



International Journal of Arts and Technology

ISSN online: 1754-8861 - ISSN print: 1754-8853

<https://www.inderscience.com/ijart>

Can artistic research and new technology contribute to sustainable development? Acting on participatory management and urban regeneration policies to promote investment for sustainable growth

Luca Danieli, Sendy Ghirardi

DOI: [10.1504/IJART.2023.10056892](https://doi.org/10.1504/IJART.2023.10056892)

Article History:

| | |
|-------------------|-------------------|
| Received: | 23 November 2022 |
| Last revised: | 20 February 2023 |
| Accepted: | 14 March 2023 |
| Published online: | 28 September 2023 |

Can artistic research and new technology contribute to sustainable development? Acting on participatory management and urban regeneration policies to promote investment for sustainable growth

Luca Danieli*

Institute 1,
University of Music and Performing Arts Graz (KUG),
Graz, Austria
Email: luca.danieli@kug.ac.at
Email: dnllcu@gmail.com
*Corresponding author

Sendy Ghirardi

Department of Applied Economics,
University of Valencia,
Valencia, Spain
Email: sendy.ghirardi@uv.es

Abstract: With the rise of the sustainable economy, the fields of artistic research and cultural technology are exploring new opportunities to contribute to the modelling of innovative forms for cultural management. The current article aims to suggest a potential direction for innovation in relation to the emerging concepts of participatory management and urban regeneration. The opportunity to reuse available infrastructure in the territory to expand cultural participation in rural and suburban areas may become an important source of inspiration for innovative cultural formats and technologies. In the article, the topics of participatory management and cultural heritage adaptive reuse are presented, and a discussion is opened on the opportunities for cultural management and artistic research to better collaborate toward the design and experimentation of innovation in the territory, highlighting the impact that innovative curatorial technologies may have on adaptive reuse strategies and on promoting the inclusion of investors within the cultural sector.

Keywords: participatory management; adaptive reuse; urban regeneration; cultural technology; curatorship; cultural innovation; investment; unused spaces; artistic practice.

Reference to this paper should be made as follows: Danieli, L. and Ghirardi, S. (2023) 'Can artistic research and new technology contribute to sustainable development? Acting on participatory management and urban regeneration policies to promote investment for sustainable growth', *Int. J. Arts and Technology*, Vol. 14, No. 4, pp.283–297.

Biographical notes: Luca Danieli is researcher at the University of Music and Performing Arts, where he is completing a postdoctoral position in music theory. His research encompasses music production, new technologies, and art-science practices. He is currently the CEO of Marte, a startup in the field of digital humanities that received acknowledgements in numerous international competitions in the field of the Cultural & Creative Industries.

Sendy Ghirardi is a researcher at Econcult, the Research Unit in Cultural Economics and Tourism of the Department of Applied Economics of the University of Valencia. Her research focuses on the social impacts of culture, specifically on the relationship between cultural participation and well-being. She has published on these topics in books and international journals.

This paper is a revised and expanded version of a paper entitled 'From 'space' to 'spaces': enabling interaction with multiple environments to contribute to politics of reuse and audience development' presented at Proceedings of the 3rd Dictionary for Multidisciplinary Music Integration (DiMMI) Conference, Trento, Italy, 25–26 November.

1 Introduction

With the definition of the 2030 Agenda for Sustainable Development, the European Union has introduced a new set of operational policies aimed at designing innovative cultural models to both solve environmental issues and fight social exclusion, through multiple cooperative calls planned within the Horizon Europe, Creative Europe, and the New European Bauhaus programs. Three directions are particularly promoted by the European Union to address the challenges of our society towards a more inclusive cultural economy.

One direction consists in designing innovative models to support cultural growth through new forms of social inclusion strategies. Emerging research interests part of the Horizon Europe program (2021) revolve around the opportunity to democratise processes of cultural management by developing new approaches aimed at including citizens in management operations so as to multiply opportunities for cultural sharing and inclusion through bottom-up strategies. Two complementary approaches are connected to the theme: the first involves the concept of active citizenship or participation, since self-organising communities are considered as an important social capital with potential to impact social inclusion and promote innovative local models that can be replicated in the territory. A second approach that is part of the New European Bauhaus program (2022) consists in the opportunity to capitalise on such models to reuse available infrastructures and inactive cultural heritage towards the development of more sustainable and inclusive cities.

A second direction promoted by the European Union in sight of a sustainable economy consists in better integrating venture capitals in the process of cultural financing, to scale opportunities for innovation in the field and empower cultural growth (KEA, 2010; Čopić et al., 2011; Ahmad et al., 2018; Creativity, Culture and Capital, 2021). This is particularly important in a moment in which societal complexities are multiplying in consequence of economic constraints, and new models are required to decentralise the role of the state in cultural development. To this purpose, the European Institute of Innovation and Technology (2022) has recently promoted the formation of a novel Knowledge and Innovation Community (KIC) to assist in the generation of a self-sustainable cultural ecosystem and strengthen the cooperation between education, research, and entrepreneurship in the cultural and creative industries (CCIs). Startups and innovative business approaches are considered important assets to promote growth and jobs, with CCIs playing a role in sustainable local development (OECD, 2018), and

venture capital has been identified as a pivotal resource not only in relation to financing, but also to improve opportunities for startups' success and scale-up (Bocken, 2015; Jeong et al., 2020).

