AI as Artistic Intelligence?

Narratives on AI and creativity in the art world

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ABSTRACT

Artificial intelligence (AI) has become a transformative force in society. Narratives surrounding AI tend to be either extremely positive or negative in nature, affecting the further integration of AI in society. In order to counter such dominant narratives, underexplored and 'missing narratives' should be uncovered. This study investigates the narratives surrounding AI and creativity within the art sector, aiming to explore the multifaceted perspectives on AI's role in artistic creation. By examining a broad range of articles from leading art magazines, major news outlets, and art institutions, this research seeks to understand AI narratives in the context of creativity and art. It does so through two key concepts that have led the academic debate on the society-technology relation for a long time: technological determinism and social constructivism. Ultimately, it is the aim of this research to explore how these two core academic concepts hold up in the renewed context of AI in the art world, answering the research question: "How do the theoretical constructs of technological determinism and social constructivism manifest in narratives on the relation between AI and creativity within the art sector?". Forming the basis of this research, the answer to this main research question led to further implications about the broader academic debate on society and technology. This leads to the first sub-question: "How can these narratives give new insights into the long-established academic debate on the relationship between technology and society?". Additionally, the discovered narratives could be compared to dominant existing AI narratives, answering the second sub-question: "Are these narratives on AI and creativity different from other AI narratives uncovered so far? And how?".

To address these questions, the study employs thematic analysis on online published articles from newspapers, art magazines, and editorial of art institution websites, including museums, auction houses and art fairs. The analysis revealed six major narratives. These are: 1) transformative potential, 2) a creative partner, 3) a mere tool, 4) art without a soul, 5) autonomous artist, 6) a disruptive force. Interpretations of these narratives resulted in three main implications. First, the study concludes that these narratives reflect a nuanced merging of technological determinism and social constructivism, supporting the idea that these two concepts are not opposing forces, but rather function as a continuum. Second, with human and AI autonomy shifting through different encounters, the significance of autonomy in the relation between humans and AI is questioned. A redirection towards 'relationality' is proposed. Third, the findings suggest that the art world is a fertile ground for exploring new AI narratives that offer nuanced perspectives, able to counter dominant extremist narratives, and help to start taking a 'narrative responsibility'.

KEYWORDS: *technological determinism, social constructivism, artificial intelligence, sociotechnical imaginaries, creativity*

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1. Introduction

With the growing presence of AI in everyday life, public debate about its implications for society has become more prominent, and both its positive and negative effects are articulated. Positive, as AI is praised for its potential to reduce human fallacies, streamline processes, and enhance efficiency (Newman, 2020). Negative, as a growing fear of losing control of its development, with catastrophic impact as a result, has grown in public perception over the years (Fast & Horvitz, 2017, p. 966). Indeed, AI's promise lies in its ability for remarkably fast data comprehension, of extremely large datasets, and not ever getting tired of these tasks. Through automation of routine tasks, it can simplify repetitive jobs, saving time and resources (Newman, 2020). But it can also aid in much more complex processes, as has already been accomplished in healthcare, where AI systems are developed to recognize cancer and do so more accurately and quicker than doctors could before (Gregory, 2023). However, these positive and hopeful outlooks coexist with stark concerns of AI. Renowned physicist Stephen Hawking bluntly claimed that "The development of full artificial intelligence could spell the end of the human race." (Cellan-Jones, 2014). The fear of the existential threat of AI is prevalent in public debate, and the day of 'the Singularity', when AI transcends human intelligence (as popularly described in the works by Ray Kurzweil, 2005) is dreaded. Besides such existential fear, other concerns also remain, most prominently the fear of a mass loss of jobs (Nolan, 2023). In any sense, the transformative potential of AI is recognized, and the multifaceted dynamic between technology and human existence becomes evident in this debate. AI is redefining the boundaries between human and machine intelligence, and urges us to contemplate our agency in its rapid development.

Within this blurring of boundaries, there is an element particularly understood as unique to humans: creativity. This exclusive feature of human intelligence poses a challenge for AI (Boden, 1998, p. 354), and therefore offers an intriguing context to the human-machine debate, as it allows us to consider what exactly we value in human intelligence, and what sets it apart from artificial intelligence. Ironically, the introduction of AI creativity forces us to contemplate the core nature of human creativity (Lee, 2022, p. 603). Art is generally regarded as the essence of human creativity, embodying human expression and emotion (Pelowski et al., 2017, p. 81). However, AI is making art now too, although its value is still up for debate. In 2022, an AI-generated artwork won an annual art prize at the Colorado State Fair in the US, causing online turmoil among artists, outraged by the fact that a computer-made artwork could win such a prize reserved for creatives (Roose, 2022). The man behind the artwork, AI-enthusiast Matthew Allen, did not see any reason to apologize for the matter: "I won, and I

didn't break any rules," and declared the end of art as we know it when he said "Art is dead, dude. It's over. A.I. won. Humans lost." (ibid). The controversy that this case provoked is illustrative of how artistic creativity becomes an arena for the contemplation of the value tied to human intelligence in relation to artificial intelligence, and the question to what extent AI should, could, or will invade inherently human practices (Coeckelbergh, 2016, p. 287).

The art sector is thus an interesting realm for further investigating perspectives on AI and creativity, and more generally the relationship between AI and humans. Specifically, the various perspectives that artists hold are relevant within this context, as these are the people closest to the actual creative process of art. Interestingly, some artists do not seem to be threatened by AI-generated art at all. For example, AI artist Refik Anadol feeds datasets into algorithms, creating mesmerizing visualizations that are on display in museums all over the world. He thinks that AI is able to interpret data in a way that is new to humans, and believes that it can be “really something inspiring for humanity” (WIRED, 2020).

Not only artists’ perspectives on the creative process are interesting, but also the subjective evaluation of art is a relevant aspect when discussing AI. Specifically, the evaluation of a creative idea currently poses a major challenge for AI (Boden, 1998, p. 354). AI can generate novel ideas but is not capable of assigning value to such ideas (ibid, p. 354). Will it be able to create ‘good’ art, then? What is ‘good’ art? The latter question remains undecided even among humans. Still, there are people in the art world who have professional experience with assigning value to art. Next to artists’ perspectives on AI’s role in the art world, then, perspectives of other actors that are experienced with evaluating art, such as art collectors, curators, auctioneers, art critics, or museum directors, therefore become particularly interesting as well for understanding views on AI’s artistic value. By uncovering the perspectives on AI of these various actors within the artworld, including artists and other art professionals alike, the aim is to capture a broad range of voices that collectively shape the leading narratives on AI art.

Specifically, narratives on AI in the art world are revealed through a thematic analysis of articles considered reflective of the art sector, including but not limited to interview articles from art magazines, explanatory articles about art exhibitions, or journalistic articles in the arts & culture sectors of newspapers. In doing so, it will draw from academic theories about the relationship between technology and society. Specifically, I will explore the topic of AI and creativity by deriving from the concepts of technological determinism and social constructivism, two prevalent concepts in various academic fields that examine the relationship between society and technology. Technological deterministic perspectives

consider technology as an autonomous force, that has a direct and irrevocable impact on society (Kline, 2015, p. 109). Conversely, social constructivist approaches emphasize human agency in shaping AI according to societal values (Williams & Edge, 1996, p. 866). These two concepts entail a wide range of insights about the relation between society and technology and remain relevant for drawing insights about newly developing technology in society, such as AI. Correspondingly, my research question is: "How do the theoretical constructs of technological determinism and social constructivism manifest in narratives on the relation between AI and creativity within the art sector?" The recency of AI developments allows for a renewed context of inquiry for the broader STS debate on the integration of technology in society. The narratives found in this study, then, might offer new insights into the academic debate on technology and society, leading to a first sub-question; "How can these narratives give new insights into the long-established academic debate on the relationship between technology and society?".

Uncovering AI narratives in the art world cannot only give us renewed insights into the academic debate about the relationship between humans and technology, but narratives themselves have the power to guide the very integration and further development of the technology (Cave et al. 2018, p. 4; Chubb et al., 2022, p. 5; Fast & Horvitz, 2017, p. 964; Sartori & Theodorou, 2022, p. 6). As we saw at the beginning of this introduction as well, current public narratives about the emergence of AI in society are dominated by hopes and fears, often either extremely positive or negative in nature (Cave et al., 2018, p. 4; Chubb et al., 2022, p. 5). What is problematic about extreme narratives like these, is that they can negatively impact the further integration of a technology in society (Sartori & Theodorou, 2022, p. 6; Cave et al., 2018, p. 12). To counter such narratives, Chubb et al. (2022) encourage the uncovering of 'missing narratives' (p. 14), that offer alternative and more nuanced views on the relationship between AI and humans. Through answering the second sub-question, "Are these narratives on AI and creativity different from other AI narratives uncovered so far? And how?", this study tries to bring to light new narratives about AI, that can potentially help to redirect the future course of AI in society.

In summary, the relevancy of this research lies, first and foremost, in the contribution to an established, but far from reaching consensus, academic debate on the relation between technology and society. Indeed, divided and dualistic approaches to the impact of AI on society do not cover the complex reality of the relation between humans and AI, and more academic research needs to move towards a more nuanced approach that looks at the complexity of the relationship that humans and AI have (Dahlin, 2024, p. 72). In this sense,

my research tries to bridge the concepts of technological determinism and social constructivism, and bring them together to outline a variety of perspectives that roam debate in the context of the art world. Secondly, uncovering alternative narratives about AI is especially relevant as such narratives have performative tendencies that can influence the very adoption and use of said technology. Paying attention to alternative narratives about AI can aid in better addressing its future development (Cave et al. 2018, p. 4; Chubb et al., 2022, p. 5; Fast & Horvitz, 2017, p. 964; Sartori & Theodorou, 2022, p. 6). Even more so, Coeckelbergh (2021) strongly urges for thoroughly understanding and outlining various AI narratives, as humans are ultimately responsible for making meaning of and guiding AI's role in society. He calls this our 'narrative responsibility', and this study aims to take a step into claiming this obligation.

2. Theoretical framework

The goal of this research is to examine narratives of AI in the context of the art world, and in relation to the creative process of art. In essence, this examination is sociotechnical; it derives from questioning the nature of the relationship between technology and society. This relation has been debated in academics through various theories, concepts and applications. The first section of the theoretical framework will lay out these key concepts and essential perspectives, particularly the umbrella terms of technological determinism and social constructivism. These two major concepts will be explored thoroughly, highlighting the various approaches that constitute their academic debate. Next, the theoretical framework moves on to discuss research on the relation between society and artificial intelligence specifically. Here, the concepts of narratives and sociotechnical imaginaries are given specific attention, which reflect the idea that the way people make sense of and perceive technologies is of major influence on the very integration of that technology in society. Studies that uncover various narratives of AI are discussed here as well. The last part of the theoretical framework will delve into the topic of AI and creativity, elaborating on various perspectives that discuss AI's relation to human creativity and art. It is not the purpose of this study to answer the question of whether AI can be really creative, but rather, to see how the context of creativity and art shapes narratives on the relationship between AI and humans.

But first, it is essential to pay some attention to the definition of AI used in this study. First and foremost, it is beyond the scope of this study to define narratives specifically targeting different types of AI, and therefore a broad approach to the term will be taken. The general definition used for AI from here on is based on the general interpretation by Nguyen and Hekman (2022), who describe AI as "an umbrella term for automated digital systems that classify, recommend, and make decisions via algorithms based on data with the ability to learn from that data" (p. 439). Specifying the source and size of that data is considered insignificant for this study. This means that no distinction is made as to what specific type of AI is referred to, thus encompassing both large public AI services that are based on huge amounts of public data, as well as privately coded models that learn from smaller and intentionally selected datasets.

