Article

AI sustainability in the art sector: Chinese contemporary visual artists' solutions for working with AI to overcome global AI concerns

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Abstract: Nationwide integration of AI into the contemporary art sector has taken place since government AI regulations in 2023 to promote AI use. China's AI integration into industry is 'ahead' of other countries, meaning that other countries can learn from these creative professionals. Consequently, contemporary visual artists have devised arts-led sustainable AI solutions to overcome global AI concerns. They are now putting these solutions into practice to maintain their jobs, arts forms, and industry. This paper draws on 30 interviews with contemporary visual artists, and a survey with 118 professional artists from across China between 2023 and 2024. Findings show that 87% use AI and 76% say AI is useful and they will continue to use AI into the future. Findings show professionals have had time to find DIY, bottom-up solutions to AI concerns, including (1) building strong authorship practices, identity, and brand, (2) showing human creativity and inner thinking, (3) gaining a balanced independent position with AI. They want AI regulations to liberalise and promote AI use so they can freely experiment and develop AI. These findings show how humans are directing the use of AI, altering current narratives on AI-led impacts on industry, jobs, and human creativity.

Keywords: arts-led sustainable AI solutions; Chinese contemporary visual artists; contemporary art sector; AI sustainability; China

1. Introduction

The introduction of artificial intelligence (AI) into the cultural and creative industries (CCIs) has raised concerns about the sustainability of the artist profession, art forms, and the art sector. Concerns center around the ethical and social risks of AI on the art sector. Such AI programs include ChatGPT, Stable Diffusion, Dall-E, and Midjourney. In response, policymakers are establishing frameworks around AI risk, intellectual property (IP), and ethics (European Parliament, 2020; UK Parliament, 2023). Many governments globally have placed the CCIs as important industry sectors to realise national AI sustainable development objectives (see for instance in the UK: DCMS, 2023). The proliferation of generative AI has disrupted creative work through automation (Mahdawi, 2017). AI can easily and autonomously produce art that people deem more creative than that produced by human beings (Contreras-Koterbay, 2019). However, human talent, skill, and creativity are at the forefront of jobs and sustainable development of these industries.

In the European Union (EU) and the USA, governments are slowing developments and applications of AI with discussions on ethics, copyright, ownership, and the artist's role. Subsequently, regulations in the EU are outlined to prevent the risks of using AI, while regulations in the USA help to ensure accountability and responsible use of AI. As the World Economic Forum (2022) states, "the need to resolve issues around the Responsible Use of Artificial Intelligence (AI) has become

increasingly important for countries, citizens, and businesses over the last 8 years, with approximately 60 countries now having National AI Strategies and many have, or are creating, policies which allow for responsible use of this technology." While many discussions have focused on concerns, there is a shift towards considering ways of working with AI. However, there needs to be more discussion about human agency and ability to make working with AI sustainable.

Discourse on 'digital sustainability' places technology at the forefront. This concept includes the preservation and maintenance of digital technology to advance sustainable development goals (Shanken, 2002). For instance, digital sustainability is seen as the process of applying social, economic, and environmental stewardship principles to digital products, services, and data delivered via the internet (United Nations General Assembly, 1987). However, there is a need to focus on 1) 'AI sustainability' and 2) human-centered innovation and development of AI with for example, arts-led sustainable AI practices. As outlined at the UN World Commission on Environment and Development (2022), "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." More discussion on 'AI sustainability' can help to place humans at the core of development, use, and innovation. Therefore, arts-led sustainable AI solutions, which are created and actioned by humans, can progress sustainable developments goals (SDGs) 8 and 9.[1] AI sustainability can create productive employment, decent working conditions, and an industry that fosters human-led innovation.

Contemporary visual artists have historically used and developed new technologies in unexpected and often prescient ways (Rieland, 2014; Francastel, 2000). Artists have for long been seen as vanguards of new ideas, techniques, and cultural practices (Andrews and Hawcroft, 2024). However, cultural policy overlooks the contribution of artists; this underrepresentation risks leaving behind key contributors to technological development, but also not fully capitalising on the value that artistic practice can bring to the development of AI through nuanced critical engagement with the technology (Andrews and Hawcroft, 2024). As Andrews and Hawcroft (2024) argue, "artists and artistic practices are currently underrepresented in cultural policy". This is despite increasing academic literature, arts-led research, and case studies evidencing a close and dialogic relationship between art and AI. As Andrews and Hawcroft (2024) argue, "artists are unique contributors to the development of advanced technologies such as AI". Policy and regulation should include risks underrepresenting the important contribution of artists and arts professionals to AI development. Moreover, voices on AI, copyright, IP, and best uses of AI from outside of the west should be better represented in global AI policy and regulation.

