



In collaboration with



Arts and Technologies in India:

Reimagining the Future

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Arts and Technologies in India: Reimagining the Future

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Written by

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“It’s interesting to think of artists as disruptive ... asking questions that are not being asked... In a world that is increasingly being impacted by algorithms, they’re asking the questions that are not yet factored into algorithmic design.”

- Shuddhabrata Sengupta, Artist and Curator, Raqs Media Collective



“The future is not a destination on a pre-determined line... there are many futures. It is within this richness that we must tell our own stories and forge new paths towards futures we envision for ourselves.”

- ‘Learning to speak to an elephant and other stories of decentralised digital futures’, University of Dundee and Quicksand, 2021

Editor's note

This research was realised by Unbox Cultural Futures, commissioned by and developed in collaboration with the British Council. Unbox Cultural Futures is a platform exploring new narratives and building action at the intersection of disciplines, to reimagine India's plural futures. The British Council is the UK's international cultural relations organisation, which finds new ways of connecting with and understanding each other through arts and culture, and building creative and collaborative global communities that inspire innovation, inclusion and enterprise.

The intentions of the report are three-fold:

- To complement existing efforts to develop relations between India and the UK's creative technology sectors by expanding discussions to include a wider community of opinion-formers and innovators in the arts, cultural and creative industries in India, with a focus on cultural spaces, small enterprises, individual practitioners and self-organised communities.
- To inform the British Council's development of programmes at the intersection of arts and technologies in India.
- To give an overview of the Indian arts and technologies ecosystem for practitioners in both India and in the UK, offering a resource to learn about and advocate for a dynamic and evolving field of practice.

It's worth noting that this report is not exhaustive; rather, it is intended to offer a fresh, contemporary take on innovation at the intersection of arts and technologies in India. It is also intended as the start of a conversation.

Considering this report was commissioned with the intention of informing future British Council programmes, the authors hope that the insights surfaced in this report will be ever-evolving, informed by programme participants.

Finally, and most importantly, this report would not have been possible without the generosity and insight offered by so many visionary practitioners from across India. A heartfelt thank-you must be extended to all those who took time to fill surveys, participate in roundtables or engage in open conversation. Your contribution was invaluable.

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Executive summary

There is a rich and growing ecosystem of artists and creative practitioners innovating at the intersection of arts and technologies in India. Largely made up of cultural spaces, small enterprises, individuals and self-organised communities, the ecosystem is home to practitioners who are changing cultural perceptions of technologies, inspiring new digital cultural aesthetics, decentralising sites of cultural production and engaging new audiences in the process.

This report draws on survey findings, detailed roundtables and desk research to provide insight into the ideas informing the arts and technologies ecosystem in India; the people and practices shaping the ecosystem; and the opportunities to enable international collaboration and creative innovation within and beyond this ecosystem.

Ideas transforming arts and technologies in India

Cultural aesthetics: Artists are creatively decolonising technologies, challenging technological bias, and amplifying India's rich culture in visions of the future

- **Cultural heritage and creative technologies:** Artists are connecting handicraft arts with technology to embrace, promote, preserve, and reimagine traditional Indian artistic cultures
- **Decolonising technologies:** Artists are decolonising Western-developed technology, adapting systems and diversifying datasets to better represent the Indian context
- **Indo Futurism:** Indo Futurism brings speculative storytelling closer home to India, integrating narratives rooted in Indian identity, culture, and aesthetics in liberatory futures

Social impact: Artists are using technology as a creative medium through which to interrogate technology and its impact on society

- **From old to new technologies:** Artists are embracing older technologies as ways to engage local communities with more advanced technologies
- **Tackling digital misinformation:** Artists are actively engaging in the topic of digital misinformation, pushing back, engaging audiences, and suggesting alternative approaches to the dissemination of information

- **IP and data protection:** Artists working with technologies are interrogating intellectual property and data protection policy because of its direct impact on their work

Audience engagement: Artists working with technology are pushing back against systemic barriers to create more inclusive and representative spaces for new and unexpected audiences

- **Engaging new audiences:** Practitioners are using technology to tell stories and explain complex artistic concepts in accessible, interactive ways, thus engaging young and hard-to-reach groups
- **Removing cultural gatekeepers:** The arts and technologies ecosystem draws artists from marginalised backgrounds because of its ability to transcend traditional cultural gatekeepers
- **Navigating complexity and creating empathy:** Technology is being used to meaningfully engage new audiences with complex social and marginalised artistic perspectives, creating empathy through immersive, gamified, and multisensory experiences

People and practices shaping arts and technologies in India

Interdisciplinary practice: Innovation with arts and technologies is often a result of personal practices that span diverse art forms and areas of specialist expertise

- **Hybrid creativity:** Practitioners with technical backgrounds are embracing artistic practice, creating a new form of hybrid artist-technologists working with code, digital tools and advanced technology to express their creative vision
- **Cross-artform creation:** Art engaging with technology spans across all art forms and creative industries (film, music, design, fashion) rather than being bound to one definitive art form
- **Personal practices:** Practice at the intersection of arts and technologies is a highly individualised practice, with practitioners drawing deeply on their own personal interdisciplinary expertise
- **Expertise beyond the arts:** The Indian arts and technologies ecosystem brings together practitioners across various fields surrounding arts and technologies

Challenges faced by practitioners: Challenges include a fragmented ecosystem, lack of infrastructure and prevalence of traditional power dynamics

- **Decentralised and fragmented ecosystem:** The arts and technologies ecosystem in India most often operates outside of traditional cultural institutions, resulting in a fragmented landscape of communities of practice
- **Limited formal pathways:** A lack of formal learning and opportunities for recent graduates to conceptualise career pathways hinders the growth of the ecosystem
- **Power imbalance:** In the arts and technologies ecosystem in India, prevailing power structures mirror those found in traditional art spaces but with unique challenges and dynamics
- **Institutional infrastructure:** Arts institutions often have limited infrastructure and resources to exhibit artists engaging with advanced technology, making them hesitant and risk averse

Opportunities to strengthen an international arts and technologies ecosystem

Why collaborate internationally?

- **Amplify practice:** International collaboration provides a platform to amplify and present new opportunities to practitioners and projects, creating a more sustainable international sector overall
- **Spark new ideas and inspirations:** International collaborations enable new ways of thinking, expressing and engaging, thereby inspiring both individuals and communities
- **Decentralise cultural production:** International collaborations also hold immense potential to '*decentralise sites of cultural production*' from historic centres of cultural influence
- **Grow preservation and understanding:** International collaborations could shine a light on India's indigenous stories and knowledge, while also acting to preserve such techniques for future generations

What are the foundations for strong international collaboration?

- **Long-term support:** Continuous, long-term support provides the fundamental conditions for innovative international collaboration
- **Multilateral opportunities:** Multilateral collaboration expands possibilities to tackle global problems and enable cross-cultural exchanges and innovation on a global scale
- **Mutual learning:** Equitable collaboration enables mutual learning and exchange to create collaborative environments where diverse perspectives are valued
- **Increasing awareness:** Collaboration that increases the openness and reception of gallery spaces, fellowships and grants towards arts and

technologies projects can ensure accessible and robust opportunities for diverse groups

What are the opportunities to create impact through international collaboration?

- **Support international communities of practice:** Expand and support existing communities of practice to ensure international participation, convening practitioners across disciplines through sustained interventions
- **Enable skill sharing:** Support knowledge and skill sharing, in particular concerning how to effectively organise communities of practice and how other countries support work with arts and technologies, in both public and private realms
- **Offer practical support:** Offer practical support to India's arts and technologies ecosystem, dealing with the logistical, administrative and bureaucratic challenges faced by artists
- **Broker commercial partnerships:** Broker commercial partnerships to develop mutually beneficial connections for artists

1. Introduction



Above Masked Reality, Harshit Agrawal, 2019

Courtesy of the artist, Harshit Agrawal

A screen displays two masked faces side by side: one a female Kathakali performer and the other a male Theyyam ritual participant. As viewers step towards the screens, their movements and facial expressions are mirrored, simultaneously transformed through multiple Artificial Intelligence (AI) models into both the masked Kathakali and Theyyam characters.

The artwork is called Masked Reality, and the artist (Agrawal 2024) describes the work as 'a deep, self-conscious and subtle exploration of social justice frameworks through the use of AI technology'. A creative application of advanced technology, a critical reflection on society and a commentary on Western algorithmic aesthetics, Agrawal's work is one example of a rich and growing ecosystem of artists and creative practitioners innovating at the forefront of advanced technology in India.

Coming together from a range of disciplines across arts and technologies, these practitioners are developing unique creative applications of advanced technologies, often deeply tied to Indian cultural heritage, expanding the diversity and reach of arts audiences and offering new perspectives on India's sociotechnical futures. While Agrawal (2024) reimagines Western-centric datasets used to develop generative AI images, female-led organisation Ajaibghar (2024) is developing interactive, technology-driven museum experiences, and independent artist

Hasan S (2024) is making cutting-edge robotics, AI and 3D-printing technologies accessible to local Indian audiences through his artistic practice. Progressive local institutions are also beginning to support such artists engaging with technology. In Bengaluru alone, India's first interactive music museum, Indian Music Experience Museum, opened in 2019, the Srishti Manipal Institute of Art, Design and Technology opened in 2021 (2024), followed by the Museum of Art & Photography (2023), one of the first digital art and photography museums in India, and the Science Gallery Bengaluru (2023) in early 2024, forming part of the international Science Gallery Network.

Despite this growing field of practice, and the increase in local and international interest in creative technology in India, there is little formal mapping of the artists, cultural spaces, studios and communities that constitute the country's arts and technology ecosystem. This research will discuss this gap, providing a comprehensive overview of cutting-edge artistic practice at the intersection of arts and technologies by foregrounding the voices of the local artists and cultural practitioners at its heart.

1.1. Context

The increasing interplay between arts and technologies is built on decades of technological development in India. Since the 1990s, India has emerged as a global hub for IT and software. Progress has not only involved digital development. The Indian government has set the goal of making technology 20–25% of the country's GDP by 2025, with advanced technologies like AI considered a significant driver (PTI, 2023). In the context of this rapid technological development, India is surpassed only by the USA and China as countries that show the most promise for the development of disruptive technologies such as AI (KPMG, 2021). This potential for technological growth and impact on a global scale is supported by a rapidly growing number of internet users in India, with 790 million people accessing the internet in 2022 on mobile phones alone (Biswas, 2023). This has resulted in a growing network of tech companies, both Indian and international, with industry concentrated in major cities and pockets of activity throughout the country. The southern Indian tech hub based in Bengaluru, for instance, is home to the largest number of high-growth companies in India (Cornish, 2022) and has been identified as the fastest-growing tech ecosystem in the world, followed by London (PTI, 2021).

Creative technologies are a central component of this growing market. This is particularly evident in India's creative industries, which are engaging with technology at scale; online gaming is expected to attract domestic and foreign investment worth INR 200 billion (approx. GBP 2 billion) from 2020 to the end of 2024 (EY India, 2023). Adobe (2022) has its second-largest employee base outside of North America in India, and Sony is channelling investment into locally produced animation content (Stalcup, 2023).

The UK, with a thriving creative technology sector of its own (DCMS, 2023), is aware of creative technology in India as an emergent and fast-growing field of practice, and is working to develop relations between the two national sectors. The Department for Business and Trade (2023) led a delegation of UK technology companies to Mumbai and the Bengaluru Tech Summit in November 2023, and the Creative Industries Council (2022) led a series of UK–India 'CreaTech' trade mission events in 2022. The UK Arts and Humanities Research Council and UK Research and Innovation (UKRI) have also invested £3 million in research into the creative industries in India (UKRI, 2023), including a study to provide an overview of the creative industries sector in India and the policy frameworks in which it operates (Hitchen *et al.*, 2023).

These delegations, trade missions and research have primarily focused on commercial creative technologies. Complementing and strengthening this work requires an understanding of the wider ecosystem of artists and practitioners working with creative technologies in India. Creating in cultural spaces, smaller studios and enterprises or self-organised communities, these practitioners are also innovating, often at the forefront of technology, and in

doing so, changing cultural perceptions of technologies, inspiring new digital cultural aesthetics, decentralising sites of cultural production and engaging new audiences in the process. It is on these practitioners that this report focuses.

1.2. Report objectives

This report, developed in a collaboration between researchers in India and the UK, will be the first, to the author's knowledge, to offer a comprehensive overview of cutting-edge artistic practice at the intersection of arts and technologies in India with the voices of local artists and cultural practitioners at its heart.

The objectives of the report are:

- To complement existing efforts to develop relations between India and the UK's creative technology sectors by expanding discussions to include a wider community of opinion-formers and innovators in the arts, cultural and creative industries in India, with a focus on cultural spaces, small enterprises, individual practitioners and self-organised communities.
- To inform the British Council's development of programmes at the intersection of arts and technologies in India.
- To give an overview of the Indian arts and technologies ecosystem for practitioners in both India and the UK, offering a resource to learn about and advocate for a dynamic and evolving field of practice.

1.3. Report questions

The following three research questions frame this approach:

- RQ 1: What are the ideas, themes and trends informing work at the intersection of arts and technologies in India?
- RQ 2: Who are the people and what are the practices shaping the arts and technologies ecosystem in India?
- RQ 3: Where are the opportunities to support stronger relations between the arts and technologies ecosystems in the UK and India?

1.4. Methodology

Data collection and analysis was conducted over a four-month period from February to May 2024 by Unbox Cultural Futures and the British Council. To centre the perspectives of practitioners working in the Indian arts and technologies ecosystem, the research employs a mixed-methodology approach, encompassing desk research alongside online surveys and roundtable sessions to give a detailed

understanding of the field, followed by a peer-review process. Data was gathered through:

- Desk research led by Unbox Cultural Futures, covering the current practices, priorities, challenges and stakeholders of the arts and technologies ecosystem in India.
- An online survey involving a selection of organisations and individuals that constitute the arts and technologies ecosystem in India. Participants were selected by accessing Unbox Cultural Futures existing network of practitioners working in arts and technologies, having worked for over 15 years in creative technology and digital design in India. From this initial network, snowball sampling was used to grow the number of participants, with a focus on engaging participants from Tier II and Tier III cities. Twenty-four respondents provided insights covering the geographical distribution of the Indian arts and technologies ecosystem, the span of work across art forms, memorable projects and significant practitioners known to them. Simple analysis was completed to provide basic insights that frame the context of the ecosystem and roundtable recruitment.

Roundtable sessions created space for detailed discussions with stakeholders working at the intersection of arts and technologies, and provided the opportunity to test the findings surfaced in the desk research and surveys. Unbox Cultural Futures led three roundtable sessions in Bengaluru, New Delhi and online, with attendance ranging from seven to 14 per roundtable: 31 in total. Participants were recruited following a purposive sampling designed to curate a sample of the varying expertise and experience of those working with arts and technologies in India. Roundtable duration varied between two and four hours, with attention paid to ensuring contributions from all participants. Questions were designed to respond to the principal research questions, and audio recordings of each roundtable were transcribed and coded iteratively in groups corresponding to core research questions and themes emerging from the findings.

For a more detailed breakdown of the methodology and associated limitations, refer to the Methodology section of the Appendix (7.1).

1.5. Outcomes

Drawing on the findings surfaced through desk research, online surveys and detailed roundtable discussions, this report will outline three areas shaping the arts and technologies ecosystem in India: ideas, people, and opportunities for international collaboration.

First, the report will explore the ideas and themes taking shape at the intersection of arts and technologies in India. Second, it will outline the people and practices shaping the arts and technologies

ecosystem in India and the challenges they face. The final section will make practical recommendations for why, how and what considerations need to be made when facilitating bilateral relations between the India and UK arts and technologies sectors, or multilateral relations with other international ecosystems.

Finally, alongside this report is a living directory of practitioners in the arts and technologies ecosystem in India (see Appendix 7.3).

1.6. Definition of terms

In the context of this report, innovation at the intersection of arts and technologies includes the creative design, development and application of technologies across a wide range of artistic forms and creative industries, including visual art, music, literature, film, dance, theatre, architecture, design, fashion and traditional craft. Technologies used as part of the creative process include but are not limited to: AI; immersive technologies; generative technology; gaming technologies; NFTs; and web3 technologies and haptics, among others.

Given this interdisciplinary practice, artists use various terms to identify their work at the intersection of arts and technologies. This terminology can vary depending on country, organisation and context. Practitioners in this study in India use terms such as 'new media art' and 'tech art' to define their practice. UK organisations such as the Tate (no date) define the term 'new media' as the group of technologies that have become available to artists since the 1980s and developed the digital production and distribution of art, including the CD-ROM, and websites such as MySpace and YouTube. In India, among other countries, this term is also used to describe innovative artistic work with advanced technologies. Unbox Cultural Futures, for example, defines 'new media arts' in the online survey as work encompassing one or more of the technologies listed below.

This report will use the term 'arts and technologies ecosystem' to encompass this work alongside the broader community engaging with art across art forms and disciplines involving technology. The term 'creative technology' is often used to refer to the technologies developed and used in this ecosystem, and it has various definitions. In the UK, accelerator Digital Catapult refers to creative technology as technologies that enable the creative industries to produce new experiences, services, products and other forms of cultural activity. The Creative Industries Council (2022) highlights that creative technology 'brings together creative skills and emerging technologies to create new ways of engaging audiences and to inspire business growth and investment', and Tech Nation describes it as 'new tech that seeks to improve and automate the delivery and use of creative services' (Wright, 2021). The University of Salford's (2024) Creative Technologies Research Centre 'explore[s] the intersections between creative practice and emergent technology innovations'. In the

context of this report, and the British Council's related portfolio, creative technology refers to the broad intersection between technology and the arts, cultural, and creative industries, with a particular focus on artistic and creative practice driving technological development.