As for the third direction, the European Union is placing a focus on the topic of digital transformation, since digital infrastructures are considered by the European Commission as a powerful mechanism to support operations towards a sustainable society (Bednářčíková and Repiská, 2021). Such an approach resulted in the growing strategy of supporting the formation of networks dedicated to technology development and incubation for entrepreneurship initiatives (Jamil et al., 2015), and the European Union is currently promoting stronger integration between technology and the arts for sustainable purposes (Scientific Foresight Unit, 2022). Therefore, cultural and technological initiatives in the field of art and technology with the potential to enter the market and promote growth are considered to play a role in the future for sustainable development. It is however still unclear in which ways artistic research and technological innovation connected to live performance and digital arts may fit with and contribute to the presented scenario that is emerging from recent research in cultural economics. As the European Union is promoting to capitalise on digital transformation and the arts to empower innovative models for inclusion and cultural expansion, it is important today for the fields of artistic production and dissemination to discuss new potential approaches that may support emerging cultural dynamics.

In the present article we aim to take into account the three themes of cultural development, inclusion of venture capitals, and technological transition, to highlight one possible development path for technology-oriented artistic disciplines to contribute to the aforementioned directions. The article provides a review of current research strategies in the field of cultural economics to expand participation in rural areas and suburbs, highlighting some future challenges emerging from such undertakings. The article addresses the topic of rehabilitation of unused and adaptive spaces, arguing that artistic research may contribute to the creation of innovative formats and technologies for adaptive curatorship able to strengthen the presentation of performing and digital works for local exhibition, impacting bottom-up participation and audience development. The article will bring a focus to the need to improve adaptability strategies in the design of innovative technologies and related artistic contents to expand opportunities for reuse and scaleup in the territory. Finally, the article contextualises how the creation of new user-oriented technologies for digital curatorship and impromptu exhibition may promote the inclusion of venture capitals in the sectors of art and culture, generating technological innovation that can more easily enter the market and eventually support future strategies for cultural development.

2 Local development, active participation and reuse

Art and creativity are considered as critical mechanisms to promote social inclusion and enable the transition towards a more resilient economy. Creativity and cultural investments are considered to constitute a pivotal resource driving local development, and artistic activities have been acknowledged to contribute to the economic growth at both local and global levels (Sacco and Segre, 2009; Tabellini, 2010; Boccella and Salerno, 2016), with recent research highlighting their potential contribution to

innovative forms of social and environmental sustainability (UNESCO and World Bank, 2021). In particular, active cultural participation is rising as an important asset to support inclusive models for cultural growth (Tavano Blessi et al., 2016), in which traditional boundaries between end-users and organisations dedicated to cultural production as well as dissemination are slowly becoming less clear (Sacco et al., 2018).

Recent literature has identified rural areas as contexts where cultural policies are directed toward participation and community-building activities increasing economic, social, human and symbolic capital (Bell and Jayne, 2010; Beel et al., 2017). In rural areas, new forms of collaborative governance are being adopted, opening up decision-making on culture to more diverse and democratic forums crossing government, civil society and business organisations (Mahon et al. 2018). To some extent, such an orientation resulted in considering arts, culture and creativity as vehicles to revitalise degraded places through collaborative initiatives involving members of the local community, local businesses and other private actors, as well as representatives of the state, in which the value of both the economic and social dimensions of culture and creativity are recognised (Duxbury and Campbell, 2011). The driving paradigm consists in an alternative conceptualisation of creativity for rural areas, which differs from existing urban-centric models influenced by the principles of a creative city. Many scholars do not see suitable such an urban-centric model that stresses the direct economic impact of the creative production policies applied to the rural context, suggesting a perspective that embraces societal impacts identifying networks and clusters that develop in rural areas in regards to creative production (Harvey et al., 2012; Gibson, 2010; Bell and Jayne, 2010; Pratt, 2005).

In a context in which communities partake in decision-making activities related to cultural production, citizens are pushed to learn about the codes underlying cultural meaning. Active cultural participation leads to the development of new skills and abilities, the development of a sense of belonging, fostering social capital and contributing to the community's empowerment and resilience (Sacco et al., 2018). However, while participation is increasingly being included into cultural planning practices, the implementation of this strategy in rural contexts remains limited (de Luca et al., 2021). The main issues of participatory planning in rural areas as identified by scholars include the paucity of human capital, civic disengagement of the relevant community of interest from the projects as well as power dynamics, lower resources, geographical constraints and eventual lack of available infrastructures (de Luca et al., 2021; Osborne et al., 2004; Johansen and Chandler, 2015). Therefore, while there is a strong propensity for active participation since cultural and creative activities are often voluntarily born from the grassroots, there are also difficulties that hinder potential territorial development. However, some aspects of these issues may prove to be significant resources for generating a sustainable economy.

In the described scenario, empowering citizens in organising and disseminating culture also means to deal with a series of technical difficulties related to theatrical spaces, as suburbs and rural areas may be lacking professional facilities for cultural exhibition while they may be provided with inactive or adaptive infrastructures looking for regeneration opportunities. Urban regeneration is considered to be an important policy for the design of more sustainable cities and communities (SDG 11), contributing to the formation of stronger principles in line with circular economic frameworks for waste management and recycling maximisation (Domenech and Borron, 2022). The re-activation of temporarily inactive and adaptive spaces is considered as a method to

counteract land consumption (Opoku, 2019), with positive effects on the realisation of multiple goals of the United Nations agenda for sustainable development (Opoku and Akotia, 2020). From the perspective of social sustainability, policies on cultural development promote the re-activation of unused and adaptive spaces in rural areas, suburbs, and urban voids as a way to include social paradigms for the empowerment of the aforementioned circular framework. Focus addresses the opportunity for reuse policies to develop new cultural centres in the territory and strengthen cultural networking, allowing culture to access remote areas since the distance from an event is considered to play an important role in the level of equality to access to culture (Anheier et al., 2017; Getzner, 2020).

