

An Exploratory Study on Hybrid Ecosystem of Creative Industry
- In parallel with the concept of 'Cultural Resources Convergence Management'

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Abstract

There have been many studies on technology convergence and the digitalization in arts and culture, a lack of conceptual models of the parallel with physical and digital ecosystem and changes of form and function on digitized arts.

This study proposes a new definition of the hybrid ecosystem of arts by literature review. It also examines how the concept of art expands from the artists/artworks to art resources including knowledge, digital content, experience etc. Finally, by capturing the new changes in how online art resources are utilized in offline art, this study overcomes the limitations of the formal distinction between 'art' and 'replicated content' and expands the concept of technological convergence and art resources. This study can be used as a basis for a new research methodology called Cultural Resource Convergence Management (CRCM), an integrated approach that considers all products of the domain in the creative industries as resources.

Keyword: Hybrid ecosystem, Technology convergence, Art resources, Cultural resource convergence management, Creative industry

1. Introduction

The purpose of this study is to explore the structure and function of the new arts ecosystem which is a parallel physical and digital environment, in parallel as the digitization of arts and culture has accelerated since the COVID-19 pandemic. The digitization of the arts, which was initially constrained by time and space, has contributed to increasing public accessibility by expanding artists' output to online markets through digital distribution, such as video recordings of concerts and performances, and digital archiving of original artworks. However, it is mainly focused on the distribution within the value chain system of each industry sector, or on the expansion to the public market by applying the digital technology and knowledge in the form of services such as subscription models and sharing economy to the arts.

The ecosystem models of creative industries have focused on increasing the economic benefits of art by clearly representing the actors and value creation flows at each stage-creation, production, distribution, and consumption. This means that it still views arts as a finished creation in result-based perspective, despite the arts in the physical space are transformed and replicated to the way in the digital space which new formats, meanings, and consumption are manifested. A few studies on the connectivity of digital networks also focus on the economic effects of the self-propagating nature of platforms, rather than discussing the hybrid nature of art and the changes in meaning and value generated in the process (Ryu and Yoon, 2010; Kwon, 2015; Kim, 2016). However, unlike general goods and services, arts are

symbolic products, whatever they are tangible or intangible that have meaning and value transformation in a socio-cultural context (Ryu, 2018) and converge into cultural capital in the process of consumption, by experiencing and enjoying consumers themselves. This means that, unlike other industries, the purpose and function of arts and culture as a public good is embedded in the structure of the ecosystem, therefore the process-based view is all the more important.

The shutdown of majority of performances, art activities during the pandemic has had a significant impact on accelerating digital transformation and launching virtual services in the cultural sectors (Jung, 2020; Park, 2022). In particular, new media and digital spaces using the immersive technologies, blockchain, and artificial intelligence have enabled artists to attempt the new forms of art, such as a social network-based content, real-time online performances, metaverse exhibitions, and NFTs. It means that artistic activities are expressing themselves online in different ways and are not only expanding their distribution or functioning as a complement to offline, but also existing independently online.

Given the change of parallel physical and digital environment, existing theories or models (genre-centered industrial models, digital ecosystems, and entrepreneurial ecosystems), another set of theories that attempts to include non-human elements such as technology, network, tools, as actors in the ecosystem (Jung and Oh, 2016; Choi, 2021; Chun and Kim, 2022; Kim, 2023), are limited in explaining hybrid concept that connect physical and digital spaces.

For the purpose of this article, we will explore and review recent studies and discourses on the transformation of the creative industries to derive the concept of ‘hybridization’ in the arts, then will adopt a new definition of hybrid ecosystem. We will then examine theories and research on knowledge and resources of creative industries in order to explore the forms and experiences of art changed through online and offline. This can also be an attempt to explore the possibilities for artistic resources and creativity to work in more diverse and innovative ways within the creative industries. By proposing the concept of hybrid ecosystem and exploring how digital things can change the physical art world, this study will overcome the limitations of the industrialized distinction between ‘original art’ and ‘replicated content’ and provide new perspectives on the changing function and structure of technologically converged ecosystem. In addition, it can be a useful analytical framework to develop the follow-up studies at the approach of arts management 3.0 for co-creation of creative public goods (Bilton, 2023), beyond the government-led top-down arts management 1.0 and the private market-oriented arts management 2.0.