In particular, there is a need for more AI sustainability analysis, perspectives, voices, and guidelines to be included from East Asia in global policymaking on AI. In addition, while there is a comprehensive body of literature and guidelines on cultural heritage museums and sustainable digital transformation in Europe (European Commission, 2019; NEMO, 2022; UNESCO, 2021) and about cultural heritage museum policy in Europe, US, and Australia (Mangset et al., 2008; Mokre, 2011;

Robinson, 2018), there are fewer studies published about 1) AI sustainability or 2) the contemporary art sector.

Analysing arts-led AI practices, rather than AI-led arts practices, can update current global narratives on AI by showing best practices for sustainable uses of AI. Focus should be on the impacts of art practice on AI rather than only impacts of AI on art field and practices. This paper terms this 'arts-led sustainable AI solutions'. Consequently, this paper foregrounds the impacts of artistic practices on AI to show human agency, ability to work independently, and in a controlled way with AI.

China provides an exemplary case because it is 'ahead' of other countries in AI integration into industry, work, and everyday life. For instance, AI regulation to promote its use amongst individuals and organisations was published in 2023.[2] Consequently, contemporary visual artists are in a suitable position to share frontier uses of AI after having had time to find sustainable solutions to overcome AI concerns.

This paper draws on 30 interviews with professional contemporary visual artists and a survey with 118 professional contemporary visual artists from across China between 2023 and 2024. This shows artists' perspectives on sustainable uses of AI and solutions to AI concerns. Their responses are based on their experiences in an advanced AI environment and their willingness to share their viewpoints to help assist other professionals and policymakers globally. This provides concrete suggestions to help ensure the future sustainability of arts professions, decent working conditions, and human-led industry innovation. This can assist with policymaking and in progressing sustainable development goals (SDGs) 3, 8, and 9.

2. AI concerns and arts-led sustainable AI solutions

Existing discourse on AI's impact on art and the art sector focuses on the concerns of copyright, morality, and ethics (Oksanen et al., 2023; Tajalli, 2021). Concerns include copyrighted material in AI datasets, resulting in legal debates on IP and artists' remunerations (Appel et al., 2023; Samuelson, 2023). There are concerns about the sustainability of artists' jobs with AI due to IP and copyright protection. Many artists and creators have expressed concern about generative AI systems that violate IP rights (Appel et al., 2023). Artists' copyrighted material is being used in AI datasets, which has resulted in legal debates on IP and artists' remunerations (Geiger and Iaia, 2024). Rapid technological change creates new environmental and social risks with data privacy and AI training data evades IP law on copying (Zeilinger, 2022).

There are concerns about the sustainability of artists' roles if AI can surpass human intelligence and creativity. Scholars argue AI decreases the value of 'art' and artists' jobs (Charantej, 2022; Horton et al., 2023) and jeopardises human agency in art creation (Dzhimova and Tigre More, 2024). AI's capacity to emulate human creativity is a threat to humans and particularly to artists who see their livelihoods threatened (Wade, 2024). This is because AI can develop sentience (Lavelle, 2020; Husain, 2017), emerging from deep learning architectures with enough data and computational power (Tang et al., 2022) or by combining deep learning and classical programming (Papagiannis, 2017), and can surpass human intelligence (Kalpokas, 2023).

Amidst growing concerns, scholars have begun to explore how digital transformation can drive sustainable development (Bajpai and Biberman, 2021; Philbin et al., 2022). Connecting sustainability with digital transformation is crucial to understand how sustainability can help set the direction and goals of digital transformation (Katsamakas, 2024). Scholars focus on climate change, digital-first solutions for net zero, e-waste, and environmental sustainability (Falcke et al., 2024; Lokuge et al., 2021; Papagiannidis and Marikyan, 2022; Pan et al., 2022;) alongside digital sustainability for businesses, the economy, and to progress SDGs (Bajpai and Biberman, 2021; Isensee et al., 2020).