Overall, bottom-up participation has been suggested as a sustainable approach for expanding strategies in cultural management, as creative communities tend to generate innovation in new and unconventional ways to overcome institutional and local barriers, from financing to the development of cross-sectoral collaborations (Daldanise et al., 2018). According to de Luca et al. (2021), rural communities are increasingly interested in setting up inclusive and participatory regeneration processes, demonstrating potential to engage the local community into the development of local regeneration plans. Performing arts services are seen to contribute to the sustainability of local initiatives, able to initialise renovation processes in relation to cultural heritage and surrounding contexts (Misirlisoya and Günç, 2016), and cultural events and artistic activities have demonstrated to lead to positive spillovers in the economic, social, and cultural dimensions connected to urban planning (Omidwar et al., 2020), with recent studies highlighting how art experimentation through artistic residencies enable the formation of complex local processes with potential to impact sustainability strategies for communities' empowerment and heritage regeneration (Pinto et al., 2020).

3 Potential for technology and artistic research to impact curatorship and audience development in the age of participation

As Sacco et al. (2018) suggest that distinctions between end-users and organisations for cultural production or dissemination are slowly decreasing or at least transforming, we should consider the possibility that more and more citizens will be called in the future to plan and run cultural events and exhibitions within their communities. Emerging concepts in such a direction include the notion of 'citizen curator' as developed by O'Neill (2017), or that of 'everyday curator' as suggested by Thompson and Reilly (2019), who argue that the World Wide Web allowed to extend curatorial roles to the everyday user. Although such observations have been specifically contextualised in relation to the internet, the review reported in the previous section may hint to possible transliterations of such a concept from digital-only to physical environments in the future. In such a perspective, challenges may not only relate to the reuse of inactive and adaptive heritage, but difficulties may include the need to design new models to develop high-quality exhibitions on smaller budgets to be accessible by local organisations, as well the lack of technical or professional expertise by individual citizens in curating exhibitions and events to improve their presentations and enact strategies of audience development. Within a context dominated by the interest to include citizens in cultural management operations, empowering citizens in self-organising and improving the quality presentation

of cultural products or adaptive exhibitions may prove an important factor to effectively promote audience participation and enact local development processes.

Specifically, the opportunity of repurposing available spaces or enhancing them to expand their role in the community by promoting participatory initiatives makes them critical for the experimentation of innovative approaches to cultural production and dissemination that can be replicated in different contexts, generating a chain reaction that may find useful implications in regional policies. The opportunity to adaptively and temporarily re-signify a specific environment through bottom-up approaches allows indeed to identify reactions by the population to alternative experiences and assess their potential for future developments. Recent research in this direction aimed to develop a taxonomy of adaptive reuse strategies for art exhibition (Pieczka and Wowrzeczka, 2021), including preservation, coexistence, and domination approaches for regeneration practices applied to post-industrial facilities. However, research is often confined to architectural studies for the long-term re-purposing of unused facilities, and more flexible and ready-to-go solutions on the side of artistic presentation to valorise different types of places are arguably under-developed in the current literature. Recent studies have highlighted the role of curatorship in the development of inclusivity (Pruulmann-Vengerfeldt and Runnel, 2018; Mägi et al., 2021), but the majority of studies is confined in framing research around museum engagement to promote innovative models in management for social inclusion (Salgado and Marttila, 2013; Høholt, 2017; Yates et al., 2022), as well as to renovate existing museums toward forms of social spaces and open community places to support more traditional roles including collecting, preserving, and exhibiting artworks for the public interest (Nolasco-Rozsas and Hofmann, 2021).

Adaptive spaces are important for their power to decontextualise a cultural product from predetermined settings, leading to a potential re-signification of the spatial environment to welcome innovative purposes for both social and cultural goals, supporting the conversion of alternative spaces for social inclusion development strategies. Innovative curatorial approaches for culture and exhibition may rise to play a critical role in enabling repurposing for the experimentation and scaling of innovative cultural markets, bringing an added value to urban and cultural regeneration causes for social inclusion development. An existing example of how such a combination of adaptive reuse and bottom-up participation can generate both social and technological innovation, as well as to open new cultural and technological markets that grow in the territory, consists in the development of cinema: the presentation of an innovative audiovisual technology by the Lumière brothers at the Grand Café in Paris, which posed the basis for the development of the cinematic sector (Musser, 2018). Much attention has been directed to the technological invention as a propeller for growth and the delineation of a new artistic form, but relatively little attention has been directed toward the sociological environment which permitted the generation of the cinematic industry. According to Musser (2018), researchers agree in considering the presentation of the innovative cinématographe apparatus in the basement of the Salon Indien du Grand Café in Paris on 28 December 1895 as the representative date for the birth of cinema, despite the inventors already presented the technology in earlier public screenings. Among the contributing factors, Musser underlines that the event was the first of its kind in which “an admission fee was first charged” (p.34). To such an observation, we also want to highlight that such a presentation was achieved through the repurposing of an adaptive environment to experience a new type of cultural product – rather than presenting the

innovation within a built theatrical environment (e.g., a theatre) –, which allowed inventors and participants to assess the potential for the medium to eventually support additional initiatives in the territory.

The rising policies on the topics of participatory management as a way to expand social inclusion and adaptive reuse as a form of recycling for the circular economy suggests that adaptive features will grow in importance in the future. Such dynamics form an opportunity to try and test innovative formats and solutions for cultural production and dissemination for audience development. The possibility for art practices to better integrate and valorise degrading architectures through adaptive reuse strategies may prove a key factor towards the development of innovative cultural dynamics and networking models able to scale up. Acting on improving methods to raise the impact of cultural events so as to reach and transform available cultural heritage into innovative outposts for cultural sharing through content creation and adaptable displays may become a strategy to increase opportunities for audience development and participation through bottom-up processes.