2. Literature Review: A Concept of Hybrid and Resource in Creative Industry

2.1. Hybrid Ecosystem

In the late 2000s, as Apple's iPhone began to embed various services into mobile phones, many industries began to rapidly become service-based, and ecosystem term began to use in the arts and culture sector. Despite numerous studies on digital art and cultural ecosystems, a precise definition of the hybridization of online and offline is still lacking.

The dictionary definition of hybrid is that firstly, something that is a mixture of two very different things and secondly, used to describe a way of working that involves sometimes being physically present and sometimes working at a distance using the internet.¹ To conceptualize the definition of hybrid arts ecosystem, we examined previous literatures with a concept of the change in ecosystems, based on the keywords of Innovation Ecosystem, Hybrid Ecosystem, Creative Ecosystem, and Entrepreneurship Ecosystem. In regard to hybrid aspects, three literature streams have so far been described: convergence and blurring by genre/sector, public and private partnership, and parallel of physical and digital environment.

¹ <https://dictionary.cambridge.org/>

Convergence

Bilton and Leary (2002) argue that the creative industries have a complexity due to the nature of symbolic goods and it becomes important how creativity is spread, shared, exchanged, deployed with various resources, as well as the heterogeneity and diversity of the various internal and external factors in the system. Bernard (2021) and Wang (2021) have also noted the dynamics and complex changes within creative industries ecosystems, emphasizing the need to move beyond a result-based perspective to a holistic approach through functional change. Spiegel and Harrison (2018) and Mazzoni (2023) argue for a new shift in ecosystem model categorization to explain converging arts and culture, emphasizing the need for designs that consider key actors, key resources, relationships, technologies, and multiple sources of knowledge, including nonprofit market information etc. Borin and Donato (2022) argued the convergent natures and highlighted four main trends of change in the cultural ecosystem: new online and digital possibilities, an increasing audience engagement, a closer connection with sustainability, and the growing interdependence with other sectors within the CCI, such as tourism. Bonet (2023) discussed that innovation in the arts is characterized by novelty of artistic content and expression that creates meaningful artistic experiences, change in the form and function of art, and consequently changes in governance and management, and this series of changes in the arts is recognized as a gradual system change from disruptive content change.²

Although these changes might vary depending on the technological, social, political, and economic environment of each country, it seems obvious that convergence is accelerating due to the digitization and technological application of the arts and culture.

Public-private partnerships

The second stream of hybridization is public-private collaboration. Wyatt and Trevena (2021), in their study on the governance of the creative industries after the pandemic, indirectly proposed a hybrid concept of cultural ecosystems: that the focus of cultural policy should expand from artists to independent producers (freelancers), intermediaries (cultural institutions, for-profit companies, non-profit organizations), communities, and the public, and broadly to collective public co-creation. This can also be linked to the discussion of Roundy (2017), who argues in the current ecosystems based on entrepreneurial markets and communities, hybrid support institutions must play an important role in the organization, composition, and functioning of the ecosystem. Whitaker (2023) defined the concept of hybrid practices as the blurring of public and private collaboration in creative industries ecosystems and argued it can be extended beyond building arts ecosystems to designing solidarity economies that approach social problems in creative ways. It can also be understood as a new approach to widen the individual-level arts entrepreneurship into organized structure.

