ease, giving companies the ability to test out their ideas and adapt to changing conditions quickly. This feature proves particularly valuable in rapidly evolving sectors such as software development, digital media, advertising, and video games, where the primary key to success is innovating faster than competitors. At the same time, generative AI poses several questions about the competitive dynamics in innovation ecosystems. Generative AI technologies and their utilization presuppose massive data sets, large computational power, and knowledge of specific methods and techniques. In other words, generative AI requires certain resources, which are controlled by a select few big technological companies. Such concentration raises concerns about the entry of small players and startups into innovation ecosystems. It may mean fewer competitors and market consolidation. The firms having ownership over the AI systems and infrastructures can exploit such capabilities to create competition advantages and affect market dynamics and drive innovation. Hence, it becomes clear that generative AI technologies can both encourage innovation and increase existing inequalities in the digital marketplace. In the case of an innovation ecosystem, the application of generative AI concerns the impact of the technology on the business model and value creation. Increasingly, the use of automation and scalability capabilities of AI-powered technologies is replacing or complementing conventional processes of creative creation relying on humans' work. Businesses now can offer users tailored content and achieve greater consumer engagement and revenue from this. Such phenomena as AI-powered suggestions, tailored advertising, and user interaction with media content demonstrate a new data-focused corporate approach. This shift reveals the crucial role of generative AI as the primary source of economic value creation in the digital age.

[17] Super Cassettes Industries Ltd v MySpace Inc (2016) 227 DLT 478 (Delhi HC).

Despite being a technology with numerous strengths, the increasing deployment of generative AI is subject to various ethical and legal concerns. For instance, concerns related to discrimination through biased data sets, algorithmic black boxes, and the possibility of misusing AI-generated products are examples of ethical issues. In addition, the use of copyrighted material for training algorithms has sparked discussions about copyright infringement and the validity of the AI-generated product. These concerns call for the development of adaptive governance systems capable of handling the complexities surrounding AI-assisted creativity while ensuring that innovations are aligned with existing laws and societal expectations. Moreover, generative AI is transforming the relationship between humans and machines during the creative process. The role played by artificial intelligence is mostly that of an enabler or collaborator rather than a replacement for human creators. This collaborative creativity paradigm allows the combination of the computational capabilities of artificial intelligence with the emotional aspects of human creators. It is the humans that control and refine the outputs produced by the AI systems to ensure that their expectations are met. This makes the process of creativity more interactive. In summary, generative AI tools are fundamental in transforming creative production and innovation ecosystems, promoting scalable, efficient, and democratic generation of content, and at the same time impacting on market dynamics and competitive landscapes. These tools play a fundamental role in today's digital economies by democratizing creativity, increasing efficiency and encouraging innovations. However, the tools carry with them certain challenges including resource concentration, ethical and regulatory problems that have to be critically assessed. As generative AI continues to evolve, it is clear that there must be a need to adapt legal, economic and institutional frameworks in order to harness its potential effectively.[18]

[18] Competition Commission of India, Market Study on E-commerce in India (2020) 21.

CHAPTER 3

INTELLECTUAL PROPERTY AND DATA GOVERNANCE FRAMEWORK IN INDIA

The rapid pace of development of artificial intelligence (AI) especially generative technologies is posing serious challenges to the existing legal framework of intellectual property and data governance in India. Authorship, ownership, liability, and data use questions are increasingly driving legal debate as AI systems are producing work in more artistic and technical fields. The autonomous and data-driven nature of AI systems challenges traditional legal frameworks that were designed to regulate human activities. This chapter examines the extent to which the existing legal framework in India addresses these emerging challenges with a focus on data governance and intellectual property rights.

The examination will be based on Copyright Act, 1957 which governs the protection of creative works in India. As a basis for human authorship and originality, the Act raises certain fundamental issues regarding its relevance to AI creations which do not necessarily entail direct human intervention. The issue here is whether the application of AI technology to create works necessitates the adoption of an entirely new body of law, or if existing laws can suffice through appropriate interpretation. The discussion on such issues as authorship of a creation, ownership thereof, and the enforcement of rights highlights the flaws in the present system.[19]

Regulation of digital platform and intermediaries, apart from the issue of intellectual property, also plays an important role in the governance of AI-generated information. The Information Technology Act, 2000 regulates the laws concerning data management and regulation of online information and intermediary liabilities. With the growing autonomy of AI technology, it is pertinent to determine the degree of liability of intermediaries in respect to information that has been generated through AI. This chapter will focus on the problems that arise due to the application of the law on the regulation of artificial intelligence environment.

[19] Copyright Act 1957, s 2(d).

The operation of the AI systems also relies heavily on massive amounts of data, including highly sensitive and confidential data. The most important step taken toward regulating the process of handling data and ensuring the privacy of individuals is the passing of the Digital Personal Data Protection Act, 2023. In this chapter, the impacts of data protection laws on AI research are discussed, and emphasis is placed on topics such as permission, purpose limitation, data minimisation, and ethical use of personal data for the training of AI systems. Additionally, this chapter also focuses on the implications of data governance on innovation and competition, considering the increasingly important role that data plays as a strategic resource. This chapter provides a holistic approach to the legal framework of the works generated by AI systems in India, taking into consideration the perspective provided by intellectual property, information technology and data protection laws. The objective is to provide an insight into the challenges involved and the inadequacy of current laws in dealing with the complexities of AI. The chapter ends by setting the chapter in the context of a more detailed discussion of competition issues in subsequent parts, and highlighting the significance of a cohesive and adaptable legal system that is able to balance innovation, accountability and the public interest.[20]

3.1 *Legal Framework Governing Intellectual Property in India*

In India, intellectual property (IP) is governed by a robust legal framework that protects the rights of inventors and creators and simultaneously fosters economic progress, technological innovation, and creativity. India's intellectual property regime is based on a mixture of national and international laws and covers copyrights, patents, trademarks, designs and other forms of protection. The Copyright Act of 1957 is one of the most important tools for protecting literary, artistic, musical and other creative works. The Act gives authors exclusive rights to reproduce, distribute, transmit and modify their works, ensuring financial incentives for creative activity. This is based on the originality principle which requires that a work possess a minimal level of expertise, discernment and originality that could be attributed to a human creator. This anthropocentric mode of reasoning has been effective in conventional settings; however, it poses challenges in the context

[20] Copyright Act 1957, s 17.

of the era of artificial intelligence where content can be produced with little or no human intervention at all. Besides the copyright law, there are other forms of intellectual property laws in India such as the Trade Marks Act of 1999 which gives legal protection to trademarks and goodwill, and the Patents Act of 1970 that covers inventions and technology. Although these laws may not be specifically concerned with artistic expression, they serve to enrich the overall intellectual property framework in India through encouraging innovation while protecting commercial interests. Nonetheless, the implementation of the laws on machine-produced content is largely unclear and sometimes vague, particularly with regard to issues of ownership, inventorship, and the degree of protection available for machine-generated works. This suggests a more fundamental issue with the Indian intellectual property regime, which was not constructed to cope with the complexity introduced by novel technologies such as artificial intelligence.[21]

Moreover, the IT Act of 2000, which regulates the functioning of digital platforms, intermediaries and content, has implications for intellectual property law in India. Despite not being an IPR act, the IT Act is a necessity in solving problems such as digital distribution, online piracy and intermediary liability. Regarding AI-generated content, one aspect of the Act worth mentioning is that of safe harbour for intermediaries in cases where they are involved in distributing or storing illicit content. However, with the rise in autonomy of AI, enforcing and holding people accountable for actions carried out in the digital realm is becoming increasingly complicated. Consequently, implementing such rules and regulations is difficult. The role of data in both technical and creative activities has made data governance a part of IPR discussions. The Digital Personal Data Protection Act of 2023 outlines the legalities of personal data processing, placing emphasis on concepts such as consent, purpose limitation and data minimisation. While the Act is largely focused on privacy, it has significant implications for AI research, since training datasets often contain private and confidential data. This increases the stakes for the relationship between IP law and data protection, especially when it comes to determining whether data and existing works can be used for training AI models.

