Design challenges in creative systems

THEORIES, METHODS AND PRACTICES
FOR SUSTAINABILITY AND INCLUSION

Edited by
Paola Cordera and Raffaella Trocchianesi

DESIGN FOR
SYSTEMIC CHANGE

FrancoAngeli
DESIGN INTERNATIONAL

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Preface

Cultural sustainability: handle with care

The concept of cultural sustainability is relatively young: it first appeared in 1987 in the seminal Brundtland Report commissioned by the UN. The title of the Report, *Our common future* already contained a combination of apocalyptic vision and encouraging suasion that would characterise the discussion on cultural preservation for the coming decades. It was the extension of a concept (and the related worries) framed for the growth of world population in 1798 by Thomas Malthus, and focused upon the expected clash between the economy and the environment in 1969 by thirty-three African Countries: the *National Environmental Policy Act* defined sustainable development as «economic development that may have benefits for current and future generations without harming the planet's resources or biological organisms». It already contains the uncomfortable mix of fear and hope, transforming a technical concept into a sentimental urgency. Replicating the legitimate obsession of the debate on sustainability for future generations, the Brundtland verb ends up reducing the concept itself of sustainability to a dimensional issue.

This reveals the different degree of urgency that the debate on culture and society attaches to the various layers of sustainability. In such a philosophical framework dominated by a skeptical view of society, the main threat that cultural heritage faces is related to its physical decay and the eventual risk of extinction: cultural heritage is fragile by nature; moreover, it is surrounded by a barbarian society whose practices can irreversibly harm it. Actually, despite some really fragile artworks and cultural manufacts like the *Lamentation over the Dead Christ* by Mantegna or some Greek Theatre in the Mediterranean basin, substantially cultural heritage is reasonably solid and durable. And, despite the commonplace view according to which many barbarians are ready to destroy artworks, we should highlight that often it was the cultivated (or simply powerful) milieu to weaken cultural heritage, breaking the male sexual organs and whitening the ancient statues, taking the marbles from the Coliseum to build baroque façades, stealing artworks from weak Countries to pretend that they were witnesses of our imaginary past.

Once we focus upon the forced emphasis on the presumed vocational decay and neglect of cultural heritage, sustainability takes a further dramatic feature, related to its financial dynamics. Not occasionally, the Brundtland call to awareness was crafted in a period when public budget started to appear constrained and not unlimited, how it might have seemed until the Eighties.
The flow of privatisations, the growing weight of the Chicago economics, the policy orientations of the Reagan-Thatcher approach contributed to drag the cultural system and its conventional interpretation in less granted dynamics. In those years the postgraduate courses in cultural economics and management started to flourish. This ended up shifting the main focus of sustainability on its financial layer, starting a lively and intensive discussion on how museums, theatres and archaeological sites could strengthen their budgets adding commercial challenges such as restaurants, merchandising, sometimes seductive temporary exhibitions, to their core activity which remained structured as it had been for two centuries. Focusing upon financial issues, the quest for sustainability generated a bias in the interpretation of the cultural value chain, due to the separation between the semantic factors (which also include the setup of cultur-

al supply) on one hand, and the financial dynamics whose effectiveness was related to special effects aimed at attracting an audience incorrectly believed superficial and hasty, on the other hand.

Stones for clones

Connecting the apocalyptic view of material sustainability with the mechanical view of financial sustainability, cultural heritage has been managed invariably for two centuries: its shapes and formats had been crafted as justifications for the power of the emerging bourgeoisie, and after more than two hundred years they were no more able to establish a dialogue with contemporary society.
This depends upon the conventional view according to which past society was more cultivated and civilised, simply forgetting that the affluent layer of society was a minority, but it had the power and the privilege of writing history; the rest of society was simply invisible. Now, if the shared perception is still that cultivated people know everything, and that the others have no tools enabling them to interpret cultural contents, we just need to preserve the material shape of cultural heritage, in order for future generations to receive it whole and unreduced. We keep stones physically safe, and transmit their material integrity to clones: a homogeneous and static audience. In such a simplistic framework, our obvious worry is both material and financial. In the institutional setting where public budgets are no more unlimited and unconstrained, we just need to attract paying visitors and possibly some corporate sponsor.