Parallel of physical and digital environments

The third stream is the combination of physical and digital environments. Nambisan (2016) discussed that digital goods are mostly uncertain and imperfect and have the property of being extended by a variety of innovative actors. The convergence of digital technologies expands the physical and spatial limits of entrepreneurship while shifting entrepreneurship into a systemic context, focusing on the interconnectedness of entrepreneurs and their environment rather than focusing on individual entrepreneurial capabilities. While offline art relies heavily on the capabilities of the artist and is distributed to the market as a finished product, online art involves the activities and resources of a variety of actors beyond the artist's own capabilities. Nambisan's work provides a theoretical framework for examining which actors are involved in a physically and digitally connected cultural ecosystem and how the form and meaning of art changes. Holden (2015) noted how digital content and artistic activity on platforms is distinct from art created offline. Granstrand and Holgerson (2020) noted that innovation ecosystems in the last 15 years have focused primarily on actors, complementarities, and collaboration,

² Bonet (2023). Driving Innovation in Cultural Management, presented on 31st ENCATE Congress on 13 Oct. 23.

and argued that ecosystems should be understood comprehensively, including goods and services, intangible and tangible resources, technologies, activities, artifacts, and even institutions across industries.

In Jung (2020)'s study discussed on a paradigm shift of performing arts during COVID-19 pandemic, argued that there are things to be discussed and resolved, such as possibilities as business models, audience experiences on liveness, high fidelity of technologies, but live online streaming and video performances have shown positive aspects in expanding the accessibility of performing arts. In addition, it argued that digital transformation should not be limited within online performances but should be expanded to building new innovative services and experiences that reflect digital advantages. Park (2022) argued that the situation paralleled with online-offline has moved from adopting of technologies as tools to embracing the innovative elements by technology convergence in order to trigger new ways of creation and develop a completely different dimension in distribution and consumption. In other words, instead of art being to creation of eternal classics online, rather it might be considered as a 'resource' of the creative industries, interpreting and understanding in new ways we've never perceived before and creating new content in each space, both online and offline.

Considering these previous literatures, it can be said that hybridization in the arts and culture means convergence and the expansion to digital and physical spaces, which result in being diversified. Therefore, in this study we will define that Hybrid Ecosystem is on the parallel structure of online and offline through technological convergence, also on the change of functions, and on the expansion of art forms and resources. The definition is on a process-based view reflecting the dynamics of integrated networks, online and offline.

2.2. Arts and Cultural Resources

Before discussing the change of arts in a hybrid ecosystem, we reviewed a literature overview of the resources and knowledge in the creative industries, from the resource-based view and knowledge management perspective.

The arts and cultural knowledge do not belong to artists and producers alone, unlike explicit knowledge in other industries, it is tacit and symbolic so initially difficult to clearly identify what it is (Manfredi Latilla V. et al., 2018) and is subsequently acquired and diffused as symbolic and collective meaning through the experiences and perceptions of consumers (Venkitachalam and Bush, 2012). Stejskal and Hajek (2019) also argue that knowledge arising from consumers and producers has a more important impact on innovation than objective knowledge such as public institutions and databases, and empirically validate the collaboration and spillover effects of both. Miguel Molina et al. (2019) pointed out that innovation in the creative industries is mainly centered on outputs, such as artworks or goods, but a significant part is related to processes. Considering the knowledge-based and resource-based views, they emphasized that the integration of different resources together is as important as the development of new internal resources.

Henriques and Suarez (2022) defined digital art practices as a combination of resources-technological, artistic, and collaborative resources-and argued for the creation of network value through the combination of these resources. They explained that resources encompass a broad concept of tangible and intangible assets, including digital technologies and networks, artistic ideas, and collaboration with participants, and that network size, heterogeneity, cohesion, and network centrality are important factors, especially since artistic resources are formed through the exchange and interaction of knowledge and other resources (technological and co-creative resources) across different platforms.

Zhang and Gong (2012), Kim (2023) discussed concepts of artistic resources and new values, such as users' creativity, experiences, stories, which were formed in the process of dynamic reciprocal interactions and collaboration, through online literature creation community, and participation challenge in the Getty Museum cases.

Chen (2021) argues that digital creative talents and virtual platforms are the most important factors in the virtual agglomeration of creative industries, and that digital cultural resources in virtual space

should be a new format that is differentiated from the existing ones. Mazzoni et al. (2022) argued that in the current algorithmic society where artificial intelligence and generative technologies are rapidly transforming the creation and consumption of art and culture, the way of preserving and promoting the arts in technological uses is a factor that will bring art into a new phase.