Within the arts and culture field, there are discussions on digital transformation and sustainability in terms of best practices in digitization of collections at cultural heritage museums (Togiya, 2013; Zhou et al., 2019) and the introduction of digital culture policies for the protection of culture heritage and safeguarding of copyright and IP of cultural heritage museum collections online (Barker and Beng, 2017; Hylland, 2017; Manaf and Ismail, 2010). However, there needs to be more discussion on (1) AI sustainability, (2) the sustainability of jobs and art forms, and (3) protection of the contemporary art sector and contemporary art forms through AI transformation.

Many western-based international bodies are establishing AI policies for sustainable development. For example, OECD (2018) AI Principles provides guidelines on trustworthy AI and provides policymakers with recommendations for effective AI policies (OECD, 2018); the International Labour Organisation (ILO) (2023) outlines a sustainable future for work in the arts sector with AI, ways to harness the full potential of digital transformation, and ensures creators have meaningful involvement in decision-making to maintain future employment (ILO, 2018); UNESCO (2023) outlines advice on policy measures to steer the arts sector towards being more resilient, sustainable, and inclusive (UNESCO, 2023).

However, current discussion on arts-led AI development in the contemporary sector and solutions to AI concerns can only be found in general online websites. As Lalu (2024) argues, sustainable use of AI means maintaining human judgment and ethical considerations; partnerships should have AI providing insights while humans making decisions. One solution for the sustainability of the artists' role, Papagiannis (2017) argues, is for artists to evolve new technologies and the creative applications of software, work directly with software, break the technology to understand how it works, and go beyond the user-friendly tools and pre-set functions. Similarly, Cant (2024) argues "artists need to show their hand in their work and show their process…Focus on creating and presenting art in the most human way, and sell, share, show it in the most personal way." As Charantej (2022) argues, "future artists need to be human".

3. Materials and methods

Researchers recruited interviewees through snowball sampling. Initial interviewees were found by accessing art galleries and art museums in Shanghai, where researchers were based. This was done by emailing art galleries and visiting galleries in-person. First contacts were arts professionals, including gallery owners and curators. Conversations with arts professionals were initiated by sharing

information about the research project. Researchers were able to recruit interviewees within the target population—Generation X, Y, and Z contemporary visual artists from across China—through word-of-mouth initiated from these first meetings and through snowball networking on the messaging platform of WeChat. For instance, researchers contacted art community founders to ask for contacts in their network. Researchers used snowball sampling to ask for further interviewee contacts after these initial interviews. Initial contacts acted as gatekeepers. However, these initial industry contacts and interviewees worked in different organisations or as independent artists, which meant an official 'site' gatekeeper approval to conduct interviews was not necessary. Interviews were carried out in person in studios, offices, and galleries, online via Tencent video conferencing platform, and in writing via email, depending on the interviewee's preference. All interviewees included in this paper gave consent to participate in the research and to be named.

30 semi-structured interviews were conducted with contemporary visual artists, including painters, video artists, multi-media artists, sculptors, new media artists, internet artists, and photographers. The population sample remit was that they were Chinese nationals, currently working as a professional full-time contemporary visual artist, living in China, and had graduated from art school, academy, or university. Interviews were carried out between November 2023 and February 2024. Questions included how and when artists took up AI, their relationships with AI, how they use AI, how they feel about using AI, and their thoughts on the future of the art sector. Interviewees were between the ages of 27 to 59 and inclusive of different art genres to gain a broad range of perspectives on uses of AI. Supplementary Materials (**Table S1**) provides more information about interviewees.

Surveys were conducted with professional contemporary visual artists from across China between February and April 2024. The survey was distributed via social media platforms and nation-wide online art groups that were pre-screened to confirm the inclusion of professional artists, including: Yimo, Léidiàn suǒ, RaidenINST, Super Topic of Digital Art, Super Topic of New Media Art in Weibo. The sample was purposefully stratified to a particular group of Chinese professional contemporary visual artists living and working in China. Surveys did not include the same participants as interviews. The survey was shared in online groups, forums, and super-topics after permission from group administrators. Snowball sampling from interview stage enabled researchers to find art group administrators who were willing to share the survey on their digital platforms and forums. They then also subsequently informed other online art groups they knew to share the survey.