On the side of artistic contents, these changes in policies and cultural consumption will require artists to design products that may fit different environments more efficiently, so as to promote the replication of their practices in multiple contexts. Within a scenario dominated by the goal to expand social inclusion by capitalising on available infrastructure sparse in the territory, spaces for exhibition have to be increasingly conceptualised as irregular architectures or non-traditional contexts with which the arts need to open a proactive dialogue with the potential to grow and eventually bring to new forms of cultural production. If standardised practices for content creation taught in conservatories, audiovisual, dance, and fine arts institutions usually prepare students for exhibiting their works in established theatres, cinema, or equipped concert halls, future spaces for exhibition may eventually include shared spaces that present challenges for curatorial practices, and portable solutions may raise effectiveness for performance objectives. Expanding production to include presentation in adaptive spaces that often lack professional equipments pushes curators and exhibition designers “to be creative in how art is displayed, even changing art display tactics” [Lindsay (2013), p.2], and artists to define strategies to eventually solve potential display problems or develop innovative tools to achieve specific objectives.

On the side of technological innovation, researchers may bring to the creation of novel technologies for innovative presentations in adaptive spaces to facilitate their implementation by participatory initiatives through designs that are more accessible by non-specialised citizens, with the effect to improve participation to small events in rural areas and suburbs on a larger scale. Such types of spaces differ substantially for their architectural properties (e.g., geometries), sociological context, original destination (e.g., transportation or educational facilities), or current status (e.g., active or inactive public spaces), including open fields, old local theatres mostly lacking professional digital tools, public or private schools, old industrial facilities located in suburbs looking for re-activation, dismissed forts or train stations, abandoned churches.

4 Innovative user-oriented curatorial technologies and practices may impact investment strategies in sight of endogenous growth

The previous sections aimed to highlight an opportunity for research fields connected to technology and the arts to contribute to sustainable development by developing innovative cultural formats and connected technologies for quality presentation so as to leverage participatory management and adaptive reuse initiatives. To conclude, we would like to briefly underline in what way such an approach could support the generation of more resilient cultural economies, so as to fit the topic with a broader perspective on development policies.

As mentioned in the introduction, together with the themes of participatory management and digital transition, the European Union is acting to better include private capital as a form of financing in the cultural field, so as to support and expand opportunities for growth in a moment in which the availability of public funding is decreasing. This is an important objective in sight of a stronger cultural economy able to scale up and extend virtuous approaches through growing strategies that include both public and private capital. Private equity and venture capital organisations are indeed considered pivotal resources towards the development of a sustainable economy (Ahmad et al., 2018; Creativity, Culture and Capital, 2021). In such a perspective, the European Institute of Technology (EIT) has recently promoted the creation of a Knowledge and Innovation Community (KIC) in the CCIst o better promote the integration of educational, research, and entrepreneurial initiatives.

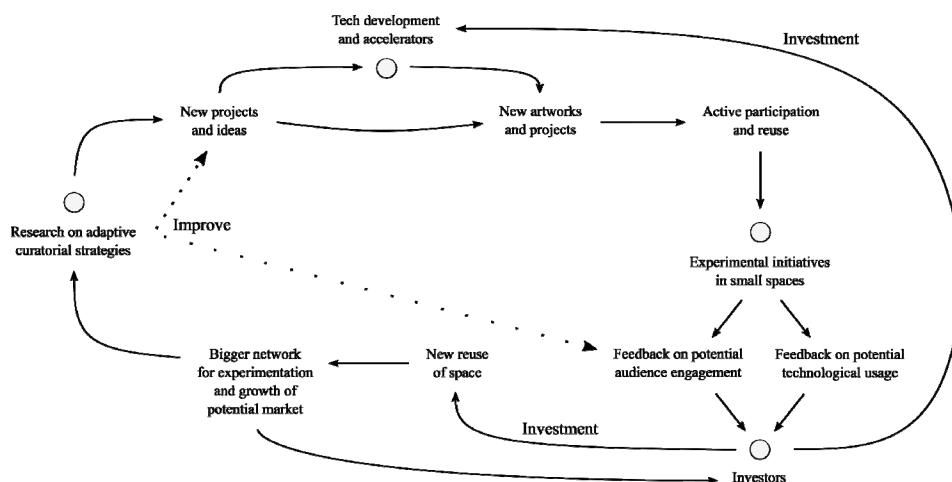
The technological sector is one of the sectors with the highest potential and resilience to attract private investing (Delanote et al., 2022), which makes the field of technological innovation an appealing sector for sustainable growth. Montanari et al. (2016) highlight that artists engage in innovation through multiple stages (proximal innovation, fuzzy innovation, established innovation, and maintained innovation) oscillating “between a network characterised by strong ties with few organisations and a network characterised by weak ties with many organisations” (p.797). This innovation framework is particularly important within the scope of this article, since research initiatives aimed at developing models based on active participation would necessarily involve networks composed of few research institutions with strong ties (e.g., universities and organisations dedicated to cultural production, dissemination, and technology) and networks composed of potentially infinite participatory initiatives with weak ties. Such a context suggests that international organisations specialising in artistic research and cultural management (which are usually limited in number) and inactive and adaptive spaces (which are usually large in number) may form an ideal environment for boosting innovation, with the possibility for adaptive spaces to become a great source of inspiration towards innovative technologies for exhibition – due to both the large availability of cultural heritage at disposal as well as the focus on urban regeneration by current governmental policies, contributing to making the market of interest to private investors.