The diversity of the above definitions demonstrates the nuance of creative technology as something that both enables innovation of artistic practice and creative expression and is innovated as a result of artistic practice and creative expression. To ensure specificity, the following terms under the umbrella of 'creative' or 'advanced' technology are defined below, applying definitions that draw on the British Council's (2023) recent report mapping the arts and technologies sector in Hong Kong, Japan and South Korea:

- **Artificial Intelligence:** Artificial Intelligence (AI) is an umbrella term for a group of many kinds of information and technologies. This includes machine learning, deep learning, natural language processing and generative AI. AI learns to analyse large amounts of information, recognise patterns and make predictions or decisions based on that information, continuously improving its performance over time. While traditional AI systems are primarily used to analyse information and make predictions, generative AI goes a step further by creating new information similar to that which it was trained with.
 - **Generative AI:** Generative AI is built upon large language models and foundation models. It is capable of creating a range of works, including text, images and media. Generative art involves a practice whereby the artist uses generative AI to create a process (such as a prompt, a set of rules, or code) to develop such works
- **Immersive technologies:** Immersive technologies encompass Virtual Reality (VR), Augmented Reality (AR), Mixed Reality (MR) and holograms, among others. The differences between these technologies mostly concern how a user is immersed and whether they can be used remotely or in situ, e.g. VR uses goggles to create an entirely virtual environment, whereas AR can use mobile-phone screens to add information to existing material environments, and holograms allow for audiences to collectively consume content in 3D. Extended Reality (XR) also serves as an umbrella term for these different immersive technologies.
- **Haptics:** the use of technology that stimulates the senses of touch and motion, especially to reproduce in remote operation or computer simulation the sensations that would be felt by a user interacting directly with physical objects.
- **Gaming and gamification:** Gaming refers to interactions with video games, digital games, computer games and mobile games, whereas

gamification describes the process of turning an experience into interactive play or applying the logic and functions of game design to a traditionally non-gaming environment.

- **Non-Fungible Token:** A non-fungible token is a unique digital identifier that is attached (typically) to a digital or digitised object. These are then built onto a blockchain network, which ensures that each token is distinct and verifiable. As NFTs can be traded, they offer monetisation opportunities that can generate revenue.

1.7. The digital divide

Despite the context of India's prominent tech sector and the fast-growing access to the internet across the country, the digital divide presents a significant barrier to artists, technologists and potential audiences. While this report will outline how practitioners are innovating with the latest advanced technologies and overcoming traditional gatekeepers and physical boundaries, 50 per cent of the Indian population experiences poor or no connectivity to digital services (Kumar et al., 2022).

Lacking connectivity is understood to be the 'first digital divide', which concerns reliable access to the internet and affordable access to devices that use the internet (Arora, 2019; UN Habitat, 2021). In India many people also face the 'second digital divide', which focuses on the skills and motivations required to use digital technologies meaningfully (Van Dijk, 2017). Even when connectivity and devices are available, many do not have the skills to use them effectively (Arora, 2019). This relates directly to the 'third digital divide', which concerns the outcomes and benefits derived from both access and use of digital technologies, emphasising the need for individuals to use technology to their advantage for personal and professional growth.

Gaps in skills and infrastructure are most often a symptom of root causes, including: socioeconomic conditions; geospatial conditions; demographic experiences, such as inequities based on gender, ethnicity, disability and age; and cultural practices and societal norms influencing access and education (UN Habitat, 2021). In India, for example, simply being female decreases the likelihood of owning a mobile phone by approximately 40 per cent compared to males of the same age in the same household (United Nations Children's Fund, 2023), as patriarchal notions about women's household roles impede access to digital technology and the development of the skills to use it (Nikore, 2021). These problems can be compounded when faced by other factors. Rural broadband penetration is only 29 per cent, compared to 51 per cent for the rest of the country (British Council, 2024), and a 2021 report for digital literacy by UNDP indicates that only 25 per cent of rural women have ever used the internet, compared to 33 per cent for other Indian women (Rasheed, 2021).

Inevitably, because of its subject-matter focus, this report is limited in its ability to be widely representative of the experience of technology that many communities in India have. Furthermore, the very access and skills to take part at the intersection of technology and arts can exclude many underrepresented communities and people in India, especially women.

While seeking to understand this challenge, this report also discusses how artists engaging with technologies are leading initiatives to bridge these digital divides, particularly at their root causes. Independent artist Hasan's Kalpana Innovation Lab (Kalpana, 2022) in Kota, Rajasthan, for example, deals with the gap in educational provision, particularly for young girls, through programmes like 'Ada', which teaches tech and coding, and 'Arth', which focuses on media, English literacy and arts as foundational requirements to encourage participants with the skills necessary for personal and professional growth, independent thinking and self-employment. T. B. Dinesh's non-profit organisation Janastu (2023), also aims to resolve web accessibility problems for non-literate users. Their 'Alipi' project, a renarration web tool, enables access to web content across cultural and literacy boundaries, making digital spaces more inclusive by allowing users with low literacy levels to not only access the internet but also engage in the digital economy. This report will touch on how the digital divide permeates some of the most innovative ideas and pertinent challenges that the community faces, while also highlighting how practitioners are tackling these divides head on. While this report evidences these findings, it also surfaces that further research is needed to provide a deeper understanding into how the ecosystem can better deal with each stage of these divides.



2. Ideas transforming arts and technologies in India

Practitioners working with arts and technologies in India are reimagining the processes, aesthetics and social impact of artistic creation, alongside audience engagement in artwork and cultural experiences.

Cultural aesthetics: Artists are creatively decolonising technologies, challenging technological bias and amplifying India's rich culture in visions of the future.

- Cultural heritage and creative technologies Artists are connecting handicraft arts with technology to embrace, promote, preserve and reimagine traditional Indian artistic cultures.
- Decolonising technologies: Artists are decolonising Western-developed technology, adapting systems and diversifying datasets to better represent the Indian context.
- Indo Futurism: Indo Futurism brings speculative storytelling closer home to India, integrating narratives rooted in Indian identity, culture and aesthetics in liberatory futures.

Social impact: Artists are using technology as a creative medium through which to interrogate technology and its impact on society.

- **From old to new technologies:** Artists are embracing older technologies as ways to engage local communities with more advanced technologies.
- **Tackling digital misinformation:** Artists are actively engaging in the topic of digital misinformation, pushing back, engaging audiences and suggesting alternative approaches to the dissemination of information.
- **IP and data protection:** Artists working with technologies are interrogating intellectual property and data protection policy because of its direct impact on their work.

Audience engagement: Artists working with technology are pushing back against systemic barriers to create more inclusive and representative spaces for new and unexpected audiences.

- **Engaging new audiences:** Practitioners are using technology to tell stories and explain complex artistic concepts in accessible, interactive ways, thus engaging young and hard-to-reach groups.
- **Removing cultural gatekeepers:** The arts and technologies ecosystem draws artists from marginalised backgrounds because of its ability to transcend traditional cultural gatekeepers.
- **Navigating complexity and creating empathy:** Technology is being used to meaningfully engage new audiences with complex social and marginalised artistic perspectives, creating empathy through immersive, gamified and multisensory experiences.

-

2.1. Cultural aesthetics

Much has been written on the Western bias that is prevalent in the design, code and aesthetics of many user facing technologies (Benjamin, 2019; Herman and Arora, 2023). In this context, an increasing number of Indian artists are pushing back to develop experimental technologies that more accurately express Indian culture, context and priorities. Drawing inspiration from their own lived experiences – historical, contemporary and future facing – these artists are interrogating technological development and working to decolonise the datasets, aesthetics and values embedded in technology. Similarly, they are amplifying elements that represent India’s rich cultures into their visions of the future. This shift is enriching the cultural landscape work with localised influences, leading to more nuanced and diverse representations of technology that reflect the realities of India.

This section will begin by exploring how some artists are connecting technology with Indian cultural heritage, before outlining how others are using this heritage to decolonise technology by centring Indian cultural aesthetics, context and priorities. Then, it will highlight how artists are engaging with Indo Futurism to envision storytelling grounded by Indian culture, rather than existing Western-dominated narratives.

2.1.1. Cultural heritage and creative technologies

Artists are connecting handicraft arts with technology to embrace, promote, preserve and reimagine traditional Indian artistic cultures

The tension between handmade and digital mediums is an emerging theme in artistic practice at the intersection of arts and technologies in India. Artists are bridging the gap between traditional practices and modern digital techniques and attempting to seamlessly integrate the physical and digital realms.

In this ‘looking back to move forward’ approach, practitioners are exploring where physical and digital spaces converge. Material-led approaches towards art and form-making are gaining traction. Artists are beginning to embrace technology as a tool to enrich craft. Design researcher and entrepreneur Chhail Khalsa, for example, explores the integration of technology, such as sensors and haptics, into textiles by connecting technical experts and designers with traditional craftspeople (Bijolia, 2024). This is fostering a symbiotic relationship between artists engaging with technology and traditional craftspeople, as Prarthna Misra notes:



“We’ve pushed towards an empathetic space to connect tradition with technology – encouraging the use of technology to contextualise [artisans’] own practices even if they come from a more traditional background [...] for example, AR overlays on traditional work to contextualise histories, practices processes, etc. This has excited them in many ways.”

– Prarthna Misra, architect and educator, founder of Saha Atelier

Experimenting with digital and computational processes, artists are reimagining and reinterpreting traditional Indian practices through technology. In the work ‘Give Me a Sign’, for instance, Upasana Nattoji Roy and Diane Edwards (2023) translate ‘aspects of Indian philosophy and practice with narratives concerning AI and climate change’. They use AI to respond to ‘mudras’ with stories and visions responding to the environment. Similarly, curators like Myna Mukherjee highlight how technology provides traditional craftspeople opportunities to preserve and promote their work. Describing her project ‘Techné Disruptors’ she recounts:



“We’ve worked with traditional artists or folk artists and we explained to them how actually the NFT will protect their work rather than take away or imitate it.”

– Myna Mukherjee, cultural producer, curator, and founder of Engendered

The success of non-profit organisations such as massArt (2024) evidences the impact of cultural heritage shared internationally. Extending this interest into digitally innovative contexts, as evidenced by the above projects, opens new spaces for living heritage and international awareness of India. Bearing in mind that increased awareness of places translates into the influx of people into places (Junaedi & Harjanto, 2020; Araújo Vila, Fraiz Brea & de Carlos, 2021), working with technologies in the context of cultural heritage, and engaging new audiences in the process, could have social, economic and cultural spill-over effects, particularly in the context of cultural tourism.

Give Me a Sign

By Upasana Nattoji Roy and Diane Edwards

A technology-based art installation that combines gestural recognition with film, this project aims to create a gesture dictionary, emphasising the expressive power of physical gestures and fostering connections between humans, machines and cultures. The artists describe the work: 'this audiovisual experience combines aspects of Indian philosophy and practices with narratives concerning artificial intelligence and the impact of human actions on our planet through an illusionary AI entity called 'Shunya', who responds to certain Indian dance mudras with visions and dreams, stories, concerns and hopes for our changing planet' (Nattoji Roy & Edwards, 2023).

Techné Disruptors

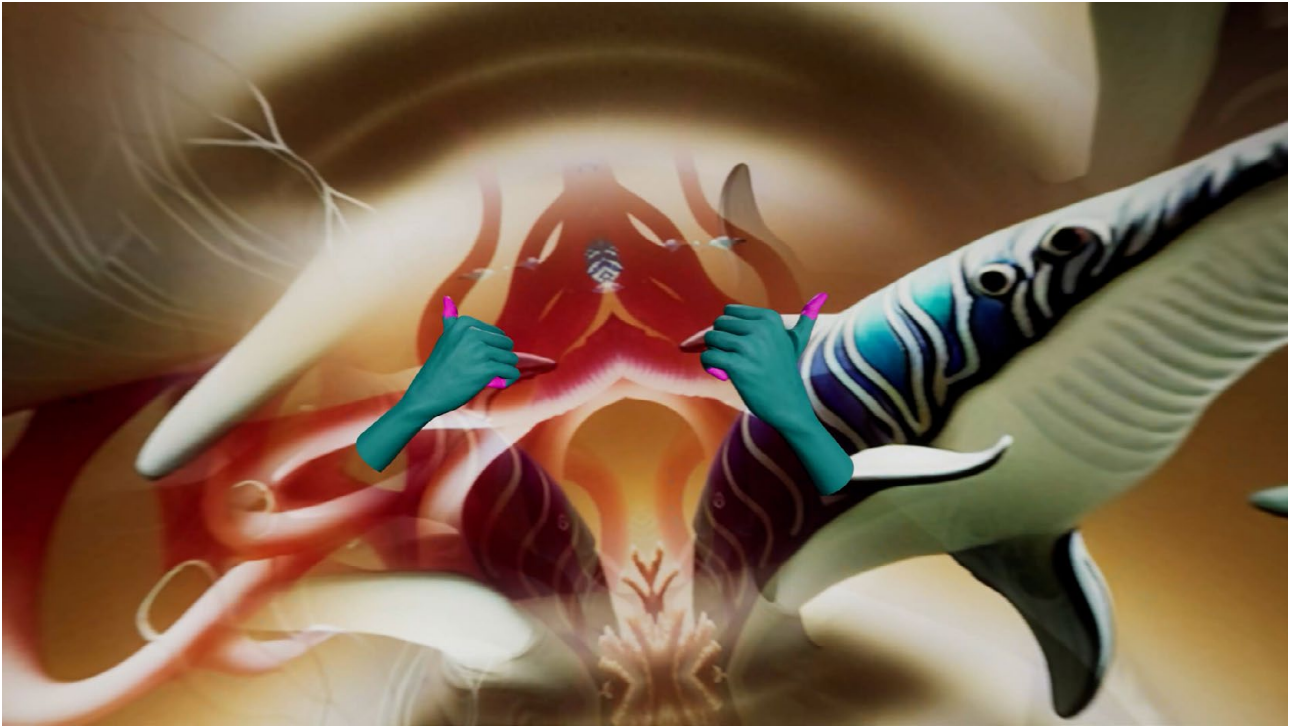
Curated by Myna Mukherjee

'Techné DISRUPTORS' was a pioneering show exhibiting works from NFT collections predominately from South Asia. Featuring work ranging from light boxes to complex generative interactive works with AI, VR/AR and works from 'newly minted collections of Global South NFTs', the show bridges 'the old and the new, the physical and the digital' while lending voice to 'largely invisibilised conversations and personal stories in the complex landscape of gender, sexuality and marginalities' (Engendered, 2022).

Anuvad Innovation Studio

Founded by Chhail Khalsa

Anuvad Innovation Studio is an international multimedia design studio that engages with the intersection of craft and technology. The experimental studio looks at integrating technology into our day-to-day lives in a 'human' way, by creating high-value, aesthetic, well-designed products while challenging current notions of technology. In doing so, they aim to provide an immersive, emotional experience to the user, be it interactive art or functional e-textiles.



Above Give me a Sign, Upasana Nattoji Roy and Diane Edwards, 2023

Courtesy of Upasana Nattoji Roy



Above Techné Disruptors, New Delhi

© Engendered

2.1.2. Decolonising technologies

Artists are decolonising Western-developed technology, adapting systems and diversifying datasets to better represent the Indian context

In India, arts and technologies practitioners face a unique challenge as much of the technology they use is designed by and for Western audiences (Herman and Arora, 2023). While Indian organisations such as Kaarya.ai are increasingly creating technology that, as director Kamyamachandran articulates, is ‘for the Indian ethos’, practitioners highlighted that adapting technology from the West still plays a big role in the arts and technologies ecosystem. To make this technology relevant and effective within the Indian landscape, artists are reappropriating it to fit local use cases. As creative technologist Aaron Myles Pereira noted, ‘Software is built for a Western context and [we] then have to mould and adapt for what we want to do.’ This adaptation is more than just a technical adjustment; it’s a form of resistance towards colonial data practices and innovation, allowing technology to serve diverse Indian communities more effectively.

A significant focus of these efforts is on generative AI. Commenting on the Western-centric datasets training generative AI, curator and cultural producer Myna Mukherjee highlights that this technology is ‘based off of systems and datasets that are incredibly colonial’. In a similar vein, the collaborative manifesto ‘Sharing a World with AI,’ calls into question the biases of the current datasets that AI tools are built on and warns that not adapting these will perpetuate a further lack of representation. Meanwhile, Indian artists are actively engaging in the decolonisation of AI by contributing to and creating datasets that reflect local experiences, narratives and aesthetics. Their goal is to ensure that AI systems can understand and reflect the rich cultural diversity of India, making them more equitable and relevant. For instance, Harshit Agarwal’s work ‘Machinic Situatedness’ is seeking to broaden the scope of AI by including elements of Indian visual culture and aesthetics that are rarely found in digitally available AI-generated art datasets. He gives an example of the disconnect between Western and Indian aesthetics:



“The aesthetics of India are very maximalist in certain ways [...] you can’t really have empty space because ‘why would you waste any space?’ [...] The tools of creation probably don’t account for that because they’re trained on data that is of a certain other aesthetic.”

– Harshit Agarwal, artist

Many practitioners also agreed that artists have an important role in diversifying the datasets at the heart of advanced technologies like generative AI. They also highlighted that ‘decolonising data’ should involve processes that reflect the local vernacular across India from digital practices to aesthetics to work done by hand. Theatre director and artist Amitesh Grover, for example, pointed out that in developing his project ‘The Last Poet’, programmers could not find existing filters that matched the ‘grain’ and ‘haze’ characteristic of the New Delhi environment. Following this experience, he comments, *The tech doesn’t feel like it’s being built by South Asian technologists for South Asian artists... that is something that I would like to see happening more.*

While artists in India are working to deal with a technological paradigm that prioritises Western norms over Indian experience, there is a recognition that within India the creative communities doing this work are themselves unrepresentative. Multidisciplinary designer Ninaad Kothawade also points out that connectivity challenges such as power cuts and the lack of data infrastructure can inhibit practitioners to train and develop AI models to respond to the Western-centric development of these tools. Considering the well-evidenced digital divide in India, additional work must explore how these resources and capabilities can better include these underrepresented communities, to avoid perpetuating the biases in AI that artists such as Harshit Agarwal are drawing attention to.