2.1 Technology and society

In academia, technology and society are understood to be deeply intertwined concepts, but the ways in which they are connected, which influences they have on each other, and which of the two has autonomy over the other, have been highly debated topics for

decades. Generally, the academic debate on this relationship is understood within two "apparently competing paradigms" (Lister et al., 2006, p. 77), namely that of technological determinism and social constructivism, with the latter also being referred to as the social shaping of technology (SST) approach. These two concepts are often framed and defined by juxtaposing the other (Paragas & Lin, 2016, p. 1529). Each of these theoretical approaches is often attributed to two key theorists, respectively, Marshall McLuhan and Raymond Williams. While McLuhan focused on identifying the significant societal impacts he observed from newly introduced technologies, Williams aimed to demonstrate that the outcomes of a technology are not only predetermined by the technology itself (Lister et al., 2006, p. 77). Where McLuhan and theorists of technological determinism concentrate on the inevitability and autonomy of technology's evolutionary path and its effects on society, William's perspective and the social constructivist approach are sociological at their core, emphasizing that technological advancements initiate from the pursuit of socially embedded objectives, norms, aspirations or priorities (Lister et al., 2006, p. 86). From this perspective, the central question becomes "To what extent, and how, does the kind of society we live in affect the kind of technology we produce?" (MacKenzie & Wajcman, 1985, p. 2). Although seemingly opposing in nature, both paradigms bring valuable insights for understanding the interlinked dynamics between technology and society.

2.1.1 Technological determinism

The concept of technological determinism can be explained through two central claims: 1) Technology develops autonomously, following its own intrinsic logic that operates independently of social influences, and 2) technological developments dictate social change in a definite and unnegotiable way (Kline, 2015, p. 109). A distinction can be made between hard determinism, where technology is seen as the sole driver of societal change, and soft determinism, which acknowledges technology as a major, but not the only, cause of social change (Paragas & Lin, 2016, p. 1529). Marshall McLuhan is known as one of the most pivotal and most rigid theorists of technological determinism, who believed that the true 'message' of any medium or technology lies in the alterations it brings to the scale, speed, or pattern of human activities (McLuhan, 1994, p. 8). He derives from the argument that any technology becomes an extension of the physical human, which then alters "the whole psychic and social complex" (ibid, p. 4), or, the way we relate to our environment. Such technological extensions thus affect our physical and mental way of being, and therefore

impacts the workings of society. With his renowned saying ‘the medium is the message’ (ibid, p. 7), McLuhan essentially denies the value of the content of media, but rather, he asserts that it is the very technology itself that crucially affects our lives (ibid, p. 8).

Besides McLuhan, many more authors have written about perspectives that are considered to fall under the umbrella of technological determinism. According to Bimber (1990, p. 334), the vast amount of literature on the concept does not show much consensus on its underlying mechanisms. All approaches to the term highlight technology’s critical role in societal change, yet they vary in their explanations of why and how technology exerts such significant influence (ibid, p. 336). He distinguishes between three different argumentations behind technology’s determinism: nomological, normative, and unintended-consequences accounts. Nomological accounts are most aligned with the traditional understanding of technological determinism, where technological developments occur according to an internal logic that cannot be influenced by society, and these developments exercise autonomous and fixed influence over societal workings (ibid, p. 338). Bimber considers the other two categorizations, normative and unintended-consequences, as more nuanced and weaker forms of technological determinism. With normative accounts, it is argued that the reason for technology’s determinate effects arises because there is a certain abandonment of societal control over technology. This happens because people prioritize the pursuit of technological goals of productivity and efficiency, and letting technology take the lead in the way society develops (ibid, p. 341). Lastly, unintended-consequences argumentations derive from acknowledging the unpredictability and the inability to control results of technological development (ibid, p. 339). As described by Winner (1978), although people like to consider themselves in a central position of control over technology, its continuous change acts in ways “beyond the anticipations of any person or institution” (p. 89). Even though Winner (1978) denies technology as the sole determinant of societal change, he affirms that there are elements of technology that impact society beyond human choice (p. 77). As the three categories of Bimber (1990) show, technological determinism is not one fixed approach, but rather, a concept that reflects a multitude of interpretations as to how technology gets to exert autonomous influence over society.

Still, all interpretations of technological determinism share the core idea that technology can be an isolated power that has a direct impact on society, and it is exactly this idea that has been criticized in science and technology studies (STS) for the past decades (Wyatt, 2008, p. 168). This criticism is rooted in social constructivists’ demonstration that technological development is very much intertwined with social processes (ibid). So much so,

that the concept has become a “critic’s term” (Dafoe, 2015, p. 4), and consequently, many STS scholars have refrained from further engaging with technological determinism, one of the founding perspectives in the field (ibid). Despite these criticisms, several authors have argued for its continued relevance. For one, the essence of technological determinism still conforms with the technological experiences of the majority of people who use technology. Wyatt (2008) calls this “justificatory determinism”, and it accounts for the most common interpretations of technological encounters in daily life (p. 174).

Therefore, Dafoe (2015) argues that academics should not only be concerned with the question of whether technological determinism is right or wrong, but instead, the focus should be on how, where, and in what contexts technology can have an autonomous role in shaping society (p. 4). The same question can be asked for human autonomy, as to ultimately find patterns of how both technological determinism and social constructivism can be true on different levels of inquiry (ibid). Indeed, Misa (1988) already acknowledged that a difference in scale of analysis plays a role in the application and soundness of technological determinism. His study showed that generally, authors that are affirming of technological determinism take up a ‘macro’ perspective, whereas those contradicting the approach adopt a ‘micro’ perspective (p. 309). In this sense, technologies “are permitted to make history” (ibid, p. 309) depending on the scale at which their influence is perceived. Deriving from this argument, Paragas and Lin (2016) argue that technological determinism and social constructivism are not opposing forces, but together function as a continuum on which various instances of the relationship between technology and society can be understood (p. 1532). Technological determinism, then, remains a vital concept for grasping how technology influences contemporary society (ibid, p. 1530).

2.1.2 Social constructivism

Raymond Williams is one of the most pivotal authors when it comes to opposing technological determinism. Although he did not coin either of the terms ‘social shaping of technology’ (SST) or ‘social constructivism’, he is a renowned author for opposing McLuhan, arguing that technologies are not developed in isolation of society, but are the result of various social forces combined (Lister et al., 2009, p. 86). In his rejection of technological determinism, he aims to “restore intention” (Williams, 2003, p. 7) to the development of technology, in the sense that this process is always imbued with already existing social purposes and practices (ibid, p. 8). This perspective emphasizes the need to examine the

complex interplay of social, cultural, and economic factors that shape technology, rather than focusing on the characteristics of the technologies themselves (the 'message' of the medium). Besides Williams, other authors advocating for the social shaping of technology (SST), have in common that they reject technological determinism. They find common ground in the notion that technology does not develop according to an internal logic but is a social product instead (Williams & Edge, 1996, p. 866).

However, within this social shaping approach, different concepts and theoretical models have been constructed, and consequently, there is not one settled definition of SST (Howcroft, Mitev & Wilson, 2005, p. 336). In order to structure the vast body of literature that falls under the "broad church" (Williams & Edge, 1996, p. 892) of SST and social constructivism, Howcroft et al. (2005) distinguish three pivotal theoretical constructs that are essentially considered part of the same theoretical paradigm: social shaping of technology (SST), social construction of technology (SCOT), and actor-network theory (ANT). What follows is a discussion of the core concepts of SST and SCOT, after which ANT will be discussed in a new section that moves towards the idea of a co-construction approach.

MacKenzie and Wajcman (1985) were the first to coin the exact term 'social shaping of technology' (Howcroft et al., 2005, p. 337). In their edited collection *The Social Shaping of Technology*, they posed the question "What shapes the technology in the first place, before it has 'effects'?" (MacKenzie & Wajcman, 1985, p. 8), an obvious reference to the dominant technological deterministic outlook which exclusively looks at those 'effects'. SST theorists agree that technology is a social construct rather than a result of some sort of inherent logic. They propose that the social factors involved in production - including the practices, attitudes, expectations, or even language - are embedded within the technology (Howcroft et al., 2005, p. 337). A fundamental aspect is that there are 'choices', although not always consciously made, inherent in the design and trajectory of technological artifacts (Williams & Edge, 1996, p. 866). In this regard, SST has the objective to 'democratize' the process of technological decision-making, and to subject it to social responsibility (Williams & Edge, 1996, p. 867).

The Social Construction of Technology (SCOT), is a model that aims to specify the various processes that negotiate and shape the developmental path of technology, emphasizing its multi-directional nature (Pinch & Bijker, 1984, p. 419). Here, technology is not developed according to one linear direction, but instead, technology's trajectory is guided by the various meanings that 'relevant social groups' attach to it (ibid, p. 414). Different social groups give different meanings and values to a technology, which is referred to as

technology's 'interpretive flexibility'. It is this contestation of meanings that ultimately constitutes the dominant form, or forms, of a technology (ibid, p. 421). After constant negotiation, different social groups reach a general consensus of what the technology represents; the technology 'stabilizes' (ibid, p. 427). SCOT, therefore, attributes the shaping of technology particularly to the interpretations and values attached to it by people with various perspectives. It avoids the homogenization of society by taking into account all relevant social actors with different positions, be they creators, individual users, governments, or other institutions (ibid, p. 428). Technology's development is characterized by variation, and ultimately, selection of those variations (ibid, p. 411).

In this study, I will refer to all the ideas represented in the above section as being 'social constructivist' in nature.

2.1.3 ANT and co-construction

In their denial of technological determinism, SCOT and social shaping theorists are criticized for over-emphasizing social contexts and human choice to the exclusion of technological influences (Howcroft et al., 2005, p. 341). Actor-network theory (ANT) seeks to navigate a novel path that eludes both the extremes of technological determinism and social determinism. In doing so, ANT's main aim is that of dissolving the traditional divide between what is considered 'social' and what is considered 'natural' or 'technological' (Callon, 1986, p. 34). ANT views technological processes as exercises in building heterogeneous networks that integrate both social and technological elements (Howcroft et al., 2005, p. 341). Bruno Latour (1990) is a key author of the theory, and proposes to move beyond the traditional dichotomy of the social and the technical by recognizing how both human and non-human entities form integrated networks (p. 103). He urges that we can only truly come to understand the relation between technology and society when we recognize that "non-humans are woven into the social fabric" (p. 103), and their acts are inseparable from that of humans. The term 'actant' embodies both these human and non-human actors (Akrich, 1992, p. 206), and therefore effectively extends beyond the boundary between humans and machines, allowing for a non-deterministic way of approaching sociotechnical relations.

Although ANT is not explicitly defined as a co-construction approach, it does have similarities with Oudhoorn and Pinch's (2003, p. 3) objective to connect 'users' (humans) and 'technology' (non-humans). They argue that "users and technology are seen as two sides of the same problem – as co-constructed", where they, too, try to move beyond both

technological and social determinist tendencies (p. 3). The difference with ANT here may lie in their phrasing of 'two sides of the same problem', since, for ANT, there are no 'two sides', only one comprehensive network of all actants combined. Still, both approaches highlight that humans and non-humans, or society and technology, are not distinct entities, but intertwined processes that continuously mold and construct each other, and we should refrain from seeing either 'side' as isolated or autonomous from the other. This is exactly how the term co-construction will be understood throughout the rest of this study: as a form of achieving nuance between technological determinism and social constructivism.

2.1.4 AI and the society-technology debate

Although technological determinism remains in alignment with much of people's everyday experiences with technology (Wyatt, 2008, p. 174), academic debate on artificial intelligence is characterized very much by more social constructivist and co-construction approaches. Especially with regard to ethical principles, the influence of human values is recognized and believed to be essential for optimal development of AI (Van de Poel, p. 507). Santoni de Sio and van den Hoven (2018, p. 11) argue for a foundation of 'meaningful human control' when it comes to the design of artificial intelligence or autonomous decision-making systems. Humans must be careful to develop such technologies in a way that they adhere to our moral standards, and being responsive to them in different situations (p. 12). Similarly, Floridi et al. (2020) provide a framework of seven guiding factors for guiding the process of 'AI for social good' (AI4SF), which they define as "the design, development, and deployment of AI systems in ways that (i) prevent, mitigate or resolve problems adversely affecting human life and/or the wellbeing of the natural world, and/or (ii) enable socially preferable and/or environmentally sustainable developments." (p. 1774). For example, such factors for AI4SG include that AI should be tailored so that it respects the user's autonomy (ibid, p. 1780), AI systems should avoid biases that could lead to unfair treatment of individuals (ibid, p. 1786), and AI must facilitate the opportunity for humans to give meaning to and make sense of things that might be subjective depending on the context (ibid, p. 1789). Both of these works represent the idea that during the process of developing AI systems, humans have the choice of molding the technology to their ethical values, and humans can thus make autonomous decisions surrounding AI evolution. However, retaining control in the process of AI development may be much harder to achieve than aspired for in these ethical models (Van de Poel, p. 507).