India's responsibilities under international agreements like the TRIPS Agreement (Trade-Related Aspects of Intellectual Property Rights) which establishes minimum standards for the protection and enforcement of IP, are also relevant to its IP regime. These obligations, while offering some

[21] Information Technology Act 2000, s 2(1)(w).

flexibility to meet local demands, ensure India's laws are in line with international standards. However, the development of the national and international legal frameworks has not matched the rapid pace of technology development, especially in AI, creating regulatory ambiguities and gaps. In its present form, the Indian legal system is unable to deal with the issues of authorship, ownership, originality and enforcement, in the context of AI generated works. Traditional IP rules are hard to apply to modern technological realities because there are no clear rules about AI as a creator or contributor. This is not only a question of legal clarity, but also of innovation and competitiveness, as unclear rights may deter investment or lead to conflicts between stakeholders. There is therefore an increasing acknowledgment of the importance of revisiting and potentially updating India's intellectual property regulations to keep pace and be of value in the era of artificial intelligence.[22]

3.2 *Liability and Intermediary Responsibility*

The question of accountability and intermediary responsibility with regards to the creation of AI-generated content has presented a legal challenge that has arisen especially with regards to regulation within India's technological sphere. Legislation that is specifically concerned with intermediaries who offer their platform, services or networks to disseminate content is covered by the provisions laid out in the Information Technology Act of 2000. Essentially, under these circumstances, intermediaries are generally protected under safe harbor provision as long as they remain neutral and act with due diligence towards facilitating the dissemination of third party material. The use of AI technology has further complicated this issue since the intermediaries may now actively engage in creating such technologies.

The other critical concern is how intermediaries will be able to invoke safe harbor protection in cases where they control AI tools that produce illegal, harmful, and infringing content. AI makes the situation complex in terms of determining the liability of intermediaries and content providers since there is a degree of algorithmic involvement that complicates matters. It is not easy to tell who is responsible when AI produces materials that invade an individual's privacy, spreads

[22] Information Technology Act 2000, s 79(1).

falsehood, or commits copyright infringement. All may potentially be liable for such acts; the company providing the platform on which AI runs, the developers of the algorithm, and the persons who provided the AI tool with input. It becomes challenging to ascertain legal duty and accountability in situations like this because of the many involved parties. According to the provisions of the Information Technology Act of 2000 and the regulations that accompany it, intermediaries owe a duty of care, and platforms must take down any illegal information that comes to their knowledge. Further, as the production of AI is automatic, there is a possibility of creating harmful or infringing material without direct human intervention. In that regard, it creates a challenge of proving intent or lack thereof. Therefore, there is a need to consider whether intermediaries who use AI for content creation should be liable.[23]

Transparency and accountability are critical factors in terms of intermediate duty. Considering that AI systems are becoming increasingly important in information creation and dissemination, it is essential that information on the functioning of these systems be available. It is possible that there will be certain requirements regarding what information intermediaries should provide concerning their algorithms, training data, and even content moderation practices. Of course, such regulations are always challenged by the need for maintaining private technologies, trade secrets, and the incentive to innovate. However, it becomes even more complicated due to the absence of a detailed set of rules that would define what intermediary needs to do to fulfill its obligation to ensure data privacy. It brings up questions relating to data protection and privacy, as well as copyright and content. In many cases, AI systems are trained on huge amounts of data, which may include sensitive and private information. It makes intermediaries' obligation to comply with relevant data protection standards and prevent breach of individuals' privacy questionable. Although the Digital Personal Data Protection Act of 2023 defines data processing standards, the issue of the relationship between data processing and intermediate duties in AI context remains to be clarified further.

In a broader sense, the emergence of the changing role of middlemen within artificial intelligence ecosystems shows a shift towards active engagement in the production and dissemination of content through the use of artificial intelligence technology. Thus, there is a need to review the existing liability systems to address the issues arising due to the uniqueness of artificial intelligence

[23] Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules 2021, r 3.

technology. Moreover, the unique nature of AI-generated content might mean that it will become increasingly difficult to address the problems of content generated using this new technology under existing safe harbor provisions. Finally, liability and intermediary duty remain one of the most important areas of legal regulation in the age of AI generated works. Though, it is possible to say that there is already a basis for addressing the problems of intermediaries' responsibility within the information technology act 2000, this act poses many challenges and uncertainties in this regard.[24]

3.3 *Data Governance and Privacy Concerns in AI*

Data is the key resource for learning and generating outputs from AI models. The management of data and data privacy are the two major concerns in the development and implementation of AI solutions. Data is more than just the input used by the AI-driven systems. Data serves as the most vital element controlling the precision and performance of the AI solution. The performance of generative AI models is reliant on the volume, variety, and quality of the datasets used in training. These training datasets include both structured and unstructured data like text files, images, audio files, and other user-generated data. The datasets are likely to hold sensitive and confidential information that should be handled appropriately.

The uses of data in the building and training of AI is numerous. AI relies on extensive sets of data in order to analyze patterns and associations to generate outputs that replicate or enhance human creative and judgment capabilities. In training, algorithms are provided with extensive amounts of data to help enhance their predictive abilities. This approach brings certain issues regarding the use of data such as ownership, biases and quality of the dataset. When training datasets exhibit bias or lack balance, there is potential for the output generated by the algorithm to reinforce any discrimination already inherent within the system. Moreover, the use of copyrighted or proprietary data raises issues related to intellectual property, while personal data raises those of consent and privacy. These challenges highlight the need for strong data governance frameworks to govern the sourcing, processing and use of data in AI systems. India has the Digital Personal Data Protection Act, 2023 that provides a legal framework to regulate processing of personal data and protect the

[24] Digital Personal Data Protection Act 2023, s 6.

privacy of individuals. The Act's fundamental principles include data minimization, purpose limitation, informed consent and lawful processing. It demands that data principals grant their explicit consent for the processing of personal data and this consent is only to be obtained for clear, defined and legal purposes. This prompts questions around how permission is being sought in the case of AI and whether people are aware enough of how their data is being used to train AI models. As AI systems tend to be based on large datasets collected from a wide range of sources, the challenge of obtaining meaningful and informed consent is daunting.[25]

The Act also provides individuals with certain rights including the right to view their data, the right to have errors corrected and the right to have their data erased in certain circumstances. These rights are more applicable in AI systems where data may be continuously processed and reused. For example, it may be technically difficult to erase a person's data from a trained AI model without retraining the system if they exercise their right to erasure. This presents an apparent conflict between regulatory and technical considerations which brings into focus the need for innovation to balance these two elements. In addition, the Data Protection Act requires data fiduciaries to ensure that their data handling practices are transparent, breach-resistant and ensure security of such data, all of which become especially important in relation to the AI-enabled processes. As discussed above, the application of data in AI involves not only a legal aspect but also a wider set of ethical considerations, including issues related to justice, responsibility, and transparency. One of the principal ethical problems is the risk of discrimination as a result of the biasness inherent in training datasets which leads to biased AI-generated results. For instance, if the training datasets contain some form of bias, the algorithms created using them will tend to produce similar bias when making predictions or generating content. The other ethical concern related to the implementation of AI systems involves a "black box problem" referring to the difficulty of understanding how these systems reach conclusions.

Data collection techniques can bring ethical concerns if the data is collected from the internet without sufficient measures to guard against abuse. 4. They could infringe on people's privacy since the use of freely available data for commercial purposes using artificial intelligence can be queried based on its validity. There could be concerns about data monopoly in which some leading technology companies hold data in concentrations which affect competition and provide limited

[25] Digital Personal Data Protection Act 2023, s 7.

opportunities for other players. Concerns about the concentration are evident not only because of how it affects a fair sharing of benefits that result from AI technology but also from an angle of how it affects market dynamics. In conclusion, privacy and data governance depend largely on ethical development of artificial intelligence. Collecting and processing data for the development of artificial intelligence require laws as well as moral norms since such data could easily infringe on human rights. The digital personal data protection act, 2023 presents a valuable framework in terms of regulation of data processing in India. However, it requires constant scrutiny to make amendments in light of unique challenges presented in artificial intelligence context.[26]

3.4 *Regulatory Gaps and Challenges*

India's current legal system was not crafted to tackle the complexities associated with autonomous and data-based technology. Indeed, the rapid pace at which artificial intelligence has been advancing, especially generative AI, has revealed major regulatory deficiencies. One such deficiency lies in the failure of explicitly recognizing AI-created works as protected by copyright under India's 1957 Copyright Act. The said Act is built on the notion of the creative efforts of the individual, which makes it uncertain whether AI creations should be granted copyright protection. This uncertainty over whether AI-generated material is in the public domain or protected by copyright creates legal confusion for authors, developers and companies seeking to profit from it.[27] Intermediary liability and digital governance under the Information Technology Act of 2000 is another major hurdle. The Act offers safe harbor protections for intermediaries but does not deal with situations where AI systems embedded in platforms generate or filter content on their own. In addition, the blurry line between passive intermediaries and active content providers makes the imposition of liability requirements difficult. It is difficult to assign liability for damaging, infringing, or deceptive AI-generated outputs. In addition, the scale and speed of AI systems' operation pose practical obstacles for monitoring and compliance since existing methods of

[26] Digital Personal Data Protection Act 2023, s 8.