This interpretation ignores many factors that could shed light on cultural heritage as a unique source of value in a changing economic, social and cultural paradigm in which the acknowledgement of the self as member of an elitist club is gradually disappearing and being replaced by the desire for exploration and discovery. In such a framework, the cultural value chain is generated by the semantic cauldron guarded and displayed in each component of cultural heritage (artworks, manufacts, remains, ruins, etc.). Once this value is recognised, shared and diffused, society proves ready and eager to maintain it alive and possibly eloquent, in order for next generations to receive much more than the mere material shape of objects. Physical sustainability is quite normal, financial sustainability often proves redundant.

What cultural heritage needs is cognitive sustainability: the technical knowledge and the critical interpretation aimed at extracting the value of cultural heritage in connection to its historical and social dynamics, its symbolic, political and sometimes ethical meaning, its technological features, its connections with its spirt of time. When Bizet steals *Carmen* from Merimée the battle of Sedan has been already lost, the Commune de Paris already experienced, and staging a prostitute and a serial killer would relieve the audience from its troubles; simply watching a cigar maker and an oedipal brigadier the audience cannot enjoy any discounts: the contradictions, gender conflict, and violence belong to the society where the audience comes from. Not occasionally, in the same years Eugène Delacroix starts to paint sea views, adopting the uncertain dioptre that will craft the glossary of the Impressionists. To next generations we can transmit an indefinite and self-fueling cultural value chain.

Cubes vs. trails

The centrality of cognitive sustainability does not imply any reductions of our attention for the material and the financial layers through which sustainability can be effectively pursued. It only requires a new map of urgencies, and a clear definition of the value chain, in order for the ethical bias to be possibly avoided: the discussions on the cultural system (from market dynamics to policy design) normally tend to overemphasize presumed spiritual factors affecting both managerial choices and consumer practices; such an interpretation reveals the improper combination of the ownership of an hermetic glossary on one hand, and the evident inferiority complex towards industry on the other. The cultural system conceives itself as a special area where only technicians can evaluate and decide, and at the same time as an ordinary sector where monetary metrics prevail upon any other possible indicators of health, consistency and perspective.

The analysis of sustainability can lead us to avoid the drifts of specialty and normality as the opposite sides of our troubled waters, a sort of Scylla and Charybdis between which cultural heritage struggles to grant itself a difficult and precarious equilibrium. Values need a dry and precise definition. In such a less poignant framework, material sustainability remains crucial, but it can be simply

faced and pursued through the technical acknowledgement – and regular control – of the degree of frailty and risk of each single artwork, manufact, remain and ruin. Specific and effective interventions can grant appropriate and consistent safeguard, thus eliminating the feared risk of decay and extinction. On the opposite side, financial sustainability has evidently suffered the typical capitalistic bias of identifying value with money. Certainly, sound budgets are a comfortable symptom of solidity, but is could be reductive to consider them the main signal of success.

Although the dimension of revenues is an eloquent proxy of the scope for action, to focus upon it ends up inducing heritage management to pursue wide audiences also relying on the attractive power of blockbuster icons such as Impressionists, van Gogh, Klimt and the few that might appear familiar to whoever; the danger dwells in the frequent strangeness between these iconic traps on one hand, and the cultural identity of museum collections and identity on the other. Within a strategic orientation, audience's dimensions are much less important than the length of the visit, the inclination to come back, the willingness of bringing newcomers and widely share the cultural experience, the desire to participate more intensively to heritage life. This range of goals manages to establish systematic, interactive and motivated relationships between heritage and society, gradually transforming occasional newcomers into habitual visitors and eventually addicted consumers. This can grant a progressive growth in the degree of sustainability, fully respecting the *core business* of heritage: to generate value, to establish relationships, to activate critical thoughts.

In such a simple framework, the value chain is activated by the semantic eloquence of heritage, which requires a technical and critical analysis of the exhibition glossary. The still dominating format of a decorated white cube clearly proves obsolete: it is related to the taxonomic and hierarchical approach of the Nineteenth-century society, whose prominent members were worried to wash their dirty conscience as exploiters of the new manufacturing slavery; this is why culture was adopted as the symptom of ethical values, being given the burden of theatrically counterbalancing the emerging inequalities. Critical voices highlighted quite soon that such a format

made museums like cemeteries, also due to the ritual practices of visit, where position, movements, words and silences still are conventionally dosed. The critical exploration of contemporary society requires trails, rather than a static list of objects hanging on the wall.