This is where more nuanced, co-construction approaches might prove more sensible. Lindgren and Hölstrom (2020) advocate for such an approach to researching AI, saying that AI "comes into being through a co-construction process" (p. 6) in which technology's integration in society is established through negotiation between knowledge, expectations, and assumptions of humans, as well as the affordances of the technology itself. According to them, academia has to move past questions of only AI's usability and materiality, and the role of human autonomy in that material design process, and instead move towards an inquiry of how AI and its users influence and shape each other in practice (ibid, p. 10). Specifically, they suggest focusing on "humans and machines in context" (ibid, p. 8), looking at the specific practices with AI that occur in people's everyday interactions with the technology (ibid, p. 4).

In line with this, Dahlin (2024) questions the relevancy of the role of autonomy, either human or technological, in the context of AI. She says that autonomy becomes a "double-edged sword" (p. 59), where in some instances humans perceive AI as autonomous, while at other times the roles are reversed. During actual everyday encounters with AI, autonomy becomes fluid as it differentiates in different situations (ibid, p. 66). By reframing the discussion from autonomy to actual relations, she encourages exploring the nuances of the coexistence and collaboration of AI and humans in practice (ibid, p. 72).

2.2 Imagining AI

As part of the co-construction between technology and society, Macnachten et al. (2015) argue for public narratives about technology as collective social instruments that embody the dialogue between, on the one hand, technological development, and on the other, the cultural and social contexts in which they are adopted and given meaning to (p. 506). Narratives are like shared repertoires of understanding the social world and technology's place in it (ibid, p. 512). In this way, narratives about the beliefs and expectations of technology render a "symmetrical understanding of the social life of technology" (ibid, p. 506). Narratives are not just stories about technology, but performed frameworks that shape the integration, usage, and development of technology, and therefore become useful entities for gaining understanding in the dialogue, or co-construction, between technologies and social and cultural frameworks in which they emerge (Sartori & Theodorou, 2022, p. 7). Coeckelbergh (2021) even sees narratives as a means for humans to take responsibility, and proposes that as humans interacting with technologies such as AI, we have a 'narrative responsibility' to interpret, make sense of, and narrate our experiences (p. 2438). While AI also contributes to sense-making, "humans are the experiencers and bearers of responsibility"

(ibid, p. 2438) to critically engage with how we attach meanings, narratives, to AI. We are "condemned to make sense" (ibid, p. 2440) so that AI's development does not surpass our sense-making processes. But before delving into the narratives related to AI, let's first more closely look at the definition of narratives in the context of sociotechnical research.

2.2.1 Narratives and sociotechnical imaginaries

Narratives, as defined by Bal (2009), are an "ensemble of texts, images, spectacles, events, and cultural artifacts that 'tell a story'" (p. 24). In the context of technology and society, however, narratives are not only stories, but can function as powerful collective repertoires within which technological interactions occur, guiding public responses and expectations about technology's role in society (Cave et al., 2018, p. 4). As most people in society lack a precise understanding of what advanced technologies entail, their perceptions about such technologies are often shaped by personal experience, as well as by drawing from existing, often media-driven, narratives of technological developments, impacts, and futures (ibid, 14). Public attitudes towards technologies, therefore, are not mere individual opinions, but instead, Macnachten et al. (2015, p. 506) urge the recognition that people's attitudes are situated in a broad narrative framework that consists of both social and cultural practices and beliefs, as well as knowledge about the technological artifacts. People draw upon these narratives when responding to emerging technologies, shaping their understanding and interactions with technology (ibid, p. 507). Most importantly, such dominant narratives that people use in their sense-making processes have "real world effects" (ibid, p. 4) and influence the very adoption and use of the technology. As such, narratives, although highly context dependent, are useful mechanisms that allow for exploring the cultural and social frameworks in which technologies are understood, produced, and consumed (Sartori & Theodorou, 2022, p. 7). In turn, knowledge about their content, structure, and origin can aid in better addressing future expectations about the adoption of technologies, ultimately functioning as efficient instruments for guiding technological development (ibid, p. 2).

In alignment with this approach to narratives, Jasanoff (2015) introduces the concept of 'sociotechnical imaginaries', which she defines as "collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology" (p. 4). In short, these imaginaries are more than mere speculative ideas; they are socially performed frameworks that influence and are influenced

by policy, technological development, and public expectations (ibid, p. 19). They are collective understandings through which members of a society can articulate and strive towards shared visions of their technological future, or "possible worlds" (ibid, p. 24). But these visions do not always have to be 'desired', they can also reflect shared fears. They form an interplay between positive and negative technological futures, and are often characterized by radical utopian and dystopian expressions (ibid, p. 5). Moreover, these imaginaries are, like narratives, performative of changes in the technology itself, and thus shape not only the way a technology is perceived, but also the practical and material form of technologies (Bucher, 2016, p. 41).

Thus, through narratives and imaginaries, people in society negotiate the meaning and impact of technology, providing a stabilized, collective understanding that guides technological advancement and integration into social fabric. These narratives are co-created between cultural and social practices and the affordances of the technology itself. Having reviewed both concepts, I will in this study understand 'sociotechnical imaginaries' as a more explicitly defined form of a narrative. I consider 'narratives' as being reflective of both concepts simultaneously.

2.2.2 Narratives and imaginaries of AI

Authors discussing the concepts of narratives and imaginaries in the context of AI stress that such collective frameworks have the power to critically influence the further integration and development of AI (Cave et al. 2018, p. 4; Chubb et al., 2022, p. 5; Fast & Horvitz, 2017, p. 964; Sartori & Theodorou, 2022, p. 6). What is very much present in these AI narratives, is their tendency towards either utopian or dystopian beliefs about AI's impact on human lives and society (Cave et al., 2018, p. 4), cautioned by academics as inaccurate and misleading polarized stories (Chubb et al., 2022, p. 5). The risk of such optimistic and pessimistic narratives is that they can be pushed to their extremes, with both sides having unfavorable effects on the future of AI (Sartori & Theodorou, 2022, p. 6), including consequences for funding, regulation, research, and reception (Cave et al., 2018, p. 12). On the one side, narratives focused too much on utopian outcomes can create overly optimistic expectations, resulting in a hype around the technology filled with promises "attributing magical qualities" to the technology (Chubb et al., 2022, p. 4). If such a hype-bubble ends up bursting because the technology cannot fulfill those promises, public confidence in AI could be impaired, also losing practice of the beneficial qualities that AI can make true (Cave et al.,

2018, p. 14). On top of that, too much confidence in the technology may cause a lack of regulation, resulting in "irresponsible use" of AI (Fast & Horvitz, 2017, p. 964). On the other hand, unnecessary and exaggerated fears could lead to a hesitant attitude toward making use of the opportunities that AI has to offer (Cave et al, 2018, p. 14). Such an attitude may also ignite the overregulation of the technology, restricting AI from reaching its beneficial potential for society (Fast & Horvitz, 2017, p. 964).

Cave and Dihal (2019) aimed to provide a conceptual spectrum that reflects themes of both 'hopes and fears' about the future of AI (p. 74). These include, for example, a hope for human immortality versus a fear of losing a human identity (inhumanity), or a hope for a powerful technology bringing superiority to a society over others (dominance), versus the fear of an AI uprising ibid, (p. 75). The dichotomy between these specific themes shows how an emerging technology like AI can evoke very strong and ambivalent attitudes, although often detached from reality (ibid, p. 77). Mapping out the themes within such extreme perspectives can contribute to moving beyond them and foster a more nuanced discussion of AI's potential (ibid, p. 77). In another attempt to reveal themes within narratives of AI, Cave, Coughlan and Dihal (2019) now aimed to capture public perceptions through a survey, finding that most of the prevalent attitudes towards AI showed significant feelings of anxiety, rooted in people's fear of not having any control over the development of the technology (ibid, p. 335). These fears attributed much power to AI as a technology and AI corporations, showing tendencies of technological determinism (ibid, p. 334).

Interestingly, it is not only citizens that show determinist tendencies when making sense of AI: Bareis & Katzenbach (2021) found that a common narrative construction within national AI strategy documents portrayed AI as "an inevitable and massively disrupting technological development" (p. 864), bringing about fundamental change for society and politics. Furthermore, research into discussion of AI in popular news outlets shows that negative portrayals of AI's impact have increased over the years, with the most outspoken fears including the loss of control over AI, AI replacing too many jobs, and the lack of ethical applications for using the technology (Fast & Horvitz, 2017, p. 966), again reflecting determinist beliefs. Additionally, AI developed from being a niche tech-related topic in newspapers, to being increasingly discussed in a diversity of contexts, mirroring its rapid spread towards a "ubiquitous presence across society" (Nguyen & Hekman, 2022, p. 444).

By mapping out the themes within existing narratives in different domains, these authors have contributed to the 'narrative responsibility' as called for by Coeckelbergh (2021, p. 2438). However valuable these studies are, Chubb et al. (2022) called for the need to

uncover more nuanced, niche, and ‘missing’ narratives about AI (Chubb et al., 2022, p. 14) to challenge the dominant polarized stories currently being told. They call for inclusive stories, with a focus on diverse and potentially unheard voices. During their interviews, the area that was mentioned most often by academics as having the potential to reveal such missing narratives, is that of art, culture and creativity (ibid, p. 11), which is in line with the reasoning and design of this study.

2.3 AI and creativity

Finally, before moving to the inquiry on narratives in the context of art, this section of the theoretical framework discusses relevant literature on AI and its currently understood relation to creativity. There are many unique qualities to human intelligence that, at least for now, seem to be very far away from the capabilities of deep learning AI (Braga & Logan, 2017, p. 15). A quality that is specifically viewed as unique to humans, and seems to pose a challenge for AI to encapsulate, is creativity (Boden, 1998, p. 347). Still, there are also voices that think that AI could bring valuable creative input to the artmaking process (Mazzone & Elgammal, 2019, p. 8; Chubb, 2022, p. 11). Before moving to academic positions on the relation between AI and creativity, however, it is crucial to understand the complex meaning of creativity itself. Although it is not the objective of this study to define whether AI can or cannot be creative, or meets the definition of creativity, the concept does shape the understanding of how AI’s role is perceived in the creative process. Therefore, theoretical background of the concept of creativity will be elaborated on first.

2.3.1 Creativity

Creativity is not an exclusive gift reserved for a select few; it's an integral aspect of human intelligence in general (Boden, 1998, p. 347). As Sawyer (2023) aptly puts it, “Creativity is part of what makes us human.” (p. 4). It enables us to adapt, innovate, and tackle challenges, making it the main driver for societal growth (ibid). Defining creativity, however, is one of the most challenging tasks within the social sciences (ibid, p. 8). Still, several academics have committed to pointing out the various characteristics of what constitutes creativity. Amabile (1988), a pioneer in researching the nature of creativity, states that “creativity is the production of novel and useful ideas by an individual or small group of individuals working together.” (p. 126). She stresses that the most efficient way of identifying creativity is through a product-oriented assessment, rather than a person- or process-oriented

view (ibid, p. 126). Boden (1998) proposes a similar, 'product-oriented' definition; "A creative idea is one which is novel, surprising, and valuable" (p. 354). She further distinguishes the novelty of a creative idea between H-creativity (H for historical) and P-creativity (P for psychological), expressing that an idea may be new only to an individual, or to the entire history of all mankind (ibid, p. 354). Similar to Boden's H- and P-creativity, Sawyer (2023, p. 8) recognizes two distinct academic approaches to creativity: individualist and socio-cultural. The individualist approach studies creative ideas on the level of a single individual, which characteristics they possess, which processes they go through, and the works they make or the ideas they have that are new and creative to them (ibid, p. 8). A socio-cultural approach, on the other hand, stresses the importance of the social context in which an idea originated, is evaluated, and given meaning (ibid, p. 9). Novelty, "the most basic requirement of a creative thought" (ibid, p. 8), therefore only counts if an idea is novel to a social group (ibid, p. 10).

Although the approaches of the writers discussed above vary slightly, all definitions have one characteristic in common: they name novelty, especially as judged by social groups, a central condition of creativity. A second condition that is stressed by these authors, is that a creative idea must be assessed as 'useful' (Amabile, 1998, p. 126), 'valuable' (Boden, 1998, p. 354), or 'appropriate' (Sawyer, 2023, p. 10) as evaluated by others. Sawyer even argues that a proper definition of creativity must exclusively look at ideas that are expressed and open to evaluation by others, and fully omit ideas that remain within the knowledge of only the creator. Because, he says, "creativity lives and breathes in the world" (ibid, p. 8). Like novelty, appropriateness can only be judged by a social group (ibid, p. 10). In this perspective, something can only be creative once it is deemed socially valuable in some way (ibid).