[27] Justice K S Puttaswamy (Retd) v Union of India (2017) 10 SCC 1.

regulating content control might not suffice when content generation occurs in a scalable and timely manner. Data governance, an essential part of the AI lifecycle, creates additional legal concerns. On one hand, the Digital Personal Data Protection Act, 2023 sets out the basis for protecting personal information, but there remain a number of unanswered questions about its application to AI systems. For instance, the principles of informed consent and purpose limitation cannot be easily applied to AI training involving data aggregation on a massive scale. Data reuse for different purposes, including machine learning, cannot necessarily correspond to the purpose originally stipulated by the informed consent. Furthermore, there is a conflict between legal obligations and practicalities in that it would be technically challenging to ensure data deletion or rectification from the trained model. These problems highlight the requirement for more nuanced laws to regulate the process of data throughout the lifecycle of AI systems. Centralization of data, processing capabilities, and the latest AI technologies by a few big firms is a cause for concern from the perspective of competition law. While the Competition Act, 2002 has provisions to tackle abuse of dominant position and anti-competition practices, it may not be equipped enough to handle the complexities of digital and AI-fueled markets. It becomes difficult for traditional competition law mechanisms to address matters such as algorithmic collusion, self-preferencing, and market foreclosure by controlling data and infrastructure. Moreover, the rapid pace and volatility of AI marketplaces complicate efforts to assess market power and competitive harm.

However, a bigger problem is that of harmonization and coordination of the various regulatory frameworks. There are instances where IT law, antitrust, data protection and privacy regulations, and IP law may function in silos, leading to a fragmented approach to AI governance, where regulations are conflicting and at times incomplete. Privacy laws, for instance, will reduce the access to data needed for AI research and IP regulations, in turn, will work against the objective of ensuring data availability for innovations. As such, there is need for a comprehensive legal regime which is not only comprehensive but capable of handling the intricacies of AI technology. Another significant problem is the issue of enforcement as most regulatory authorities may lack the capabilities, expertise, and resources to effectively control AI. Since AI is very advanced, it poses challenges to the monitoring and control of the system by the regulatory authority. In addition, the legal system seems to be behind on developments in technology and hence reactive to changes. This gap between technology and regulation may lead to vulnerabilities that can be exploited to harm consumers, artists and the market in general.[28]

The above-listed regulatory gaps are further aggravated by issues of ethics, since the current legal framework does not sufficiently cover questions such as discrimination, transparency, and accountability. Most of the available models are referred to as black boxes, and thus, there can be no transparency about the process of decision-making, and consequently, no possibility of establishing accountability. As for ethical guidelines, they are lacking altogether, and thus, the use of AI technologies poses risks related to further deepening of social stratification or being at odds with the moral standards of society. In summation, the current state of the regulations regarding the protection of interests related to AI-generated works is an indication of a more general mismatch between the legal framework currently in place in India and the technical progress taking place. The current regulatory tools, including the Information Technology Act of 2000, Competition Act of 2002, Copyright Act of 1957, and Digital Personal Data Protection Act of 2023, are insufficient to cope with the challenges posed by the development of AI technology, and therefore, legislative reform becomes imperative.

[28] Shreya Singhal v Union of India (2015) 5 SCC 1.

CHAPTER 4

COMPETITION LAW AND ANTI-COMPETITIVE RISKS IN AI MARKETS

With respect to the rapid adoption of artificial intelligence (AI) within digital markets, its incorporation within these systems has led to radical changes within the competitive arena, thus generating new forms of market power, innovative business models, and strategies. AI systems have been considered important for the purposes of innovation and economic development, although their application has been deemed to pose a risk of being anti-competitive in nature. Within this context, this chapter highlights the examination of the link between AI and competition laws with regard to the threats posed by any form of anti-competitive practices emerging due to the management and use of AI systems when creating innovation markets. In this regard, the discussion revolves around the relevance and application of the Competition Act of 2002.

These fears arise out of the increasing consolidation of essential resources, such as large amounts of databases, advanced algorithms, and computer systems in the control of a few strong firms. Such firms employ AI technology to improve their production and creative capabilities and to ensure a firm market advantage, thereby establishing formidable entry barriers for potential new entrants. Large-scale data management provides the firm with a competitive advantage that can be hard to emulate. There are also chances of data monopolization and market consolidation. This chapter seeks to examine how such concentration could affect fair competition.[29]

Another important topic discussed in this chapter is the rise of algorithmic decision making and its consequences for competitiveness. AI systems are being employed more and more to improve market interactions, develop pricing strategies and customize services. While these features may enhance customer welfare through efficiency and personalization, they also raise the possibility of anti-competitive behavior such as algorithmic collusion, price discrimination, and self-preferencing. Unlike traditional collusion, algorithmic coordination can occur without explicit human consent, making it more difficult to identify and regulate under existing legal systems. This

[29] MySpace Inc v Super Cassettes Industries Ltd (2016) 227 DLT 478 (Delhi HC).

challenges the traditional tools and methods used by competition authorities to assess market behavior and enforce compliance.

This chapter also looks into the impact of digital platforms and ecosystems on competitiveness in artificial intelligence markets. Digital platforms that incorporate artificial intelligence can be regarded as multi-sided markets which connect users, developers, advertisers, and other participants. They might have an effect on the result in the market and also engage in behavior which favors their own offerings, due to their control over information flows, user engagement, and technological architecture. This creates doubts as to whether the existing competition laws are adequate to tackle this issue.

This chapter also highlights the difficulties faced by regulatory agencies in keeping pace with the rapid advancements made by AI technology. Given the dynamic and complex environment created by AI-based markets, novel approaches in analysis, technological competence, and regulation need to be adopted in order to accurately diagnose and respond to anti-competitive activity. Historical metrics used in assessing market power, such as market share and pricing, may no longer effectively reflect the realities of competition in AI ecosystems, which hinge more on the availability of data, network effects, and technological expertise. Consequently, this chapter seeks to determine the extent to which the current competition law regime in India is adequate in addressing issues that are arising with regard to artificial intelligence. This chapter will also look at the requirements for innovation in policy formulation and regulation in order to ensure continued competitiveness, fairness, and innovation-friendly conditions within AI-powered markets.[30]

4.1 *Market Power and Dominance in AI-Driven Markets*

Market power and dominance in the AI marketplace represent a shift away from traditional concepts of competition, whereby the power of controlling data, algorithms, and computation becomes the key source of competitive advantage rather than factors such as price and ownership of resources. In India, dominance has been legally defined as the position of strength of the

[30] Anvar P V v P K Basheer (2014) 10 SCC 473.

enterprise that allows it to behave independently of competitive pressures, or to influence its competitors and/or consumers in its favor, according to the provisions of the Competition Act, 2002. Yet applying the notion of dominance to AI-powered markets poses special difficulties, as the power of a market player in such markets may be manifested both in terms of market share and through use of a data ecosystem and skills. AI provides firms with a powerful tool to gather large volumes of data and analyze them. This allows them to come up with better products, more customized solutions, and makes more informed decisions about them.

Data control, which can be considered one of the essential inputs for training and developing AI technology, is a major factor behind market power in markets driven by AI. The availability of extensive, quality, and diverse data can increase the possibility that AI technologies will be more efficient. Such a dynamic results in a positive reinforcement mechanism, whereby superior services are likely to attract more clients, resulting in further data creation and development in AI technology. This concept is known as a "data advantage." It may serve as a significant hurdle for companies entering such a market, since smaller companies lack the necessary resources and data to be competitive.[31]

Moreover, network effects (particularly in relation to digital platforms based on AI technology) contribute to the creation of dominant positions in AI industries. Network effects mean that the more participants the network includes, the more value is provided to the users. In the context of AI technology-based ecosystem, network effects are amplified by the feedback loop based on the accumulation of more information, generated through interactions with users. As a result, AI becomes more accurate and attracts more participants. Consequently, it leads to concentration of the market, since new firms cannot compete with the leaders who can enjoy advantages of feedback effects. Digital platforms, which provide services powered by AI, such as social media, online shopping, and search engines, have significant network effects, providing an additional barrier to entry into the market.