Sharing a World with AI

The manifesto is the result of a participatory workshop spearheaded by Dr Padmini Ray Murray, founder-director of Design Beku, in partnership with Dr Michiel Baas, a senior research fellow at the Max Planck Institute for Social Anthropology. The workshop saw 40 participants from diverse backgrounds and locations, and with varied expertise, come together during the FutureEverything at FutureFantastic – An AI Art Festival for Climate Change in 2023.

Machinic Situatedness

By Harshit Agarwal

In this work, Agrawal uses an AI algorithm, generative adversarial network, to draw from Buddhist Thangka paintings as the visual source for generating its work. The purpose is to offset his observation that AI art overrepresents a European/American aesthetic because AI image datasets are built off image archives where Western images are more readily available, and the majority of AI artists are also from these regions.



Above Machinic Situatedness 4, Harshit Agrawal

Courtesy of the artist, Harshit Agrawal

2.1.3. Indo Futurism

Indo Futurism brings speculative storytelling closer home to India, integrating narratives rooted in Indian identity, culture and aesthetics in liberatory futures

Artists are not just incorporating but amplifying elements that represent India's rich cultures into their visions of the future. This concept, as articulated by practitioners multidisciplinary designer Ninaad Kothawade and independent artist Hasan S as 'Third World Futurism' or 'Indo Futurism', represents a departure from conventional Western dystopian narratives, bringing speculative storytelling closer home to India, integrating narratives deeply rooted in Indian identity, culture and visual aesthetics toward liberatory futures. As Ninaad Kothawade states:



“We’re moving away from how we’ve been seeing science fiction or new media over the years, which is based on a lot of Western literature [...] We’re now looking at it in the context of where we live, our culture, and what we have access to.”

– Ninaad Kothawade, multidisciplinary designer

As an emergent field, Indo Futurism is an expanding and evolving idea that Unbox Cultural Futures is actively exploring. Drawing inspiration from Afrofuturism, Unbox approaches Indo Futurism as a blend of Indian mythology, contemporary art, speculative design and futuristic technologies to envision alternative futures for India and its diaspora that reflect the country's rich complexity and diversity while inviting audiences to reimagine the possibilities of tomorrow. It reinterprets historical narratives through modern lenses, spanning literature, visual arts, digital media, sound art and speculative design. The movement encompasses films, graphic novels, fashion, gaming and VR, offering immersive narratives that envision futures rooted in Indian culture yet unbound by historical constraints.

Examples include the storytelling, transmedia performance and video game of Antariksha Sanchar, which uses technology and incorporates history, architecture, classical art and concept art to imagine alternate futures situated in South India. Themes surrounding Indo Futurism are also explored in the narrative for science fiction television show 'OK Computer' (2021), sound experiments by Sarathy Korwar (2023) and visual explorations of artists like Sam Madhu (Saini, 2023). Similarly, scholars like Priya

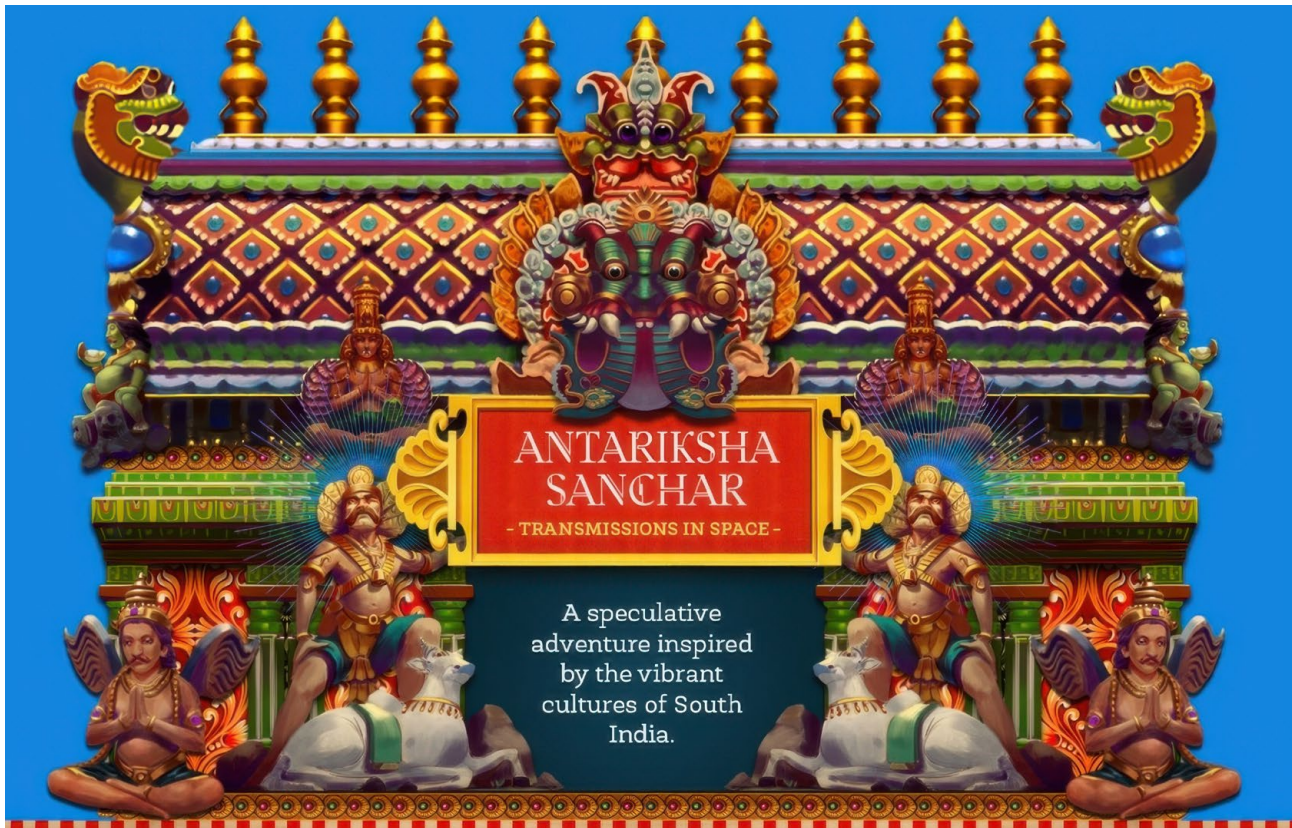
Bandodkar (2021) use Indo Futurism as tool for speculative design to explore decolonised futures, challenging Western-centric views by merging past, present and future, using mythology, folklore and spirituality to respond to problems like climate change, social justice and technological advancement.

Unbox Cultural Futures finds that the current narratives of Indo Futurism are predominantly aesthetic explorations with further potential to incorporate decolonised futurist storytelling, narrative arcs and political ideologies. As such, they caution that it can risk romanticising or oversimplifying complex cultural elements, leading to superficial understandings of India's heritage. They also spotlight that accessibility and inclusivity are concerns, as the movement caters to niche audiences. Therefore, while Indo Futurism's focus on decolonisation provides a platform for creative expression and critical thought, the field must navigate representation and inclusivity complexities to reach its full potential.

Antariksha Sanchar

By Avinash Kumar in collaboration with Sri Rama Murthy

A pioneering transmedia project that merges the history and heritage of South India with the dream theorems of mathematician Ramanujam and dancer Jayalakshmi Eshwar. This narrative blends reality and fantasy, using traditional and modern art forms to celebrate the diverse splendour of Indian culture in an interactive, secular format.



Above Antariksha Sanchar, 2013 – Present

Courtesy of Avinash Kumar

2.2. Social impact

As artists are repurposing, hacking and adapting technology, they are constantly seeking to create social impact, asking questions about technology's impact on society, politics and public life. By working with technology, artists are often reaching new audiences while shining a light on the social consequences of the very technology being used to reach them. At the same time, artistic practice in the arts and technologies ecosystem comments on the current state of India's technology industry and policy, while also imagining alternative solutions and interventions.

This sub-section will use examples to explore this impact. It will first focus on how artists are embracing older technologies to translate the affordances of advanced technologies to local audiences. Then it will explore how artists are bringing awareness to the problem of digital misinformation and drawing attention to India's copyright and data protection laws.

2.2.1. From old to new technologies

Artists are embracing older technologies as ways to engage local communities with more advanced technologies

Artists are also embracing older technologies to connect local audiences with the fast-paced digital world. Artists such as Hasan S share how they repurpose everyday items like blackboards, radios and cassettes, integrating them in their projects to demystify technology and introduce it in relatable forms to local audiences. This draws on nostalgia while making technology accessible and understandable to a broader audience. In India, where there is abundant technological expertise alongside a persistent digital divide, repurposing low-tech mediums can help to bridge the gap in digital literacy. Chhail Khalsa expressed how this process of hacking technology is distinct to India.



“Access to tech in India might be limited but we have some of the leaders of tech. Indian experts have a more hacking methodology, as a result of frugality.”

– Chhail Khalsa, design researcher and entrepreneur

Furthermore, by infusing technology with a touch of the familiar, artists are removing the intimidation associated with high-tech gadgets. Familiar elements transform technology from a distant, complex concept into a tangible, interactive experience by touching, seeing and interacting with technology in ways that resonate with their daily lives. Works that explore the aesthetic and functional capabilities of older technology are illustrative of creative adaptation. Janastu's 'COWMesh' stands out as a project that harnesses the existing resources available in local communities rather than relying on complex, high-tech infrastructure, democratising access to information and strengthening marginalised communities in the process. In the context of the second digital divide, which contrasts the access to digital devices with the lack of skill or motivation to use them (Van Dijk, 2017), work like this – which increases access to technology while affording community ownership of this access – becomes increasingly important.

COWMesh

By Janastu

COWMesh (Community Owned and/or Operated Wireless Mesh) is a grassroots initiative aimed at strengthening communities by giving them control over their local communications infrastructure. By using low-cost, deregulated media such as Wi-Fi, COWMesh enables communities to share and curate content tailored to their needs.

2.2.2. Tackling digital misinformation

Artists are actively engaging in the topic of digital misinformation, pushing back, engaging audiences and suggesting alternative approaches to the dissemination of information

Artists engaging with technology in their practice are in a unique position to offer critical perspectives on its role in society (Stark and Crawford, 2019). As an artist and curator, Shuddhabrata Sengupta suggests artistic practice can make and ask questions about the design and use of algorithms, outside of the constraints of tech companies and policy institutions themselves:



“It’s interesting to think of artists as disruptive [...] asking questions that are not being asked [...] In a world that is increasingly being impacted by algorithms, they’re asking the questions that are not yet factored into algorithmic design.”

– **Shuddhabrata Sengupta, artist and curator, Raqs Media Collective, Delhi**

Misinformation is currently a topical problem in India. The World Economic Forum (2024) ranked India as the country facing the highest risk in the world regarding misinformation. This can involve the spread of ‘fake news’ or ‘deepfake’ images or videos, replicating the likeness of politicians, for example. Practitioners also focused on the power of the arts and technologies ecosystem to bring forward critical conversations about mass-media content ahead of elections and the political misinformation prevalent across digital platforms in India. Senior curator at Khoj Studios Indranjan Banerjee, for example, highlights that creative practice tackling misinformation is becoming a main interest:



“We are increasingly thinking about the category of truth and how truth and technology [...] misinformation and technology, work together to frame what technology can do, what technology can stand for, and how artists can redefine the use of technology [...] It is our imagination that has led to a certain kind of tech futurity and I think artists are crucial and critically reimagining that futurity.”

– **Indranjan Banerjee, senior curator, Khoj Studios, New Delhi**

Artist Harshit Agrawal, for example, believes art working with technology plays an important role in ensuring there is more critical engagement in the media context in India regarding the impact of advertisement, regardless of whether it’s real or fake. He notes:



“There is an insane amount of content that’s being consumed, and it’s lent itself into a space where political scenarios are playing out through the dissemination of content [...] there are obviously technologies that we are all creating in certain ways that are helping this happen [...] I think clearly in the context of India [...] art] really matters to provide a critical lens.”

– **Harshit Agrawal, artist**

His work ‘Land(ing) Page’, for example, immerses the audience in a virtual poppy field, which, on closer inspection, is made up of social media advertisement videos, suggesting we are losing our natural habitat to a landscape dominated by media. Similarly, Kaivalya Plays use audience-generated content on social media platforms in their interactive performance ‘Mining Hate’ to create awareness of the practices used by various groups to spread online misinformation.

Land(ing) Page

By Harshit Agrawal

In this work, Agrawal creates a 3D-world of a poppy field. This field is entirely made up of videos. These are advertisement videos that the most money has been spent on in India over the last two years, sourced from the Facebook API. Many of these are political advertisements. Agrawal (2024) states: We are losing our natural habitat to one of media today, constantly surrounded and increasingly immersed in it. Advertisements have been the mechanism of luring us into the addiction of free media, as technology giants continue to carry out a ‘data-grab’ akin to the landgrab of nineteenth-century colonisers.

Mining Hate

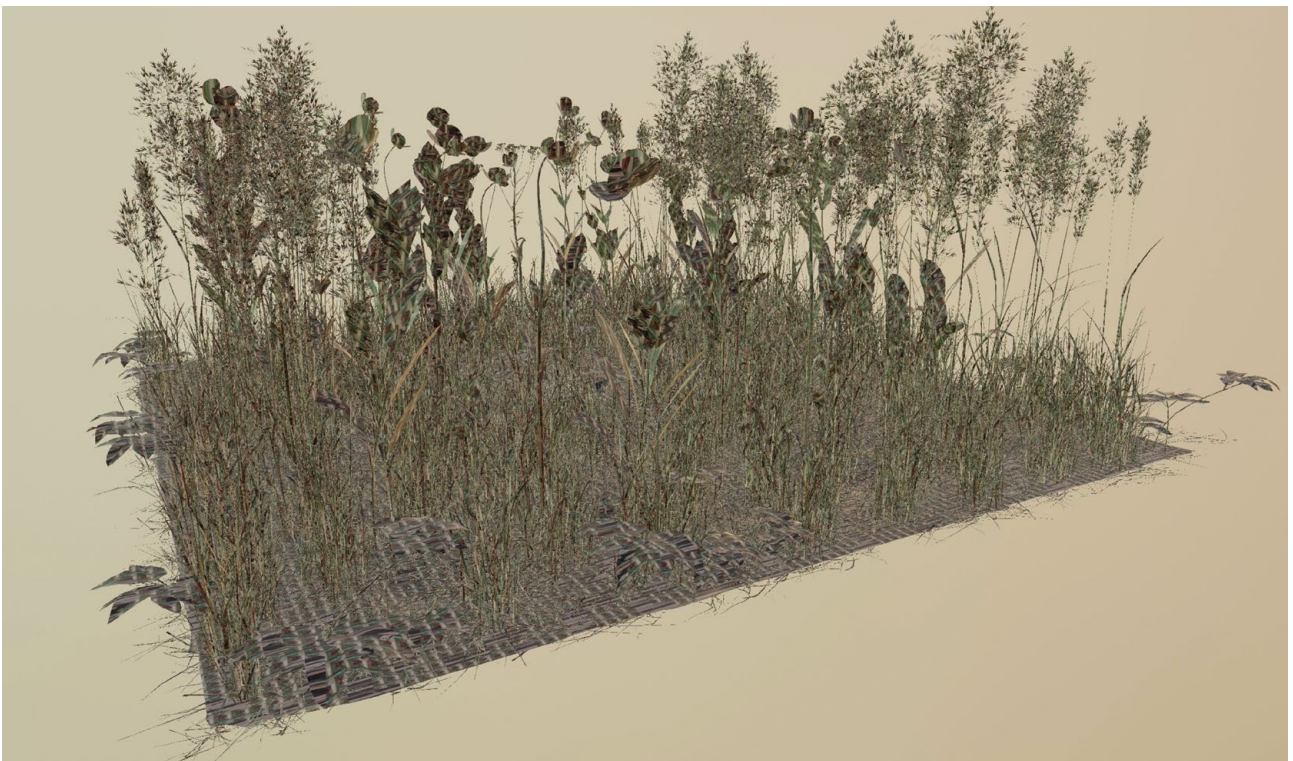
By Kaivalya Plays

‘Mining Hate’ is an improvised interactive performance built with audience-generated content that seeks to create awareness of the practices used by anonymous hackers to target journalists and minorities in India to spread misinformation.



Above Land(ing) Page, Harshit Agrawal, 2022

Courtesy of the artist



Above Land(ing) Page, Harshit Agrawal, 2022

Courtesy of the artist

2.2.3. IP and data protection

Artists working with technologies are interrogating intellectual property and data protection policies because of their direct impact on their work

Arts practitioners engaging with technology in a critical manner are also reimagining Indian technology policy. Practitioners brought attention to policy overseas and movements surrounding intellectual property and data protection that aim to protect artists with generative AI, but stress that reworking local approaches was essential to move forward in India. One anonymous practitioner, for example, emphasised the role of the arts in beginning these conversations: 'I see art as a space for demystifying tech and tech policy.'

Several practitioners highlight that the policy concerning data protection and intellectual property is very different from that in Western countries. Independent artist and curator, Vishal Kumaraswamy, for example, highlights that intellectual property (IP) in India 'hasn't really kept up with what's happening [globally]'. This could be in part because of Western approaches not fitting Indian cultural specificities, something highlighted by a number of roundtable participants. Lawyer Sandhya Surendran, for instance, emphasised that European copyright laws do not keep Indian cultural structures in mind. She notes that 'copyright law itself is a concept, it's not an Indian concept, it's a European concept', highlighting that artists engaging with traditional ideas and techniques would not be protected:



“A lot of copyright law is structured around protecting work that is an expression of an original expression of the idea, the idea itself is not protective. So, when we talk about classical art forms that predate copyright laws [...] by default they go into the public domain. So, people who are working with classical art forms and creating something new out of it using tech, they cannot really seek protection under copyright law.”

– Sandhya Surendran, media, entertainment and technology lawyer

Padmini Ray Murray calls attention to the fact that European copyright law is also based on the individual, whereas any kind of traditional work, even when reinterpreted using technology is foregrounded by community practice:



“There is an initiative called HIPAMS (Heritage-sensitive Intellectual Property and Marketing Strategies) which was in consultation with three or four artistic communities to formulate a community IP model [...] it was a great initiative but sadly it doesn't seem to have been taken forward, as the website is no longer functional.”