This assessment, however, is subjective: what is valuable or appropriate to some might not be that to others at all (Boden, 2011, p. 2). To pin down exactly what makes an idea valuable is extremely challenging. Still, this subjectivity is not infinite: many creative ideas and products are understood and assessed through already familiar 'conceptual spaces' (Boden, 2011, p. 167), which are "a set of constraints…guiding the generation of ideas in the relevant domain" (ibid, p. 167). They are frameworks of creative structure and of creative potential. Although such structures seem to be opposing creativity at first glance, they are essential for creative ideas to exist (Sawyer, 2023, p. 10), not only to make sense of them, but also to be able to relate ideas to conventions and evaluate their level of creativity from there. Almost like measuring points. Because essentially, without such conventions, randomly

throwing together elements to come up with something new becomes “something that any unthinking machine could do without creativity” (ibid, p. 11). So, the interplay between conceptual spaces and creative freedom is crucial for assessing the value of new ideas.

Accordingly, Boden (2016, p. 68) distinguishes three types of creativity that all relate to conceptual constraints in a different way: combinational, exploratory, and transformational. In combinational creativity, already familiar ideas are merged in unconventional ways. These ideas were improbable, but still understandable within familiar structures (ibid), like how a visual collage repurposes certain images. Second, exploratory creativity seeks the boundaries of conceptual constraints. Here, these boundaries are intentionally challenged and experimented with to understand exactly where its limitations lie and how far they can be pushed. Despite the speculative nature, these ideas will still be recognized as belonging to a familiar style (ibid). Lastly, transformational creativity emerges as a progression from exploratory creativity, typically arising from frustration with the limitations of the style (ibid, p. 69). As a consequence, one or more conceptual constraints undergo radical transformation, resulting in the creation of entirely new structures previously inconceivable. The risk here is that they may be challenging to grasp, as they defy conventional understanding, and it may take years before the idea is accepted as valuable (ibid, p. 69). These types of creativity can also be used to reflect on machine creativity, as we will see later.

An important remark to make on the concept is that one of the most intriguing contexts to investigate the workings and meanings of creativity, is art (Pelowski et al., 2017, p. 81). Art has been produced across all human societies during the complete history of human existence. Not just for utility or market value, but because of an intrinsic human drive to create (ibid, p. 81). It is considered to mirror a human way of thinking, and is able to reflect values and perspectives from a certain period of time (ibid, p. 82). Art is also one of the most complex human activities, demanding a large variety of coinciding abilities (ibid, p. 81). All in all, although not the only context in which creativity emerges, it can be seen as one of the most significant practices regarding creativity. Not coincidentally then, much discussion on whether AI can be creative is concerned with AI making (visual) art, and its relation to the artist. For these reasons, this study takes art and artmaking as a specific context for exploring the question of whether AI can be creative.

2.3.2 Can AI be creative?

Whether AI can be creative is a highly debatable question, far from reaching consensus in academia anytime soon, and answering it goes beyond the scope of this study. Rather than being a pro versus con debate, there are a variety of perspectives that take up on different aspects of the relation between AI and creativity. According to Boden (2016), AI has actually been able to generate ideas that are "new, surprising, and valuable" (p. 68), complying with her definition of a creative idea. In the context of art, AI has allowed for new forms of computer-generated (CG) art created without interference of the artist. Importantly, she claims such CG-art is able to represent all three types of creativity: combinational, exploratory, and transformative (ibid, p. 69). By far the most used AI machine learning model for making art are Generative Adversarial Networks (GAN) (Elgammal et al., 2017, p. 4). With GAN, the system generates art through constant communication between two components: the generator and the discriminator. The generator aims to produce images that resemble those in the training dataset, while the discriminator's role is to differentiate between real images from the training set and 'fake' images generated by the generator. The generator starts by creating random images and receives feedback from the discriminator on whether they are real or fake, learning to create images that are indistinguishable from those in the training set, and thus indistinguishable from authentic artworks (Elgammal et al., 2017, p. 5-6). Still, models such as GAN can sometimes produce surprising results, for example through understanding patterns in the dataset in an unexpected way, or even by pushing the boundaries of the artistic conventions of the dataset (ibid, p. 7), reflecting characteristics of mostly exploratory and even transformative creativity (Boden, 2011, p. 70). In these instances, the AI system "at least *appears* to be creative, to some degree" (ibid, p. 29, emphasis in original). But whether AI can really be creative, like a conscious human can, and if we should want that, is a more complex question.

For one, a particular challenge for AI creativity comes back to the concept of the idea's value (or appropriateness). Even if AI were to come up with novel transformational ideas, it would not know how to assign value to them. According to Boden (1998), it is this evaluative capability that seems the largest obstacle for AI, because it is based on human subjectivity and entirely dependent on human judgement (p. 354). Although it might be able to explore and transform conceptual constraints, it would not know if it was doing so in a 'valuable' way. Identifying exactly why we like a certain painting or not is challenging to define, making it even more improbable for AI to develop evaluative mechanisms in the near future (ibid, p. 355). In similar vein, Braga and Logan (2017) argue that AI cannot

approximate human intelligence in its full dimension (p. 15). Human intelligence, they argue, encompasses a wide range of attributes such as curiosity, imagination, emotions, values, wisdom, and creativity; elements that AI lacks because it operates only on computational logic, and without a contextual "ground." (ibid, p. 3). This ‘ground’ includes the nuanced experiences and subjective qualities unique to humans. They emphasize that a computer's understanding is limited to the specific problems it is programmed to solve and does not extend to the broader context or meaning behind those problems (ibid, p. 15).

Thus, AI cannot replicate the depth of human intelligence, or human creativity in that sense, which is deeply embedded in its experiential and emotional context (Braga & Logan, 2017, p. 15). Philosopher Anthony O’Hear (1995) would agree with this point of view. Although generative AI as we know it now did not exist back then, he argues that artworks generated autonomously by computers, without human control, lack the essential references to human life and emotions that define art (p. 150). Such machine-produced art, while possibly aesthetically pleasing, is devoid of deeper insights into the human condition. Therefore, O’Hear (1995) believes that only art grounded in human experience truly deserves the title of art, as it conveys meaningful human insights (p. 150). In these perspectives, art is made valuable through human evaluation and human experience only.

But there are less human-centered perspectives on this matter. Mazzone and Elgammal (2019) acknowledge that AI differs from humans regarding their intention behind artmaking, as AI does not create to express emotions or experiences (p. 8). However, they argue this difference should not disqualify AI's artistic value (ibid, p. 8). Instead, they propose reconceptualizing creativity and the creative process, viewing AI as a novel medium that expands our understanding of creativity and art. Their perspective encourages a partnership between artist and machine, “maximizing both partners’ creative strengths” (ibid, p. 8). Taking this view one step further, Zylinska (2020) proposes that many human practices, including art, have always been essentially technical in nature (p. 13). Arguing against the common view of human versus machine, she sees human existence as being inherently merged with technology (ibid, p. 27). In this regard, Zylinska posits that art emerges not only from human experience, but rather, from a dynamic interplay with the world, and thus “with the multiple technical apparatuses that shape the world” (ibid, p. 65), including AI. Therefore, she advocates for a “human-with-the-machine” (ibid, p. 66) perspective.

Similarly, Coeckelbergh (2016) questions the distinction between human and machine creativity. According to him, questioning whether machines can create art wrongly assumes that “there is such a thing as a machine disconnected from the human or a human that has

nothing to do with technology" (p. 301). Instead, artistic creation is a hybrid process involving both humans and non-humans or technology (ibid, p. 301). Cypher (2017) also explores this perspective using the actor-network theory (ANT) to advocate for recognizing non-human actors as collaborators in artistic practice, disputing human artistic control (p. 119). He argues that non-human elements such as technologies actively shape artistic outcomes and intentions (ibid, p. 122). This perspective extends the artist's motives across a network of collaborators, challenging the idea of the singular, autonomous artist (ibid, p. 128).

All of the perspectives on AI and creativity mentioned in this theoretical framework are purely academic in nature. But, as Coeckelbergh (2016) noted, the debate on AI and creativity might be cleared up when we "move to the actual encounter with machine art, where language/concepts may not be so prominently present and where the machine shows what it is doing and indeed might show how artistic it is (or not)" (p. 302). As we saw earlier, attempts to uncover non-academic, public AI narratives, revealed extreme and determinist stories, reflecting utopian hopes and dystopian fears (Cave et al., 2019, p. 334). Is this also the case for AI narratives in the art world? And how do the technological determinist and social constructivist perspectives, that have been shaping the society-technology debate for so long, hold up in this creative context? More accurately, the research question for this study is "How do the theoretical constructs of technological determinism and social constructivism manifest in narratives on the relation between AI and creativity within the art sector?". In order to formulate a more elaborate answer to the main question this research also poses two sub-questions "How can these narratives give new insights into the long-established academic debate on the relationship between technology and society?", and "Are these narratives on AI and creativity different from other AI narratives uncovered so far? And how?". Ultimately, the questions asked here are ignited by the urgency for a 'narrative responsibility' (Coeckelbergh, 2021, p. 2438) for an effective and responsible integration of AI into human society.

3. Methodology

The aim of this research is to explore narratives on AI's perceived role in the creative process of artmaking. Using the art sector as an illustrative context, the goal is to uncover how technological determinism and social constructivism, which are central concepts in academic debates about the human-technology relationship, are particularly reflected in narratives of AI and art. Besides examining these familiar academic concepts, another objective is to uncover narratives of AI in the art world for the sake of revealing alternative or underexposed, potentially more nuanced, narratives to counter dominant extremist AI narratives.

The perspectives on AI in the art world were examined through published articles from various sources considered reflective of the opinions of artists and other actors within the art sector. The criteria and selection process of these texts will be elaborated on in section 3.1. To thoroughly investigate the various narratives that exist within this data, a qualitative approach is employed, enabling the exploration of underlying patterns within the textual data (Boeije, 2010). Specifically, a thematic analysis was conducted on the articles, aiming to reveal major trends and narratives about AI in the art sector. The process of this analysis, as well as the operationalization of relevant concepts for this analysis, are accurately outlined in section 3.2. Lastly, section 3.3 addresses some ethical concerns for the methodological approach of this research.

3.1 Data collection

The data sample consists of articles that are considered reflective of the perspectives of a variety of actors within the art sector. *Reflective* of opinions, because articles are mostly written by journalists and editors, and therefore can sometimes reflect opinions in the form of paraphrasing, quotes, or interview formats, instead of expressing perspectives directly from the artists and actors themselves. Such articles were found in leading art magazines such as ARTnews, Apollo Magazine, Aesthetica Magazine, or Artnet, but also in the arts and culture sections of major news outlets, or even on websites of major institutions in the art sector, such as museums and auction houses. First and foremost, the broad range of articles from these sources were selected based on if they meet the two topic criteria, that is, if the article 1) discusses artificial intelligence in the context of artistic creation and creativity, and 2) reflects on opinions, experiences, and expectations of AI's role in the creation process of art, or the meaning and value of art in general.

Next, it is important to specify whose perspectives the data reflects. Artists are the primary group of actors whose opinions are relevant, as these are the people who are directly involved in the artistic creation process. However, a second group of actors in the art sector are also considered relevant, namely, actors that have experience with any form of evaluating art in the industry. This group of people includes, but is not limited to, art critics, museum directors, curators, auctioneers, or even arts and culture journalists. Important to note here is that it is not the objective of this study to define whose opinion does and does not belong in the art world, but rather, to get a most broad and general sample as to not exclude potentially relevant perspectives on AI art. Lastly, considering the rapid development of AI, the recency of articles was also considered, limiting the data to texts published between 2019 and 2024. Articles that meet all these criteria were considered suitable for the sample, following a purposive sampling procedure, enabling a sample that is rich and focused towards the study's objectives (Boeije, 2010).

With these criteria of the corpus in mind, the sampling process consisted of browsing for suitable publications online. This was done mostly manually, since no databases containing a comprehensive collection of publications within the art industry exist. However this manual browsing on websites had advantages compared to automatic data scraping. For one, familiarization with online publications of several renowned magazines and institutions in the art world allowed for a better understanding of the context of the articles. Reading a large number of articles and selecting articles for the sample ensured a general understanding of the content of the data before data analysis itself started.