Algorithmic and computational capabilities of the firm are used to ensure market dominance in AI-powered market. Sophisticated AI models require great investments in terms of scientific development, labor force, and computational resources. Big techs have enough money to cover

[31] Google LLC v Oracle America Inc 141 S Ct 1183 (2021).

costs and to have advantages in terms of technology over competitors. Besides, entry barriers can be created by trade secrets, such as proprietary algorithms, and prevent other companies from imitation. Apart from ensuring market dominance, this consolidation of technological assets also raises issues of accountability and transparency, as the big players may have a hand in determining the flow of information and the decision-making process in digital ecosystems.

Artificial intelligence marketplaces can also be considered as multi-sided platforms, where firms act as intermediaries between various users, such as developers, marketers, and consumers. Market dominance in artificial intelligence marketplaces is gained through controlling user interactions, data flows, and platform access. In the case of market dominance, firms can restrict third parties or implement self-preferencing behavior, whereby the firm promotes its products or services while discriminating against rival companies. This method can be used to stifle competition by reducing product availability and visibility. Another aspect of market dominance in artificial intelligence marketplaces is related to the potential to implement prediction and personalization strategies. Through AI, organizations can make exacting analysis of customer behaviors and preferences, enabling organizations to customize products, services, and pricing schemes on a personalized basis for individual customers. This not only ensures that consumer welfare is improved due to enhanced customer experience, but there are also fears associated with potential exploitation and discrimination. For example, an organization could utilize AI technologies to offer discounts to customers which rival companies will be unable to match.[32]

Despite these measures, competition agencies still struggle with identifying dominance in the AI industry. Traditional parameters such as market share and price might not be enough to measure dominance in the AI industry since there is no cost of service. Other parameters that can help identify the existence of dominance include technological capability, data control, and network effect among others. The Competition Act of 2002 has been enacted to provide the legal framework in identifying the existence of dominance in the marketplace, yet the application of this act needs modification in order to suit the new variables. In summary, market dominance and supremacy in the AI driven market place involve variables such as data control, network effects, technological

[32] European Parliament, General Data Protection Regulation (Regulation (EU) 2016/679).

capabilities among other. These variables are worrisome with regard to barriers of entry, reduced competition, and abuse of dominance making market power available to only a few businesses.

4.2 *Data Monopolies and Barriers to Entry*

In an AI-driven marketplace, data has turned into a valuable resource, and its consolidation in the possession of a few big firms has created what may be termed "data monopolies." Once firms control vast quantities of user data, behavioral insights, and data sets, all essential for training and optimizing artificial intelligence programs, they develop monopolistic power. This concentration of data may lead to a greater degree of market power in the context of Competition Act, 2002, which in turn could facilitate less competitive behaviour by firms to a certain extent. Digital ecosystems strengthen data monopolies . Whereas classical monopolies are based on control over physical resources , data monopolies enjoy a self-reinforcing competitive advantage through ongoing data collection and analysis .

Data monopolies have data-driven network effects . The more users to the service the more valuable the service becomes, and the more data the service can get to improve the AI systems behind the services. Better services bring in more users, more users bring in more data, and more data improves the quality and effectiveness of AI models (feedback loop). This cycle allows strong firms to build their strength over time, thus making it more difficult for new entrants to compete. Large companies and startups typically have access to similar data sets, making it difficult for smaller businesses to develop competitive AI solutions. Thus, data becomes a barrier to market participation, as well as a source of innovation.

Another major barrier to entry is the costliness of data processing and collection. Gathering, storing and analysing large quantities of data requires substantial financial resources, the latest technology infrastructure and specialist knowledge. However, these prerequisites are difficult for newcomers, but existing firms have the capacity to invest in data infrastructure, cloud computing, and skilled personnel. Besides, the ownership of data and the regulations that restrict access to data, such as data protection laws, are another restriction for accessing high-quality and diversified data sources. Hence, small companies lack the opportunity to develop effective algorithms and models using AI, making big firms more advantaged than ever. Finally, another prerequisite of building the barriers of entry is related to the topic of data control. Firms use different strategies like exclusive deals, controlling the proprietary data ecosystem, and closed platforms in order to restrict access to data.

This can negatively affect competition, preventing rival firms from receiving the data required to develop AI. At the same time, in some instances, businesses control their data in an anti-competitive way, using restrictive measures regarding the distribution of resources on the platform or self-preferencing. In such a case, business can achieve market foreclosure, meaning the rivals do not have an opportunity to operate on this market.[33]

Moreover, the problem of data portability and interoperability presents further obstacles for entrance into the market by companies utilizing artificial intelligence. People can be locked into a certain ecosystem, which makes them less prone to switching to competing companies that cannot provide a way to easily move their data to other platforms. Hence, the phenomenon of lock-in effect does not allow attracting customers who have no access to existing data, thus precluding new players from entering the market while strengthening existing enterprises. Despite the importance of data portability in legislation, its practical realization is nowhere near and there are still problems with its effective usage.

"In terms of competition law, dealing with data monopolies involves a sophisticated understanding of how data contributes to market power. The classic measures for measuring dominance failed to adequately account for the advantages that came with data. Instead, it is crucial to pay attention to several aspects such as data availability, data set management, and capabilities of using data in different marketplaces." Although the Competition Act of 2002 allows for countermeasures against abuses of dominance, their adaptation to data-oriented sectors would require a different approach. Data monopolies create legal concerns but go beyond that and raise wider concerns over market conditions and innovation. Big data can stimulate innovation and contribute to technological developments as well as increase the level of quality of AI. However, an excessive amount of data would stop innovation because it might become impossible for competitors to enter the market and start creating something innovative. Innovation requires competitive and open data market with

[33] Competition Act 2002, s 3.

lots of companies able to test ideas and find new solutions. However, achieving such a balance requires governmental interference to allow data to be accessible yet protected.[34]

4.3 *Algorithmic Collusion and Price Fixing*

One of the most complicated and recent challenges that have emerged due to the interface between AI and competition laws relates to algorithmic collusion and price fixing. This challenge is prevalent among AI-based market places where decision-making processes and pricing become more automated. Generally, collusion refers to a conscious or subconscious arrangement among competing entities with the aim of fixing prices, dividing markets, and limiting production to the detriment of the competitive process. Collusion is anticompetitive behavior and is therefore explicitly forbidden by the Competition Act of 2002. The adoption of AI for price determination techniques has widened the boundaries of classical laws through the emergence of another form of collusion that occurs without any physical contact and intention by individuals. Algorithmic collusion occurs through the use of intelligent systems that can learn to coordinate themselves in order to determine prices. These algorithms make constant adjustments to pricing in response to prevailing market conditions in order to maximize profits. This could cause them to unintentionally adopt similar pricing strategies and produce collusion-like outcomes. Algorithmic collusion can be implicit coordination that algorithms "learn" to avoid price competition because this behavior increases long-term profit, as opposed to classical cartels, for which there is explicit evidence of agreement. This form of collusion is very hard to detect, because there is no clear communication or written contracts between organizations.

One of the defining features of algorithmic collusion is the speed and scale at which it takes place. AI systems can process large volumes of data and make real-time pricing decisions, allowing businesses to respond quickly to changes in market conditions. This rapid response may result in a very coordinated pricing strategy of rivals, thus stabilizing prices at supra-competitive levels. Moreover, computers are more effective than human actors in monitoring and punishing deviations from coordinated pricing methods, which over time sustain collusive outcomes. This self-

[34] Competition Commission of India, Market Study on E-commerce in India (2020) 32.

reinforcing process results in less rivalry, but without overt cooperation. Another big problem is reinforcement learning and predictive analytics applied to pricing algorithms. Using these technologies, AI systems can predict how their opponents will react and adjust their strategy accordingly . For example, an algorithm might find that aggressive price cuts lead to retaliation from rivals, which reduces overall revenue. This can lead to a more consistent pricing approach aligned to competitors, leading to collusive behavior. Such conduct poses a challenge to the traditional 'agreement' test under competition law as coordination is achieved through the interaction of algorithms rather than through any express human intent.

The responsibility and culpability issues make regulation of algorithmic collusion more difficult. In the normal course of events, companies and persons involved in anti-competitive agreements can be held liable. However, when autonomous AI systems can facilitate cooperation, it becomes challenging to assign liability. The responsibility issue is contested, with the debate being whether it is the firm that uses the algorithm, the designers themselves, or the algorithm that should be blamed. The absence of clear legal regulations on the subject matter is another reason why the effective implementation of competition law becomes problematic. Algorithmic collusion is notoriously hard to detect in its enforcement phase. Usually, the existence of an agreement, coordination, or communication between firms is required to demonstrate collusion. It might be unfeasible in cases of AI-enabled pricing because the coordination occurs via sophisticated mathematical algorithms which might be obscure even to their designers. In addition, the complexity and non-transparency of the "black box" make it harder to analyze decision-making processes or discover signs of collusion. "New tools and procedures for investigation, including data analysis, algorithmic audits, and technical expertise, must be developed in order to effectively monitor and regulate AI-driven markets.