Research shows that online art is blurring the boundaries between creation and appreciation due to the convergence of technologies and the nature of the medium, and the scope of art is considered not only artists and artworks, but also information, knowledge, stories, creative technology tools, new meaning generated from interaction among participants. In light of these previous studies' concepts of knowledge and resources, this study focuses on art resources in hybrid ecosystems, both online and offline. In particular, this study examines the flows of art resources in the integrated environment that offline art is transformed into digital art resources, and online art in turn changes the experiences in the offline. A holistic physical-digital perspective can serve as a starting point for discussing new approaches to the development of art consumers in the digital age and for innovating ways to democratize artistic diversity and creation.

3. Methodology and Research questions

This study aims to derive a conceptual definition of the hybrid arts ecosystem and the scope and types of art resources. For this purpose, the topics for Ecosystems, Technology Convergence, Entrepreneurship, Knowledge Management in creative industries have been analyzed by literature.

The research questions are:

- 1) How do the actors in hybrid arts ecosystem change, and how do the functions and scope of artworks and art resources change?
- 2) How does the structure of the creative industry change due to the hybrid arts ecosystem?

Through the above research questions, this study ultimately aims to propose a new academic paradigm and industrial structure transformation due to the convergence of culture and technology. This goal is based on the premise of combining the value of arts and culture with the social value of technology, which can be presented as the value of solving social problems, building more creative and diverse environments, and innovating the arts industry.

4. Converged Network: Actors and Art Resources

4.1. Co-creation of content and meaningful experiences

As we have seen, the parallel online and offline structure of art requires a different approach to artists, consumers, and artistic creation. In a shift away from online content, online art that utilizes immersive technologies offers a more playful and interactive experience than offline art, shifting consumption from the viewer to the participant. For examples, South Korean photographer Kyu-tae Lee fused traditional analog photography with pixels, the basic element of digital photography, to display his digital works in a virtual space. The works were created as NFTs in Somnium Space, a blockchain-based virtual reality space, where visitors can wear VR headsets and freely explore the virtual exhibition to acquire information about the artworks or click on the NFTs to purchase them on the platform. Metaverse expert Shin (2021) noted that in the real world, the connection between viewers is limited to the same experience, but in virtual space, technology, senses, content, and other factors intervene in an individual's environment to create a different path of personalized experience. In the future, due to the interconnectedness of the real and virtual in XR environments and hyper-personalized artificial intelligence, online art experiences will take a much more personalized path, interacting deeply with

affective aspects such as inner sensations, emotions, and the body, as well as cognitive aspects such as educational knowledge and information resources.

The shift from viewer to participant not only extends the art experience, but also changes the meaning of the consumer as a co-creator. An example of innovative co-creation with technologies and participants is Virtual Choir, founded in 2011 by American composer Eric Whitacre. The first choral performance video, with 185 participants from 12 countries, received such a great response that YouTube views exceeded 1 million in two months, followed by a live performance in 2013 with a real choir on stage and a choir in virtual space (Water Night, with 3,700 participants from 73 countries), and a video of a virtual choir 6 (Sing gently) composed of 17,500 participants from 129 countries in 2020, which showed the collective desire and social solidarity to overcome the global pandemic and moved people deeply (Jung, 2020; Park, 2022).

In addition, Olafur Eliasson's Earth Speaker is an art augmentation application that captures environmental issues through the eyes and voices of children, the future generation. By combining interactive technology and artistic expression to raise questions about nature and the environment, it encourages children to engage with art in an intuitive way and raise awareness of climate issues. This expansion of creative activities utilizing technology is influencing a shift in the identity of artists to become "artist-entrepreneurs" who attempt to innovate online economic activities and art experiences, and "artists as social innovators" who combine the creativity of artists with the social role of technology (Park, 2022). Artists as entrepreneurs and social innovators have a greater understanding of creative methods and social relationships because they are independent freelancers who attract consumers (audiences) through their own vision, creativity, and experience (Henriques and Suarez, 2022), unlike entrepreneurs in other industries who combine business opportunities with technology. As we have seen above, online art bring art into the lives of individuals and produce social symbols and meanings by allowing them to perceive art in an active and intuitive way. With a rapid development of creative tools, such as platforms for music creation, production, copyright registration, self-publishing, and generative AI, the consumers are more becoming creative agents or participate in the creative process of artists.