– Padmini Ray Murray, researcher and founder of Design Beku

This highlights how artistic interrogation of the legal and policy infrastructures associated with technological development is important to not just instigate critical conversations concerning technology, but also to prototype or propose infrastructural solutions that better support artists in the Indian context.

HIPAMS

By the HIPAMS project team, originally funded by the British Academy, including researchers from Europe, Kolkata-based NGO Banglanatak.com, and four communities from West Bengal: Patachitra, Chau dance and Chau mask-makers, and Baul Fakirs.

This project engages with three Indian intangible cultural heritage practices – Baul and Fakiri music, Chau dance and Patachitra tradition – to investigate how developing 'heritage-sensitive' IP-protection strategies can give communities 'greater control over the commercialisation of their heritage while contributing to its safeguarding and ongoing viability' (HIPAMS, 2021). First, it recognises that conventional IP rights, such as copyright, patents and design protection, 'offer limited protection to cultural expressions whose authors are unknown, and which have been passed down through the generations, changing and adapting to new contexts' (HIPAMS, 2021).

2.3. Audience engagement

Technology is democratising India's art scene by dismantling systemic barriers. This shift is transforming the arts into a more inclusive and representative ecosystem. When digital divides are resolved, digital tools can make possible broader cultural expression and participation from diverse practitioners and audiences not typically engaging with established arts and culture institutions.

This sub-section first outlines how artists and cultural practitioners are using technology to engage new audiences in narratives, including those with varying abilities and needs. Second, it will highlight how the arts and technologies ecosystem removes cultural gatekeepers, offering space for artists from traditionally marginalised groups in India. It will then show how these artists' complex perspectives can be meaningfully and empathetically communicated to such new audiences through immersive and gamified arts experiences, while reflecting on how technologies can also impede access to certain communities facing digital divides.

2.3.1. Engaging new audiences

Practitioners are using technology to tell stories and explain complex artistic concepts in accessible, interactive ways, thus engaging young and hard-to-reach groups

Practitioners working in cultural institutions and exhibition spaces identified technology as an important tool to expand access to new audiences. Artist, curator and producer Tejas Nair expresses that technology is a storytelling tool that, through its unique malleability, can reach diverse communities in different ways, including those potentially not regularly exposed to artistic practice:



“[Technology plays a role in] unlocking new layers to what is possible through practice. Technology can present that opportunity to augment things in new ways. You can tell a story a thousand ways. And if you can layer in new parts of technology to tell that story differently to different subsets or communities, why not?”

– Tejas Nair, artist, curator, producer

Institutions like the Museum of Art & Photography, Bengaluru (MAP) and Science Gallery Bengaluru (SGB) are leveraging these technology capabilities specifically to broaden their reach towards younger audiences. At MAP, for example, the head of education and outreach, Shilpa Vijaykrishnan, comments that technology attracts their younger audiences while also communicating concepts in a way that ‘naturally resonates with them’. Switch’s co-production ‘When Walls Dance’ also uses animation to create a meaningful immersive experience that complements the traditional dance performance, to communicate classical and folk forms to the ‘modern audience’.

These examples follow a refreshing drive from arts and technologies, encapsulated by Abhishek Poddar, the founder of MAP:



“Its not that the country lacks museums but they’re perceived as fuddy-duddy places. The aim was to make MAP fun and relevant.”

– Abhishek Poddar, founder, Museum of Art & Photography, Bengaluru

Cultural institutions also use social media and are digitising their collections to extend access to audiences facing geographical constraints or physical limitations that inhibit in-person attendance. As a digital museum that presents its physical collection through online programming, The Sarmaya Arts Foundation (2022)’s objectives are to ‘reach underserved communities, create immersive experiences and reimagine our tangible and intangible heritage’.

By harnessing technology for accessibility, the sector is seeing the emergence of art spaces that can respond to the diverse needs of individuals with varying physical and mental abilities. Online art events are integrating features such as sign language interpretation, ensuring accessibility for individuals with hearing impairments; for example, MAP incorporating sign language speakers into its digital programming.

Moreover, advancements in AR and screen-reader technology are changing the museum-going experience for people with disabilities. AR applications enable users to access additional information and interactive content, enhancing their understanding and enjoyment of cultural environments. Screen readers, on the other hand, provide audio descriptions of visual elements, making digital artworks and exhibitions accessible to those with visual impairments. Digital museums have also emerged as pioneers in promoting accessibility, offering tailored experiences for visitors with mobility limitations. Through virtual tours and interactive features, these platforms enable individuals to explore museum collections from the comfort of their homes, eliminating physical barriers and fostering greater inclusivity.

While art can become more accessible to a broader audience through online digital platforms, transcending physical barriers, it is important to note that technologies themselves can impede access to those facing digital divides. Director Madhu Nataraj emphasises art’s potential to engage audiences with complex technological concepts, and vice versa. However, she highlights that, when working with technology, artists must find balance between the

future-facing potential of arts and technologies and the fact that such work is grounded in technologies that feel inaccessible to many. She states:



“As performing artists in the spatiotemporal realm of classical dance, we create a space for access and understanding for the audience by breaking down concepts and abstractions. The same needs to apply to technology/AI. The innovations and updates in this area are very rapid, people sometimes cannot keep up. More interactive scenarios need to be employed for easier accessibility.”

– **Madhu Nataraj, director, STEM Dance Kampni, Natya Institute of Kathak and Choreography**

Curator and cultural producer Myna Mukherjee further underlines that, while artists may use technologies with the intention of engaging new audiences, ‘tech literacy’ or ‘tech savviness’ remain barriers to entry for large parts of the population. Cross-referenced, Nataraj and Mukherjee’s statements suggest that there is an untapped potential in art to not only increase engagement in art through technology, but to create space for the social understanding of technology that is necessary in dealing with the digital divide.

Sarmaya Arts Foundation

Sarmaya is a digital museum with a physical collection showcasing the subcontinent’s diverse histories and artistic traditions. Its programmes, both physical and online, aim to ignite curiosity, encourage discussion and deepen engagement with India’s cultural heritage.

When Walls Dance

By Prachi Saathi in collaboration with Upasana Nattoji Roy

Premiered at Kula Worldwide, Mumbai, in 2023, ‘When Walls Dance’ is a live performance created by a Bharatanatyam dancer and an animation designer alongside artists and musicians from the Warli tribe. The project uses technology to augment rather than dilute the rigour and spiritual practice of dance, while aiming to ‘bring classical as well as folk forms of performance to wider audiences’. By exploring newer means, we are able to understand and transfuse learnings from a traditional dance style like Bharatnatyam with a more immersive avatar, thereby bringing a fresh energy catering to a modern audience’ (Switch, 2024a).

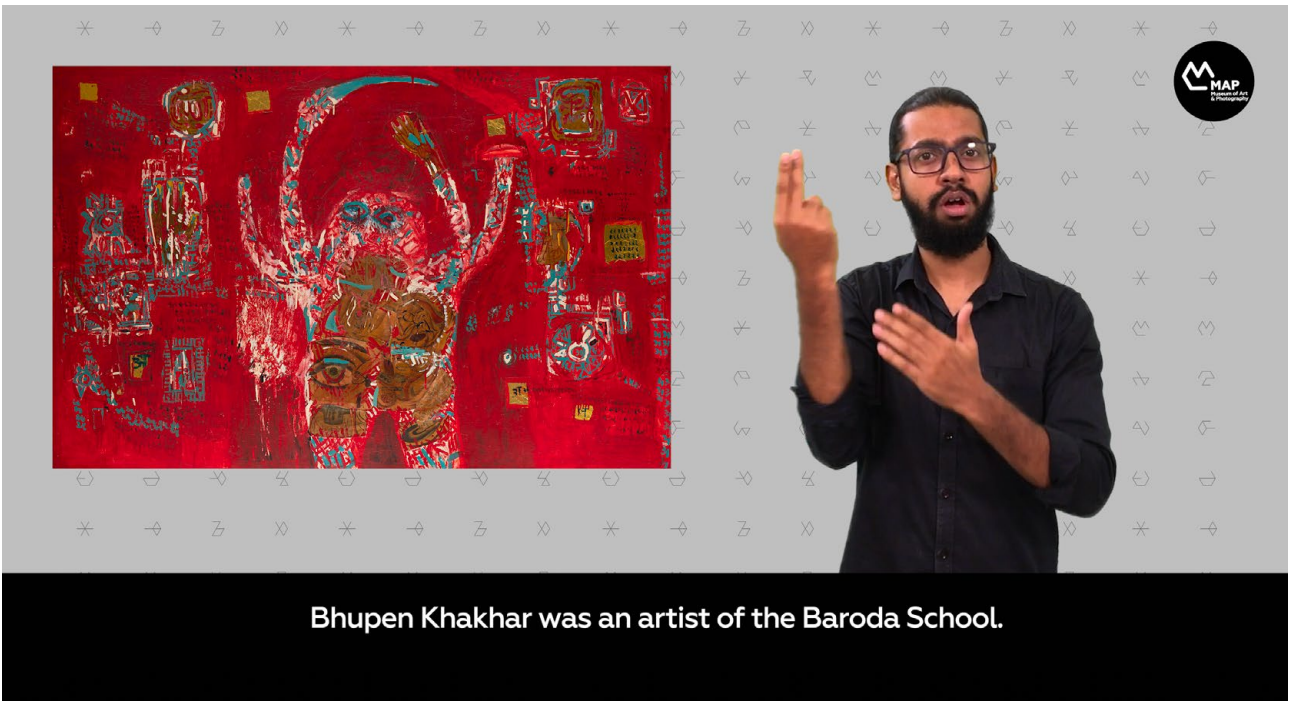
Museum of Art & Photography

Through its museum space, the Museum of Art & Photography encourages diverse audiences to connect with the arts and experience culture and heritage in new ways. Alongside an accessible site, they make use of innovative technology and appropriate accessibility tools, such as audio guides and tactile artworks for people with special needs, aiming to create a meaningful experience for all visitors.



Above When Walls Dance, 2023

Courtesy of Upasana Nattoji Roy



Bhupen Khakhar was an artist of the Baroda School.

Above Video with Indian Sign Language on MAP's artworks for Visible/Invisible: Representation of Women in Art through the MAP collection

Courtesy of the Museum of Art & Photography, Bengaluru

2.3.2. Removing cultural gatekeepers

The arts and technologies ecosystem draws artists from marginalised backgrounds because of its ability to transcend traditional cultural gatekeepers

Alongside expanding access to art, the decentralised arts and technologies ecosystem provides a platform for artists from historically marginalised groups. Individuals from diverse backgrounds are contributing to conversations about art, sharing their unique perspectives and experiences without the need for validation from traditional gatekeepers. The ecosystem therefore acts as a catalyst for diversity and pluralism, amplifying voices that were once marginalised or silenced and therefore facilitating critical conversations. Practitioners mentioned that digital arts projects can tend to draw artists from underrepresented backgrounds, offering new perspectives on aesthetics, society and technology's role within it. Commenting on a digital storytelling project one practitioner highlights:



“It just happened that a lot of queer folks, trans folks and sex workers made their own stories that were being curated [...] Those narratives were pushed forward [...] even commenting on how data is being used and portrayed to show art.”

- Anonymous

Curator and cultural producer Myna Mukherjee also reflects on her own practice, emphasising how technology pushes the arts space towards greater expression and representation, just as she believes queerness embraces change and difference. She comments:



“My positionality is that of a queer person in the world of arts [...] I feel that tech queers art [...] the position of queerness is the position of embracing change and difference from an inclusive standpoint.”

- Myna Mukherjee, cultural producer, curator and founder of Engendered

In this way, technology is providing opportunities for traditionally marginalised groups to collaborate. Alongside digital and cultural platforms like The Queer Muslim Project (2023), several practitioners spotlighted NFTs as cultivating communities who learn and experiment together on digital platforms like Discord, moving away from galleries and art institutions as the traditional convenors of arts practice and business. Progressive organisations working in the arts and technologies ecosystem are also providing platforms for artists from historically marginalised groups. Khoj, for example, hosts an international residency that focuses on the intersection of gender with urbanism, ecology and technology, inviting practitioners to engage with these themes (Khoj, 2024).

At the same time, however, those from marginalised backgrounds can be more likely to face digital divides preventing them from engaging with technologies in the first place. Cultural norms related to gender can affect the use of technologies, even when they are accessible. Throughout fieldwork conducted in rural and urban India, scholar Payal Arora (2019: 13) finds that even with access to the internet and devices like mobile phones, for cultural reasons ‘girls used mobile phones far less often than boys did [...] as girls, unlike their brothers, had to do housework’. Practitioners in the sector are starting to deal with these challenges. Independent artist Hasan S’s Kalpana Innovation Lab is an example of artist communities working to broaden access to technologies and bridge the digital divide, yet further work must interrogate how open tech and art spaces can also work to resolve the obstacles of connectivity, skills or ‘tech savviness’, and cultural obstacles to access.

The Queer Muslim Project

The Queer Muslim Project is a leading digital and cultural platform in Asia’s LGBTQIA+ community, with a community of over 70,000 people worldwide. Through this platform it shapes and influences ‘public perceptions of queerness in a way that counters intentional misrepresentation and socially enforced stereotypes’ (The Queer Muslim Project, 2023). In 2024 it won the Ars Electronica Digital Deal Award for its ‘pioneering use of digital storytelling to drive social change, bolster civil society resilience and shift perceptions of marginalised communities’ (Ars Electronica, 2024).

KHOJ International Residency*By KHOJ*

Khoj is a not-for-profit contemporary arts organisation based in New Delhi that aims to create space and opportunities for emerging, experimental and transdisciplinary creative practices and pedagogies. Through the Khoj International Residency, Khoj (2024) wishes to 'support and incubate experimental creative practices that are across disciplines and are looking at art and its various intersections such as gender, urbanisms, ecology and technology.'

Kalpana Innovation Lab*By Hasan S*

In 2021, the non-profit Kalpana Innovation Lab provided a safe maker-space environment for girls from marginalised communities and low-income families to learn and become 'thinkers, innovators and change-makers' in the field of technology, media and education.

2.3.3. Navigating complexity and creating empathy

Technology is being used to meaningfully engage new audiences with complex social and marginalised artistic perspectives, creating empathy through immersive, gamified and multisensory experiences

Arts and technologies as a medium can also create environments that offer opportunities for new audiences to engage with complex and divergent perspectives. Often using interactive technology to craft multisensory, immersive experiences, creations move beyond static art exhibits to powerful platforms for storytelling and empathy. They allow audiences to step into someone else's perspective, fostering a deep, empathetic connection that can elicit strong emotional responses and leave a lasting impact. Curator and cultural producer Myna Mukherjee calls attention to this unique feature of works engaging with creative technology:

**Above** Kalpana Innovation Lab

Courtesy of Kalpana Innovation Lab



Above Kalpana Innovation Lab
Courtesy of Kalpana Innovation Lab



“Artwork allows the person to step into the shoes of the marginalised but also to critique oriental or Indian stereotypes [...] this creates empathy but also criticality.”

– **Myna Mukkherjee, cultural producer, curator and founder of Engendere**

Interactive, immersive experiences can go beyond visual and auditory engagement, tapping into a full spectrum of sensory interaction. Practitioners shared how they aren't just digitising existing experiences but using technology to conjure immersive worlds or gamified journeys. This approach leads to more embodied experiences, where audiences aren't mere observers but active participants. Reflecting on VR works such as 'Child of Empire', where the audience is asked to make decisions simulating being alive during the 1947 Partition of India and Pakistan, Shilpa Vijayakrishnan remarks:



“I think technology offers those kinds of opportunities; allowing us to develop new pathways to learning that are quite important to grow. So, it also allows you to present alternate perspectives in unique ways.”

– **Shilpa Vijayakrishnan, head of education and outreach, Museum of Art & Photography (MAP), Bengaluru**

'My House is III' by Architecture for Dialogue is also an example of an immersive project intended to enable perspective shifts as participants navigate air pollution in indoor environments. Through these innovative uses of technology, Indian artists are not only expanding the boundaries of what technology can do for art but also how it can affect viewers. Practitioners recognise that large parts of the population may not have access to these impactful experiences and are working to include these marginalised communities as active audiences rather than subjects. Artists in the ecosystem are, in this way, reflecting on the divides embedded within the practice concerning technology and are actively looking to support those facing digital divides as audiences as well as creators themselves.

Child of Empire

By Project Dastaan

'Child of Empire' is an animated VR film experience that immerses the audience in the 1947 Partition of India and Pakistan. Audiences embody a seven-year-old child at significant points of the migration as voice actors share memories of two men from the Partition generation. While relevant to a variety of audiences, this film aims to act as an educational tool for the main benefit of 'South Asian and diaspora youth, and young people from Commonwealth former British colonies', to help them learn about Partition from a 'deeply personal perspective', especially as 'the UK comes to terms with its colonial past' (Project Dastaan, 2020). As such, this project was invited to the British parliament to discuss how VR can be used in the UK national curriculum.

My House is III

By Architecture for Dialogue

'My House is III' is a speculative exhibit set in a Khirki village apartment, exploring how homes adapt to New Delhi's air pollution. It merges architecture, new media and ecology to examine indoor air pollution microclimates and reveal hidden patterns.

3. People and practices shaping arts and technologies in India

The arts and technologies ecosystem in India is deeply interdisciplinary, spanning artistic genres and incorporating actors within and beyond the arts. This presents both benefits and challenges, as many practitioners and communities operate on the fringes, or entirely outside of, traditional spaces.

Interdisciplinary practice: Innovation with arts and technologies is often a result of personal practices that span diverse artforms and areas of specialist expertise.