Nevertheless, it is worth noting that not all algorithmic pricing is illegal. Pricing through the use of AI algorithms may foster efficiency, better adaptation to market dynamics and provide an advantage for consumers because of competitive prices. It is difficult to make a distinction between anti-competitive coordination and legitimate competition. As a result, it requires a more advanced framework to examine both the objective, functionality and the effects of the system in question. In summation, algorithmic collusion and price fixing pose significant challenges in terms of regulation. The fact that the algorithms learn on their own and then implement a pricing policy leads to a grey area between legal and illegal conduct. Such developments render traditional

antitrust regulations obsolete, since it is challenging to apply the rules set forth in the Competition Act of 2002. In order to overcome these hurdles, it is imperative to introduce new liability theories into competition law, improve enforcement mechanisms and gain better insights about AI systems.[35]

4.4 *Challenges in Enforcement of Competition Law*

The enforcement of competition law in AI-powered and digital marketplaces involves several tough questions arising due to the unique characteristics of technology, algorithms and big data. The Competition Act of 2002 serves as an effective approach to tackle combinations, dominance, and anti-competitive practices, but the fluidity and opacity that exists in the AI marketplace environment complicate the process. Selecting which market to apply is among the hardest tasks. This is one of the most crucial steps for conducting competition research. The services in digital marketplaces tend to be free, whereby competition revolves around things like data availability, innovation, quality and user interaction instead of pricing considerations. This means that traditional methods of measuring dominance through prices and market share analysis are difficult to employ.

Moreover, another significant obstacle to the regulation of AI is related to the assessment of market power. In contrast to conventional sectors where market power can be easily measured through concrete criteria such as manufacturing capacity or revenue, AI-driven sectors are driven by intangible assets. Thus, companies that possess an extensive dataset and advanced AI technology can be dominant players in the industry without holding a large market share. Accordingly, there would be a shift to new criteria such as the scale of customer base, capabilities in terms of data management and technology. Sometimes, it might be rather difficult to measure and assess such criteria according to the existing laws. Moreover, due to the complicated nature of AI models, the effectiveness of enforcement will face additional challenges. Some AI models can be described as

[35] Ariel Ezrachi and Maurice E Stucke, Virtual Competition: The Promise and Perils of the Algorithm-Driven Economy (Harvard University Press 2016) 67.

'black boxes', even their developers cannot always figure out their mechanisms. Such a state of affairs causes considerable problems to the competition authorities as far as detecting any anti-competitive behavior such as algorithmic collusion, discrimination or self-preferencing. In this regard, the opacity of algorithms makes it hard to determine their purposes, coordinate actions and gather the necessary evidence.[36]

Enforcement is also complicated by the speed and scale of digital marketplaces, where AI systems may operate in real time and across international networks. Anti-competitive behaviour can occur and change quickly, and regulators have a hard time reacting quickly. The fast-paced nature of AI-enabled marketplaces may render traditional enforcement processes less effective, which can sometimes take a long time to complete a process of investigation and adjudication. Market conditions may have changed significantly by the time a lawsuit is resolved, making the intervention less successful. The cross-border nature of the digital and AI sectors further complicates enforcement. Many technology companies operate globally, which means data and services are transferred across many countries. This raises questions of national enforcement against transnational corporations, questions of jurisdiction, and questions of collaboration among regulatory bodies. However, the enforcement process could become even more challenging considering the divergent approaches to competition laws and regulation methods adopted by different countries. One of the major challenges is that the regulatory agencies themselves face a significant constraint concerning their ability to effectively regulate the AI marketplaces, which requires certain technical knowledge and access to cutting-edge analysis methods, alongside other resources needed for effective implementation of competition laws in such environments. However, many competition regulators might not possess necessary competencies to manage sophisticated AI technologies.

The final major issue is the evidentiary challenge associated with establishing facts related to the competition law violation. According to conventional competition law, evidence should be provided in terms of demonstrating agreements, intentions or harm to the competitive process. Yet, in case of an AI marketplace, the same evidence may be difficult to produce due to the implicit nature of coordination in such scenarios. Thus, identifying causation and responsibility becomes

[36] Ariel Ezrachi and Maurice E Stucke, 'Artificial Intelligence & Collusion: When Computers Inhibit Competition' (2017) University of Illinois Law Review 1775.

particularly difficult in these cases. Lastly, there is a more general problem of balancing innovation and regulation. While it is important to curb anti-competitive practices and ensure consumer protection, excessive regulation can impede innovation and slow the progress of AI technology. Thus, competition authorities have to find a fine line between enforcing the law and creating an environment conducive to technical innovation. This needs a flexible and forward-looking approach to regulation that can adapt to the fast-evolving AI markets.[37]

[37] Salil Mehra, 'Antitrust and the Robo-Seller: Competition in the Time of Algorithms' (2016) 100 Minnesota Law Review 1323.

CHAPTER 5

CRITICAL ANALYSIS AND COMPARATIVE PERSPECTIVE

The previous few chapters talked about the conceptual basis for AI-generated works, India's intellectual property and data governance architecture and competition law issues in AI-driven marketplaces. Against this background, the following chapter critically assesses the extent to which the current legal and regulatory framework addresses the complex problems posed by artificial intelligence. With the ongoing development and integration of AI technologies into creative and commercial ecosystems, it is becoming increasingly vital to assess if existing laws can strike a balance between innovation, competitiveness and the protection of rights. This chapter, therefore, moves beyond descriptive research to provide a normative evaluation of the regime's benefits, shortcomings, and gaps.

The primary aim of this chapter is to critically examine some of the important laws such as Competition Act, 2002; Copyright Act, 1957; Information Technology Act, 2000; and Digital Personal Data Protection Act, 2023. Collectively, these statutes make up the basis of the Indian legal regime regarding intellectual property, digital platforms, data governance, and market competition; however, several conceptual and practical constraints emerge when these statutes are applied to works produced by AI technology. For example, there is an absence of explicit rules of authorship in AI-generated works, the difficulty of establishing accountability in algorithmic decisions, the difficulty of gaining genuine consent for data collection and processing, and the insufficiency of competition law tools to counteract dominance from data. All these considerations indicate the necessity for adopting a more flexible legal framework. In this chapter, a comparative methodology has been followed whereby the approaches taken in the United States, the United Kingdom, and the European Union have been considered alongside the Indian legal system in order to address the same problem areas. In regulating AI and digital markets, various regulatory approaches, from judicial interpretations and policy guidance to extensive legislative frameworks. The chapter analyses different approaches in an attempt to highlight examples of creativity in regulatory practices and find out the best practices which might serve as a lesson for development of India's legal framework. The comparative analysis also underlines the importance of harmonisation at the international level considering the global character of digital markets and technologies.

In addition, the chapter considers the implications of non-consistency and legal gaps, especially as regards their effects on competition, innovation and consumer welfare. Besides discouraging investments and making enforcement of obligations complicated, such problems might cause misunderstanding among interested parties. However, overly rigid and overly scattered regulation might hamper technological developments and restrict the application opportunities offered by artificial intelligence. The chapter stresses the necessity to balance legal certainty and flexibility for the purposes of updating laws and regulations with the pace of technological innovations. At the end of the day, this chapter is intended to provide an overall and analytical examination of the legal regime pertaining to AI products and what effect such products have with respect to intellectual property rights and competition. This chapter raises many significant concerns, and in doing so through a comparative approach paves the way for the last chapter which will include the findings and suggestions for legal reform. This chapter contributes to the larger discourse about how legal regimes can deal with the revolutionary impacts of AI in such a manner as to promote innovation and preserve important rights and markets.[38]

5.1 *Case laws*

The legal environment related to AI creations and intellectual property is rapidly changing, characterized by several significant court cases and litigation processes that help shape the discourse on authorship, copyright, data use, and competition. Such cases offer vital information concerning how courts apply conventional legal doctrines in relation to AI technology.