Journalism has already experienced media convergence through digital technology and transmedia in the early 1990s, resulting in a significant change in the industry landscape. The change of the media industry can be seen as stemming from the participatory culture and capacity of audiences to actively embrace technology and interact with media content in the process of technological convergence and functional integration of media (Hwang et al., 2012). Similarly, online art should be understood as a cultural transition and process in which consumers actively participate and share and reproduce art in their own way. In this regard, Park (2016) noted that through network convergence, artistic creation is recognized as resources that can be utilized, and that innovation and new meanings of art can be expected from the point of view of the subversion of art and the paradigm shift. In the next chapter, we examine the changes in the form and function of artistic creations that are emerging in the hybrid ecosystem.

4.2. Art Resources extended: Artifact, Activity, Knowledge

How will the form and function of artistic creations expand in a hybrid ecosystem? First of all, there are more and more possibilities to express imagination and diverse creativity beyond the limited resources and production difficulties of the real world, including digitizing artists' physical works, digital art, installation art, etc.

The practice of digitization for the preservation of heritage is also changing in a new way by applying immersive technology. The performance of VR technology convergence 'BBRUN' (2019) is a digitized performance of traditional Korean folk dance which is one of intangible cultural heritages, by using immersive technologies such as motion capture and metaverse of 3D virtual space. During the performers dance as live actors, and their movements data are converted to digital space, and the audience wearing VR headsets in another space can interact with the performers who are re-created in virtual reality. Later, the VR performance was re-made into animated content by composing storytelling

with characters that applied the movements. This converged works can be used in various ways, such as preservation and modernization of tradition, new experience of performing art through sensory interaction, immersion and entertainment, and educational content for traditional arts.



Figure 1. An example of art in hybrid ecosystem, BBRUN (2019)³

The following examples illustrate new ways in which consumers generate and utilize art resources in a hybrid ecosystem. Korean YouTube channel ‘Towmoo’ was started by music students with the motto of classical music for the digital generation, adding popular and entertainment elements. It gained popularity by introducing differentiated classical information such as classical performance videos, information of new rising musicians' performances, song commentaries, competition information for music majors, and behind-the-scenes stories. Since then, the company has opened an offline studio and transformed into a classical organization that connects online and offline, by planning convergence classical performances such as films, games, and animation. By highlighting fun and interesting contents, various events that encourage participation, can build a relationship with young audiences and fans in the classical field and present classical performances offline. Film concerts have been recorded high of the box office in the classical, with powerful ticket sales in large venues with approximately 2,000 seats.

‘Layers Classic’ is a chamber music group consisting of a violin, cello, and piano trio that began its online activity in 2019 and had approximately 650,000 subscribers on YouTube as of now 2024. They upload 3–5-minute live performance videos presenting classical music in online formats, such as mashups of arrangements and reinterpretations of classical pieces and crossovers with pop music. They have also shown high-quality online performance videos by creating background videos of locations and images that match the pieces, and a great response was received. By mixing up familiar classical songs, online consumers are able to recognize classical music in ease and familiar ways, leading them to search for classical music on their own and to acquire and expand their musical knowledge. Although this online content aims to be a user-centered art, it provide opportunities and experiences for the more public as the beginners of classical music.⁴ In addition, ‘One Minute Classics’ is a content in which a music lover who has been a producer of classic music field for 15 years curates classical songs, focusing on the specific themes and moods instead of professional music categories, shares his personal impressions and feelings, and introduces the songs through short-form videos. The information on the classical songs is no longer than one minute long, and the playable music can be clicked directly to listen to, making it possible to acquire classical knowledge and appreciate classical music in a short time and anywhere.