The survey was accessed via a QR code. Participants were automatically taken to an introduction page providing an overview of the research and pre-survey information, which outlined the key aims and objectives of the research project, explained key terms included in the survey questions, and explained the sample remit. Clicking the consent box was seen as inferred consent. The survey included 35 questions, including about when artists started using AI, which AI software they use, their experiences of using AI, how to sustain the artist profession and art forms, and their future prospects for using AI. 118 participants completed the survey in full; these were considered as 'valid responses'.

The research team included 1 lead investigator and 2 Chinese research assistants. This helped to improve reliability in data collection and analysis, as interviews and surveys could be carried out in Chinese and then translated into English. Interview data was analysed by all three researchers. First, researchers jointly discussed and identified research aims, objectives, themes from the literature, and research questions to focus the analysis and create codes for analysis. Second, researchers organized the data by deleting duplications and erroneous data. Data was then sorted and organised. Researchers took out survey responses that were not from professional artists and incomplete responses. While 478 answered the survey, 118 were considered valid. Data was then combined and sorted. Researchers subsequently analysed the data individually. Deductive coding was used to analyse data, where pre-defined codes were used, including common themes in the literature as well as the gaps in the literature, what is happening globally with AI, and global dissemination about AI concerns. Researchers then assigned those codes to the qualitative data. Researchers then conducted a statistical analysis of answer frequencies, using Excel software to count and calculate the percentage of each categorical variable for each question. This provided statistical data on the distribution of answers from respondents.

4. Results

4.1. Uptake of AI

Government policies to develop AI have existed since 2016.[3] However, there has been national-level integration of AI into the CCIs since 2023. 79 AI spiked in amount of use amongst surveyed artists in 2023. 42% of surveyed artists started to use AI in 2023, shown in **Figure 1**. This is distinct to previous years with fewer starting to use AI; 27% in 2022, 19% in 2021, 5% in 2020, and 1% in 2024. This reflects that rapid increase in popularity of generalist open-AI software—namely, ChatGPT. This also reflects the impact of government AI regulations (to promote its use) on professionals' practices and feelings towards using AI.
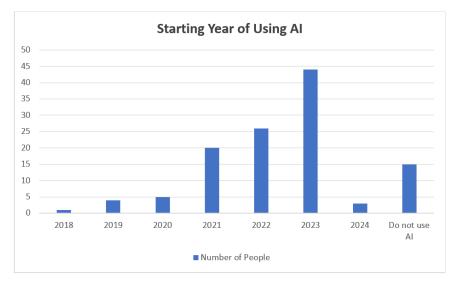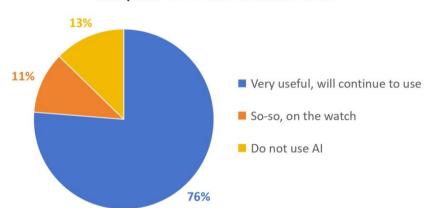

Figure 1. Survey question 'Starting year of using AI'.

Since national-level integration of AI into the contemporary art industry since 2023, boosted by AI regulations to promote its use amongst organisations and professionals, many artists have adopted, accepted, and adapted their daily work routines and their specific practices and methods of artistic creation. Today, 87% of survey participants use AI in daily work and in creating art. They use AI for research, idea creation and inspiration, creating archives of images, debugging code, creating more accurate drawings, creating written poems or scripts. 76% of surveyed artists say AI is 'very useful, will continue to use it', shown in **Figure 2**. This suggests they have found solutions for using AI sustainably in their work.

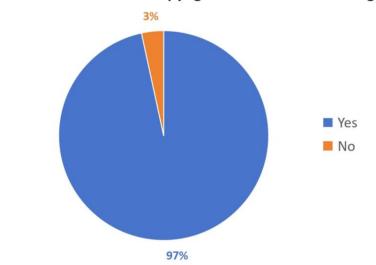**Figure 2.** Usefulness and future intentions for AI usage.

78-The stages of national AI integration and subsequent adoption of AI by contemporary visual artists from across China between 2023 and 2025 is outlined in the Table below (**Table 1**). This provides a framework for AI integration.