A particularly notable case in determining AI creations' authorship is Thaler v. Perlmutter (2023, US District Court), where plaintiff Stephen Thaler applied for copyright registration for a creation created by his artificial intelligence machine known as “Creativity Machine.” His application was denied because, according to the court, the copyright requires the creator to be human and does

[38] European Commission, Competition Policy for the Digital Era (2019) 40.

not apply to products made entirely by machines. Thus, the ruling upheld the fundamental requirement that works protected by copyright law have to be human-made, thereby excluding AI-generated creations from legal protection.

□ Read more: Thaler v. Perlmutter analysis

Another important precedent, albeit before generative AI's emergence, is Naruto v. Slater (2018, United States Court of Appeals for the Ninth Circuit). Known as the "Monkey Selfie Case," it holds that copyright cannot be held by a non-human person. Thus, copyright authorship is considered to be a human activity exclusively. The case is cited in AI-related disputes as an example of denying any copyrights to AI-generated materials.

A very relevant case which came out relatively recently, in 2023 and remains ongoing, is New York Times v. OpenAI & Microsoft. In this case, it was claimed that millions of copyrighted news articles were being used for the training of AI models without permission. This case poses fundamental questions on whether using copyrighted materials for training AI constitutes fair use or copyright infringement. Discovery was allowed in this case, demonstrating the significance of the matter.

□ Case tracker: NYT v. OpenAI case details

The authors have also filed a lawsuit against Anthropic in Bartz v. Anthropic (2024-2026, U.S.). It involved claims by authors that Anthropic had used pirated books for training its AI models. It has led to a $1.5 billion dollar settlement, marking one of the highest copyright settlements in the AI context. It emphasized the legal liability of developers in cases of unauthorized usage of datasets.

Another prominent case in the European context is GEMA v. OpenAI (2025, Munich Regional Court, Germany). The court has found that OpenAI can be made liable for its use of copyrighted lyrics to train its models, potentially violating the copyright laws. This is one of the earliest decisions in Europe, where an AI developer can be found liable for the infringement of its training data. This shows that Europe is taking a stricter stance compared to the U.S., which has relied heavily on the doctrine of fair use.

The other interesting example can be seen from Getty Images v. Stability AI, which was filed in the UK High Court of Justice. Getty asserted that the images belonging to Getty Images had been used by Stability AI in the process of building generative models. The court rejected the allegations

made against Stability AI, but accepted certain copyright claims, especially when it came to the issue of reproducing Getty Images' trademark in the generated content.

In terms of the Indian legal system, judicial precedents may not exist at the moment. However, the case of ANI v. OpenAI (currently under discussion) suggests that there may already be issues regarding the usage of copyrighted images in the AI-based systems. The main problem lies in whether it constitutes an infringement on the copyrights under the Copyright Act of 1957, or falls into one of the fair dealing provisions of the legislation.

□ Read more: ANI v OpenAI discussion

Recent instances only serve to highlight the rising trend of litigation in the field. Thus, in 2026, a lawsuit was filed against Meta by large publishers, alleging that the company used an AI model that was trained on tens of millions of copyrighted books illegally and calling it one of the biggest copyright infringements in history. The example highlights the rise of the scrutiny that AI companies will face and possible consequences.

All in all, through the analysis of the aforementioned cases, several important legal changes can be identified. To begin with, courts still pay attention to the role of authors in copyright law. At the same time, the issue of the use of copyrighted material for training purposes differs between countries. The necessity for a balance between innovations and artists' rights is another important point to consider. Lastly, the given examples prove that legal frameworks require certain amendments.

5.2 *Critical Evaluation of India's Intellectual Property Framework*

The IP framework in India is well-developed and consistent with international benchmarks, but there are some issues in the emerging field of AI and machine learning technologies. The IP law in India is founded on the Copyright Act of 1957, which deals with the legal protection of literary, artistic, musical and other intellectual works. The act necessitates the originality and ingenuity of a work through skill, judgment and intellectual effort attributed to a human being. This model has worked effectively in traditional creative environments, but it faces substantial constraints when it comes to the production of content by AI. In the absence of legislation that clarifies the position

of works created by computers or recognizes AI as a producer, the issue of authorship and eligibility for copyright remains unsettled.

Among the major constraints with India's intellectual property rights framework with regard to artificial intelligence is the issue surrounding authorship of any creative works produced by AI. If AI operates independently to produce work, then there might be an authorship problem since the claimants would be either the owner of the AI software, the organization that developed the technology, or even the end-user prompting the AI to generate its own work. However, the issue is complicated since the law does not have clear provisions that deal with the conflict that might arise. This legal ambiguity can pose a risk to stakeholders due to uncertainty.

Originality is another important factor when considering the applicability of intellectual property laws in AI technology. Originality requires certain degree of creativity from human beings as well as independent intellectual effort. But, AI-generated works depend largely on training data available, raising doubts regarding whether such works can meet the criteria for originality and copyright. With the inclusion of copyrighted material in training datasets, this becomes a bigger problem, as it makes them vulnerable to lawsuits of copyright infringement. There are no proper regulations on how to regulate and control AI-powered innovations. It needs to be noted that the current legal system is unable to deal with such issues.

Moreover, the Indian Intellectual Property system has certain problems related to digital infringement and its enforcement. Due to the advent of new digital platforms and artificial intelligence-powered content, there is always the fear of copyright infringement of the intellectual property right holder. In this regard, the Indian Copyright Law does make certain provisions in the form of the Information Technology Act, 2000, but unfortunately these are not enough to address the emerging issues related to AI generated content.

It makes the relationship between the two even more complicated. For example, AI systems need substantial data, and it could be copyrighted or personal data. The Digital Personal Data Protection Act, 2023 regulates personal data processing but makes no provisions related to copyright content used for training the AI system. There is an evident lack of legal provisions that regulate the use of data in AI research. It results in challenges associated with obtaining permission to use such data, determining whether its usage fits fair use and licensing policies and, eventually, violates the intellectual property rights of third parties. However, the lack of legal guidance on how the data should be used for AI training raises many questions that might lead to controversies between the

parties involved.

Moreover, India's intellectual property legislation is flexible. Nevertheless, the interpretation of the legislation in the context of emerging AI technology would still require some liberalization of certain clauses, which is not always possible and consistent. As there are no legal regulations concerning AI, courts will have to rely on analogies and other concepts that might not reflect specific features of AI-generated products properly. In effect, this kind of reactionary regulation may hinder the capacity of the law to remain relevant amid changes in technology, causing problems in interpretation. In its broader context, the existing Indian IP regulatory structure must also contend with the conflict between fostering innovation and securing rights. Effective intellectual property rights are necessary to foster innovation and investment; however, too much regulation may hinder data collection and the construction of AI systems. At the same time, the lack of protection may weaken the motivation to create something novel and expose the interests of artists to risks. In the case of AI, this issue becomes more complicated due to the lack of distinction between creation and manipulation.

5.3 *Comparative Legal Analysis (Global Perspectives)*

The regulation of AI technologies and AI-generated works has emerged as an area of international discussion in the realm of international laws because countries adopt different regulatory regimes depending upon their respective technological ecosystem, legal traditions, and legislative agenda. There are certain commonalities as well as distinctions between the US, the UK, and the EU concerning the issues relating to authorship, data use, liability, and competition in the case of AI. These differences can be particularly important for India as they shed light on the regulatory framework that might help change domestic law.

U.S. law regulating AI-generated works consists of judicial interpretation and administrative pronouncements rather than actual legal provisions. The U.S. Copyright Act recognizes human creativity since courts have denied copyright to those works which have been solely generated by AI, as evident from Thaler v. Perlmutter. Similarly, the U.S. Copyright Office has stated that only works that have sufficient human creative input are copyrightable. At the same time, the US has a relatively open attitude to data use under the "fair use" concept, which allows the use of copyrighted content for innovation, transformation, study and other purposes. While its applicability remains a subject of debate in ongoing litigation, the theory is vital for the progress

of AI, as it offers a legal foundation for training AI models using vast datasets. While the regulatory approach remains generally case-by-case and market-driven, U.S. authorities have begun to tackle the role of big tech companies in the AI markets from a competition law perspective, especially with regard to data concentration, platform dominance and potential anti-competitive practices.

The UK is a little more methodical, particularly with computer generated content. Computer-generated works may be protected under the UK Copyright, Designs and Patents Act, 1988. The author is taken to be the person who makes the arrangements necessary for the creation of the work. It presents an effective framework for determining AI-supported/created works, a big contrast to the highly strict conditions for human creation found in the US and India. Nevertheless, the UK has been facing difficulties with enforcing the above-mentioned clause because there are generative AI systems today where there is limited and even indirect human interaction. The General Data Protection Regulation (GDPR) has contributed to building the UK's strong framework of data governance focusing on obtaining users' consent, being accountable for personal data usage and transparent in it. The UK competition authority has also engaged itself into evaluating digital markets and AI technologies taking into account the issues of market concentration, data access and algorithms.