- **Hybrid creativity:** Practitioners with technical backgrounds are embracing artistic practice, creating a new form of hybrid artist-technologists working with code, digital tools and advanced technology to express their creative vision.
- **Cross-artform creation:** Art engaging with technology spans art forms and creative industries (film, music, design and fashion) rather than being bound to one definitive artform
- **Personal practices:** Practice at the intersection of arts and technologies is a highly individualised practice with practitioners drawing deeply on their own personal interdisciplinary expertise
- **Expertise beyond the arts:** The Indian arts and technologies ecosystem brings together practitioners across various surrounding fields

Challenges faced by practitioners: Challenges include fragmented ecosystems, lack of infrastructure and the prevalence of traditional power dynamics

- **Decentralised and fragmented ecosystem:** The arts and technologies ecosystem in India most often operates outside traditional cultural institutions, resulting in a fragmented landscape of communities of practice
- **Limited formal pathways:** Growth of the ecosystem is hindered by a lack of formal learning and opportunities for recent graduates to conceptualise career pathways
- **Power imbalance:** In the arts and technologies ecosystem in India, prevailing power structures mirror those found in traditional art spaces, but with unique challenges and dynamics
- **Institutional infrastructure:** Arts institutions often have limited infrastructure and resources for exhibit artists engaging with advanced technology, making them hesitant and risk averse

•

3.1. Interdisciplinary practices

Practitioners and organisations working at the intersection of arts and technologies identify the ecosystem as interdisciplinary by nature and characterised by work spanning artistic genres. Creative practice is grounded in collaborations involving artists, craftspeople, engineers and other practitioners across the science and technology industries. Practitioners often have a very personal practice developed from unique interdisciplinary experiences across their careers. Their practice most often spans art forms or engages with others across genres.

This section will touch on the many actors that engage with the arts and technologies ecosystem, first exploring how practitioners with technical backgrounds are engaging in artistic practice, then exploring practitioners' engagement across art forms. This is followed by a discussion of the personal nature of this practice, drawing on interdisciplinary experiences and the collaboration with practitioners outside typical arts fields.

3.1.1. Hybrid creativity

Practitioners with technical backgrounds are embracing artistic practice, creating a new form of hybrid artist-technologists working with code, digital tools and advanced technology to express their creative vision

As it grows, India's arts and technologies landscape is evolving and expanding the notion of the artist. Individuals from non-arts backgrounds are creating with technologies, often introducing new, underheard perspectives and experiences to the arts landscape.

A new breed of artist is emerging through engagement with technology that pushes back against traditional notions of the artist to include creative technologists, engineers, researchers and highly interdisciplinary practitioners. As innovation strategist, multidisciplinary designer and artist Kanchan Joneja notes, 'non-artists [are] stepping into tech art and new media'. This marks a transition from technologists being seen as collaborators, or facilitators of artistic vision, to cohort technologists and 'creative coders' who recognise themselves as artists in their own right.

Technologists like Computational Mama, for example, are increasingly embracing their role as artists, initiating collaborations and catalysing innovation. They bring a deep understanding of technology and its potential, leveraging coding languages, digital tools and emerging technologies to express their creative vision.

Nascent genres in the Indian arts scene, such as sound art, are growing as a result. By embracing this new identity, technologists, and coders like the Indian Sonic Research Organisation (ISRO) are helping to shape the arts and technologies landscape, blurring the lines between artist and technologist and allowing for more dynamic collaborations that enable innovation in both fields.

Often connected through informal networks, these individuals are driving continuous collaborations. 'We're in each other's DMs', as Hasan S says, in constant informal conversation combining unique perspectives and skill sets to create.

Don't Assemble

By Computational Mama

First presented as an installation at Processing Community Day 2020, this project uses a detection algorithm to detect people in a camera feed, 'detaining' groups over five in response to India's 'Unlawful Assembly' Act, critically examining the implications of machine learning and algorithmic bias in technologies deployed by the State.

Indian Sonic Research Organisation

The ISRO is an artist-run sound-research laboratory, bringing together instrument builders and artists dedicated to the proliferation of experimental music and sound art. They support and work with a community of artists and researchers from diverse disciplines through their residency programme, workshops, studios and research.



Above Wood Wide Web, Kanchan Joneja and Kristina Pulejkova, Future Fantastic, 2023

© Falana Films

3.1.2. Cross-artform creation

Art engaging with technology spans across artforms and creative industries (film, music, design and fashion) rather than being bound to one definitive art form

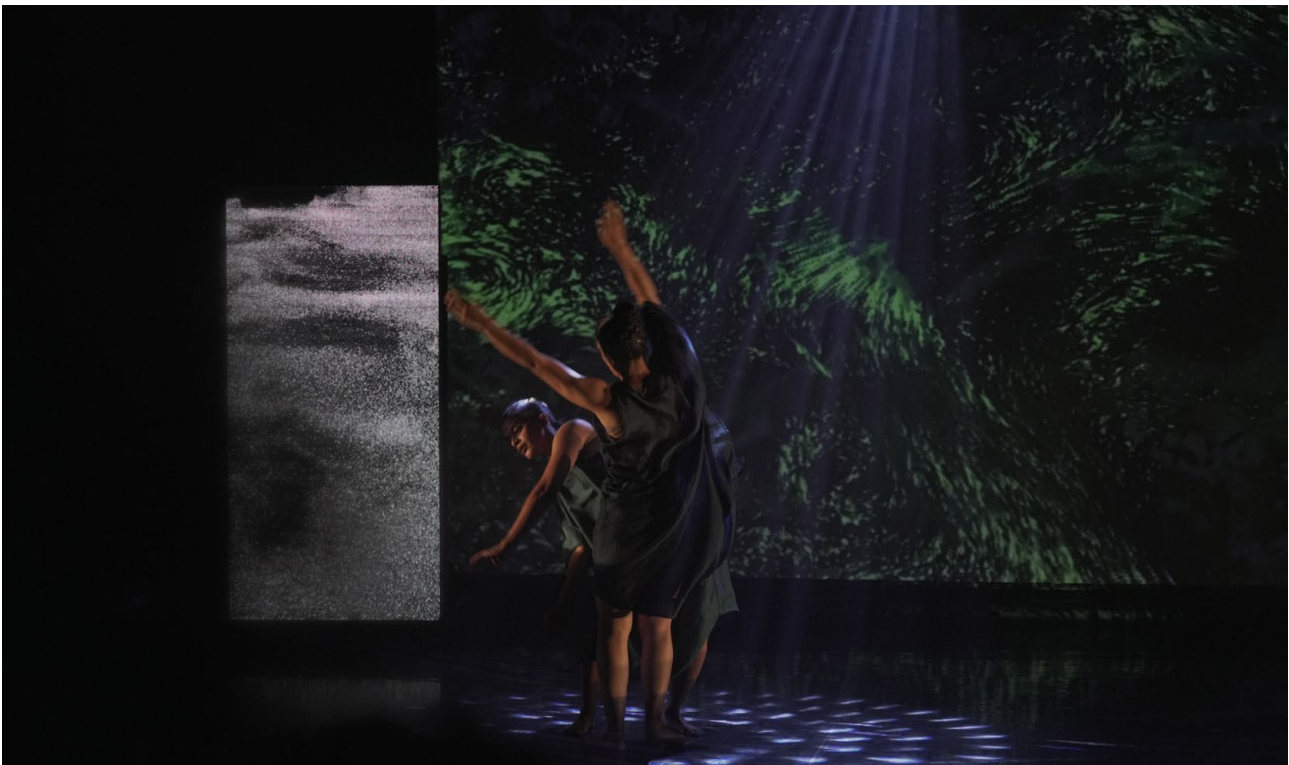
Drawing on interdisciplinary backgrounds, several practitioners described their work spanning traditional arts genres. Of the 24 survey participants, two-thirds described their practice as working across more than one art form. Switch is a studio which focuses on storytelling across mediums, exemplifying this characteristic of the field. Founder and director Upasana Nattoji Roy merges her expertise as a former dancer and animation film-maker with technological skills that augment her practice.

Some practitioners noted that artists who have experience working with technology predominantly initiate collaborations with traditional and classical artists across genres, rarely the other way around. This reflects how such artists are often catalysts for interdisciplinary work, demonstrating a willingness to explore new forms and experiment beyond the silos of traditional artistic genres.

This is particularly prevalent in the visual arts, which has a long history of experimentation and collaboration with technology, leading to wider adoption by practitioners. Of the 24 practitioners working across various artforms in our survey, 71 per cent identified visual arts as part of their practice, followed by design at 58 per cent, crafts and music each at 25 per cent, and finally theatre and dance at 0.8 per cent. While this survey is from a small sample unrepresentative of the whole arts and technologies ecosystem in India, this breakdown supports anecdotal evidence of the trends in art-form based collaboration with technology.

Madhu Nataraj, director of STEM Dance Kampni and the Natya Institute of Kathak and Choreography, for example, highlights how, unlike more contemporary visual arts forms, classical arts, performance and dance have been slow to integrate technology into their traditional artistic practices. 'Dance is so controlled, and artists are hesitating to work with AI', Nataraj shares, further highlighting that the shift from 'rhythmic to algorithmic' has been particularly challenging, where practitioners expressed hesitancy to use emerging technologies, particularly AI and VR.

Further supporting this, while most participants in the survey engaged with technology to some extent, 42 per cent of the practitioners specifically identified 'new media arts' forming a part of their work. This openness to innovation has enabled the visual arts to further evolve and experiment with technology, paving the way for new forms of expression and artistic exploration to emerge.



Above Palimpsest, Conceptualised by Madhu Nataraj (India), Future Fantastic, 2023

Switch

Co-founded by Upasana Nattoji Roy and Saurav Roy, Switch is a studio that partners with clients to create cultural and social impact through art, technology and design. Their practice draws on transdisciplinary specialisations, from motion design and animation to communication design, film and installation art. Their program 'Karighar' collaborates with traditional and technology-based artists to create an inquiry into the 'power relationship between technology and the risk of colonisation of locally rooted art forms' (Switch, 2024b).

Ajaibghar

By Ambika Joshi and Nanditi Khilnani

Ajaibghar brings together artists, platforms and communities to build product and experiences in arts and culture driven by creative technology. Their work includes an online exhibition platform for Science Gallery Bengaluru's show 'CONTAGION' and 'MuseSkôp', an AR experience delivered through smartphones that overlays physical exhibits and artworks.

3.1.3. Personal practices

Practice at the intersection of arts and technologies is a highly individualised practice with practitioners drawing deeply on their own personal interdisciplinary expertise

Many participants highlighted that practitioners come from diverse entry points. Engineers interested in creativity and academically trained artists incorporating technology were identified alongside more community-supported practitioners, such as designers playing with new media and self-taught creative coders and technologists. A majority of practitioners across roundtables reflected on their own cross-sector backgrounds. Aaron Myles Pereira, for example, defines himself as a 'creative technologist' bringing together his formal studies in music, professional work in architecture, music technology and product design, and side gigs as a creative coder, DJ and lighting designer. Artist, curator, and producer Tejas Nair also describes how his work curating emerging tech festivals draws on his parallel practice running an audiovisual record label alongside work in video-game design and interactive installation. The founders of the organisation Ajaibghar, who worked on 'The Last Poet', also draw on their background in museums, events, art direction, design and music, and their experience in creative coding and product management.

3.1.4. Expertise beyond the arts

The Indian arts and technologies ecosystem brings together practitioners across various fields surrounding arts and technologies

Practitioners unanimously highlighted that interdisciplinary practice drives arts and technologies practice. Interdisciplinary practice works between disciplines, defined by collaboration that draws harmonious links between disciplines, rather than multidisciplinary work that draws on different disciplines which stay within their boundaries (Choi & Pak, 2006; UCL, 2018). The majority of practitioners involved in roundtable discussions emphasised that actors outside of traditional arts and culture spaces are, in fact, central to the arts ecosystem involving technology. They highlighted that artists typically collaborate with technologists, scientists, engineers and craftspeople, suggesting that these collaborations 'bring something new' to both cultural and technology sectors. Kanchan Joneja, for example, highlights that this interdisciplinary practice contributes to the relatively more open nature of the ecosystem:



“We see a lot of people coming from different disciplines with their perspectives, with their stories and unique skill sets into this very open space of tech art, where typically the art world is very closed.”

– Kanchan Joneja, innovation strategist, multidisciplinary designer and artist

Collaborators on arts and technologies projects often come from diverse backgrounds. Digital live theatre show 'The Last Poet' exemplifies the cross-sector collaboration that is essential to the realisation of successful works in this field. Over a period of six months, director Amitesh Grover brought together a team of computer programmers from partnering organisation Ajaibghar, alongside a team of writers, actors, scenographers and sound designers. Grover, for instance, explains how the writer directly engaged with the affordances of the computer programming:



“Unusual to the process of creating theatre, the writer of the show would often be in meetings with the computer programmer [...] She would write fiction according to the possibilities of coding itself [...] So, many of the stories, many of the narratives, were actually written for and into the computer program.”

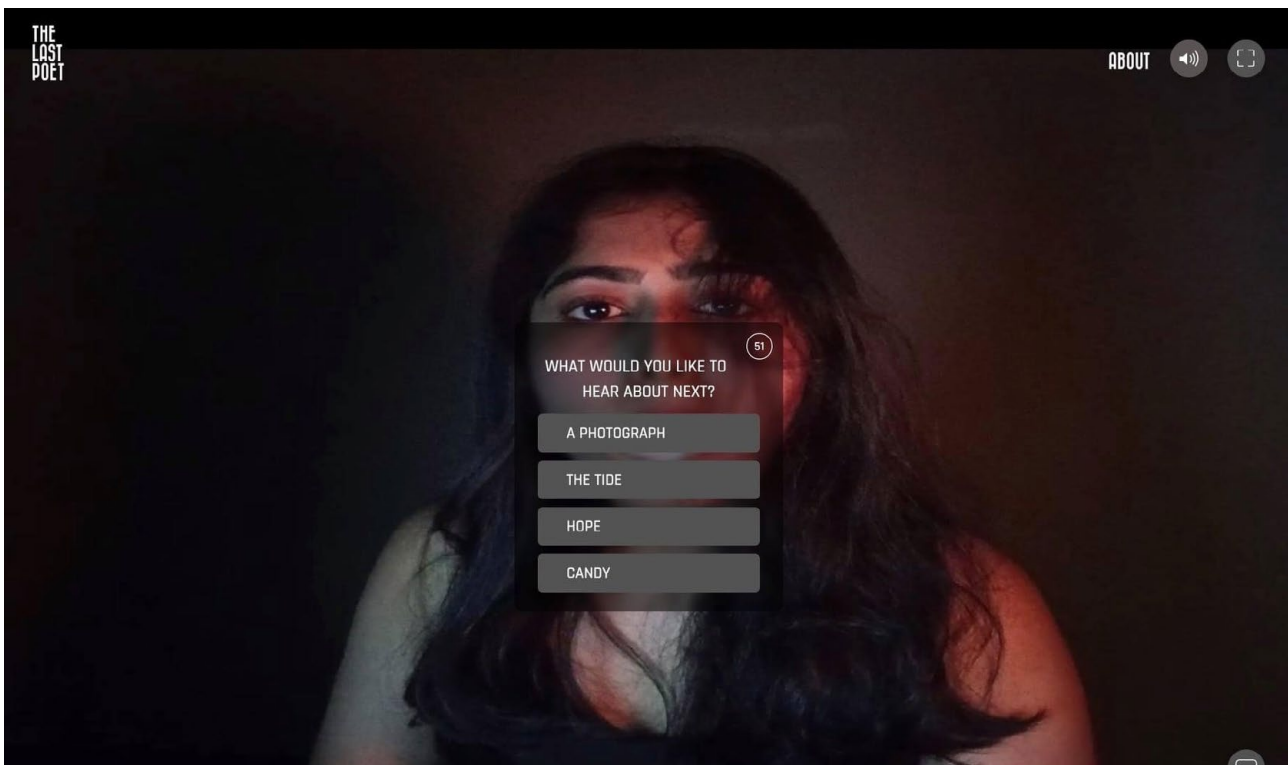
– Amitesh Grover, theatre director and artist

This demonstrates how the close collaboration between technology and artistic fields results not in the replication and dissemination of physical shows online, but instead in the creation of completely unique experiences designed for the internet and live online audiences.

The Last Poet

Directed by Amitesh Grover

Premiered at SA Virtual, an online arts and performance festival commissioned by Serendipity Arts Foundation, 2020, 'The Last Poet' is a continuing online interactive performance that 'brings together theatre, film, sound art, creative coding and digital scenography' (Grover, 2020). The audience can choose how they navigate the show on their internet-enabled device, choosing to enter rooms, listen to sounds and watch the cast as they perform online.



Above The Last Poet

Courtesy of Amitesh Grover

3.2. Challenges faced by practitioners

While the arts and technologies ecosystem in India works across disciplines and art forms, the decentralised nature of work acts as a double-edged sword for practitioners in the sector. It provides accessible entry points to both audiences and artists traditionally underrepresented in the arts, yet also causes challenges regarding infrastructure and institutional, financial and technical support capable of convening actors across a multidisciplinary network.

This section will first introduce the benefits of this fragmented landscape, before focusing on its challenges, in particular the limited formal pathways it offers. Then, discussion will highlight how, despite the many positives of decentralisation, it can sometimes still create power imbalances. Finally, it will explore how both emerging and established institutions themselves can lack the expertise and technical infrastructure to exhibit and support this multidisciplinary ecosystem.

3.2.1. Decentralised and fragmented ecosystem

The arts and technologies ecosystem in India most often operates outside of traditional cultural institutions, resulting in a fragmented landscape of communities of practice

Work at the intersection of arts and technologies ‘remains outside of the mainstream’, as expressed by creative technologist Aaron Myles Pereira. Most practitioners identifying as artists pointed out that traditional arts infrastructure is yet to fully consider and support projects bringing together arts and technologies. Independent artist Hasan S, for example, emphasises that these projects are happening ‘in spite of there being no infrastructure’, often through other more decentralised communities and grassroots organisations.