Table 1. Model of AI integration in the contemporary art industry in China from 2023–2025.

Integration →	Adoption →	Acceptance →	Adaptation
Government policies on the development of digital technologies and AI. Integration of digital technologies and the contemporary art industry, and digital China. Regulations to promote ease-of-use amongst professionals and art organizations. The government's priority to develop the industry for economic benefit but also to give people jobs. AI is promoted by government at a national level, industry level, organization level, and individual level. The general public are used to digital modes and are used to adapting to change and updates with technology, due to the history and nature of developments of technology in China over the past 30 years.	The beginning of a turn to a 'digital way' in creation processes. A gradual waning of 'traditional', physical production and idea creation methods. There is enthusiasm for AI amongst professionals. Testing and trialing of AI at national, organizational, individual levels, and benefits are found first-hand. National drives and regulations for use of AI Professionals use predominantly international platforms and programs due to their enhanced functions. The general public have a verve for new digital technologies and societal developments. The general public are excited about digital-born content due to this kind of content becoming popular in many spheres of everyday life and in popular culture.	Professionals see its benefits. Professionals see it frees up their time, makes them more accurate, and more powerful. They are comfortable with the whole creation process being digital, i.e., digital-born and digital-throughout-creation. They do not mind AI creating ideas for them, doing more than just non-creative tasks.	There is now more choosing a 'digital way' throughout their creative practices—from idea stage to production stage. AI is now creating ideas, not only non-creative tasks, so it is creating culture. Their work is now about prompting, learning how to best prompt and collaborate with non-humans. Creativity comes through relationships with digiAI. Creativity comes through mixture—mixing software and AI; mediums; industries. They become more like artist-prompter or artist-inputter.

4.2. DIY AI/dataset creation and authorship practices to overcome AI copyright and obsolescence concerns

Artists are concerned about their artworks being used in AI datasets without their permission. 96.61% of survey respondents consider copyright and question whether they can trust AI to use their data ethically, shown in **Figure 3**. As CHILLCHILL says, "there are issues of copyright." Additionally, artists share concerns about the quick obsolescence of AI programs, which can make their work corrupt or inaccessible (sometimes before finishing an artwork). This can impact working hours, income, and the professionals' value/respect. As Gao Cheng says, "the problem lies in the fact that, nowadays, AI may be updated in a month or two. There is a situation where you first started working on a piece but it may be solved by a new generation of technology that emerged after it was done."

Figure 3. Answers to survey question 'Do you consider copyright and ethics when using AI?'.

Artists suggest authorship practices as a sustainable way to protect copyright. Hu Wei says "I think nowadays authorship becomes more important. This refers to the concern that you always have continuation of your work and the language that refers to the editing and specific aesthetics in the way which is very direct to you … it's your journey through your career. That's authorship because it's only you who has made that journey." Survey respondents' most common suggestion to overcome issues with copyright (that have now increased with AI) is to create and maintain a strong identity online: "build a strong brand", "maintain your own uniqueness", and "maintain your own style". Survey respondents' most common suggestion to overcome issues with copyright (that have now increased with AI) is to create and maintain a strong identity online: "build a strong brand", "maintain your own uniqueness", and "maintain your own style".

Some artists discern between different AI programs based on the agency and control each provides them as an 'author'. As Wang Xin says, "I use Stable Diffusion a lot because you can control it better and you can train it yourself."

Other artists are building their own AI, training AI themselves, and using their own datasets to have more control and ownership over their artwork. Wang Xin says "some artists have found ways of working with AI…some now want to have more control than any of the existing programs provide, so code their own AI using their own datasets…I build my own AI with my own data sets. Then you own it and there is no concern over other AI taking your data."