The final sample consisted of 48 articles. These articles were collected from 3 main sources: 1) the arts & culture sections of renowned newspapers, 2) the online editorial archives of renowned art magazines, and 3) the online editorial archives of art institutions such as museums and auction houses. First, newspaper articles were collected using LexisNexis, using the search terms 'artificial intelligence', 'AI (or A.I.)', 'art', 'artist' and 'creativity'. Additionally, articles were further narrowed down using the preset filter 'entertainment and arts', with sub-filters 'art festivals & exhibitions', 'museums, parks, gardens and historical sights', 'visual arts', and 'art dealers'. This resulted in 45 articles, which were scanned through individually, and selected based on the above-mentioned 2 criteria. This part of the data collection finally delivered 18 relevant texts from The New York Times, The Washington Post, The Japan Times, The Independent, Financial Times, and The Guardian.

The next part of the data collection was achieved through browsing websites of major art magazines and art institutions. The websites of these magazines and institutions all had an archive of online publications, that were searched using the term 'artificial intelligence' or 'AI (or A.I.)'. Next, the results of these search terms were browsed and articles were purposefully selected with again the two criteria in mind. For example, articles only describing an AI-art exhibition superficially, without mentioning any implications about the relation of AI to the creation process, to the artist, or to the meaning of art in general, were excluded. In total 18 texts of online art magazines (Art Review, Artnet, ARTnews, Aesthetica magazine, Artforum, and The Art Newspaper) were collected, along with 12 more texts from art institution websites (MoMa, Christie's, Sotheby's, Guggenheim Museum, Art Basel, Frieze, Smithsonian's, and Fondazione Prada).

Finally, the extracted LexisNexis files were downloaded into separate Word-files, and the flat text of the online articles, so without images or other visuals, were copied and pasted in separate Word-files as well. The 48 texts were then individually uploaded to Atlas.ti for further analysis.

3.2 Method

As mentioned, the particular method of analysis that will be conducted for this study is thematic analysis. Thematic analysis is the most suitable for identifying actors' subjective views on, and experiences with, artificial intelligence in the context of art. More importantly, the flexibility and wide applicability of this method fits the research aims, as the analysis will be both inductive and deductive in nature art (Braun & Clarke, 2006). Inductive, because the priority of the analysis is to look through a lens of the concepts of technological determinism and social constructivism. These foundational concepts guide the thematic analysis procedure, as a base for uncovering patterns within and between the articles. Deductive, as this particular context of art and creativity has not been examined for AI narratives yet. Although academic insights on AI and creativity serve as a starting point for exploring perspectives, these will not lead the coding procedures, as the goal here is to explore public, not academic, narratives. Therefore, the data itself will predominantly guide this aspect of uncovering patterns regarding the relationship between AI and creativity. Thus, the goals of this research are both theory-driven and exploratory in nature, and thematic analysis is a tool that can be used to bridge the divergent aspects of the study.

3.2.1 Data analysis

The thematic analysis was guided by the process as outlined by Braun and Clarke (2006), using Atlas.ti as a tool for manual coding. The first step in the analysis followed the open coding phase, which involved determining smaller fragments in the data relevant for answering the research question, which were then individually coded according to their meaning in the text. In the case of this research, such fragments mainly consisted of quotes and opinions from various actors in the art sector. Next, axial coding was employed to organize similar open codes into broader categories. This process paved the way for the final phase of selective coding, which aimed for uncovering central themes within the data, shedding light on recurring patterns regarding the perspectives, experiences, and future expectations of AI's role in creativity and the art sector.

Although the results of a thematic analysis are referred to as themes, it makes sense for this study to refer to major themes found as 'narratives', as the theoretical background from which this research derives is concerned with sociotechnical narratives in particular. In the results section, then, the final themes are intentionally and exclusively expressed as narratives.

3.2.2 Operationalization

During thematic analysis, relevant theoretical constructs were taken into account when coding fragments of texts. In order for these theoretical constructs to effectively be applied in the coding process, the concepts needed operationalization beforehand.

In line with the primary aim of this study, narratives regarding AI in the art sector were analyzed through the concepts of technological determinism and social constructivism, with a third co-creation perspective encompassing a combinatory approach. Each concept can be concisely operationalized through their key assumptions as explored in the theoretical framework. Technological determinism is operationalized through the assumptions that 1) technology develops autonomously, following its own intrinsic logic that operates independently of social influences, and that 2) technological developments dictate social change in a definite and unnegotiable way (Kline, 2015, p. 109). The social constructivist perspective assumes that 1) technology does not develop according to an internal logic but is a social product (Williams & Edge, 1996, p. 866), and that 2) the development of technology is always imbued with already existing social purposes and practices (Williams, 2003, p. 8). Lastly, in this study a co-construction approach is understood as achieving nuance between

these two concepts, through the assumption that humans and non-humans, or society and technology, are not distinct entities, but intertwined processes that continuously mold and construct each other, and are not isolated from or autonomous over the other. The core assumptions of these three distinguished theoretical constructs formed the basis for interpreting perspectives on AI in the art sector, guiding the coding of the data during thematic analysis.

In line with the secondary, more exploratory examination of narratives on the relationship between artistic creativity and AI, the data analysis was guided through various academic discussions on this relationship as elaborated in the theoretical framework. For this, three main categories were determined that each reflect a different aspect of this relation between AI and creativity. First, the perspectives will be interpreted through a comparison between AI creativity and human creativity, with particular qualities and capabilities either present or lacking in AI's creative output. For example, Boden (1998) stresses that AI lacks the ability to determine value to creative ideas. The idea here is to reveal opinions on the question if AI can make real art as perceived by humans. The second category involves the practical relationship between AI and the artist. An academic perspective that fits this category is the advocacy for a collaborative approach by Mazzone & Elgammal (2019). The focus here is on how the AI's position is framed during the creative process. For example, is it considered a passive or active contributor? The third and last category that guides the interpretation of the data, encompasses discussion on how AI plays into the broader understanding of art, potentially reshaping its meaning (Mazzone & Elgammal, 2019). These three categories functioned as axes through which perspectives in the data could be more effectively compared during analysis.

3.3 Ethical concerns

Discussing the issue of newly emerging ethical concerns through the increase of academic research in the online realm, Hookway (2008) notes that the primary question of using online data is the meaning of public availability of content. That is, is it ethical to use blogs or articles that are published with a specific audience in mind, as data in a study without any form of consent? In response to this issue, Walther (2002) argues that publicly archived content on the Internet does not need participant consent, as it is part of an open public space that is the online realm. Deriving from that analogy, this study did not implement participant consent, also because it would not be feasible to approach renowned journalists and other actors in the art world.

Next, anonymity of the authors of the articles is a point worth of ethical consideration (Hookway, 2008). However, since the position of some of the authors, or other actors' whose views are expressed, might potentially be of relevance for the context of their perspectives, complete anonymity could not be ensured for this research. The persons expressing the opinions represented in the data could not be fully left out during data analysis, as they could contribute to a comprehensive context of their views. Still, the perspectives and opinions of these people were handled with care, through a constant awareness of fair representation during the research process. Most importantly in this regard, was the focus on explicit readings of the data, in the sense that perspectives in the articles were taken literally, refraining from imposing assumed meanings on the quotes and fragments. Using such 'low-inference descriptors' during research allows for the observations during analysis to stay as close to the actual data as possible, in an attempt to limit the influence of possible researcher bias (Silverman, 2010), and thus also increase ethical use of opinions and perspectives in this study.

4. Analyses and Results

The thematic analysis conducted on the total of 48 texts revealed six major narratives that were each strongly present among the dataset. The six themes are not absolute, in the sense that their boundaries were not as strict as might be deduced from their discussion below. Yes, they all clearly have their very own perspectives on AI and art, but many texts portrayed various perspectives that caused overlap in the narratives, even when they sometimes seemingly contradict. That being said, the six narratives that were found are: 1) transformative potential, 2) a creative partner, 3) a mere tool, 4) art without a soul, 5) autonomous artist, and 6) a disruptive force. Each of these themes were derived from multiple codes that often appeared together in the texts. Each theme consists of an average of 12 codes, and have either two or three subthemes that distinguish the various perspectives within one narrative (for the full codetree, see Appendix A). Below, each of the six narratives will be defined and illustrated using quotes from the dataset. Not only is the order of the narratives based on the amount of texts that they appeared in, but narratives that have comparable perspectives are put after each other. That is, narratives 1 and 2 both provide rather nuanced and co-construction approaches, narratives 3 and 4 lean more towards the social constructivist side, and narratives 5 and 6 seem to be more technological determinist than the others.

4.1 Transformative potential

A most occurring narrative across all of the texts was the idea that AI as a technology will cause major shifts in the meaning of art. Notably, most of these perspectives expected positive change, seeing AI as a tool that brings a broad range of new opportunities for what art can be. Here, AI was seen as an extension of human art, not a competition for it. In total, this perspective appeared in 31 of the 48 texts, spread out over 78 individual quotations. Interestingly, a comparison with the photo camera was often made in this narrative, which was first feared to make art obsolete, but ended up becoming a rich new art form. This transformative potential is also recognized for AI:

> *Art matters because as humans, we all have the ability to be creative. With time, the art we create evolves, and technology plays a crucial role in that process. History has shown that photography, as a novel tool and medium, helped revolutionize the way modern artists create works by expanding the idea of what could be considered art (...)*

This analogy is crucial to understanding the potential for artificial intelligence to influence art in this century.[1]

Three subthemes define the specific perspectives that constitute this narrative; 1) breaking boundaries, 2) new opportunities for artistic expression, and 3) beyond our imagination. The first one, named 'breaking boundaries', specifies the perspective that AI revolutionizes the practice of art making through breaking boundaries of existing conventions in art. It is seen as something that will significantly shift current art conventions and change rigid frameworks:

We imagine a future where a symbiotic relationship with machines will give us new insights, knowledge, and the power to not only challenge but change existing systems.[2]

The widespread availability of artificial intelligence programs that serve as image and text generators is upending the rules of cultural production - and changing how students learn what it means to be an artist.[3]

The second subtheme, 'new opportunities for artistic expression', reflects the notion that AI is a technology that opens up endless possibilities of exploring new modes of art-making, which many artists approached with curiosity and excitement. In this perspective, AI became "a bottomless pit for exploration[4]":

I don't totally understand it now, but anything we tested it with, it achieved. So I think it's a whole new open door of explorations… Anything's possible.[5]

Right now, new technologies such as A.I. also excite me…The emergence of various digital tools, including A.I., prompts me to wonder if they could be catalysts propelling us to embrace a brand-new artistic methodology?[6]

The last subtheme of this narrative, 'beyond our imagination', expresses that AI can create new possibilities for creating art that we could not have ever made or envisioned without it. Not only does it transcend the boundaries of what we understand art to be, it can even go beyond the boundary of what we as humans are capable of understanding and imagining:

This time, the machine is its own source of creativity — with the ability to comb through vast amounts of historical and social data, artificial intelligence can produce truly novel and uncanny imagery that is beyond our imagination. This element of surprise is the force that can advance artistic mediums in new directions. (See Footnote 1).

But what the machine learning model, in tandem with Anadol's studio, decides what and how to classify, is in part a black box. It may decide that certain things are relevant, or similar, in ways that we just wouldn't understand.[7]

In conclusion, the 'transformative potential' narrative reflects both hints of determinism and constructivism. Deterministic, because AI is framed as a revolutionizing technology that catapults right into our framework of what art is, and then drastically changes it (albeit in a positive and exciting way for most). In this perspective, the transformative power of AI in the art world sometimes seems to lack the aspect of human intervention, using phrases that seem to attribute full power to the technology; "it is upending the rules of cultural production" (See footnote 3). Still, many quotes implicitly express that AI changes the way *humans* make and perceive art. Mirroring social constructivist insights, this means that AI as a technology in the art world cannot be isolated from the human framework of art. Its capabilities are used in specific ways by human artists, and are thus a product of human art-practices as well. This narrative, then, shows a nuance of determinist and constructivist approaches.