Subjective discoveries

Cultural value chain arises (and gets energy) from the semantic effectiveness of heritage. This does not require any special effort on the part of cultural institutions, although the current view is oriented towards pro-active projects aimed at attracting the audience. This is generated by many commonplace misunderstandings: visits do not generate value with no prior knowledge; society is ignorant and indifferent; museums (and conventional cultural venues) are the only ones able to transmit cultural values. Actually, museums and cultural sites are simply stubborn in expecting society to adapt to a glossary firmly sculpted on bronze. Cultural values are taught, imposed, at best suggested, but almost never conveyed in a dialogic exchange. This violates the fundamentals of cultural demand, whose thread is crafted establishing semantic connections among the experiences carried out, like in an indefinite neural network whose dynamics recall the library described by Jorge Luis Borges: books talk to each other in an unpredictable, often mysterious way, and only experiencing it we can get value from this magmatic cross-fertilisation.

The subjectivity of appraisal and appreciation leads us to a crucial point, within the dilemmas related to value – and therefore sustainability – of cultural experience.

While in the Nineteenth- (and Twentieth-) century society among the main motivations for museum visits often was the urgency of self-assessment as members of an elitist club, the turn of the Millennium, along with the gradual fading of serial manufacturing dogmas and the simmetrical rise of accessible technology able to expand the emotional, cognitive and intellectual spectrum, highlighted a radically different orientation of the audience: visitors enter because they do not know what they will discover; of course, they might have some prior information about artworks, but they cannot (*rectius*: do not want to) predict their reaction, and consequentially the value that they will attribute to the experience itself.

This is something that they will be able to do only at the end of the visit. A sound extraction of their willingness-to-pay can occur after the cultural experience, due to the cross-fertilisation of previous visits, along with readings, discussions, within a versatile and multi-disciplinary framework.

In such a respect, the design of museum trails proves central for effectively and consistently pursuing sustainability, whose main value is related to the scope of strategic projects that cultural institutions can carry out, without being subject to the tight and rigid constraints they should face in a non-sustainable situation. Subjective discoveries require narrative connections between temporary exhibitions and permanent collections, possibly relying upon deposits to extract otherwise invisible artworks and manufacts. Furthermore, the cultural discourse aimed at optimising the perception of value on the part of a widely heterogeneous audience would be fueled and enriched activating a sort of tentacular network with cultural institutions located in the urban fabric, in order for visibility and dialogic ability to be clearly perceived by both residents and voyagers. This would imply a new interpretation of museums' endowment, no more as exclusive property, but as common heritage whose adoption, exhibition but also research and interpretation would strongly benefit from shared projects and joint action. Sustainability cannot be interpreted as the static dimension of heritage to be kept safe (implicitly dramatising danger, enemies, indifference), but as a dynamic process whose flow of knowledge and critical interpretation is being systematically enriched, in order to grant present value and future enjoyment.

Hybrid stumbles

The evolution of cultural value, activated through the passage between the late-industrial framework and the emerging economic, social and cultural paradigm, has been dramatised in the pandemic years, when the attempt at indefinitely delaying the acknowledgement of a radical mutation was vertically cut by the awareness that our relationship with space and time had irreversibly changed.
It is time to rethink many consolidated dogmas, among which the heaviest – and probably the least justified – states that «art must not be de-contextualised». If this is the shared principle, no museum

could be accepted, being the most violent and evident form of de-contextualisation of art: even without diving into controversies such as the Elgin marbles' dilemma, the exhibited artworks forming museums' endowment were neither conceived not crafted to end hanging on a wall, together with often stranger artworks along a didactic (and pedantic) timeline.

After all, the pandemic break induced the less dogmatic institutions to experiment innovative methods and tools aimed at facilitating and enhancing real interactivity, subjectivity of trails and exchanges, all based upon versatility and multi-disciplinarity of offer.
Such an unconventional approach radically re-designed the functions themselves of a museum as a complex process aimed at flexible dialogues with a heterogeneous and hopefully evolving audience.
In the cultural value chain, *for all* means *for each*. What we need is to reshape the glossary of cultural dialogue. The many varied attempts at combining the conventional description/explanation with some sensorial involvement might risk spoiling both factors, since each of them proves inadequate to establishing a multidimensional exchange with each visitor. Interaction does not mean theatralisation, but width of the cultural discourse aimed at inviting and allowing each visitor to select and experience the layers and stages of the exchange in order for her/him to get the maximum benefit from the visit, in such a way actively contributing to sustainability: the dialogic value, based upon the semantic effectiveness of heritage, generates a dense financial fallout. This implies that monetary outcomes are not a goal, but simply the effect of cultural appraisal and appreciation.