4.3. Avoid entrapment by AI by promoting human creativity and thinking

Generation X contemporary visual artists are concerned that many young generation artists (Generation Y and Z) are becoming "trapped in AI", losing their independent thinking, and being controlled by AI. As Jenny says, "you can get trapped in AI with what it can allow you to do" and Wenchu says "I think you can get lost in it. It's very indulging to human nature." Huang Kiu says "young digital artists focus on the technology itself rather than using it as a tool to express whatever they want to say. This changes their way of thinking, and they become controlled by AI." Ling Jingjing says this is "especially important with regards to the younger generation because they are losing independent thinking. It's not just a small amount of people, it's a generation issue."
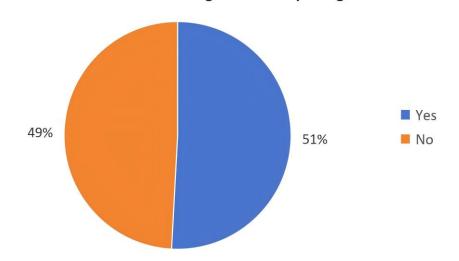
A solution is to identify yourself as a *professional* artist whose artworks are distinct from the general public and more 'human' and 'spirited' than AI creations. Artists should showcase themselves as uniquely creative. They should show their humanity, ideas, and thinking in artworks. Survey respondents' suggestions are to "enhance your creativity", "use new technologies but also use your personal experiences and explorations of your inner world", and "continue to improve the human value of your work". Feng Qianhui says "the primary role of an artist should be that of a thinker and questioner…Artists should remain creators and innovators. The human being must be the subject of artistic creation, not the technology." Ling Jingjing says "we must find our humanity within this technology…become more active users." Similarly, Nova Pan says "the individual—the artist or the thinker—must bring a wealth of experience, a breadth of reading, deep contemplation, and a wellspring of creativity."

They advise artists to push AI in new directions to distinguish themselves from what AI or the general public can do. As Ling Jingjing says, "when everyone has the same tool, you must consider a new way that not everyone can do…It's maybe quicker if you use AI but what you are doing has no value. That's why we need to push everything. You must find a different way. If you are doing things that everyone can do then you are not in the game." As Shi Zheng says, "at first, we all made things that were very similar, as the tech company or software intended. But now we are trying to be different."

4.4. Keeping jobs by maintaining independence, agency, and positioning AI as a helper not controller

Artists are concerned they might lose their job. As Jing Xie says, "some artists are worried that they will lose their job to AI." **Figure 4** shows 51% of survey

respondents are worried about AI taking their job. One survey respondent said "there is anxiety present. This is the inevitable pain period when adopting new technology." However, 48% of survey respondents are not worried as they know it depends on how they use and see AI. As Wang Zoeyang says, "it's actually a balance process, how do you use it better, but still be able to gain your independence…I want to be the me that I want to be within AI." Wang Xin says "it depends how you use AI. You have to think about how to let AI become a good helper and not something that will destroy your job…It's a delicate balance, but one I navigate with growing confidence…combining my artistic endeavors with practical skills". Survey respondents say "integration of artists work and AI can achieve sustainability" if artists "use AI as an assistant rather than creative lead".

Figure 4. Survey responses to the question 'Are you worried that AI will take your job?'.

4.5. Sustainable AI regulations and policies

Artists argue AI regulations should promote their work and maintain the value of their art forms. Interviewees think sustainable AI regulations should not stop nor restrict AI use and development. Rather, artists believe they should adapt their practices with each new technology, as they have always done through history. Ling Jingjing says "the game has changed, then the artist's role and how you make art must change. This has happened through history, and artists adapt and change." CHILLCHILL says "as a cultural manager, if you want this medium [AI] to be used more and more continuously, you must ensure the value of this medium and recognize this medium as a new carrier of culture…cultural policy should not restrict the development of AI. The development of AI promotes the work of artists, just like the invention of photography promotes the development of painting. It will replace some of the original work of artists, but it also tells artists what is important to do in today's era." As Gao Cheng says, "for this kind of cultural and artistic work, I think it [policy and regulation] should be liberalised. Because it's only after liberalization that you

know what the problems are, and it's only when there are problems that you can come up with better policies to guide them."

However, artists argue that copyright protection and training should be included in policy and regulation to make jobs and art forms sustainable. Iris Long says "if we're talking about policy, a more advanced copyright law would be useful." Also, Gao Cheng says "I think the only thing that might need to be regulated and managed is some copyright issues." Training could also be implemented in policy. As Shi Zheng says, "For all artists to reach something beyond or different from what the software intended [to be creative and novel], more training is needed." Survey respondents suggest jobs, the artist profession, and professional art forms require "the improvement of copyright protection" and "artist training and development programs".