4.2 A Creative partner

In strong relation with the previous narrative, this narrative sees AI, with its surprising and transformative capabilities, as an inspiring and equal creative partner in the art-making process. Specifically important in this narrative, is that the autonomy of the art-making process is seen as not only in the hands of the artist, but understood as shifting between artist and AI. The two are intertwined and respond to each other's input to come up with new creative output that either could not have produced without the other:

I've been using A.I. as a tool and a partner, and it challenges me to see what it's doing and to be aware of how it's working. Through touching it and playing with it and

getting my hands dirty, I understand more about the way that it is working, which then gives me more liberty in the ways that I use it.[8]

Even if I start with a clear intention for what I want to create, usually in the process of doing that something happens that throws up an unexpected outcome (…) So I feel my role is recognising those moments (…) It's almost like true creativity is [an] accident, and AI helps us become accident-prone by throwing up things that we may not have expected.[9]

This narrative appeared in 25 of the 48 texts, spread out over 64 quotations in total. Two subthemes further define this narrative: 1) collaborative partners, and 2) AI and humans intertwined. The first subtheme, 'collaborative partners', stresses the nature of the collaborative and balanced relationship between AI and artists. AI is a partner that reflects back at us and influences the creation process in its own way, beyond full control of the artist. At the same time, the creation process with AI is also influenced by guidance of the human artist. Almost like a negotiation between the two:

In other words, even though such AI wouldn't automate the creation of art (and why would we want this anyway?), it could offer artists something more valuable: intelligent feedback and even dialog.[10]

The initial source data for the AI paintings were my first five paintings, made without AI. From there it's become an ever-expanding dataset: the more paintings I make, the more I photograph and put back into the dataset. It's a mirroring process of the AI interpreting my marks and gestures, and then me referencing the AI's interpretation by creating new paintings based on the images it generates.[11]

What also fits this narrative, is the second subtheme 'AI and humans intertwined', which recognizes that AI and humans are not separate entities. Instead, as a technology made by humans, AI reflects human information, or, humanness in general:

Artificial intelligence, too, is often regarded as alien or antihuman, when actually it's hyperhuman—a system built by humans for ingesting, processing, synthesizing, utilizing vast quantities of human information.[12]

We need to promote the idea that when we use the digital - because ... it's very much part of our lives - there's the potential for it to hold all the subjective, wonderful messiness of being human (See Footnote 9).

In this sense, AI cannot be something we have to compete against when it is part of us. Instead, it reflects patterns already present in human practices and values, and offers an invigorating lens to our own human frameworks. Through learning about 'human data', AI becomes a reflective partner that can put things into a new light, allowing us to learn about our own creativity as entangled with AI:

I'm interested in thinking about the self as a unique dataset. I like to think about the entanglement that we have with AI, how we're influenced by AI and how we've absorbed algorithms into our physical bodies (...) The paintings are, in a way, physical gestural expressions of the algorithms that I embody (See Footnote 11).

There's this pervasive idea that poetry is quintessentially human and deeply expressive, while technology is sterile, automated, emotionless. To me, this is a false binary. My work is about trying to use technology as a lens through which to understand why poetry has always been so important to humans, and why it might continue to be relevant to the things that we're bringing into the future (See Footnote 12).

The 'creative partner' narrative represents a co-construction approach, simultaneously reflecting a nuanced combination of technological determinism and social constructivism. In this narrative, the affordances of the AI influences the creative process, but so does the artist. Neither is claimed to control the workings and the output of the other. Instead, the creative process becomes one intertwined network that is guided by both entities' actions and interpretations, resembling insights from ANT.

4.3 A mere tool

Quite opposite to the previous two themes, this narrative frames AI as a technology that is nothing more than a tool that, besides its technological affordances, does not actively

contribute to the creative process. Where the previous two narratives acknowledged the influence that AI can have on the creative process, this narrative sees the artist as the sole contributor to the artwork. Although this narrative still reflects the positive idea that AI allows for new creative exploration, and admits that AI is having an influence in the art scene, the AI does not have any agency in the actual artmaking process. Creativity and art stays reserved for human artists only, technology is a mere tool:

> *I think A.I. is definitely altering the criteria of what qualifies as good art. But artists historically have always found ways to assert themselves against threats of obsolescence, and A.I. is no exception (…) People are always going to be interested in what artists do, not because of what tools they use, but how they use them. This phenomenon is so inexplicably charged, fundamentally human, and I think sublime* (See Footnote 8).

This narrative appeared in 24 of the 48 texts, with a total of 49 quotations reflecting this theme. Two subthemes illustrate the essential perspectives of this narrative: 1) human autonomy, and 2) serving artists' wishes. The first subtheme stresses that human autonomy is central in the process of making art with AI. This narrative puts emphasis on the fact that AI has to be operated by a human, sometimes framing AI as entirely dependent on and fully responsive to human input when creating art:

> *A.I. opens up new and valuable possibilities to extend the reach of ideas. It's really like Photoshop: you have tools to use, but it's up to humans to make the final judgment.*[13]

> *It's hard to get away from the humanity in all this. None of these tools can be operated without a human user (for now, at least). They have no will, agency or even memory* (See Footnote 9).

> *Refine, redo, merge, separate, contextualize… A.I. needs guidance to produce usable work* (See Footnote 3).

The second subtheme, 'serving artists' wishes', highlights that AI can be mended to the artist's advantage, in the sense that AI is serving only as a means to reach the artist's

creative vision. A tool that only does what it master instructs it to do. The artist remains the sole author of the work, and manipulates AI's affordances to their wishes:

> *In our society it happens that most of the new "surfaces" that emerge are of a technological nature and art has always been a pilot species that quickly populates any type of new invention or new medium. So for me AI is just one tool in a long history of tools that was bound to be used for artistic purposes. But I would say I use AI as a tool and the works that I make with this tool are mine and not a collaboration, in the same way I would not call a hammer or a piano a "collaborator".*[14]

> *AI is just one of just many advanced tools that I continuously develop in my technological palette of materials. It is inevitable that AI will become ever more powerful, but it will not replace the role of an independent true creative. I will use AI, but not in a way that would replace me—instead, it will be in a way that augments the ambitions and concepts I am working on, and permits me to create even more incredible and original artworks* (See Footnote 4).

> *A.I.'s strength lies in its ability to analyze patterns and produce volume, but it lacks the nuances of human perception, emotion, and intuition. Once we understand these limitations, we can channel A.I.'s capabilities to our advantage, making it an extended tool of our creative exploration rather than a threat to human artistry* (See Footnote 13).

Especially with this last subtheme it becomes evident that the 'a mere tool' narrative portrays elements of social constructivism. Although it does admit that AI is changing the practice of art-making in some ways, the focus is very clearly on how humans utilize this technology and shape its capabilities so that it adheres to their practices and expectations. There is much less nuance compared to the previous two themes, which portrayed elements of both social constructivism and technological determinism. Instead, here AI becomes the product of human artistic practices and values. A technology shaped by human intentions.

4.4 Art without a soul

Similar to the 'a mere tool' narrative, this narrative focuses on how AI could never make meaningful art if there is no human touch present in the artwork. But where the former narrative is more practical in nature, as it centers around human autonomy in the creative process while employing AI as a tool, this 'art without a soul' narrative focuses more on the (lack of) artistic value of AI's output. Art is seen as inherently human, an essentially human pursuit, and it is only human experience that can make art meaningful. In this sense, AI art is deemed meaningless and lacking depth:

> *If AI is to contribute to this, it will have to be folded into the process of a human for me to feel anything. Art remains for me, by definition, a human pursuit.*[15]

> *How a painting looks is such a minor part of what makes art work; and at the end of the day that's all AI - and its proponents - can really give us. A shallow, surface-level approximation of what a person might end up thinking art is if they're too lazy to pick up a book and actually engage with it.*[16]

This narrative appeared in 22 of the 48 texts, spread out over 50 quotations in total. The two subthemes that reflect the core meaning of this narrative are: 1) humans give art meaning, and 2) the creative process. The first subtheme expresses that it is essentially humans that can give art depth and true meaning. Anything created without human experience or emotion is deemed meaningless. It is the humanness expressed in art that makes it art, and there is no place for technological agency there. In this narrative, AI art as produced by an algorithm without human interference is not true art, as art is at its very core a human pursuit:

> *At the end of the day, after making thousands of images using AI and looking at thousands made by others, my feeling is that what I personally love about art and creativity is not there (...) What I love about art is the sense of seeing the world through the eyes and mind of another person, to experience their lived stories, empathy* (See Footnote 15).

> *While the definition of art is ever-evolving, at its core it is a form of communication among humans. Without a human artist behind the machine, A.I. can do little more than*

play with form (...) These activities can be engaging and perceptually intriguing, but they lack meaning without interaction between artist and audience (See Footnote 1).

The second subtheme, 'the creative process', embodies the utter importance of the meaningful creative journey that artists go through. Art is not only about the creative end product, but about the non-linear and chaotic process out of which an art piece arises. Here, AI might be able to produce something that resembles a 'true' work of art, but essentially art can only be art when a complex and meaningful creative process preceded it. AI only spits out end products, without any preceding creative thought, and it can thus never be true art:

My argument is that the end result is not where the 'art' is. It's the journey that matters, not really the destination (See Footnote 15).

When so much of the creative work is being done automatically, the viewer is going to want to literally see the artist at work, to understand what the character of the human part of the creative process truly is.[17]

The flip side to that coin is that the sheer ease of use can sometimes devalue the creative journey (...) One might argue that the effort, the struggle, the hair-pulling, is part of the charm of creation—it's what gives depth and significance to a piece of art. Each masterpiece ought to have a battle story, don't you think? (See Footnote 13).

Although agency is not really a core element of the 'art without a soul' narrative, it is relevant to note that this perspective approaches technology and humans as two separated entities, where the human practice of art seems unaffected by AI. Art knows only humanness, and it seems that this narrative fully excludes AI from any humanness. What makes this narrative still slightly constructivist in nature, then, is the denial of the meaning of art being influenced by AI in any way. This narrative strictly prioritizes human values that are tied to art, and dismiss any potential effect of AI on the definition of what art is. Almost as if humans are able to pick and choose exactly when the AI can and cannot enter the realm of art.

4.5 Autonomous artist

Compared to the previous two themes, which put human agency at the center of art making, this narrative does acknowledge that AI can be an autonomous entity in the creative process, making decisions outside of the full control of a human artist. This narrative even sometimes portrays AI as having made somewhat intentional decisions, taking control in its own hands and taking the lead in art making:

> *The overwhelming majority of images are now made by machines for other machines, with humans rarely in the loop.*[18]

In total, this narrative appeared in 19 of the 48 texts, with 38 quotations. Some of these quotations were more nuanced, sometimes only hinting at AI's autonomy. Still, the quotations reflect an overall idea that AI is very well able to make decisions that are beyond human control, and sometimes even a mystery ('black box') to us. The two subthemes that can be distinguished within this narrative are: 1) not dependent on human input, and 2) humanizing AI. The first focuses on how AI can create output that was not dependent on human input, but rather, the result of autonomous decisions, categorizations and priorities made by the AI:

> *Unsupervised learning, on the other hand, is where the machine does the tagging itself. It's a whole other kind of black box where the machine is actually deciding not only how to tag something, what kinds of properties something should be classified as possessing, but it's also deciding in many ways what is meaningful, what is of value, in terms of information. This is already opening up a kind of agency on the part of the machine that is very different from traditional processes of supervised learning* (See Footnote 7).

> *What we hope is that "Training Humans" gives us at least a moment to start to look back at these systems, and understand, in a more forensic way, how they see and categorize us.*[19]

The second subtheme, 'humanizing AI', states this autonomy less explicitly. Instead, this subtheme reflects the more implicit phrasing as if AI was able to make intentional decisions like humans. Although this narrative sometimes hides in very subtle wording, it is

omnipresent across the data. By using verbs such as ‘thinking’, ‘learning’, or ‘understanding’, these quotations illustrate AI as an autonomous entity close to how we understand human consciousness:

> *While he is careful always to refer to Midjourney as a tool rather than a conscious entity, I note that even Holz occasionally uses verbs like "understands", "thinks" or "talks" when referring to the AI, words that imply consciousness, as if we lack a language to describe this new relationship* (See Footnote 9).

> *Crowds were duly mesmerised, some viewers transfixed for an hour or more, peering into the "mind" of a deeplearning machine that imagined art in and between the category clusters of human efforts that preceded it, and produced art that might have been.* [20]

> *The constantly changing visuals are rendered nearly instantaneously, in shockingly high resolution— the machine “dreaming” of modern art* (See Footnote 2).