According to a recent survey, the average age of classical music concertgoers in South Korea was 38.5 years old in 2021, down from 47 years old in 2019, before the pandemic. In particular, for film concerts, 47% of the total audience was in their 10s and 20s, and 36% in their 30s, suggesting that the age of the target audience varies considerably depending on the program. Nevertheless, for those in

³ National Asian Cultural Centre <https://youtu.be/bQ3YuTqMBBc?si=7rs8bN8sBYpXI07Z>

⁴ <http://www.koreanewstoday.co.kr/news/articleView.html?idxno=65069>

their 40s, there is a significant result⁵ that film concerts lead to attendance of classical performances, having an implication that the accumulation of cultural capital through online art resources can lead to demand for the offline art.

‘Art for you’ is a content that provides the knowledge and stories of visual art tailored to the public's views, including exhibition information, interviews with artists, videos of expression techniques, tutorial content. The company recently opened another content channel ‘Reason of art’ to provide deeper art knowledge such as the stories behind classic works, historical backgrounds, and art history, which currently has more than 510,000 subscribers. In relation to such online content producer, referred to as 'artist-creators', 'art-youtubers', 'artist-influencers', 'artist-mediators', 'artist-networkers', and now 'virtual artists' as AI creators (Park, 2022) are having a significant impact on the function and structure of today's hybrid ecosystem as co-creator of art resources.

As discussed, online art is transformed into the expansion of art resources through collective collaboration and network convergence. Art resources can be digital artworks, information, knowledge, stories, and also include such as tacit knowledge and cultural symbols generated through online content and interaction of social networks, ultimately can increase of diversity and cultural capital.

Here are the features of hybrid arts ecosystems and the concept of art resources.

Table 1. Features of Hybrid Arts Ecosystems and Concept of Art Resources

Features of Hybrid Arts ecosystem	Type	Example of Components
Co-creation	Actor	Creators, Mediators, and Consumers
	Technology	Platforms, Immersive technology, Blockchain, Artificial intelligence etc.
Arts Resources	Artifact	Digital art, Installations, NFT, Online performances and exhibitions, Creator’s personality right such as voice, movement etc.
	Activity	Content production and consumption, Technology-enabled interactions such as VR/AR, etc.
	Knowledge	Explicit Art knowledge, Implicit Art perception, Narratives and Stories, Symbolic meaning etc.

5. Framework: Transfer and Integration of Arts and Cultural Resources

In the previous section, this study discussed the expansion of actors and art resources in hybrid ecosystem. In particular, in the visual arts, the digital art market has grown rapidly during the pandemic period due to the diversification of art resources has enabled digital consumers to actively access to artworks and artist information. The inherent information imbalance in the art market and the perception of financial asset value has been accompanied by the devaluation of the intrinsic (aesthetic) value of original works (Torrelles, 2016) and by the tendency of highly depending on the gatekeepers. Despite the numerous discourses on NFT art, it can be argued that NFT art has provided a playful experience of art by facilitating the entry of emerging creators and mass dissemination, while ensuring the scarcity of artworks (Choi, 2022). Chun and Kim (2022) argue that NFT art can only be understood as clear art if it is viewed as a network involving the active engagement of creators and viewers. The entry of younger generations of art consumers into the digital market is also affecting the whole visual art industry, which has been perceived by complex distribution and a high degree of exclusivity centered on professional. In fact, according to the Korea Art Market2023 report, despite the external circumstances of economic recession, the Korean art market has been growing steadily in recent years. Many international galleries

⁵ Sejong Centre Magazine. February-March 2024. No.10. Center for All.

participated in art fairs held in Korea, and the number of visitors increased significantly. In particular, the number of artworks purchased by 20–40-year-olds at KIAF in 2023 increased by 62% year-on-year⁶, showing that younger consumers are connecting to the offline art market. The online performance group ‘Layers Classic’, which was introduced earlier, has also been moving between the stage and the digital space by performing solo tours, owing to the increase of online audiences. It is not enough to understand this hybridization as an economic effect of the specific cases or digital fan communities into the local art market.