The opportunity for more integrated approaches involving technology-driven artistic research and cultural management perspectives may help generate a sustainable cultural ecosystem as depicted in Figure 1. Adaptive curatorial methodologies may improve the experimentation of new technology in the territory, providing investors with insight on its potential usage for investment initiatives. Specifically, the opportunity to move in such a direction may allow for two benefits on both global and local levels. On a global perspective, the mentioned availability of cultural heritage and the current focus on urban

regeneration policies allows investors to perceive the existence of a market with potential to assimilate new user-oriented technology to favour regenerative processes, and the potential for this market to grow by assimilating new technology in the long-term.

On a local perspective, better curatorial practices for adaptive reuse may present the benefit to increase long-term audience participation to local events, increasing the survival ratio of participatory initiatives in the territory and providing investors with feedback on their risks and opportunities in relation to impact and potential financial sustainability over time. Including and promoting private or blended financing models to support the experimentation of new cultural initiatives would be not only important to reduce the pressure on public governments in relation to cultural development, but would also improve the possibility to decentralise growth policies by including a higher number of actors. On this perspective, collecting information on participation trends is important for enabling investors in supporting new initiatives, and the possibility to test and expand the market by acting on new cultural formats and participatory technologies can be a strategy to better promote the inclusion of the investment sector in the long-term.

Figure 1 Innovation loop for technology and exhibition to promote adaptive reuse and audience engagement



Notes: The figure presents a possible model for innovation and investment in sight of cultural growth. Through research on adaptive curatorial practices, artistic content and new technologies can improve feedback on potential audience engagement on a macro-systemic level. On one hand, this may stimulate.

5 Discussion

The article illustrated how current policies on cultural development through new forms of active participation and the reuse of available infrastructure in the territory may drive the emergence of innovative adaptive strategies for cultural exhibition in the future. In such a context, artistic research and technological innovation may bring an important contribution in developing new cultural formats and technologies to valorise impromptu spaces and attract the interest of private investors in view of scaling up opportunities. The

article promotes better cooperation between organisations on cultural management dedicated to designing innovative sustainable models for culture and organisations combining artistic research and technological development.

From the perspective of artistic research, Montanari et al. (2016) suggests that a scenario dominated by research institutions on the one hand, and participative initiatives and unused spaces on the other, may be an ideal context to trigger innovation. Artists, curators and engineers could work in this direction to experiment with culture-led technology and new formats for presentation that may eventually enter the market and support innovative cultural development strategies in the long-term. Previous research in technology-driven artistic practices have started investigating the interrelations between architecture and art within the field of musical soundscapes, with implications in techniques to evaluate environmental qualities and assessment strategies in use across multiple fields (Deng et al., 2009; Niessen et al., 2010; Bild et al., 2018). By considering diverse architectural and sociological contexts as topological properties, the field of artistic research can bring important contributions in producing innovative formats and curatorial strategies or technologies to try out experimental approaches for education or entertainment purposes, with the goal to open up new markets for the replication and scalability of the produced outputs. Despite the topic of adaptive reuse has now been extensively addressed as an approach for future built environment in regard to its potential social and economic impact, a technology-focused discussion around the topic of culture to capitalise on such novel opportunities has yet to permeate the academic literature, and efforts should be directed to prototype new approaches that can valorise multiple types of adaptive spaces with a view on scalability and replication (Danieli, 2023).

From the point of view of cultural management, the article suggests a direction for research and development with potential to support future policies on the side of local development, with the benefit to eventually better include opportunities for private investment. The article argues that more quality presentations in such types of new spaces through new forms of curatorial practices may promote audience participation in the long run, contributing to larger policies on local development. As an example, a widespread policy by multiple regions of the European Union consisted in strengthening incubation networks to support entrepreneurship for sustainable development and technology transfer for impact purposes (Franco et al., 2018). As the European Union is promoting research on artistic technology for sustainable purposes (Scientific Foresight Unit, 2022), the framework provided within this article may come useful in defining novel long-term strategies for research and investing.

Two frameworks take particular relevance for research-based initiatives in line with the aforementioned policies. On one hand, Sacco et al. (2018) observe that novel forms of active cultural participation resulted in distinctions between producers and users of cultural and creative contents to become progressively blurred. The authors of this article do not support the idea that traditional differences have been or should be removed, but we acknowledge that traditional dynamics connected to production and dissemination are experiencing transformations. On the other hand, Montanari et al. (2016) suggest that such distinctions are still important today in view of innovation processes, and we argue that research activities should capitalise on such transformations to produce innovative practices and technologies to stimulate better presentations with impact on audience development and scalability. In this sense, we promote the development of more holistic research approaches combining organisations dedicated to artistic research and cultural

management to test novel strategies for dissemination while integrating innovative formats and technologies on the side of experimental artistic production. Arguably, the fields of artistic research and cultural management still struggle to partake in conjunct actions. If we consider, for example, the Horizon-2020-funded projects *Developing Inclusive & Sustainable Creative Economies*, *Creative Industries Cultural Economy pROduction Network*, *Circular models Leveraging Investment in the Cultural heritage adaptive reuse*, and *Rural regeneration through systemic heritage-led strategies*, which are aimed at developing inclusive models for cultural production and dissemination, only a minority of organisations involved in the partnerships are specifically dedicated to cultural experimentation and technology.¹ Similarly, initiatives in the field of artistic research like the Creative Europe-funded *Interfaces* project (Landy, 2019), which aimed at developing new performance formats in innovative spaces across artistic disciplines, often lack organisations specialised in cultural management that may help frame artistic innovation within a perspective of local development and replication.

As a result, the potential impact of virtuous research initiatives in the field of cultural management risks to be weakened by isolating organisations specialised in artistic research (and *vice versa*), slowing down their adaptation to innovative concepts and the development of new methodologies or breakthrough technologies to boost long-term transformative opportunities. However, to have a concrete impact, new models for cultural development and participation need also to enable the generation of new exhibition formats and tools to valorise such potential changes in the long-term. Synced multidisciplinary cooperation and communication between these two fields may therefore consistently support the application and growth of innovative inclusive strategies. The combined know-how of multiple university departments and organisations cooperating in such types of international projects would maximise impact by integrating experimental methodologies for artistic production and dissemination in non-traditional destinations, with the effect to either develop new cultural formats or generate new technology with the potential to enter the market and be progressively assimilated by the society.