Although subtle, the ‘autonomous artist’ narrative slightly resembles technological determinist ideas. Especially within the first subtheme, the idea that AI is able to make autonomous decisions that we are unable to understand, let alone control, illustrates a determinist idea of technology working according to its own internal logic, independent of human intervention. In this way, it dictates the way in which an artwork is made. Its consequences are, however, only on a micro scale: the AI is autonomous in the artmaking process and ultimately decides what the artwork looks like. In this narrative, it is not really extended to larger impacts on the art world, and the AI as an autonomous artist is mostly approached in a positive sense.

Interestingly, however, the technology’s autonomy is interpreted through assigning human characteristics. In this sense, this narrative seems to simultaneously adopt a social constructivist perspective. Although the technology is assumed to work independently of humans and have autonomy over its decisions, it seems that this autonomy is made sense of through comparing it to our own capacities. This could also point to an inherent understanding that humanness is very much embedded in the technology.

4.6 A disruptive force

Although most narratives up until now have been quite nuanced, or at least not as dystopian or fearful, it must be noted that there still was a certain narrative of AI as a pervasive, threatening, and unstoppable force. Even though many artists wanted to explore the technology's possibilities, there were also some fears of replacement intertwined with that. This narrative illustrates how artists, even if they used the technology for making art, recognized AI as a disruptive force:

> *All of which is to say this is a pivotal moment in the history of art. AI-generated imagery "is a major disruptive force, and there will be both democratic and oppressive aspects to it", says British artist Matthew Stone, who used Dall-E 2 in the process of creating artworks for his latest exhibition* (See Footnote 9).

This narrative of AI as a disruptive force, sometimes combined with the fear of obsolescence, appeared in 18 of the 48 texts, with 40 quotations in total. The two subthemes cover the two core perspectives already mentioned, namely: 1) pervasive force, and 2) threat to human art(ists). The first subtheme of this narrative recognizes AI as a pervasive force whose development cannot be halted by humans anymore. We can't do anything else than to accept it as the new normal and learn to cope with that. Fittingly, in this narrative, AI was sometimes referred to as "Pandora's box", and often had a negative tone to it:

> *From Weiler's perspective, there wasn't really another choice than for his class to embrace the machine. "What does it look like to slow down a cycle that is moving as fast as artificial intelligence?" he asked. "Well, nobody is slowing down. We've opened Pandora's box. It's already out of the box, man"* (See Footnote 3).

> *Whatever its promises of glorious utopian productivity, A.I. is going to enter many, many people's lives—artists among them—as a wildly disruptive force, pushed by unscrupulous and insensitive corporate forces, with all the resulting negative cultural associations* (See Footnote 17).

Within the second subtheme of this narrative, 'threat to human (art)ists', AI is not only a disruptive force but is also seen to be a hazard to artists, as well as cultural values tied to art. The quotations in this subtheme discuss how the individuality of artists is threatened,

as AI is making art increasingly homogeneous according to this narrative. The technology becomes a competitor against human art, and is threatening to make human artists obsolete:

> *How can the individuality of the artists come through when more than one artist is using the same AI technology? And if the AI is already trained with certain imagery, is the artist's role reduced to curating the outcomes of such AI?*[21]

> *In a world where you can make images by searching for them in a latent space, as an artist, what do you make? And that's the prompt for everybody because our visual culture is already getting inundated and is only going to get more inundated* (See Footnote 17).

> *Neo-pop art superstar Takashi Murakami has always embraced new technology and was an early adopter of crypto and NFTs, but even he admits fearing that AI might make him obsolete.*[22]

Out of all of the six narratives, the 'disruptive force' narrative expresses the most extreme expectation of AI. Extreme, in the sense that it has the strongest elements of determinism integrated into its perspectives. AI is believed to have already developed into an uncontrollable force, that now might have undesired impact on art and the role of artists. It is similar to the previous narrative in that it attributes autonomy to AI, but now its influence seems to reach much further, and the consequences are phrased as much more uncontrollable and irreversible. Where AI was acknowledged to make autonomous decisions outside of human control during single art making processes, this narrative takes a much more macro approach and takes AI's autonomy as causing major shifts in the meaning of art, as well as the position of artists in general.

All in all, the six themes that were discovered seem to represent a very broad range of perspectives on the relation between AI and art. Where the last two narratives, 'autonomous artist' and 'a disruptive force', represented some determinist ideas, there were more constructivist tendencies in the third and fourth narratives 'a mere tool' and 'art without a soul'. The first two narratives 'transformative potential' and 'a creative partner' even reflected co-construction approaches to AI and creativity. Important to note, is that these

narratives were not strictly separated in the dataset, but were overlapping and intertwined within texts. For instance, AI could be referred to as a tool and as a collaborator within the same text (See Footnote 8), or as a pervasive force but also as a technology that cannot truly make meaningful art like humans can (See Footnote 17). Although seemingly opposing in nature, the narratives illustrate the variety of perspectives that can be held towards AI, even by the same person at once. In the next section, the implications of these results will be elaborately discussed, and final conclusions of this research will be drawn.

5. Conclusion and Discussion

The main aim of this research was to explore AI narratives in the art sector, and offer a renewed context in which to apply long-standing concepts of technological determinism and social constructivism. Accordingly, the main research question was: "How do the theoretical constructs of technological determinism and social constructivism manifest in narratives on the relation between AI and creativity within the art sector?". Answering this main research question also had the aim of bringing the broader academic debate on the relationship between technology and society to new light, answering the sub-question "How can these narratives give new insights into the long-established academic debate on the relationship between technology and society?". On top of that, a more exploratory aim was to uncover alternative 'missing' narratives to start countering the dominant polarized and determinist narratives that roam the public, through the sub-question "Are these narratives on AI and creativity different from other AI narratives uncovered so far? And how?".

Through a thematic analysis of 48 texts representative of the art world, six main narratives were uncovered. These were: 1) transformative potential, 2) a creative partner, 3) a mere tool, 4) art without a soul, 5) autonomous artist, and 6) a disruptive force. These narratives were not mutually exclusive, but rather functioned as repertoires upon which actors in the art world drew upon simultaneously. They made sense of their experiences with AI through various narratives that each reflected different aspects of the constructs of both technological determinism and social constructivism. These mostly nuanced perspectives, and alternating use of these narratives have resulted in three main implications: 1) technological determinism and social constructivism do not have to be understood as opposing forces, but can function as a continuum on through which people can understand their various instances with AI; 2) since autonomy is not constant, but shifting throughout different AI encounters, the academic debate on technology and society should consider a redirection, moving away from autonomy as a central concept, towards the inquiry of the 'relationality' (Dahlin, 2024, p. 73) between AI and humans, and 3) the nuanced AI narratives found in the context of the artworld prove to be an example for revealing 'missing narratives' (Chubb, 2022, p. 14) that can counter dominant extremist narratives, allowing for taking a 'narrative responsibility' Coeckelbergh (2021, p. 2438) towards the integration of AI into society. These three main implications will be elaborately explained and argued for in separate sections below, each effectively answering the research questions.

5.1 Technological determinism and social constructivism in AI-art narratives

The six main narratives found in this study were: 1) transformative potential, 2) a creative partner, 3) a mere tool, 4) art without a soul, 5) autonomous artist, and 6) a disruptive force. Throughout these six narratives, ideas resembling technological determinism and social constructivism were present. The first two narratives, 'transformative potential' and 'a creative partner', seemed to express the most nuance between technological determinism and social constructivism. First, the 'transformative potential' narrative acknowledged that AI will probably have drastic (although mostly positive in this narrative) consequences in the art world that are not in full control of humans. At the same time, this narrative also recognized that AI would allow for new opportunities for human artists to make art, where these new opportunities are thus for *humans* to be practiced, explored and further developed. In this sense, the affordances of the technology both shape and are shaped by human artists, corresponding with an academic co-construction approach (Oudhoorn and Pinch, 2003, p. 3). Whereas this narrative takes a more macro-approach to the co-construction of art between humans and AI, the second narrative 'creative partners' expresses nuance between determinism and constructivism on a more micro level. Here, it is the individual creative process that is influenced simultaneously by the artist's intentions and the AI's decisions. Autonomy is shifting during this process, and both entities contribute to the output. This resembles ideas from ANT, where humans and non-humans form an intertwined network (Akrich, 1992, p. 206), and aligns with Cypher's (2017) interpretation of ANT that challenges the individual autonomous human artist (p. 128). Again, although ANT is a theory standing outside of technological determinism and social constructivism, and essentially denies both perspectives, for the sake of this study these narratives are considered to portray nuance between technological determinism and social constructivism.

As for social constructivism, this concept was mostly reflected in the third and fourth narrative, in which AI was seen as 'a mere tool' and producing 'art without a soul'. Here, AI seemed to be used only through human artistic intention, and the way that AI played a role in the creative process was only as a consequence of human autonomy. Resembling social constructivist theory, AI did not work according to its own internal logic, but its practices were the product of humans instead (Williams & Edge, 1996, p. 866). Especially in the third narrative, 'a mere tool', human autonomy was strictly emphasized. AI was considered to be dependent on human input, and thus human understandings, values and expectations were embedded in its artistic output (Howcroft et al., 2005, p. 337). In the fourth narrative, 'art without a soul', it was particularly stressed that without this human interference, AI would

never be able to make true art. Art is given meaning only when it contains the human touch. This narrative also resembles social constructivist theory, because it denies any autonomous influence on the meaning of art from the AI's side. Instead, humans have control over exactly how and when AI's practices is given meaning. In these narratives, it seems that it is human intention which ultimately shapes the performance and development of the technology (Williams, 2003, p. 7).

Technological determinism was especially evident in the fifth and sixth narratives, where AI was considered an 'autonomous artist' and as 'a disruptive force'. In line with the two core claims of this concept (Kline, 2015, p. 109), these narratives showed that within the art world AI is sometimes understood as 1) being able to make autonomous decisions and following an internal logic independent of human intervention, and 2) is a disruptive force that dictates the practice of art-making and changes the meaning of art and artists in an unnegotiable way. Specifically, the sixth narrative, called 'a disruptive force', was the strongest in this regard, framing AI as something that, now that we have let it out of Pandora's box, cannot be maintained by humans anymore. Artists will have to carry the consequences it brings to the art world. This narrative coincides with Bimber's (1990) strongest categorization of technological determinism, namely, nomological determinism. Here the technology exercises definite and autonomous influence over (an aspect of) society (p. 338). The fifth narrative, 'autonomous artist', was more nuanced, and the focus was particularly on AI making autonomous decisions in micro instances of art-making processes. Here, the autonomous decisions made by AI were unintended by the human artist, which corresponds with Bimber's (1990) 'unintended-consequences' account of technological determinism (p. 339). More importantly, these narratives show that although technological determinism has become a critic's term in academia (Dafoe, 2015, p. 4), it is still a sort of repertoire that people draw upon when making sense of an emerging technology. Maybe technological determinism is not adequate for explaining technology's role in society on itself, but it can account for people's technological experiences in everyday encounters, also referred to as 'justificatory determinism' by Wyatt (2008, p, 174). These last two narratives verify that technological determinism should not be discarded right away, but can still play a constitutive role in people's interpretation of technology.

Thus, all six narratives individually portray either technological determinism, social constructivism, or a co-construction approach. But, even more important than the presence of these sociotechnical approaches in the individual narratives, is the fact that these narratives were strongly overlapping within the texts. The same text often reflected multiple narratives

at once, and sometimes even slightly contradicting narratives. AI could be a tool and a collaborator at once, a strongly disrupting force in the art world, but simultaneously a technology that cannot make true meaningful art. One narrative might be more outspoken than others in one text, as but certainly a core finding of the study is that the narratives were colliding and merging into one another as the actors in the art world tried to make sense of their experience with this technology. The narratives seem to be contradicting, but can each be true on different levels and within different experiences. These narratives seem to be placed on a continuum of technological determinism and social constructivism, and function as repertoires from which actors in the art world are consulting to interpret their different encounters with AI. This is thus the answer to the main research question "How do the theoretical constructs of technological determinism and social constructivism manifest in narratives on the relation between AI and creativity within the art sector?". The two concepts appear to be interconnected throughout the various AI perspectives that roam the art world, with neither of the concepts significantly more present than the other.