5. Discussion

Open-AI software along with government regulations to promote its use have made artists more inclined to use AI in their practices. This has subsequently made artists willing to then try out more specific AI for art-creation, including Stable Diffusion, Dall-E, and Sora. Time trialing and testing AI has raised concerns amongst artists about AI and the sustainability of their jobs, the artist profession, and professional art forms.

For instance, they are concerned about the obsolescence of AI programs and copyright violations in AI datasets. This is already impacting the value of the artist profession, professional art forms, and the efficiency of their work processes. They are concerned about becoming 'trapped' and controlled by AI. Generation X artists are most worried about the young generation and the future of their careers and the art industry. In particular, they worry about the amount of young generation artists (Generation Y and Z) who use AI as art rather than a tool or assistant. Consequently, many artists are losing their independent thinking and have fallen into the trap of producing art similarly to what is also possible for the general public.

Artists think AI should not be regulated to restrict use; rather, they think artists should adapt their practices with each new technology, as they have done through history. Instead, they wish for the liberalisation of policies and regulations to allow them to use AI freely and determine best practices. They want to be able to push AI and experience problems using it as, through this, they can enhance their methods, techniques, and practices. However, they ask for regulations for copyright protection and training on how to use AI in a sustainable, artistic way.

They are turning around AI concerns by finding sustainable ways of using AI. Interview findings show their solutions are: to show their value and humanity in their artworks; to show their authorship practices more strongly than before, by showing their unique brand and personal journey; maintain their independence with AI and position AI as a helper. Some have found that building their own AI and datasets solves issues of copyright and ethics but also overcomes AI program obsolescence. They believe it is critical for the sustainability of the artist profession to experiment and work with AI directly, to understand and be inspired by the opportunities of AI, and then to move beyond this to advance the medium, pushing AI and evolving new forms and content.

A model of solutions to overcome AI concerns for the art sector is presented in **Table 2** below.

Even though some are concerned that AI will jeaperdise their jobs, over half of respondents are not worried. Additionally, the majority say they will use AI in the future. The majority are comfortable to continue to use AI because they have mastered a sustainable way to work with AI and now know how have agency, control, and show their creativity and inner thinking with AI. Survivalist mindsets may have been visible with previous technologies, although, the ways artists are responding with DIY, arts-led sustainable solutions are specific to human responses to AI technology today.

Table 2. Model of AI concerns and solutions for ways to work with AI sustainably.

AI Concerns	Sustainable Solutions for ways to work with AI	Policy and Regulation Requirements
Copyright. AI permission to use artists' works in datasets. AI program obsolescence.	Increase and improve authorship practices. Develop your own AI using your own datasets.	Update copyright regulations for the digital and AI environment. Policy for artists' training in digital skills.
Getting trapped by AI	Avoid focusing on the technology itself. Use AI as a tool to express whatever you want to say. Promote your human creativity and thinking when using AI. Identify yourself as a professional artist who is uniquely creative, show your humanity, and share your ideas and thinking in artworks.	Policy and regulations should promote the use of AI freely, so that artists can test and push the technology in new ways, as they wish.
Losing jobs to AI	Determine a balance and independence when using AI. Maintain you independence, agency, and position AI as a helper not controller.	Create policy to ensure the future of artists' jobs. Update policy in line with SDG8 and 9 to ensure artists' are paid and the value of their professions remain, create productive employment, decent working conditions, and an industry that fosters human-led innovation.

6. Conclusion

This paper has shown how artists are developing their own DIY, bottom-up, arts-led, and human-born ways of sustainably using AI. This arts-led sustainable AI development was born out their concerns about their jobs, the artist profession, and professional art forms. This paper has shared their perspectives on sustainable uses of AI and developments of AI with policy and regulations. This shows a unique example of AI sustainability from people and from a community of artists who are at the vanguard of this technology.

China's forward and distinct AI regulations to promote its use mean AI is now fully integrated in industry and used by professionals. While artists' concerns are similar in other countries, Chinese artists' environment means that they can show and share a lot about what happens after extensive use of AI after national-level integration of AI into industry and policies. They have had time to experience potential problems with AI and devise solutions based on testing, experimenting, and trailing AI themselves.