6 Conclusions

The article is set on a multidisciplinary context that includes policies for cultural development focused on participatory management and cultural heritage reuse, investment for sustainability, and the role in which artistic and technological research can contribute to the former European objectives in relation to the goals promoted by the Scientific Foresight Unit (2018) about strengthening innovation in the field of art and technology. The article aimed to provide an overview on such policies to promote discussion among cultural professionals about new approaches for artistic and technological research in view of contributing to the sustainable economy, and highlights one possible development path for technology-oriented artistic disciplines to contribute to participatory management in rural areas through the use of disused spaces and thus amplify the impacts of culturally-based territorial development in a sustainable manner.

Furthermore, the article aimed to highlight the potential benefits of more inclusive integration between research on cultural economics and artistic technology, suggesting how more flexible curatorial strategies for quality presentation and related technologies may impact larger policies on cultural development. The combined research between the

fields of artistic research and cultural management in such a direction may open opportunities for innovative cultural approaches able to attract the interest of the private sector in sight of a more resilient cultural growth, by experimenting with new formats for cultural dissemination that can result in technological innovation able to enter the market more efficiently, eventually strengthening participatory management networks. The article focuses on the development of novel technologies for innovative presentations in adaptive spaces in order to facilitate their implementation by participatory initiatives via designs that are more accessible to non-specialised citizens, to increase participation to small events in rural and suburban areas on a larger scale. By addressing the topic of rehabilitating unused and adaptive spaces, artistic research can contribute to the development of innovative formats and technologies for adaptive curatorship capable of enhancing the presentation of performing and digital works for local exhibitions, thereby influencing bottom-up participation and audience engagement. The combination of artistic and technological research, on the one hand, helps the artist to develop adaptive artworks that can be more easily disseminated in disused spaces, and on the other facilitates exhibition processes and the engagement of the local social tissue.

The way in which artistic practice and related new technologies can contribute to such goals is an open question today, and the concept of adaptability is highlighted as a rising paradigm able to inform future research connected to arts and architecture. Suggesting innovative directions combining multiple research trends in sight of the sustainable economy is particularly important today in connection with opportunities related to international cooperative programs such as the New European Bauhaus, which promotes new cross-sectoral initiatives combining such topics. Finally, the opportunity to identify novel sustainable topics for research that may promote the inclusion of private investors may find important applications in new initiatives promoted by the Knowledge and Innovation Community within the European Institute of Innovation and Technology's Culture and Creativity program (EIT KIC), whose goal consists in promoting cooperation between research, education, and entrepreneurship, and the current article may help such objectives by highlighting a development path focused on participatory management, adaptive reuse, and digital transition, with potential benefits on long-term cultural growth.

Acknowledgements

Austrian Science Fund (FWF), grant no. P34097.

References

- Ahmad, R.A., Reed, L. and Zhang, R. (2018) *Private Equity and Venture Capital's Role in Catalyzing Sustainable Investment: Input Paper for the G-20 Sustainable Finance Study Group*, International Finance Corporation, Washington.
- Anheier, H.K., List, R.L., Kononykhina, O. and Cohen, J.L. (2017) *Cultural Participation and Inclusive Societies. A Thematic Report Based on the Indicator Framework on culture and Democracy*, Council of Europe, Strasbourg, FR.
- Bednáříková, D. and Repiská, R. (2021) 'Digital transformation in the context of the European Union and the use of digital technologies as a tool for business sustainability', *SHS Web of Conferences*.