This feature of the arts and technologies ecosystem allows freedom and greater access through non-traditional artistic routes. Architect and generative artist Karthik Dondeti, highlights that this space is relatively ‘nascent’ in India in comparison to in Europe and the West. Reflecting on his work in this field a decade ago, he recounts that his peers started engaging with technology in silos with little community support, suggesting that lacking history and tradition in the field meant there were ‘no barriers to entry’. While he remarks that there are more leaders in the field now with experience both working and connecting practitioners, he maintains that the decentralised nature of the community is still

characterised by a ‘democratic’ sensibility. Practitioners from the roundtable in Bengaluru agreed that it was common for artists and technologists in the area to share files and work on each other’s projects, advising, curating and developing together. Nevertheless, many elaborated that it is difficult to gauge the ecosystem without the insider knowledge largely shared by word of mouth.

Despite this sense of freedom and collaborative experimentation characteristic of decentralised practice, practitioners expressed that the fragmented ecosystem, unsupported by central institutions, can make work feel isolated. Spotlighting the lack of opportunities to convene and grow networks without years of experience, Ninaad Kothwade stresses:



“There’s a big lack of communities that are working on these things. Like a lot of people are doing cool work all across the country but it’s all very scattered [...] If there were very solid communities, it would be easier to access other people’s work, and for them to access your work for collaborations to take place and so on.”

– Ninaad Kothwade, Multidisciplinary Designer

Similarly, practitioners like Aaron Myles Pereira noted that without adequate infrastructure and support systems in place, grassroots initiatives and creative communities find it challenging to maintain momentum, secure funding and reach their full potential.

3.2.2. Limited formal pathways

A lack of formal learning and opportunities for recent graduates to conceptualise career pathways hinders the growth of the ecosystem

A number of practitioners in the sector are self-taught. These practitioners are leading skill sharing in the field and mentoring other practitioners in the ecosystem. While this embodied teaching and learning contributes to the grassroots nature of arts and technologies communities, the lack of formalised education was identified as a major challenge. As a result, practitioners new to the field often rely on their own initiative to learn baseline skills connecting arts and technologies, from creative processes, idea generation and critical thinking to coding, graphic modelling and data analysis.

Reflecting on her career, Natasha Singh points out that her success was unsupported by traditional higher education opportunities in India:



“It’s not necessarily taught in college – I learnt creative coding through workshops and during education overseas in London [...] I went to Bangalore [Bengaluru] to find engineers there. I had to make my own way.”

– **Natasha Singh, new media artist**

Higher education institutions in India are increasingly offering programmes exploring the intersection of arts and technologies. (Art)Science BLR at Srishti Manipal Institute of Art, Design and Technology is an example of how an educational institution is promoting technology fluency to art students and the wider public. Cultural institutions such as the Science Gallery Bengaluru also integrate mentorship initiatives for young adults to engage and contribute to the ecosystem alongside their exhibitions. While welcoming such mentorship opportunities and courses teaching specific skills, multiple practitioners were concerned by the lack of career pathways for recent graduates. Both Hasan S and Vishal Kumaraswamy point out that students are likely to see ‘people doing creatively amazing things’ but are unlikely to follow such paths because of confusion regarding ‘how to get there’. Artist Harshit Agrawal emphasises the need for more programmes to offer early career experience:



“Spaces that allow you to actually experiment allow the younger generations coming out from college institutions to experiment without having to resort to switching off and going into more regular domains of work.”

– **Harshit Agrawal, artist**

(Art)Science BLR

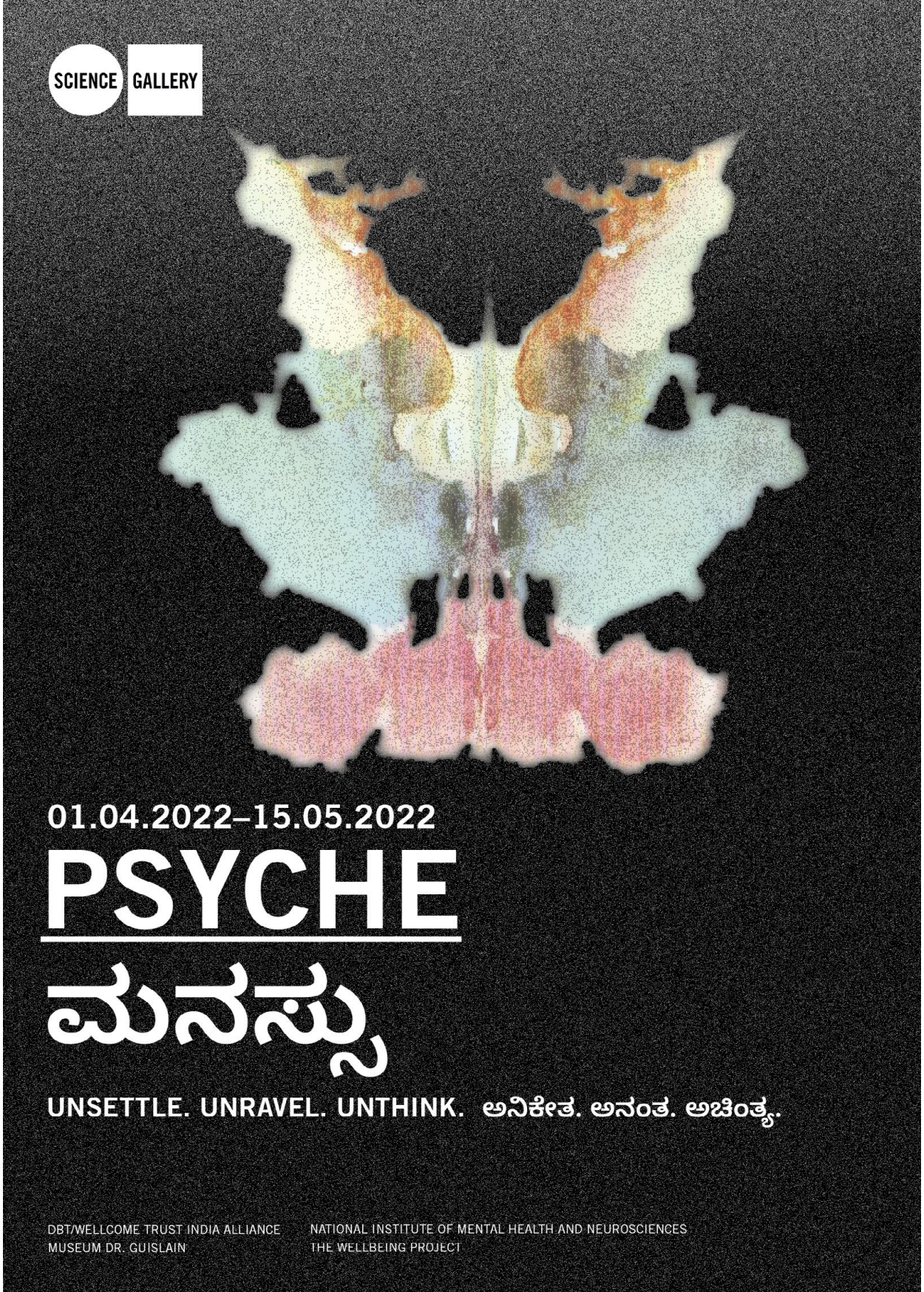
Srishti Manipal Institute of Art, Design and Technology

(Art)Science BLR is a public laboratory at the Srishti Institute of Art, Design and Technology that brings together artists and designers with scientists. The lab sees these collaborations as providing important insights on the artistic, social and political implications of advanced technologies such as computing or biotechnologies. Since its inception in 2009, the lab has focused on ‘using DIY techniques to build low-cost laboratory equipment, so as to offer more accessible forms of engagement with the life-sciences’ (Srishti Institute of Art, Design and Technology, 2024a). They also run a community electronics and BioLab to engage students and the wider public in making, hacking and prototyping.

Digital Exhibitions and Mentorship Initiatives

Science Gallery Bengaluru (SGB)

SGB created and hosted India’s first fully digital exhibition, PHYTOPIA (2020), during the COVID-19 pandemic. The next two exhibition seasons were also online and created an opportunity for young adults and the public to come together in times of lockdown. CONTAGION (2021), which looked at the transmission of diseases, behaviours and emotions, was reviewed in the Lancet and was a Falling Walls winner in the science engagement category. PSYCHE (2022) explored the mind and found a physical life when it toured to the Wellbeing Summit in Bilbao, Spain. SGB’s accompanying mentorship initiatives also give young adults the opportunity to understand and contribute to public engagement with science and the arts.



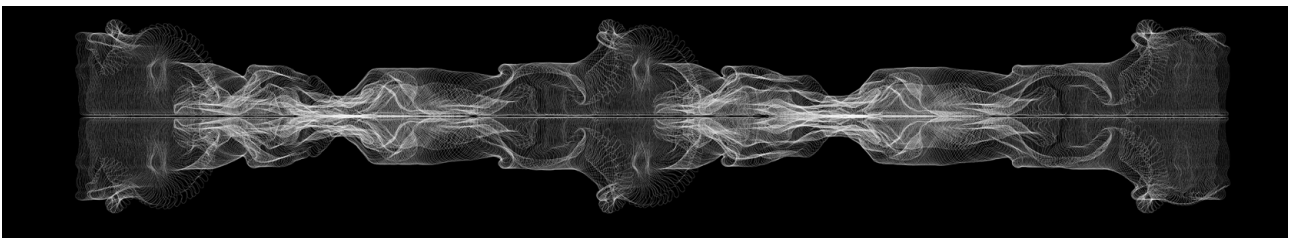
Above Exhibition Poster, 2022

Images courtesy of Science Gallery Bengaluru



Above Nadi – Kinetics of Yoga, Natasha Singh

Courtesy of the artist



Above Work by Natasha Singh

Courtesy of the artist

3.2.3. Power imbalance

In the arts and technologies ecosystem in India, prevailing power structures mirror those found in traditional art spaces, but with unique challenges and dynamics

While practice at the intersection of arts and technologies takes place mostly outside of traditional arts institutions in India, their power structures permeate. The arts and technologies ecosystem still presents a lack of diversity when it comes to gender, class, caste, geographic distribution and socioeconomic backgrounds, which double as root causes of the digital divide (UN Habitat, 2021). For example, reflecting on her experience working with marginal and grassroots communities who work in non-English languages, Padmini Ray Murray highlights that ‘there are very few people [institutions] who are working in local languages’, and, therefore, these institutions exclude artists from particular caste or minority backgrounds from important grant or exhibition opportunities.

The small, decentralised communities and spaces working in arts and technologies are also not always conducive to the open and inclusive intentions of the practitioners leading them. Padmini Ray Murray, for example, highlights that these communities can unintentionally gatekeep opportunities from diverse communities of practice:



“Those [small] community spaces are also catered to a certain kind of demographic [...] they aren’t as open as they might want to be because language, class and caste play a large role to access [...] like how will artists [from diverse backgrounds] even know the space exists and how does that information come through to them?”

– Padmini Ray Murray, researcher and founder of Design Beku

Some practitioners also highlighted that funding remains heavily influenced by ‘market forces’, with projects being supported based on commercial viability rather than community needs. This leads to a concentration of resources and opportunities among a select few. As a result, emerging artists and smaller initiatives struggle to access the necessary support to develop their practice and reach wider, more diverse audiences. Furthermore, some practitioners observe institutional resources being used to prioritise works that attracts audiences through visual spectacle over

those that support learning development opportunities for diverse communities in arts and technologies. Independent artist and curator Vishal Kumaraswamy stresses this point, giving the example of Kalpana Innovation Lab:



“Very few organisations have received most of the funding, all of the resources, all of the support over 10-, 15-, 20-year periods, so essentially what happens is that this inequity invisibilises projects like [...] Hasan’s [Kalpana Innovation Lab] for girl students, and they tend to have a very short lifespan because of this disproportionate distribution of long-term support.”

– Vishal Kumaraswamy, Independent Artist & Curator, Arts House, City of Melbourne 2023-2024

3.2.4. Institutional infrastructure

Arts institutions often have limited infrastructure and resources to exhibit artists engaging with advanced technology, making them hesitant and risk averse

Institutions grapple with limited infrastructure to support ambitious projects requiring advanced hardware and technical expertise. Artists and coders explore the frontiers of high-end technology, often resulting in artworks, interventions and experiences that demand complex hardware and innovative solutions. Access to specialised equipment and facilities remains constrained, hindering the realisation of immersive and interactive experiences. These challenges manifest in Amitesh Grover’s experience of working in performance arts with an established venue in New Delhi.



“Technical challenges persist as a significant obstacle in the realm of performing arts. Despite artists embracing complex technology, established venues and productions grapple with power and technical failures, revealing infrastructure limitations that hinder the accessibility of technology in the performance space.”

– Amitesh Grover, theatre director and artist

Several practitioners highlighted that there is work to do for traditional arts institutions to embrace artists engaging with technology and invest in the infrastructure they need. Infrastructure to support exhibitions with advanced technologies requires a more substantial investment than traditional mediums. Several practitioners highlighted that hardware such as projectors, lights, screens and sensors are particularly expensive. Because of a lack of precedent exhibiting with such media, the risk associated with the cost therefore deters established institutions from investing in technology-based shows or recommissioning them following setbacks. Independent artist and curator Vishal Kumaraswamy, for instance, notices that if an arts and technologies project does not deliver as expected, institutions and establishments refrain from further exploration of the space, limiting opportunities for other artists. He reflects:



“People are experimenting, but they’re experimenting in an environment where failures essentially lock doors. If somebody develops a large-scale project that incorporates online collaboration, for example, and it doesn’t work, there is no opportunity to learn from it and make the processes better.”

– Vishal Kumaraswamy, Independent Artist & Curator, Arts House, City of Melbourne 2023-2024

Some institutions, however, are working to ameliorate such challenges by providing hardware in situ for emerging artists. Science Gallery Bengaluru’s Public Lab Complex will provide researchers and artists with access to advanced technologies to explore research in the field. Similarly, director of TIFA Working Studios Trishla Talera notes that a forthcoming arts and technologies residency at TIFA aims to provide ‘not just hardware, but software and learning support to use these technologies’. This model enables experimentation while also allowing the institution to better understand requirements and aims of the projects as they develop.

TIFA Working Studios

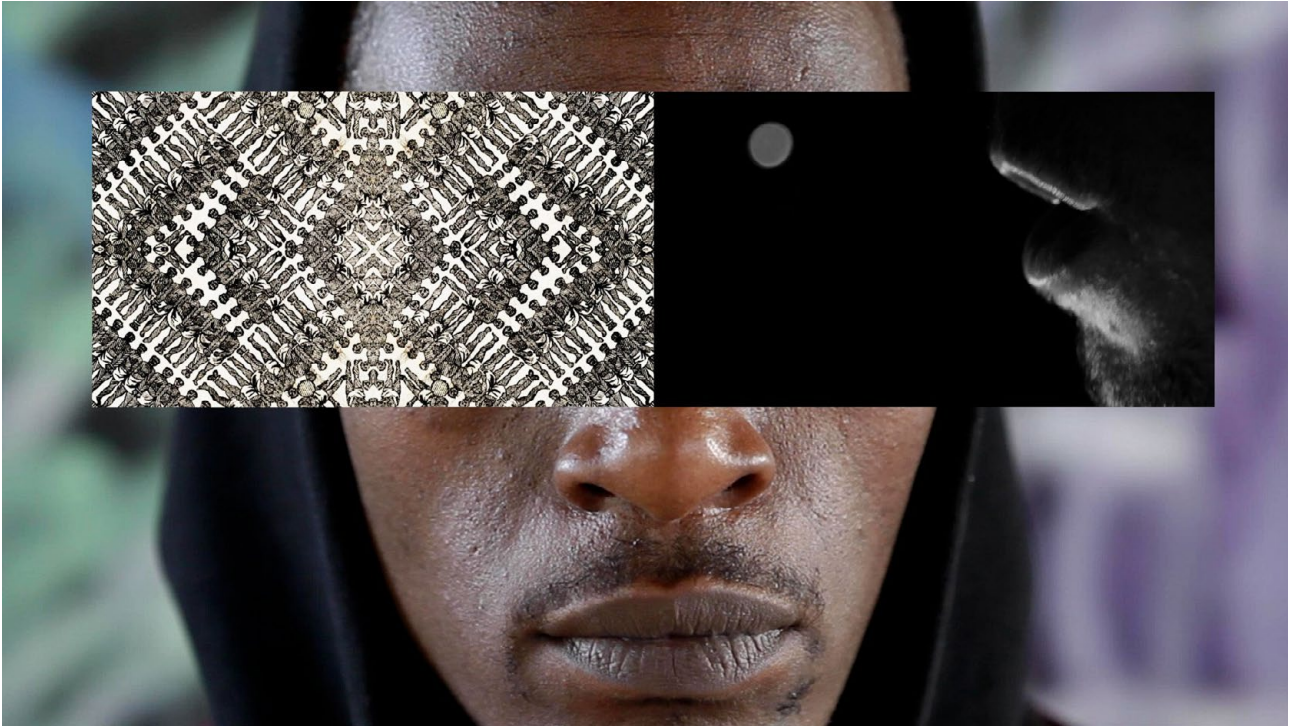
By Trishla Talera and Roshan Talera

TIFA Working Studios, located in a former Art Deco hotel in Pune, hosts international multidisciplinary residency programmes in their 12 interconnected studio spaces. It aims to enable global exchange centred on bringing together academia and industry to support innovative practices, including experimentation, collaboration, research, making, presentation, critical discussion and gamification.