Arts-led AI sustainable solutions also includes refraining from restricting use of AI with policy but, instead, to liberalise it so artists can adapt to AI as they have done through history with other technologies. Policy should ensure the value of this new medium and recognise this medium as a carrier of culture in itself. Hence, while some

aspects of job sustainability and art form sustainability are coming from these individuals devising their own ways of AI sustainability, some aspects of standardization and regulation need to come from government to properly ensure AI sustainability, including copyright protection, training, and awareness building amongst the general public.

This paper has filled a gap on 'AI sustainability', which has shown how humans can work with AI (rather than banning or restricting it). This perspective shows how humans can use AI but still maintain their independence, professions, working conditions, and innovation. This paper focused on sustainability of jobs and art forms, opening out usual sustainability concept and discussion and connection to environment and industry.

The solutions presented in this paper (for example, liberalised AI regulation, DIY approaches) could inform global AI policies in the art sector. This aligns with and helps to develop SDG 8 on how to promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all. It also aligns with and helps to develop SDG 9 on how to ensure industries include human innovation at their core. This new knowledge about sustainable uses of AI can shift the global conversation about AI's impact on the art community and the creative industry that is commonly negative and technologically focused in literature and policy. In particular, it can show countries in the EU and USA what happens with liberalized AI regulations but simultaneously shows how much DIY practices and safeguarding artists must do to prevent being overcome by AI. This can also help policymaking in countries with less advanced AI integration, such as parts of Southeast Asia for instance, to help safeguard against potential risks of AI (before or as these countries integrate AI into the arts sector).

Whilst there are impacts of AI on art and artists, artistic practices can also have an impact on the sustainable development of AI. This new knowledge can help with policymaking and the management of AI globally and for the future sustainable development of the contemporary art sector globally. Additionally, this new knowledge can be utilised by other professionals in contemporary art sectors in other countries to spur developments in the contemporary art sector.

However, potential challenges or limitations of these solutions are artists are not necessarily powerful enough to prevent further large-scale AI developments that may (inadvertently) jeaperdise their professions and creative industries. Additionally, time is an issue as AI is developing quickly. Hence, we may need new kinds of solutions continuously. Many different parties need to work together and be on board with ideas—including governments and the tech industry. However, it is difficult to make policies with all in agreement. Furthermore, policy may be too slow for some professionals' jobs and industries.

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Ethical approval: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Institutional Review Board (or Ethics Committee) of Shanghai Jiao Tong University, Shanghai, China (Date of approval: 20 December 2023). Informed consent was obtained from all subjects involved in the study. Additional written informed consent has been obtained from the participants to publish their words in this paper.

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Notes

1 SDG 8 helps to promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all. SDG 9 helps to ensure industries include human innovation at their core.

2 On 13 July 2023, the Chinese government published its finalized rules on generative artificial intelligence, the Interim Measures for the Management of Generative Artificial Intelligence Services, which came into effect on 15 August 2023. The objective of the Interim Measures is to regulate generative AI, which is primarily designed to generate content and promote the use of AI for national economic development, ease of use, and to promote business and individuals' innovation.

3 The Chinese Government has developed AI since 2016. For instance, the 13th Five-Year Plan (2016–2020) specified AI as key for achieving economic growth and the 14th Five-Year Plan (2021–2025) outlined a plan for continued state investment in AI. In 2017, the Government introduced a vision for the development of AI in the Next Generation Artificial Intelligence Development Plan (NGAIDP). The Plan outlined the national strategy of using AI for socio-economic development and creating an AI industry that positions China as the world leader in AI by 2030, and to emerge as the global leader in defining standards for AI. For instance, the 13th Five-Year Plan (2016–2020) specified AI as key for achieving economic growth. From 2020 until 2022, several AI laws were published at various levels in response to these broader strategies. At the regional level, China's first provincial law on AI development took effect on 1 October 2020, with the publication of the Shanghai Regulations on Promoting the Development of the AI Industry, which sought to promote the AI industry at the municipal level in Shanghai. The 14th Five-Year Plan (2021–2025) outlined a plan for continued state investment in AI. In 2022, the Ministry of Science and Technology, along with five other departments, issued the "Guiding Opinions on Accelerating Scenario Innovation to Promote High-Quality Economic Development through High-Level Application of Artificial Intelligence."

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