- Beel, D.E., Wallace, C.D., Webster, G., Nguyen, H., Tait, E., Macleod, M. and Mellish, C. (2017) ‘Cultural resilience: the production of rural community heritage, digital archives and the role of volunteers’, *Journal of Rural Studies*, August, Vol. 54, pp.459–468.
- Bell, D. and Jayne, M. (2010) ‘The creative countryside: Policy and practice in the UK rural cultural economy’, *Journal of Rural Studies*, Vol. 26, No. 3, pp.209–218.
- Bild, E., Pfeffer, K., Coler, M., Rubin, O. and Bertolini, L. (2018) ‘Public space users’ soundscape evaluations in relation to their activities: an Amsterdam-based study’, *Frontiers in Psychology*, August, Vol. 9, p.1593.
- Boccella, N. and Salerno, I. (2016) ‘Creative economy, cultural industries and local development’, *Procedia-Social and Behavioral Sciences*, June, Vol. 223, pp.291–296.
- Bocken, N.M.P. (2015) ‘Sustainable venture capital – catalyst for sustainable start-up success?’, *Journal of Cleaner Production*, December, Vol. 108, Part A, pp.647–658 [online] <https://www.sciencedirect.com/journal/journal-of-cleaner-production/vol/108/part/PA>.
- Čopić, V., Uzelac, A., Primorac, J., Jelinčić, D.A., Srakar, A. and Žuvela, A. (2011) *Encouraging Private Investment in the Cultural Sector*, European Parliament, Directorate General for Internal Policies, Brussels, BE.
- Creativity, Culture and Capital (2021) *Impact Investing in the Global Creative Economy*, Arts & Culture Finance (UK), Upstart Co-Lab (US) and Fundación Compromiso (Argentina) [online] <https://www.creativityculturecapital.org/wp-content/uploads/2021/01/Creativity-Culture-and-Capital-Impact-investing-in-the-global-creative-economy-English.pdf> (accessed 4 May 2023).
- Daldanise, G., Oppido, S. and Vellecco, I. (2018) ‘Creative adaptive reuse of cultural heritage for urban regeneration’, *Urbanistica Informazioni*, Vol. 278, Special Issue, pp.6–9.
- Danieli, L. (2023) ‘From ‘space’ to ‘spaces’: enabling interaction with multiple environments to contribute to politics of reuse and audience development’, in *Proceedings of the 3rd Dictionary for Multidisciplinary Music Integration (DiMMI) Conference*, Trento, Italy, 25–26 November.
- de Luca, C., López-Murcia, J., Conticelli, E., Santangelo, A., Perello, M. and Tondelli, S. (2021) ‘Participatory process for regenerating rural areas through heritage-led plans: the RURITAGE community-based methodology’, *Sustainability*, Vol. 13, No. 9, p.5212.
- Delanote, J., Rückert, D., Weiss, C., Callaert, J., Ferrazzi, M. and Correia, A. (2022) ‘Investing in Europe’s digital transformation’, in Revoltella, D., de Lima, P. and Kolev, A. (Eds.) *Investment Report 2021/2022: Recovery as a Springboard for Change*, pp.189–235, European Investment Bank, Kirchberg, LU.
- Deng, Z., Wu, W. and Shi, D. (2009) ‘Two case studies on the soundscape in historical areas and its subjective assessment from the local people’, in *Proceedings of the Inter-noise Conference*, Ottawa, Canada, 23–26 August.
- Domenech, T. and Borrión, A. (2022) ‘Embedding circular economy principles into urban regeneration and waste management: framework and metrics’, *Sustainability*, Vol. 14, p.1293.
- Duxbury, N. and Campbell, H. (2011) ‘Developing and revitalizing rural communities through arts and culture’, *Small Cities Imprint*, Vol. 3, No. 1, pp.111–122.
- European Institute of Innovation and Technology (2022) *EIT Culture and Creativity: Transforming Europe’s Cultural and Creative Sectors and Industries*, European Union [online] <https://eit.europa.eu/eit-community/eit-culture-creativity> (accessed 4 May 2023).
- Franco, M., Haase, H. and Correia, S. (2018) ‘Exploring factors in the success of creative incubators: a cultural entrepreneurship perspective’, *Journal of the Knowledge Economy*, Vol. 9, No. 1, pp.239–262.
- Getzner, M. (2020) ‘Spatially disaggregated cultural consumption: empirical evidence of cultural sustainability from Austria’, *Sustainability*, Vol. 12, No. 23, p.10023.
- Gibson, C. (2010) ‘Guest editorial — creative geographies: tales from the ‘margins’’, *Australian Geographer*, Vol. 41, No. 1, pp.1–10.

- Harvey, D.C., Hawkins, H. and Thomas, N.J. (2012) ‘Thinking creative clusters beyond the city: people, places and networks’, *Geoforum*, Vol. 43, No. 3, pp.529–539.
- Høholt, S. (2017) ‘The art museum today: participation as a strategic tool’, *Arken Bulletin*, Vol. 7, pp.19–34 [online] <https://pure.kb.dk/en/publications/theart-museum-today-participation-as-a-strategic-tool>.
- Horizon Europe (2021) *Culture, Creativity, and Inclusive Societies*, Publications Office of the European Union.
- Jamil, F., Ismail, K., Mahmood, N., Khan, N.U. and Siddique, M. (2015) ‘Technology incubators and institutional development’, *Jurnal Teknologi*, Vol. 77, No. 23, pp.113–120.
- Jeong, J., Kim, J., Son, H. and Nam, D-i. (2020) ‘The role of venture capital investment in startups’ sustainable growth and performance: focusing on absorptive capacity and venture capitalists’ reputation’, *Sustainability*, Vol. 12, No. 8, pp.34–47.
- Johansen, P.H. and Chandler, T.L. (2015) Mechanisms of power in participatory rural planning’, *Journal of Rural Studies*, Vol. 40, pp.12–20 [online] <https://www.cabdirect.org/cabdirect/abstract/20153273308>.
- KEA (2010) *Promoting Investment in the Cultural and Creative Sector: Financing Needs, Trends and Opportunities*, ECCE Innovation challenges – Nantes Métropole, Nantes, FR.
- Landy, L. (2019) ‘Bringing new music to new audiences’, *Organised Sound*, Vol. 24, No. 3, pp.1–3.
- Lindsay, G.L. (2013) *The Denver Art Museum and the Bilbao Effect*, PhD dissertation, University of California, Berkeley, Berkeley.
- Mägi, R., Lepik, K. and Prulmann-Vengerfeldt, P. (2021) ‘The role of exhibition curators in developing inclusive university museums: imagined audiences and modes of engagement in the process of creating the new permanent exhibition at the University of Tartu Natural History Museum’, *Les Cahiers de Muséologie*, Vol. 1, pp.169–179 [online] <https://popups.ulg.ac.be/2406-7202/index.php?id=786>.
- Mahon, M., McGrath, B. and Laoire, L.Ó. (2018) ‘The transformative potential of the arts and culture in sustaining rural futures’, *Journal of Rural Studies*, October, Vol. 63, pp.214–216.
- Misirlisoya, D. and Günç, K. (2016) ‘Adaptive reuse strategies for heritage buildings: a holistic approach’, *Sustainable Cities and Society*, October, Vol. 26, pp.91–98.
- Montanari, F., Scapola, A. and Gianecchini, M. (2016) “‘Absolutely free?’ The role of relational work in sustaining artistic innovation”, *Organization Studies*, Vol. 37, No. 6, pp.797–821.
- Musser, C. (2018) ‘When did cinema become cinema? Technology, history, and the moving pictures’, in Hidalgo, S. (Ed.): *Technology and Film Scholarship. Experience, Study, Theory*, pp.33–49, Amsterdam University Press, Amsterdam, NL.
- New European Bauhaus (2022) *About the Initiative*, European Union [online] https://new-european-bauhaus.europa.eu/about/about-initiative_en (accessed 4 May 2023).
- Niessen, M., Cance, C. and Dubois, D. (2010) ‘Categories for soundscape: toward a hybrid classification’, in *Proceeding of the Inter-noise Conference*, Lisbon, Portugal, 13–16 June.
- Nolasco-Rozsas, L., Hofmann, Y. (2021) ‘The museum as a cognitive system of human and non-human actors’, *The Garage Journal: Studies in Art, Museums and Culture*, Vol. 3, pp.1–15 [online] https://thegaragejournal.org/files/07/758_c370a5422f798cbd308fd337837b93dc25ec66d8.pdf.
- O’Neill, R. (2017) *The Rise of the Citizen Curator: Participation as Curation on the Web*, PhD dissertation, University of Hull, Hull, UK.
- OECD (2018) *Summer Academy on Cultural and Creative Industries and Local Development: Handbook*, OECD Trento Centre for Local Development, June, Bolzano and Trento.
- Omidwar, M., Saeedi, S. and Daneshvar, M. (2020) ‘Social events and investigating their role in culture-led urban regeneration of a historical context using the method of structural equations: a case study of arg neighborhood of Mashhad’, *Creative City Design*, Vol. 3, No. 2, pp.90–101.