The EU can be regarded as one of the largest and strictest regulatory regimes in terms of AI and digital markets regulation. Indeed, the EU plans to adopt an artificial intelligence act called the AI Act that will impose restrictions on artificial intelligence systems depending on how risky they are and what impact they have on people and society as a whole. However, when it comes to intellectual property, there is human authorship belief in the EU, although recently discussions have been raised on possible modification of copyright laws relating to works produced via artificial intelligence. In addition, the EU places immense emphasis on data protection legislation in the form of GDPR, which regulates the processing of personal data, its collection, and usage. Another set of regulations that is designed to address competition-related concerns in digital marketplaces through setting guidelines for large platforms and outlawing certain anti-competitive actions, such as self-preferencing and market foreclosure, includes the DMA and DSA.

Thus, the EU's overall regulatory approach towards AI encompasses aspects of IP law, data protection regulations, as well as competition policy. In contrast, legal frameworks available in India, namely the Copyright Act, 1957; Information Technology Act, 2000; Digital Personal Data Protection Act, 2023; and Competition Act, 2002, appear to be much more fragmented and un-

specialized for the specific situation. These guidelines provide a general framework but fail to directly address AI-produced works, data innovations, and algorithms in trading markets. As opposed to the recognition of computer-generated works in the UK and the elaborate system of regulations in the EU, India adopts traditional principles that may not be capable of handling the complexities associated with AI technology. This will lead to ambiguities in terms of authorship, utilization of data, and competitiveness, thereby hindering innovation and implementation. The comparative analysis highlights the necessity of regulatory uniformity and flexibility. While the United States values judicial interpretation and flexibility in adapting to emerging technologies, other regions like the EU highlight the benefits of a comprehensive system of regulations covering multiple aspects of AI management. On the other hand, the UK's strategy with regards to computer-generated works serves as an intermediate model, recognizing the significance of human intervention in promoting AI-related creations. The methodologies suggest that India requires an all-inclusive approach, where legislative reform goes hand in hand with judicial interpretation.[39]

5.4 *Impact of Legal Framework on Innovation and Market Competition*

In fact, the regulatory environment, related to AI, intellectual property, data management, and competition, plays an important role in setting the course of innovation and competition in modern digital economy. In case of India, this set of laws mostly includes the Copyright Act, 1957, the

[39] MCX Stock Exchange Ltd v National Stock Exchange of India Ltd (2011) CCI Case No 13 of 2009.

Information Technology Act, 2000, Digital Personal Data Protection Act, 2023, and Competition Act, 2002. Overall, these legislative acts exert both positive and negative impacts on the process of innovation and competition in relation to AI-generated content and data-oriented markets, aiming at protecting rights, regulation of digital activity, personal data security, and fair competition. In other words, this legal environment will undoubtedly have a dual impact: on the one hand, it might contribute to growth and development; on the other hand, some aspects might pose restrictions and obstacles to the processes of competition and innovation.

In particular, it should be noted that an effective intellectual property policy is the most important factor contributing to innovation development. In fact, it is the only way for protecting the exclusive rights for the invention and innovating and making incentives for the research development and innovations funding. The Copyright Act of 1957 stimulates the production of original content since it is assured that artists and authors will receive the opportunity to earn from the products of their creativity. Nevertheless, the excessive concern about the authorship creates problems in the case of protection of machine-produced products when it comes to AI produced content. It may discourage organizations from financing such technologies due to the lack of the proper ownership rights. However, too strict IP rights may reduce innovation opportunities since it would make it impossible for researchers to train their AI models on the existing works of art. Hence, the system of intellectual property protection should find a compromise between these two aspects.

The rules surrounding data governance, such as the Digital Personal Data Protection Act, 2023, are instrumental to innovations in the AI ecosystems because data serves as the principal input for the training of AI technologies. The Digital Personal Data Protection Act seeks to protect people's privacy and advocate for the proper handling of personal data through such measures as consent, purpose limitation, and data minimization. It is necessary to guarantee these provisions to enhance people's trust in AI and stimulate them to adopt AI technologies in different industries. The problem with stricter data governance measures is that compliance can become much harder to achieve for businesses, including small firms that do not have the budget to build complicated data governance systems. Moreover, restrictions on the use of data may deprive businesses from access to big datasets, hindering the development of sophisticated algorithms. The biggest issue that comes with aligning legal frameworks with the innovation agenda concerns the availability of data and protecting it.

Apart from this, the intermediary liability and use of digital platforms are regulated under the IT Act, 2000. The safe harbor clause of the Act helps intermediaries avoid liability for third-party content, which is essential for the development of online platforms. Online platforms are critical to innovations as they provide a platform that can be used for various services, including AI applications. But, the growing role of platforms in the making of algorithmic decisions and the creation of content raises questions about the appropriateness of existing liability frameworks. More accountability for AI-generated content could lead to overregulation and risk-aversion, possibly stifling innovation. Conversely, without regulation, negative or anti-competitive practices may arise that undermine consumer confidence and the integrity of the market.[40]

Competition law is important to ensure competitive markets and to limit the concentration of market power in AI-enabled marketplaces. The Competition Act of 2002 is the codification of competition law. The Act is designed to fight combinations with potential to harm competition, abuse of dominant positions and anti-competitive agreements. Competition law in the AI context should take into account new forms of market dominance created by data concentration, network effects and algorithmic skills. Dominant companies could also leverage large datasets and cutting-edge AI technologies as assets to strengthen their market position and raise the barrier to entry for new competitors. Competition law has old tools to battle dominance, but its focus on pricing and market share may not fully reflect the dynamics of digital marketplaces, where competition takes place along dimensions such as innovation, data access and user engagement.

The interaction between intellectual property (IP) law and competition law plays a significant role in ensuring competitiveness in the market. While stringent intellectual property protections can purposefully be employed by businesses to block competitors and access to the market, they could also generate a short-term monopoly that would spur innovation. For instance, companies might place copyright and patent controls on the usage of data or technologies required for artificial intelligence (AI) innovation, thereby reinforcing their monopoly position. Competition law may step in to stop the misuse of intellectual property laws so that intellectual property laws do not hinder fair competition in the market. Striking an appropriate balance between the two domains will help foster a competitive environment that stimulates innovation. New ventures and small

[40] European Union, Digital Markets Act (Regulation (EU) 2022/1925).

businesses — which usually serve as critical drivers of innovation — also get affected by the legal regime. Although large corporations possess the necessary resources to navigate the regulatory environment, smaller enterprises may find it challenging to comply with the regulations governing IP, data protection, and competition. This situation may result in obstacles to entry for small businesses due to high compliance costs, inadequate access to data, and the monopoly position of established companies. In order to overcome these problems, the legal structure needs to incorporate features that favor start-ups, including ease of compliance, common database systems, and protection from powerful firms employing anti-competitive behavior.

The legal context also has an impact on market outcomes and the well-being of the consumer. Proper regulation helps to build consumer trust, maintain competitive prices, and provide a wide variety of high-quality products and services. Competition law stops exploitation like price discrimination and market manipulation, whereas data laws ensure user data privacy. However, excessive regulation may also hinder consumers by constraining innovation and access to advanced technology. The capacity of the legal framework to achieve a proper balance between security and adaptability has a direct effect on the consumer.

In a wider view, the impact of legislation is additionally complicated by the fact that AI marketplaces operate internationally. Various approaches to regulation in various nations may hamper the capacity of companies working in various sectors to expand internationally. For instance, stringent regulations on data protection in one nation may obstruct businesses from using data internationally. At the same time, more lenient rules may offer a competitive advantage to businesses. Consequently, an international consensus is essential to enable the regulation to promote innovation not only locally but internationally too. In addition, since technology is progressing rapidly, there is a need to adopt a dynamic regulatory system. Due to the rapid advancement of AI, the regulation may quickly become obsolete, which poses a threat of loopholes and inconsistencies in the regulation. To accomplish this, the government should implement proactive measures such as adaptability, assessment, and continuous involvement of all stakeholders. One such measure is formulating regulations particular to AI. Moreover, the government could consider implementing regulatory sandboxes or cooperative systems where experimentation may occur.[41]

[41] United States v Apple Inc, 791 F 3d 290 (2d Cir 2015).