Public Lab Complex

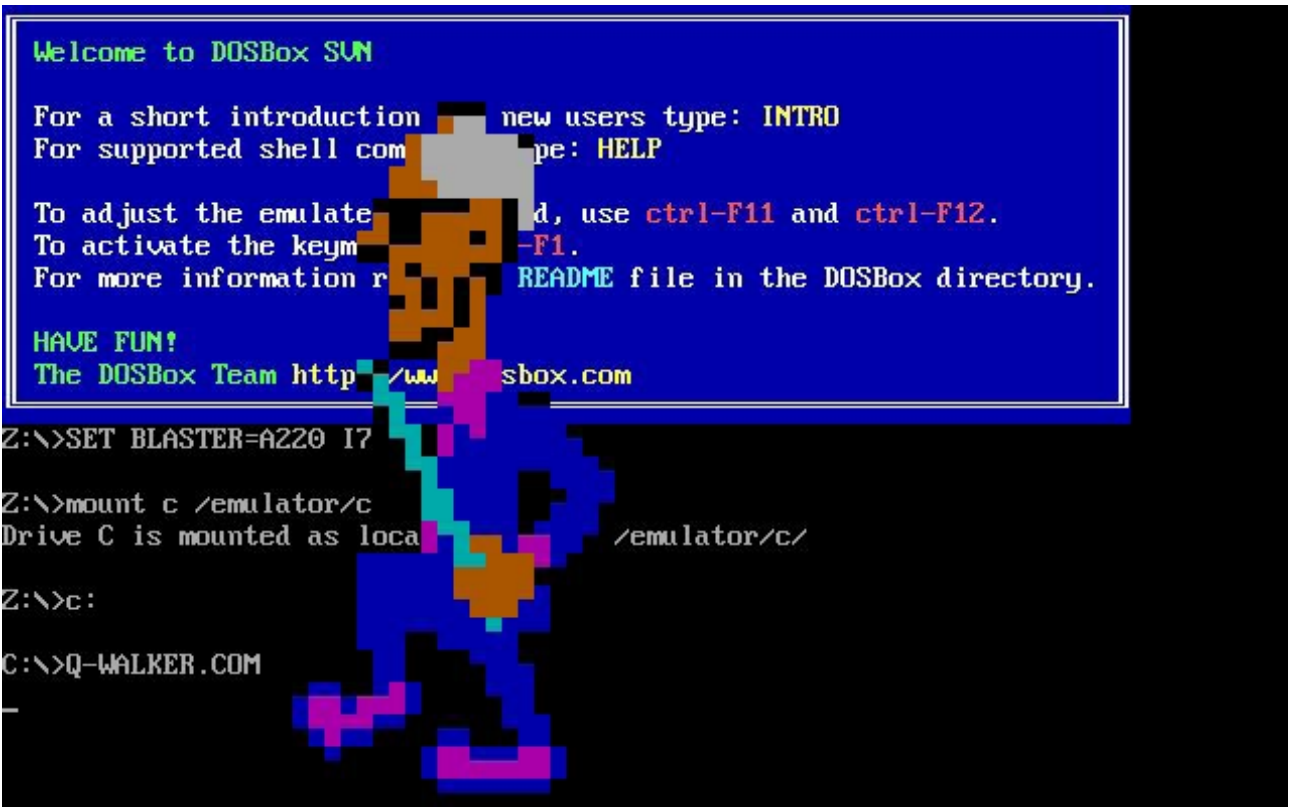
Science Gallery Bengaluru (SGB)

To provide researchers and artists a space to experiment and develop new ideas, questions, and works, SGB is pioneering a Public Lab Complex. To be run on a fellowship model, the Public Lab Complex will aim to open research and take it out of natural science labs or design studios. In particular, the New Media Lab will serve as a studio and laboratory for research in art, science and technology that gives its users access to innovative digital technology to explore questions in a wide range of disciplines.



Above Still from the audio-visual installation *Black Men's Minds, D-Fuse*, Richard Edwards and Stephen Rudder, 2019–2022, PSYCHE, Science Gallery Bengaluru

Courtesy of Science Gallery Bengaluru



Above Still from the exhibit *Malware Museum, CONTAGION*, Science Gallery Bengaluru, 2016

Courtesy of Science Gallery Bengaluru

4. Opportunities to strengthen an international arts and technologies ecosystem

From the perspective of artists and cultural institutions, international collaboration is critical to amplifying the work of arts and technologies practitioners in India, decentralising sites of cultural production and offering access to a diverse pool of expertise and talent. Achieving impact through international collaboration should be grounded in sustained, multilateral and equitable frameworks, while cultivating communities of practice, facilitating knowledge and skills exchange and offering practical support with the administrative challenges associated with working internationally.

Why collaborate internationally?

- **Amplify practice:** International collaboration provides a platform to amplify and present new opportunities to practitioners and projects, creating a more sustainable international sector overall.
- **Spark new ideas and inspirations:** International collaborations enable new ways of thinking, expressing and engaging, thereby inspiring both individuals and communities.
- **Decentralise cultural production:** International collaborations also hold immense potential to 'decentralise sites of cultural production' from historic centres of cultural influence.
- **Grow preservation and understanding:** International collaborations could shine a light on India's indigenous stories and knowledge, while also acting to preserve such techniques for future generations.

What are the foundations for strong international collaboration?

- **Long-term support:** Continuous, long-term support provides the fundamental conditions for innovative international collaboration.
- **Multilateral opportunities:** Multilateral collaboration expands possibilities to tackle global problems and enable cross-cultural exchanges and innovation on a global scale.
- **Mutual learning:** Equitable collaboration enables mutual learning and exchange to create collaborative environments where diverse perspectives are valued.
- **Increasing awareness:** Collaboration that increases the openness and reception of gallery spaces, fellowships and grants towards arts and technologies projects can ensure accessible and robust opportunities for diverse groups.

What are the opportunities to create impact through international collaboration?

- **Support international communities of practice:** Expand and support existing communities of practice to ensure international participation, convening practitioners across disciplines through sustained interventions.
- **Enable skills sharing:** Support knowledge and skill sharing, in particular concerning how to effectively organise communities of practice, and how other countries support work with arts and technologies, in both public and private
- **Offer practical support:** Offer practical support to India's arts and technologies ecosystem, dealing with the logistical, administrative and bureaucratic challenges faced by artists.
- **Broker commercial partnerships:** Broker commercial partnerships to develop mutually beneficial connections for artists.

4.1. Why collaborate internationally?

International collaboration can amplify practice and spark new ideas and inspirations while decentralising sites of cultural production and preserving local stories and knowledge for future generations

The Indian arts and technologies sector is interdisciplinary, inherently collaborative and community-led. Technology enables new possibilities for remote collaborations, transcending geographic and language barriers. In such a collaboratively predisposed environment, international support can provide a platform to amplify and champion practitioners and projects and promote cross-continental community building.

Practitioners also noted that when transcending mere recognition of diversity and actively engaging with it, international collaborations enable new ways of thinking, expressing and engaging, thereby inspiring both individuals and communities. It compels artists and audiences alike to deeply contemplate their presence in the world, leading to shifts in perspective, encouraging discussion and fostering greater understanding. BeFantastic, for example, is an organisation that opens space for international collaboration across disciplines. Upasana Nattoji Roy spotlights the example of BeFantastic's project 'Give Me a Sign' as 'a framework for different and contradictory concepts to co-exist.'

International collaborations also hold immense potential to, as Shuddhabrata Sengupta notes, 'decentre sites of cultural production'. From providing opportunities to access and experimentation with emerging technologies, to celebrating traditional art forms with global audiences, as highlighted by Prarthna Misra, international collaborations:



“Give Indian artists and artisans a global platform that makes them more accessible. Success [of an international collaboration] looks like investment in schools or artisans and making tech more accessible so it can allow more people to produce art.”

- Prarthna Misra, architect and educator, founder of Saha Atelier

Through becoming more accessible to international audiences, Indian artists and artwork occupy greater space in popular imaginations, pushing back against Western creative and technological biases discussed earlier in this report. Relatedly, independent artist Hasan S notes that exposure through international arts and technologies collaborations could provide a lens through which to explore the richness of Indian folk and traditional artforms, and the variety of India's arts and crafts practices. Practitioners agreed that international collaborations could shine a light on India's indigenous stories and knowledge, while also acting to preserve such techniques for future generations.

Embracing the diversity that exists in India and plurality across the world, international collaborations that emphasise co-creation and equality have the potential to become beacons of technological innovation and a more inclusive and interconnected global cultural landscape.

BeFantastic

BeFantastic is a platform that invites participants to explore the intersection of art, technology, culture and society through nurturing an international community of practitioners and fostering innovative projects that defy traditional categorisations. Their program 'CoLab' curates an international network of peers, while 'Dialog' opens up 'conceptual and structural spaces for robust collaboration between different disciplines'. (BeFantastic, 2023).

4.2. What are the foundations for strong international collaboration?

Practitioners at the roundtable discussions articulated important foundations for building impactful international collaborations. They stressed that a sustained multilateral and equitable approach must foreground collaboration that amplifies the arts and technologies ecosystem. This section will foreground practitioners' call for long-term support then outline the benefits of multilateral opportunities and collaboration that prioritises mutual learning, before highlighting the opportunity to increase awareness of Indian arts and technologies projects on the global stage.

4.2.1. Long-term support

International collaboration can amplify practice and spark new ideas and inspirations while decentralising sites of cultural production and preserving local stories and knowledge for future generations

A sustained approach entails viewing collaboration as a continuous, long-term process rather than as a one-off project. Practitioners called for funding to support sustained collaboration, with independent artist and curator Vishal Kumaraswamy noting the importance of 'long-term infrastructure support – multiyear programmes for funding and support'. Director Madhu Natraj echoed the need for funding beyond 'germinating opportunities' to help collaborations to flourish.

Continued support, practitioners agreed, also provides the foundations for innovative, interdisciplinary activity. Amitesh Grover noted that while artists often engage with technology once it is on the shelf, there are also several examples of artists innovating alongside engineers to contribute to technological development. He stresses that this can only come through funding structures such as labs and residencies that foster the process of collaboration rather than specific, prescriptive production. He reflects that the most innovative collaborations come when:



“[Engineers and artists] are fooling around with no clear aim or objective in mind [...] This is where something surprising actually comes out. And, also [...] maybe years later, it becomes commercially viable as well.”

– Amitesh Grover, theatre director and artist

4.2.2. Multilateral opportunities

Multilateral collaboration expands possibilities to tackle global problems and enable cross-cultural exchanges and innovation on a global scale

Practitioners also voiced a need to move beyond bilateral collaborations to multilateral collaboration projects that can enable cross-cultural exchanges and

innovation on a global scale. These projects should include opportunities for multiple artists to collaborate across geographies but also make it possible for multiple sources of funding to be pooled together. Researcher Padmini Ray Murray highlights that enabling more 'South–South collaborations', between countries such as India and countries within South America and Africa, is particularly important to 'build and foster solidarity' and to 'encourage experimentation', especially considering the concentration of technological development in the 'West'.

Multilateral collaboration is also important to discuss problems such as climate change that transcend borders. Director of BeFantastic Kamya Ramachandran suggests that global problems like climate change require 'interconnected perspectives not just between disciplines but between geographies as well'. Cultural institutions and foundations can play a pivotal role in enabling this by framing questions, as Shuddhbrata Sengupta of Raqs Media Collective expressed, 'at a planetary level'. Khoj curator Indranjan Banerjee spotlighted international arts and technologies collaboration 'World Weather Network' as an example of a project tackling the climate emergency with a sensitivity and understanding of varied and distinct local contexts.

World Weather Network

A multiyear project that brought together 28 artists, writers, practitioners and communities from across the world to create new artworks through the exploration of their local weather.

4.2.3. Mutual learning

Equitable collaboration enables mutual learning and exchange to create collaborative environments where diverse perspectives are valued

For equitable collaboration, it is critical to ensure that the intentions of all collaborators are made clear at the outset and all parties involved learn and gain in equal measure to allow for co-creation and co-ownership. Creating platforms for exchange and mutual learning can foster a collaborative environment where diverse perspectives are valued and respected. What is needed, in the words of an anonymous practitioner, is 'fusing of cultural materials [to] create experiences that celebrate the uniqueness of cultures'.

On a related note, Padmini Ray Murray remarks '[facilitating] more exchange regarding how design of

tech is shaped by context' can help establish cultural understanding, valuing local knowledge and perspectives, and enable participation in collaborative projects on a more equal footing. Villa Swagatam, a residency programme supported by the French Institute of India for French and Indian artists across the visual and literary arts, was highlighted by other practitioners as a successful model for supporting cross-cultural exchange and immersion. Pro Helvetia's 'To-gather' project, born in the wake of the COVID-19 pandemic, is another such example of an initiative that supports collaborative activities that promote equal forms of cultural exchange and artistic exploration.

Artists such as Hasan S highlight that organic communities created by artists for artists are also important to avoid institutional gatekeeping. At the same time, independent artist and curator Vishal Kumaraswamy emphasises that repeated support for individual artists from dominant caste backgrounds can exacerbate social inequities by recreating 'the conditions that already exist'. While highlighting that this individual support is necessary, he stresses that support for spaces that enable technology and arts education for underrepresented communities can lead to more impactful, equitable and wide-reaching impact.

Villa Swagatam

By the French Institute of India

Launched in March 2023, Villa Swagatam is a network of residencies designed to foster mutual exchanges between France, India and the South Asia region. It makes possible exchange in both directions with French creators travelling to India and Bangladesh, and vice versa. The residency model was chosen particularly to allow for 'longer, deeper and more meaningful collaborations between the literary and artistic traditions'.

To-gather

By Pro Helvetia

The project supports two-to-three-year-long collaborations between Swiss practitioners and organisations and their counterparts in India and serves as a platform to test new formats and ways of collaborating.

4.2.4. Increasing awareness

Collaboration that increases the openness and reception of gallery spaces, fellowships and grants towards arts and technologies projects can ensure accessible and robust opportunities for diverse groups

Lastly, awareness and reception play a vital role in building impactful collaborations. Making gallery spaces, fellowships and grants more open and receptive to arts and technologies projects is crucial. Practitioners suggested that funders should engage more closely with curators to recognise critical opportunities that shape the ecosystem as a whole. Importantly, Sandhya Surendran highlights a fundamental challenge practitioners face when it comes to language:



“International collaborations rely on English as the primary language of communication [...] Having local representation in countries like India (which has 20+ languages) means having local representatives for each region so you are including people from different socioeconomic strata in these collaborative opportunities.”

– Sandhya Surendran, media, entertainment and technology lawyer

From the practitioners' point of view, grant providers can be more inclusive by accepting applications in non-English languages and alternative formats, like video and audio, ensuring accessibility and diversity in the application process. India Foundation for the Arts, for example, was mentioned by practitioners as an institution that now welcomes applications in several local languages to resolve this challenge. By embracing these foundational pillars of international collaboration, stakeholders can foster a more interconnected and vibrant arts and technologies ecosystem in India, driving cultural exchange and societal impact.

Grants & Projects

By India Foundation for the Arts

The India Foundation for the Arts (IFA) is an independent non-profit organisation that operates across India. Since 1995, its focus has been on making grants and implementing projects across research, practice and education. Across its work, IFA (2024) encourages proposals for projects in Indian languages, including English, to ‘contribute to discourse in various language contexts’.

4.3. What are the opportunities to create impact through international collaboration?

International collaborators, including international organisations and organisations brokering international relationships in the arts, can provide valuable support to sustain and build the Indian arts and technologies ecosystem. At the same time, these organisations can break down practical barriers and enable opportunities for practitioners in other countries to engage with this innovative ecosystem, to build awareness and encourage mutual learning and development.

This section provides four recommendations for impactful international collaboration that draws on the foundations outlined above: cultivating communities of practice; convening space for knowledge-building and skill sharing; offering practical support; and establishing commercial partnerships.

4.3.1. Support international communities of practice

RECOMMENDATION:

Expand and support existing communities of practice to ensure international participation, convening practitioners across disciplines through sustained interventions

Practitioners suggested that cultivating strong communities of practice by bringing together practitioners across disciplines from various geographical locations was important to growing the arts and technologies ecosystem in India.

Artist-led communities were identified as playing an important role in nurturing creative practitioners and establishing bottom-up, sustainable infrastructure for the arts and technologies ecosystem in India. Karthik

Dondeti highlights that these spaces need continuing support:



“It would be beneficial to have institutional support for community-building or to support existing communities, as it requires significant time, effort and resources.”

– **Karthik Dondeti, architect and generative artist, Voxelscapes**

Algorave India, a collective of live coders and computational artists, is an example of an artist-led community that fosters innovation, collaboration and skill sharing among artists, providing a vital foundation for the growth and development of the sector. However, despite the existence of several such collectives, ensuring their longevity and impact remains a significant challenge. International support can build and sustain these communities, as Abhinay Khoparzi, co-founder, curator, organiser and instigator of Algorave India, points out, the ‘live-coding community was catalysed from a collaboration supported by the Goethe [Institut]’.

Practitioners also emphasised the opportunity for international organisations to convene practitioners working across disciplines. Festivals such as ‘Eyemyth’ and ‘Future Fantastic’, supported by the British Council, were highlighted as platforms to bring together such interdisciplinary communities. As Kanchan Joneja describes, brokering relationships between experts in science, technology and research together with artists in any forum can create impactful relationships across the sector:



“You’re talking about people being specialists in their own field, bringing their own perspectives and toolkit and then saying, okay, what can we do together? And that’s kind of how innovation happens [...] it’s really about breaking those silos.”

– **Kanchan Joneja, innovation strategist, multidisciplinary designer and artist**

Alongside forums to bring together these communities of practice, practitioners suggested that networks need to be documented and supported to bring together the small, decentralised communities and individuals into a wider network that supports sharing and collaboration. Architect and generative artist Karthik Dondeti, founder of Voxelscapes, for example, emphasises that there needs to be ‘updated databases of individuals working in the space’ accessible to a

‘larger community of people engaged in this work across the country’. The directory of practitioners (see Appendix 7.3) put together as part of this work is a start, but further research and community support must build this database over time. Practitioners such as Shiva Pathak also draw attention to the gap in networks specifically for curators in India. Establishing such networks could significantly improve communication and knowledge exchange among curators. A robust network for curators can aid in developing unified and impactful narratives, bolstering the ecosystem for all stakeholders.



“There is a need for strong curator and programmer networks that extend beyond venue-specific contexts to address artists’ challenges.”

– Shiva Pathak, co-founder and artistic director, Sandbox Collective

A reimagination of archival practices was communicated as another important initial place of interrogation. Participants raised that practitioners often must travel to UK and European institutions to access Indian cultural heritage. A considerable portion of South Asian archives are housed abroad, and access to these resources can be instrumental in enriching local communities and fostering a deeper understanding of the regional arts narrative. Practitioners suggested practical examples of how institutional support can materialise, including: the creation of directories (both local and international); the establishment of long-term laboratories for experimentation; the organisation of hackathons that bring artists and technologists together; and the convening of in-person and online forums across disciplines.