In recent years, as social media has captured various contents of street dance, arts resources for the street dance have been enriched. It leads to high interest and participation for all genres of street dance, despite it was previously perceived and enjoyed as a subculture. As a result, street dance festivals have been held annually since 2019, and the number of higher educational institutions have increased, including the establishment of practical dance departments in universities (Jung, 2023). For ballet, perceived as an elite art as well, the increase of art resources is leading to the high demands of ballet performances and the growth of the hobby market. This phenomena that art resources are spread to the creative industries are observed in other sectors digitally converging, as seen that creations of webtoon are being used as a source of creative industries such as broadcasting, drama, and musicals, which has a great impact on the entire industry.

To sum up, hybrid arts ecosystem promotes co-creation and expand art resources through technology convergence and digitization and blurring the boundaries between production and consumption. As noticed in the previous cases of chapter 4, we can assume that enriched art resources will not only be used as a source of creative industries but will also be returned to the offline market. A conceptual model of the hybrid arts ecosystem online and offline integrated is derived as follows.

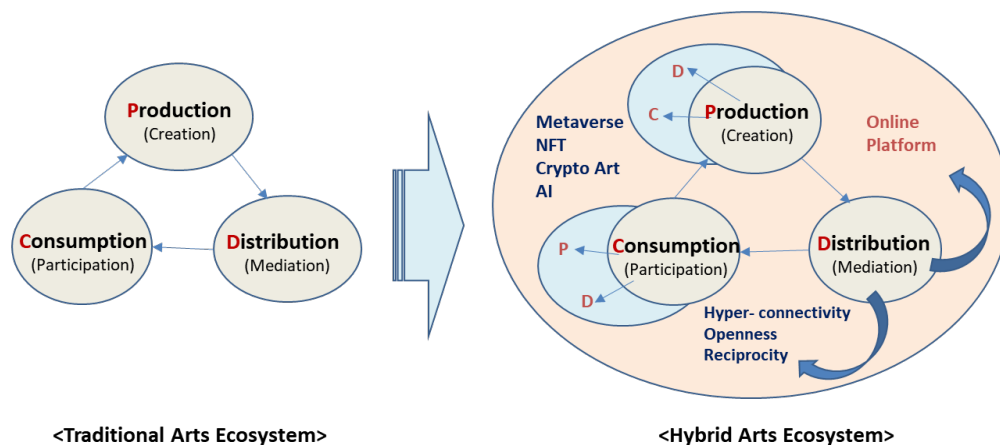


Figure 2. Transformation of Arts Ecosystem

6. Conclusion

This is an exploratory study that goes beyond existing research and discourse on the changing actors, flows, and structures of the digital cultural ecosystem to examine the dynamic and emergent transformation of the arts and culture in physical and digital spaces. It defines a concept of hybrid arts ecosystem and conceptualizes art resources as a wide range of tangible and intangible creations-artworks, information, knowledge, activities, experiences, and interactive processes.

The dominant view of art resources is that digital consumers contribute to co-creation of art resources, these can return to the offline arts beyond the digital art environment and enrich the audiences’

⁶ <https://www.joongang.co.kr/article/25221102#home>

appreciation and experience for arts, also can be utilized as a source of creative industries. The impact of art resources on the development of audiences and changes the structure of creative industries can be analyzed more closely through further research.

The contribution of this study is that by presenting the concepts of technology convergence and resources, it can be used as a basis for a new research methodology called 'Cultural Resource Convergence Management' (CRCM), an integrated approach that considers all products of the domain in the creative industries as resources. CRCM is proposed to maximize the utilization of cultural and artistic resources and to establish a theoretical basis on arts and cultural management 3.0 in order to start discussion on new labor and economic concepts, industrial structure of arts and culture driven, as an aftermath to IT convergence technologies such as artificial intelligence. Ultimately, we hope this study is a start of discussion a new 'social service industry' structure through innovation in the cultural sector and expanding access to public services.

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