- Opoku, A. (2019) 'Biodiversity and the built environment: implications for the Sustainable Development Goals (SDGs)', *Journal of Resources, Conservation and Recycling*, Vol. 141, No. 1, pp.1–7.
- Opoku, A. and Akotia, J. (2020) 'Special issue: urban regeneration for sustainable development', *Construction Economics and Building*, Vol. 20, No. 2, pp.1–5.
- Osborne, S., Williamson, A. and Beattie, R. (2004) 'Community involvement in rural regeneration partnerships: exploring the rural dimension', *Local Government Studies*, Vol. 30, No. 2, pp.156–181.
- Pieczka, M. and Wowrzeczka, B. (2021) 'Art in post-industrial facilities – strategies of adaptive reuse for art exhibition function in Poland', *Buildings*, Vol. 11, No. 10, p.487.
- Pinto, M.R., Viola, S., Onesti, A. and Ciampa, F. (2020) 'Artists residencies, challenges and opportunities for communities' empowerment and heritage regeneration', *Sustainability*, Vol. 12, No. 22, p.9651.
- Pratt, A.C. (2005) 'Cultural industries and public policy', *International Journal of Cultural Policy*, Vol. 11, No. 1, pp.31–44.
- Pruulmann-Vengerfeldt, P. and Runnel, P. (2018) 'The museum as an arena for cultural citizenship', in Drotner, K., Dziekan, V., Parry, R. and Schröder, K.C. (Eds.): *The Routledge Handbook of Museums, Media and Communication*, pp.143–158, Routledge, London, UK.
- Sacco, P.L. and Segre, G. (2009) 'Creativity, cultural investment and local development: a new theoretical framework for endogenous growth', in Fratesi, U. and Lanfranco, S. (Eds.): *Growth and Innovation of Competitive Regions: The Role of Internal and External Connections*, pp.281–294, Springer Berlin, Heidelberg, DE.
- Sacco, P.L., Ferilli, G. and Tavano Blessi, G. (2018) 'From Culture 1.0 to Culture 3.0: three socio-technical regimes of social and economic value creation through culture, and their impact on European cohesion policies', *Sustainability*, Vol. 10, No. 11, p.3923.
- Salgado, M. and Marttila, S. (2013) 'Discussions on inclusive, participative and open museums', in *Proceedings of the 2013 International Conference on Design and Digital Heritage*, NODEM 2013, Stockholm, SE, 1–3 December 2013pp.41–48.
- Scientific Foresight Unit (2022) *The Green Deal ambition: Technology, Creativity, and the Arts for Environmental Sustainability*, European Parliamentary Research Service, Brussels, BE.
- Tabellini, G. (2010) 'Culture and institutions: economic development in the regions of Europe', *Journal of the European Economic Association*, Vol. 8, No. 4, pp.677–716.
- Tavano Blessi, G., Grossi, E., Sacco, P.L., Pieretti, G. and Ferilli, G. (2016) 'The contribution of cultural participation to urban well-being. A comparative study in Bolzano/Bozen and Siracusa, Italy', *Cities*, August, Vol. 50, pp.216–226.
- Thompson, S. and Reilly, M. (2019) 'Everyone's a curator': identifying the everyday curator', *The International Journal of the Image*, Vol. 10, No. 2, pp.25–38.
- UNESCO and World Bank (2021) *Cities, Culture, Creativity: Leveraging Culture and Creativity for Sustainable Urban Development and Inclusive Growth*, UNESCO, Paris, FR.
- Yates, E., Szenasi, J. and Hemmings, M. (2022) 'Children as experiencers: increasing engagement, participation and inclusion for young children in the museum', *Childhood*, Vol. 29, No. 1, pp.58–74.

Notes

- 1 In our perspective, about three out of the 70 involved organisations are specifically dedicated to cultural experimentation and technology. The three accounted organisations include: Kibla – Association for Culture and Education – Multimedia Centre (Slovenia) and Take Art (UK) partaking in the project *Rural regeneration through systemic heritage-led strategies*; Trans Europe Halles (Sweden) partaking in the project *Developing Inclusive & Sustainable Creative Economies*. Only Kibla is involved in artistic technology.