Algorave India

Founded in 2018, Algorave India is an art collective that revolves around the practice of live-coding. The collective promotes programming as performance art through events called ‘Algoraves’ (algorithmic raves) where attendees write and edit code live in front of an audience to create music and visuals. In doing so, it provides opportunities for community development, music education, computational literacy, and functions as an ‘alternative learning platform for creative coding and contemporary live art practice’ (Khoparzi, 2024). After initial support from Goethe Institut, for the past five years Algorave events and workshops have been independently funded by the organisers and the community.



Above Live coding workshop before an Algorave at Goethe Instiut / Max Mueller Bhavan, Mumbai, 2018

Courtesy of Abhinay Khoparzi

Future Fantastic

FutureFantastic was conceptualised by BeFantastic (India) in partnership with FutureEverything (UK) and supported by the British Council as part of their India/UK Together Season of Culture, and Rohini and Nandan Nilekani Philanthropies. It is an AI and arts festival in India that highlights ‘the power that collaborative creative production has in amplifying a global response to our shared climate emergency’ (FutureEverything and BeFantastic, 2023). The last festival took place in 2023 across Bengaluru, with a programme that included installations, performances, workshops and panels.

Eyemyth Festival

In 2024, Eyemyth, India’s premier media arts festival, ‘brought together artists, designers, researchers and cultural practitioners’ to explore ‘present and future cases of immersive storytelling [...] at the intersection of Indian and global art, culture and technology’ (Eyemyth, 2024). The festival, with a day-long conference, music acts and workshops, was supported by the British Council and Pro Helvetia, the Swiss Arts Council.



Above Participants and organisers at Future Fantastic, 2023

© Falana Films



Above Elsewhere in India, Murthovic and Thiruda, at Future Fantastic 2023

© Antariksha Studio



Above Eyemyth Festival, 2024

© Antariksha Studio

4.3.2 Enable skill sharing

RECOMMENDATION:

Support knowledge and skill sharing, in particular focusing on how to effectively organise communities of practice and how other countries support work with arts and technologies, in both public and private realms

Global collaborations offer valuable opportunities for knowledge- and skills-building in several critical areas. Firstly, they provide lessons on how to effectively organise communities and fundraise for arts and technologies initiatives. By sharing best practices and experiences from diverse cultural contexts, collaborators can learn innovative strategies for community engagement and resource mobilisation. Additionally, collaborations offer insights into how other governments and private institutions support the arts and technologies ecosystem, allowing practitioners to adapt and implement successful models in their own contexts. From an institutional perspective, museum director Preema John highlighted that opportunities to understand how museums overseas are using technology would be helpful to then create locally tailored approaches in India. She highlights that this must be done sensitively,



“I’m not looking to a Western hegemonic model to copy that, but to see how technology... because it is global technology... is being leveraged to enhance user interface, user experiences, visitor experiences, and how exhibition design is changing, how gallery designs are changing and how I can use this for my community to make their technological experience of my space better.”

– Preema John, museum director, Indian Music Experience Museum

with awareness of international power structures:

Partnering with educational institutes is another means of collaboration that can enable the introduction of arts and technologies to students in technology programmes, and vice versa. In this sense, UK–India higher education and transnational education (e.g. joint or dual degrees) partnerships that support cross-disciplinary learning and experimentation with arts and technologies could play an important role. Outside of India, universities have been highlighted as important drivers of cross-disciplinary community-building related to arts and technologies (National Endowment for the Arts, 2021), something that is reflected in the number of Indian higher education institutions offering arts and technologies training and

research – (Art)Science BLR at Srishti Manipal Institute of Art, Design and Technology (2024b), and the National Institute of Design’s (2024) handloom and natural fibre innovation centres and their Intellectual Property Rights Cell, among them. The shared strength of India and the UK’s higher education institutions suggests that such institutional partnerships could provide vital spaces for international community-building and long-term support.

Bridging higher education with grassroots communities is, of course, critical. Hasan S notes the importance of exposure and education for young practitioners and local-community organisations alike.



“Many grassroots organisations lack knowledge and education about international collaboration. Therefore, educating young practitioners about the international art context is crucial.”

– Hasan S, Independent Artist

International collaborations expose students to interdisciplinary approaches and equip them with the skills needed to thrive in the sector. Reflecting on the importance of skill-building as a priority of collaborations, one anonymous practitioner makes the comment ‘training and then funding ... one without the other is not helpful.’ Multidisciplinary Designer Ninaad Kothawade highlights that this would not just be useful for students. He suggests that long term residences or programmes where different practitioners can gain an understanding of advanced technologies and how to use them would help upskill artists and foster interdisciplinary relationships. According to practitioners, exchange programs, residencies, and fellowships are key activities that can address this gap by facilitating cross-cultural exchange of knowledge and expertise.

4.3.3. Offer practical support

RECOMMENDATION:

Offer practical support to India’s arts and technologies ecosystem, addressing the logistical, administrative, and bureaucratic challenges faced by artists

International collaborators can offer substantial practical support to India’s arts and technologies ecosystem, addressing logistical, administrative, and bureaucratic challenges that artists frequently face. Such support is invaluable, especially for emerging artists who often need assistance navigating an art and technologies sector that is largely networks through word of mouth.

Emerging artists have expressed a need for practical skills training, such as lessons to help craft effective grant applications, identify support opportunities, and determine appropriate compensation for their work. These foundational skills are critical for artists looking to establish themselves in the ecosystem. Artist Harshit Agrawal, suggests that emerging artists would benefit especially from an open ecosystem where practitioners can look up information, including information on open grants, grant makers, work pricing, installation practicalities, and equipment resourcing. International collaboration around these practicalities, he outlines, could also help these early career practitioners:



“Get exposure to maybe more of the ways [of work] where an established media art scene has probably existed for longer ... [to understand] how do they navigate the practicalities of the art.”

– Harshit Agrawal, Artist

For more established artists, navigating the complexities of legal frameworks, negotiating financial contracts, understanding information security practices, and liaising with government institutions are significant challenges. International collaborators can provide expertise and support in these areas, as suggested by Shuddhabrata Sengupta, facilitating artists’ participation in global opportunities. Additionally, assistance with securing visas and managing the logistics of international travel and art transport can significantly impact the global mobility of artists and their works.



“Institutions like the British Council need to enable long ongoing processes – it’s not always a question of funding – but also negotiating complex contractual legal/financial regulations that have fallen behind the reality of practice... there is a role that institutions can play to ensure the realm of culture doesn’t face pragmatic issues.”

– Shuddhabrata Sengupta, Artist and Curator, Raqs Media Collective, Delhi

Practical examples of support include offering workshops on grant writing, providing visa assistance, and guiding artists in negotiating contracts and pay. Such comprehensive support can significantly bolster the arts and technologies ecosystem in India, enabling artists to focus on their creative endeavours while navigating the practical aspects of their profession with greater ease and confidence.

4.3.4. Broker commercial partnerships

RECOMMENDATION:

Broker commercial partnerships to develop mutually beneficial connections for artists

Practitioners in roundtable discussions noted potential synergies between the interests of brands and artists, where collaborations can offer mutual advantages. For instance, brands striving for cultural relevance can align with artists to achieve this aim, while artists gain exposure, reach broader audiences, and find commercial viability through such partnerships as Pranjali Kaila mentions:



“There is a need for cultural institutions to facilitate dialogue between artists and brands on a larger scale. Brands are consistently seeking representation and relevance, yet this aspect is often overlooked by cultural institutions.”

– Pranjali Kaila, Founder at Fetus

In the art and technology realm, there’s a notable opportunity for technology brands to collaborate with artists. These partnerships can provide artists with access to advanced technology and tools, often out of reach due to high costs or limited availability in India.

Established cultural institutions can also play a significant role by co-funding with commercial organisations and partnering with local artists, lending visibility, recognition, and credibility to artists’ work and opening further opportunities for engagement and collaboration.

Such partnerships not only support the artists and the broader ecosystem but also enable brands and institutions to engage authentically with innovative and culturally resonant expressions, creating a mutually supportive arts and technology landscape in India.

5. Conclusion

The practitioners that constitute the arts and technologies ecosystem in India are ambitious, progressive and deeply engaged in the social and cultural impact of technologies in India, while being invested in the potential of significant international collaboration. Artistic and creative practice exhibits a blend of interdisciplinary creativity and innovation characterised by decentralised community-led initiatives, diverse collaborations and experimentation. Such practice has given rise to an expanded definition of the artist, new forms of creative expression, novel technological developments, the engagement of new audiences, and expanded access of underrepresented voices to creative expression. This evolution not only challenges traditional notions of art but also enriches cultural narratives by amplifying diverse voices and experiences. At the same time, the arts are reshaping technology by repurposing tools, questioning Western-centric technological developments and the policies that protect how they are applied in the Indian context, as well as creating experiences with the power to shift audiences' perspectives on the role of technology in society. Artists are also bridging traditional practices with digital innovation, showcasing the richness of contemporary India in all its diversity. Together, this dynamic interaction between technology and the arts in India is shaping new possibilities for storytelling and cultural representation, forging a path towards a more interconnected, ethical and culturally resonant future.

Creation at the intersection of arts and technologies is not without challenges. The fragmented nature of the ecosystem contributes to silos and limited infrastructure, power imbalances hinder broader accessibility and sustainable growth, and arts and cultural institutions can be underresourced or risk averse when engaging with creative technologies.

International collaboration in the arts and technologies ecosystem holds potential to respond to these challenges while fostering cross-cultural exchanges and discussing topical global problems. From long-term funding and infrastructural support to helping artists navigate logistical challenges and build partnerships with brands that offer exposure and commercial viability, artists identified several opportunities for effective international collaborations. Ultimately, international collaborations have the potential to amplify practitioners' work, strengthen creative communities and demonstrate India's cultural richness on a global scale.

The arts and technologies ecosystem in India is at a formative stage, with great potential to celebrate India's cultural plurality, champion more equitable and accessible arts and culture, and shape sociotechnical development. The time, enthusiasm and commitment of diverse practitioners contributing to this report speaks to the energy and expertise that underpins this emerging sector.

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7. Appendix

7.1. Methodology

Research and report development was conducted over a four-month period, from February 2024 to May 2024 by Unbox Cultural Futures and the British Council. Details of the online survey and roundtable methodology follow.

7.1.1. Online survey

An online survey was created using a Google Form and disseminated through various channels, including social media platforms, professional networks and relevant mailing lists, to ensure a broad outreach. Respondents were sampled through a combination of convenience sampling and snowball sampling techniques, using existing networks and contacts within the arts and technologies community in India.

Twenty-three respondents completed the survey, providing insights on important stakeholders, current projects and priority areas within the country to kickstart the research.

While online surveys offer a convenient and efficient means of collecting information, they have significant limitations. As respondents were sampled from existing contacts held by both Unbox Cultural Futures and the British Council, selection bias likely occurred, potentially omitting practitioners that are unaware or have not worked with either organisation. Additionally, the use of online platforms inadvertently excluded individuals without internet access or those less active in the digital space. This, however, may not be of equivalent concern as, nevertheless, those engaged with arts and technologies are likely to be regular users of the internet by the nature of their work. These omissions, alongside the small number of responses, highlight that this evidence and the associated analysis should not be taken as representative of the whole arts and technologies space in India.

a. Survey questions

Section 1: Contact Details

- Name (mention your preferred pronouns)
- Organisation name (if any)
- Where are you based? (City/Country)
- Links to your portfolio or your organisation/profile (website, social media handle)
- According to you, what art form(s) do you or your organisation work across. Options:
 - Visual Arts (includes sculpture, installation,

printmaking, animation, photography, illustration, moving image)

- Music (includes sonic arts, audio design)
- Literature (includes poetry, spoken word)
- Theatre and dance (includes performance arts, opera)
- Design (includes architecture, fashion, industrial, graphic, product, jewellery)
- Crafts (includes textiles, ceramic, lacquer, metal, woodwork)
- Film
- Creative economy (includes policy, advocacy)
- New media arts (includes VR, AR, holographic projections, project mapping, generative AI, sensory experiences)
- Other (please mention details)

Section 2: Creative Practitioners and Organisations

- Tell us more about the work you or your organisation is doing or supporting at the intersection of arts and technologies or digital innovation. (The use of technology could be in various aspects, including but not limited to, creation, curation, collaboration and outcome of creative work. Feel free to drop a link to your website)
- Tell us about a memorable project/experience at the intersection of arts and technologies in India? (Feel free to include as many projects as you wish with links)
- Do you have any recommendations of artists, collectives, communities, collaborators, projects or platforms in India working at the intersection of Art x Tech x Digital Innovation? (Please list them below including name, organisation, and any relevant information to help us find their work)

7.1.2. Roundtable sessions

a. Data collection

Roundtable sessions were conducted following a purposive sampling approach, where practitioners were selected based on their expertise, experience and involvement in the arts and technologies sector in India. Roundtable participants included individuals representing diverse perspectives, including artists, technologists, curators, educators and industry professionals with their practice focused on the arts. Individuals lacking direct relevance or expertise at the

intersection of arts and technologies were excluded from these sessions. While this sampling technique enabled the collection of a curated sample of responses, much like the survey, recruitment was limited by the knowledge and research of Unbox Cultural Futures and the British Council and their respective networks. Future work should perform another round of surveys with additional participants suggested by the participants involved to widen the reach of recruitment.

A total of three roundtable sessions were held in Bengaluru, New Delhi and online (to include other geographies in India), with attendance varying between 7 and 14 participants per session. Each roundtable lasted approximately 2–4 hours, providing ample time for detailed discussions. Core questions explored during the sessions focused on identifying current trends, innovations and challenges, opportunities and areas for international collaboration within the arts and technologies landscape.

Table 1: List of roundtable participants by location

Bengaluru roundtable	New Delhi roundtable	Online roundtable
Harshit Agrawal	Ashwath Patil	Aaron Myles Pereira
Hasan S	Indranjan Banerjee	Abhinay Khoparzi
Karthik Dondeti	Kanchan Joneja	Amitesh Grover
Leya Mammen	Myna Mukherjee	Chhail Khalsa
Madhu Natraj	Natasha Singh	Ninaad Kothawade
Padmini Ray Murray	Pranjali Kalia	Trishla Talera
Preema John	Prarthna Misra	Upasana Nattoji Roy
Sandhya Surendran	Prerna Seth	
Shafali Jain	Shuddhabrata	
Shilpa Vijayakrishnan	Sengupta	
Shiva Pathak	Tejas Nair	
T B Dinesh		
Trisha Chhabra		
Vishal Kumaraswamy		

b. Data collection

Roundtables were audio recorded and transcribed by external local partners. Three cycles of coding were applied, allowing the analysis to move between the observed evidence and the objectives of the research questions. The first cycle involved reviewing the information and identifying significant quotes, projects and patterns of responses across each roundtable session. Deploying an iterative process, second-cycle categories were developed from the evidence of first-cycle codes, based on their salience in response to the research questions. A third cycle of coding involved going back to the transcripts in depth and identifying further information linking to the identified

categories for the purpose of ensuring that all participant's voices were represented in the report's findings.

7.2. Research ethics

This research was conducted in line with the British Council Research Ethics Policy. Before taking the online survey, participants were made aware of their data protection rights according to data protection law in the UK and laws in other countries that meet internationally accepted standards. Participants were informed that they have the right to ask for a copy of the information we hold on them, the right to ask us to correct any inaccuracies in that information and to complain to a privacy regulator if concerns persist. Roundtable participants were asked to provide consent for the recording of each session and were given the opportunity to remove or edit any quote directly attributed to them in the final report. Participants were not financially compensated for taking part.

7.3. Directory of practitioners

To supplement this report, an archive of stakeholders working at the intersection of arts and technologies has been developed. This archive is the culmination of an extensive stakeholder mapping process initiated during the foundational stages of the project. This mapping exercise involved comprehensive secondary research to identify central players, online surveys to gather opinions from a diverse range of individuals and organisations, and detailed conversations during roundtable sessions to delve into the nuances of the ecosystem. Through these methods, a rich repository of 150 stakeholders across various geographies in India has been documented.

The directory is created on Notion and structured on five primary categories: individual/organisation; category; discipline; location; and contact details. Within this framework, categories, disciplines and location are efficiently organised using tags, allowing for streamlined navigation and categorisation. Using these tags, users can easily view, filter and sort content according to their preferences and requirements. Whether seeking specific disciplines or locating entries based on geographic location, the tagging system enables quick and targeted access to relevant information. This feature improves user experience by providing flexibility and customisation options tailored to individual needs.

Here is the directory of practitioners on Notion and Sheets for your reference.

Link to Notion - Directory of People | Tech Mapping in the Arts -

<https://childlike-tendency-691.notion.site/fa95336ecf084185b23a509ac429d01b?v=4e515d6a5ede43f2941fe253450d5a9a>

Sheets link - https://docs.google.com/spreadsheets/d/1F7EOFHcid39N8cWMX6FERAP04KTdT_hqziHbR4ha9iQ/edit?gid=753490945#gid=753490945



Unbox is a collective, building action at the intersection of disciplines. We build collaborative art, design and tech projects to explore new narratives for cultural enquiry and expressions (link <https://quicksand.co.in/unbox>)



The British Council is the UK's international organisation for cultural relations and educational opportunities. We support peace and prosperity by building connections, understanding and trust between people in the UK and countries worldwide.

We work directly with individuals to help them gain the skills, confidence and connections to transform their lives and shape a better world in partnership with the UK. We support them to build networks and explore creative ideas, to learn English, to get a high-quality education and to gain internationally recognised qualifications.

At the core of the British Council's approach to arts, cultural relations, and digital innovation is the recognition that:

- Arts, Cultural Sector, and Creative Industries are critical drivers of innovation, and key contributors to the UK and international innovation agendas
- Interdisciplinary, international creative collaboration facilitates the development of diverse, representative, and resilient technologies.