CHAPTER 6

CONCLUSION, FINDINGS AND RECOMMENDATIONS

The emergence of artificial intelligence technology in general and the growth of generative AI technologies have transformed the dynamics of competition, creation, and innovation, thus raising pertinent challenges for the legal regimes around the world. The research paper has thoroughly analyzed the complex link between artificial intelligence generated content and intellectual property rights, data regulations and competition law, with a special emphasis on the Indian legal system. India is well known for its sound legal framework in place that comprises Copyright Act 1957, Information Technology Act 2000, Digital Personal Data Protection Act 2023, and Competition Act 2002; however, these legal provisions are primarily designed to regulate human centric, industrial environments and hence are not well suited to regulate AI-based digital ecosystem due to certain shortcomings.

Another one of the conclusions drawn from this study is that the issue of ownership and protection of content generated through AI has been muddled due to the notion of copyright in relation to human authors. The lack of legal provision for works done by machines not only makes rights allocation problematic but is also likely to dissuade any further development of the technology due to a lack of proper protection. With the rise of the use of massive amounts of data to train AI software, similar problems exist regarding the issues of ownership and the consent and privacy of data subjects. The Digital Personal Data Protection Act, 2023 sets out a baseline for personal data protection, but implementation has its problems regarding informed consent and limitation of data use purposes.

This report identifies how data, algorithms, and technological infrastructures are increasingly concentrated in the control of a few firms that create data monopolies and have a high barrier to entry. However, there are provisions within the Competition Act, 2002 that provide remedies against any form of anti-competitive practices and abuse of power. However, traditional competition remedies may not be enough to address the new challenges associated with artificial intelligence markets such as algorithmic collusion, self-preferencing, and network effects. The role of digital intermediaries under the Information Technology Act, 2000 changes the scope of liabilities and responsibilities, particularly in instances where AI is involved in the creation or modification of content.

According to the findings made during comparative research, many nations including the USA, the United Kingdom, the European Union and others experience similar challenges in regulating artificial intelligence technology. In the UK, computer-generated works receive only limited protection, and in the EU, the regulators pursue an extensive approach and take some measures aimed at the creation of necessary legislation regarding artificial intelligence. At the same time, the USA traditionally relies on case law and flexible legal doctrines such as fair use doctrine to address issues related to artificial intelligence. From an international point of view, there is a necessity to adopt regulatory flexibility, consistency, and foresight in addressing the issues raised by artificial intelligence. To sum up, the research concludes that while India possesses quite a solid legal framework from the perspective of underlying principles, its revision and modification are necessary to develop efficient regulation of AI-generated works and AI marketplaces. What India needs to achieve is the adoption of statutory definitions, AI-friendly policy recommendations and a comprehensive approach combining competition law, data protection and intellectual property law. All of the above changes need to be aimed at achieving an optimal balance between protection and innovation.

6.1 Key Findings of the Study

It has been stated in the report that the existing legislative and regulatory frameworks for AI technology in India are inadequate to address the complicated nature of AI-generated content in relation to competition and intellectual property protection. According to the report, the existing copyright laws in India, including the Copyright Act, 1957, which assume human authorship as a basis for its applicability and are silent in respect of the authorship of AI technology-generated works, do create uncertainties regarding issues like ownership, authorship, and other related rights enforcement. These ambiguities create problems for artists, developers, and organizations interested in monetizing AI-generated content. Furthermore, it is noted in the report that increasing reliance on large-scale data sets used in training artificial intelligence models raises some very serious concerns relating to data ownership, permission, and privacy. Although there are certain important protections under the Digital Personal Data Protection Act, 2023, implementing the provisions of the Act in the context of AI systems faces several challenges such as secondary data usage and informed permissions, among others.

As far as competition goes, the paper recognizes the fact that AI-based markets will tend towards

the creation of data monopolies in which technology companies will be able to monopolize data ownership and processing thanks to technological and algorithmic advantages, creating high barriers of entry. The existing Competition Act from 2002 contains provisions against agreements and abuse of dominant position, yet it does not provide effective means to deal with issues such as algorithmic collusion, self-preferencing and network effects. The issue of accountability regarding content created by means of AI becomes further complicated by the involvement of intermediaries in accordance with the Information Technology Act 2000. It is noted that the failure of the interaction between IP law, data protection regulations and the competition regime results in fragmentation and inconsistencies in regulation.

EU has embarked upon the development of comprehensive legislative systems whereas US and UK have opted for interpretative policies whereas the rest of the world has taken greater leaps towards addressing their AI-related concerns. It may be noted that the legislation in India is reactive and traditional in nature which calls for innovative and modern policy making. The research has revealed that while there is some framework of legislation, a lot needs to be done in order to introduce consistency and flexibility in the legislation.

6.2 Policy and Legal Recommendations

Taking into account the challenges associated with the regulation of AI-generated works as well as AI-driven markets, India should adopt an all-rounded and future-oriented approach to legal and policy changes. One of the most important proposals in this context involves the update of intellectual property laws such as the Copyright Act of 1957 to specifically address AI-generated works. In other words, it becomes important to establish clear and definite laws to govern issues of authorship and ownership in the context of AI technology. This would include the recognition of the contributions made by human beings to create, educate, and motivate the use of AI algorithms. Another option may be the creation of a sui generis system of protection for AI-generated works.

Further, another area where improvement is necessary is with respect to improving the data governance framework through the Digital Personal Data Protection Act, 2023. The Act provides an excellent foundation to deal with the matter of protecting personal data, but there should also be specific provisions made for AI with regard to matters like secondary processing, use of data for training machine learning models, and whether deletion of data in AI systems is feasible. There

are several policies that can be implemented so that there can be proper data sharing mechanisms that take into consideration the problem of privacy and the need for more data for innovations. In order to build trust, improvements also need to be made to the transparency regulations and to ensure that there is informed consent. Reforming the Information Technology Act, 2000 is necessary so as to determine the responsibility and liability of digital platforms or intermediaries. In light of the dual role that digital platforms play, namely creation and distribution of AI-based content, safe harbor provisions must be reconsidered. The amount of control and participation in the creation of content can be utilized as a measure to assign responsibilities based on the risks involved.

From a competition law viewpoint: One of the main concerns here is to upgrade the Competition Act, 2002 to cope with specific obstacles caused by the use of artificial intelligence technology in business environments. What matters most at this stage is developing new criteria and methodologies in order to measure companies' ability to dominate markets based on data control and algorithm skills and not market share as it was done traditionally. It would also be important to provide additional knowledge and capacities to the Commission in terms of understanding algorithmic collusion, data monopolies and other complicated problems associated with artificial intelligence. In addition, certain ex-ante regulation measures such as requirements to dominant digital platforms to ensure data interoperability could be considered.

As for recommendations, I think the point of creating some kind of coherence and integration across multiple areas of legislation would be the key takeaway. Namely, there seem to be some problems with competition, data protection and intellectual property law operating independently from each other, which creates confusion. To avoid this situation, it is possible to establish an interdisciplinary regulation framework among relevant organizations. The adoption of sandboxing, pilot projects and other techniques through guidelines and best practices needs to be considered by policymakers to permit experiments and innovations, but not lose sight of regulation. Stakeholder consultations, particularly those with businesses, universities and civil society organisations, will continue to be necessary to formulate inclusive and effective policies.

It is important to note that the nature of the problem makes it imperative to collaborate internationally and learn from the experiences of the United States, United Kingdom, and European Union. In addition to that, India should harmonise its standards to be able to adopt and accept regulatory regimes of other countries. It will help to boost innovation and keep businesses

competitive in the global market environment. Finally, the funding is essential in the context of raising public awareness about digital literacy, AI and data rights. Regulatory authorities must have the necessary expertise and resources to manage AI technologies. Greater public understanding of the subject will enable individuals to exercise their right to participate in the digital economy responsibly.

6.3 Future Scope

The present paper provides scope for further research on the emerging intersection between artificial intelligence, intellectual property and competition laws, considering that legal regimes continue to evolve in line with technological developments. The research topics which may be undertaken in the future include framing a legal regime for the use of works generated by artificial intelligence using the Copyright Act, 1957 and implementation of data governance under the Digital Personal Data Protection Act, 2023 within artificial intelligence regimes. Further, empirical research through participation of stakeholders from the industries concerned, regulators and the legal fraternity may help in providing a better understanding of the issues involved. Comparative analysis of global regulations, as well as the relevance of such regulations in India, may contribute to enriching the discussion.

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