5.2 From autonomy to relationality

The answer to the main research question also guides us to answering the first sub-question; "How can these narratives give new insights into the long-established academic debate on the relationship between technology and society?". If technological determinism and social constructivism are both used by actors in the art world to make sense of their AI encounters, then does that not point to the fact that they are not, in fact, essentially opposing concepts? A first main implication of this study is thus, that technological determinism and social constructivism do not have to be understood as conflicting forces in the sociotechnical debate. Rather, as Paragas and Lin (2016) strongly argued for, the two concepts can indeed together function as a continuum through which different instances of technology can be understood (p. 1532). Considering the fact that the narratives found in this study were relatively equally represented, and were overlapping within actors' perspectives, the results support the idea that the question of autonomy in academic debate should not be strictly dichotomous in nature, arguing for either human or technology's autonomy, but instead is able to shift depending on the context of the technological experience (Dafoe, 2015, p.4).

But with this implication, another challenge arises. As discussed in section 2.1.4, Dahlin (2024) questions that if we are to see the relation between AI and humans not as a question of competing autonomy, not a binary matter, but as a fluid and complex relationship where agency shifts within different instances, then what is the significance of focusing the

debate on autonomy (p. 60)? It becomes a "double-edged sword" (ibid, p. 72) where a technology is sometimes attributed autonomy, but other times denied autonomous decisions, and thus not a consequent, or at least not most efficient, measure for the relation between humans and AI (ibid, p. 72). Instead, she proposes to redirect the framework around AI-human interactions from agency towards 'relationality' (ibid, p. 73). Interestingly, Dahlin (2024) mentions the actor-network theory (ANT) as an earlier form of denying this focus on autonomy (p. 61). Indeed, as discussed in the theoretical framework, Latour's (1990) approach with ANT focused on moving beyond the divide between the social and the technical, and recognized how both humans and nonhumans contribute to integrated networks (p. 103). Although the theoretical framework of this study framed ANT, and co-construction in general, as a middle ground between technological determinism and social constructivism at first, it now becomes even more important to recognize that it actually moves beyond these two concepts. These heterogeneous networks in ANT, theorized long before AI emerged in society, very much align with Dahlin's (2024) approach of 'relationality' between humans and AI.

The results from this study prove to be a verification for this redirection towards relationality as suggested by Dahlin (2024, p. 73). The narratives that were found reflect different levels of human and AI autonomy, and these varying narratives are alternately drawn upon by actors in the art world. Autonomy between humans and AI shifts throughout different instances, and is not always perceived as a fixed attribute. Thus, besides reconsidering technological determinism and social constructivism as a coherent continuum rather than opposing forces, a second implication of this study is that it can even be useful to move beyond the question of agency and autonomy altogether. Instead, the sociotechnical debate around AI could benefit if we start considering the complexity and fluidity of the AI-human relationship. Because "doing so in the case of AI and humans makes it possible to imagine their relations as being something else than a competitive one" (Dahlin, 2024, p. 62).

5.3 AI in the art world: A 'responsible' narrative?

The implications made in the previous sections suggest that the AI narratives in the art world are not defined by a strict dichotomy between technological determinism and social constructivism, and that the debate should potentially even move beyond these two autonomy-centered concepts that have dominated the academic discussion for so long. But, besides these conceptual insights, another purpose of this study was to explore AI narratives in a different context from what has been researched up until now. As mentioned earlier in the

theoretical framework, narratives are not just sense-making tools, but can ultimately guide the development, usage, and integration of a technology (Cave et al. 2018, p. 4; Chubb et al., 2022, p. 5; Fast & Horvitz, 2017, p. 964; Sartori & Theodorou, 2022, p. 6). Now, narratives on AI uncovered so far had the tendency to present either utopian or dystopian beliefs, rooted in hopes and fears, leading to extreme optimistic or pessimistic perspectives that could disadvantage the future development of AI in society (Cave et al., 2018, p. 4, Chubb et al., 2022, p. 5, Sartori & Theodorou, 2022, p. 6). Therefore, part of this study was to answer the sub-question "Are these narratives on AI and creativity different from other AI narratives uncovered so far? And how?". The short answer is yes, the narratives found in this study do not seem to reflect any extreme dystopian and utopian perspectives about AI in the art world. There were some fears of artists being replaced, and maybe some hopes that AI could fully transform the art world for the better. But generally, these hopes and fears were nuanced, and not distant from reality, but often rooted in real-life practice and experiences with AI. The context of creativity and AI was thus a relevant context for exploring 'missing narratives' that need to be uncovered to counter the extreme polarized narratives that roam public discourse (Chubb, 2022, p. 14). Before concluding this third and last main implication of the study, let's reflect on how exactly the found narratives expressed the relation between AI and creativity, and how this offers alternative future outlooks of AI.

The narrative 'a disruptive force' does resemble the determinist stories told in other public narratives uncovered in academia so far. It supports the previous studies that also showed how, apparently, emerging technologies can induce certain deterministic fears in people. It is part of making sense of the integration of the technology. However, it becomes problematic when such perspectives dominate. The other five narratives found in this study become especially relevant here, as they actually might start to represent the more nuanced and alternative 'missing narratives' (Chubb, 2022, p. 14). For one, the narrative 'transformative potential' recognized how AI is able to move beyond 'conceptual spaces' of human art, and actually deliver transformative creative ideas (Boden, 2016, p. 68) that could offer a whole lot of surprising new creative opportunities for artists and audience alike. This narrative is rooted in the recognition of the technology's novel capabilities that allow for new modes of artistry, but never does it express any extreme hope that AI will come and salvage the entire art world, or fear that it has come to take over art. It is a realistic narrative based on how artists have perceived their first experiences with AI: as a surprising and exciting technology that can be explored for new meanings of creativity.

Similarly nuanced is the narrative of ‘a creative partner’, where the AI is acknowledged as a potentially autonomous entity that brings valuable contribution to the creative process. A symbiotic relationship similar to the one Mazzone and Elgammal (2019, p. 8) promoted, where the AI does not have to adhere to human artistic standards in order to be considered a valuable partner in the creative process, and where both entities’ artistic capabilities were maximized by the other. This narrative also shared perspective with Zylinska (2020, p. 13), who argued that humans, and thus human art, have always been technical in their practices, and that AI can just as well be part of artmaking as the human artist can. Art can be a hybrid process between humans and AI, with the two intertwined during the process (Coeckelbergh, 2016, p. 301; Cypher, 2017, p. 119). Interlinked with this narrative was the AI as an ‘autonomous artist’ narrative, where the AI was seen to make its own decisions and guiding a creative process, without intervention of humans. Here, the cooperation between human and AI was more dependent on the AI’s output and less on the artist’s guidance. Still, neither of these narratives expressed competitive elements: not a human-versus-the-machine, but a “human-with-the-machine” approach (ibid, p. 66).

The narratives ‘a mere tool’ and ‘art without a soul’ were less inclusive of AI in the sphere of creativity and art. These narratives took on a more traditional approach, similar to O’Hear’s (1995, p. 150), where art is an exclusively human pursuit, and only human experiences can give art true meaning. AI was excluded from being able to produce ‘real’ meaningful art in this narrative. However, even these narratives did give AI a place in the creative process, although a more practical one. The human touch was strongly prioritized in the art making, but actors that held this perspective could still see a cooperative relationship with AI, and did not discard the technology entirely from the practice of making art. Although more humanist in nature, these narratives can also constitute a creative partnership advocated by Mazzone and Elgammal (2019, p. 8), but one guided by human intentions.

All in all, these narratives show that the context of creativity and art is a fruitful realm for exploring new and promising AI narratives that express a cooperative, not competitive or overly dependent, relationship between humans and AI. Instead of reflecting drastic hopes and fears, this context has proven its potential to give rise to nuanced perspectives, where the AI’s value in the creative process is not immediately discarded, but also not overly praised. The third main implication for this study is that the narratives found show that the context of the art world and creativity, with its nuanced, hopeful, and cooperative approaches rooted in actual encounters, can be a sample for starting to take the ‘narrative responsibility’ for AI as

advocated for by Coeckelbergh (2021, p. 2438). It is essential to actively start understanding and exploring narratives about AI, so that we claim the responsibility for AI's role in society.

Importantly, this responsibility is not a matter of autonomy, not a matter of either AI or humans fully taking control (ibid, 2021, p. 2442), not a matter competing with AI. Instead, taking this responsibility is about accepting both human and AI autonomy, and "bring together humans and technologies" (ibid, p. 2442) in a way that we can create a meaningful and cooperative story. This third and last implication then, ties together the answers to the questions asked in this study. If we are to take responsibility for the development of AI through our narratives, we must rewrite and seek out new narratives ourselves (Coeckelbergh, 2021, p. 2448), and discard the dichotomy of either technology's autonomy or human autonomy, technological determinism or social constructivism. Instead, we take these two concepts as a continuum, in which all experiences with AI can take place (Paragas & Lin, 2015, p. 1532). Even more so, this continuum only becomes part of our sense-making, and instead a renewed focus on the complexity of the AI-human relationship is necessary. Deriving from Dahlin's (2024) approach, this study advocates for a redirection from autonomy towards considering relationality with AI.

5.4 Limitations and suggestions for future research

Although the results of this study are of academic and social relevance, there are some limitations that should be taken into account when interpreting its implications. One limitation is that this study does not make a distinction between various forms of AI. Instead, a broad approach to the term was taken, resulting in the inclusion of perspectives on different types of AI, such as public AI services such as MidJourney and DALLE-3, as well as individually coded AI models that only function on enclosed datasets selected by the artist or their team. Therefore, perspectives on AI as reflected in this study might have been improperly compared in some cases, as they reflect opinions on different types of AI that each bring different implications to artmaking. Still, the aim of this study was to map out the broadest AI narratives that currently roam the art world, and the lack of distinction between AI types should not drastically impair the most common narratives found in this study.

Another limitation is the potential bias in the sample of perspectives from the art world. The sample may not accurately represent the full spectrum of viewpoints, particularly those of artists who strongly oppose the use of AI. The data predominantly included artists who incorporate AI into their creative processes. This overrepresentation might skew the findings and overlook even more critical perspectives from artists who resist or critique AI

technology. Consequently, the thesis potentially does not fully capture the diverse attitudes and opinions within the artistic community regarding AI.

Future research could complement the current study by uncovering more explicitly the perspectives and narratives of certain groups within the art world, for example, artists that use AI and artists that omit it completely. It is also encouraged to explore AI narratives in other contexts that have not been researched before. This would contribute to exploring new and alternative narratives, as to extend our understanding of how AI is being made sense of in different areas of society.

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Appendix A: Codetree

challenge status quo	Breaking boundaries	Transformative potential
redefining meaning of art		
value of human art in new light		
art and technology merging		
crossing-boundaries of art world		
opportunity for breaking stylistic borders		
extending human artistic capacities	New modes of artistic expression	
ai art as magic		
endless possibilities		
exciting new opportunities		
new modes of artistic expression		
enhancing creativity		
democratizing art		
beyond our understanding	Beyond our understanding	
beyond human frameworks/patterns		
unexpected and unpredictable		
balanced autonomy	Collaborative partner	A Creative partner
ai influencing creative process		
combining ai and human capabilities		
negotiation between ai and humans		
work together in harmony		
creative partner		
collaborative art-making		
ai part of humans		
ai reflecting social patterns		
ai reflecting human values		
integrating real-life and ai		
collective memory		

as a mirror for ourselves	Humans and AI intertwined	
learn from ai		
ai product of human creativity		
has no consciousness	Dependent on human artist	A mere tool
can't approximate human ideas		
dependent on human input		
human autonomy		
enhancing efficiency	Serving artists' sake	
a tool		
extend artist's vision		
mend to our advantage		
beneficial to artists		
disrupting human values	Humans give art meaning	Art without a soul
lacking emotion		
lacking human experience		
humans give art meaning		
creativity exclusive to humanity		
art as a human pursuit		
human touch stays valuable		
meaningless art		
art is about creative process	About creative process	
not only about end product		
create based on mimicking	Unoriginal art	
unoriginal art		
inauthentic art		
better capabilities than humans	Not dependent on human artist	Autonomous artist
independent of humans		
autonomous decisions		
intentional decisions		
ai as a living thing	Humanizing AI	
able to think		
ai art compared to dreaming		
personification of ai		
able to learn		
pervasive force	Pervasiveness	
dramatic change		
no going back		

beyond our control		A Disruptive force
challenging authorship	Threat to human art(ist)	
artist's individuality threatened		
killing incentive to create		
devalueing human art		
fear of replacing artists		