A further reflection is related to the possible contribution of AI to sustainability. In such a respect, it could be somehow dangerous to associate the pursuit of sustainability to the (already) conventional algorithm aimed at tuning future choices to the past ones, in such a way encouraging a process of specialisation of each visitor through the accumulation of homologous works, styles and genres.
Looking at the issue from a non-prejudicial perspective, we should consider that versatility, exploration, discovery and surprise actually lead each visitor to perceive growingly intensive desires, which is eventually reflected in a wider demand. Within this framework, the adoption of AI as a stumbling tool simply pictures what we all do in

a bookshop, buying more and more varied books than the one(s) we came in for: a suggested algorithm should aim at displacing visitors, pushing each of them towards unpredictable, and in any case different, areas and languages, responding to her/his expectation of exploring and discovering further layers and stages of her/his cultural endowment and therefore to her/his critical interpretation. The cultural value chain passes through random access elaborations as well as hypertextual explorations. It is consolidated by shared experiences and systematic enrichment. Sustainable is a community whose solidity is favoured by creative processes and their impact upon social capital. Symmetrically, active communities intensify and share creative intuitions, critical interpretations, and managerial challenges, in such a way strengthening the pursuit of sustainability.

Michele Trimarchi
Tools for Culture

Crafting tomorrow through the Design lens

Paola Cordera, Raffaella Trocchianesi

This volume aims to deal with systems of creativity and culture in their becoming and expression in the multiverse fields of design. In including theoretical and critical reflections, case studies, methodologies, technologies, tools and original practices, it aims to highlight the heterogeneous nature of such topics, considering creative and cultural industries as part of a broader design process fostering local growth and (re)activating audiences and communities while (co)creating cultural, economic and social values. It seeks to broaden the research approach, embracing a multi-disciplinary perspective and adopting a long-term and holistic approach (Battistoni, Giraldo Nohra, Barbero, 2019) to challenge and overcome the non-deferrable criticalities of the Anthropocene Age.

European calls support the importance of reinforcing *Audience Development* (AD) as a driver for stimulating people's interest in European cultural heritage as well as increasing access to it. AD aims to bring people close to culture; it is an incentive to find innovative models for cultural experiences; it diversifies and/or builds new audiences, boosts cultural diversity and reaches out to underrep-

resented groups. The AD strategy can target the development and diversification of the audiences or the intensification of the relationship with different audiences (see the Creative European Culture sub-programme: 2020 Cooperation Projects call). In 2016, the American artist and designer Neri Oxman proposed the *Krebs Cycle of Creativity* model, through which she described the current era of connection (2016): the link between art and design has a cultural impact on the behavioural dimension. The model consists of a conceptual map capable of describing knowledge transfers across the four modalities of human creativity (science, engineering, design and art).

Nowadays, we are witnessing a crucial transition: global society is facing a crisis, as are the productive cycles that have shaped it, which have also been condemned. The COVID-19 pandemic fostered this overall process, answering the call for change in several areas while prompting changes in stakeholders' individual and collective behaviour to connect while adhering to social distancing.
Furthermore, digital technologies have redefined the world of creative arts and media thanks to the integration of artificial intelligence (AI), which bridges the gap between designers and consumers, and unveils unprecedented possibilities in real and virtual domains to the benefit of a wide range of actors.

A *new era* is taking shape, with new forms of society, culture, economy and politics (Bonomi, Della Puppa and Masiero, 2016).
A deep reflection on this crucial transformation will entail a re-vision of the concepts of *sustainable culture*, *inclusive sociality*, and *participation* in cultural heritage understood as a common good (Iaione, 2013). In 2018, the OECD's *Local Economic and Employment Development Programme* (LEED) entered into a partnership with the International Council of Museums (ICOM). Their aim was to develop a guide addressed to policymakers and the museum community, exploring areas with significant «potential for museums so that they could contribute to local growth, including economic development, urban regeneration and community development, education and creativity, and inclusion, health and well-being», building on a process that began in the 1970s.

The design approach will envision original models of sociality and new concepts of community (Sennet, 2020). Design, creativity,

culture, and creative industries are seen as drivers able to encourage this stage of experimentation, necessity of interaction, and continuous change (Vai, 2017). Indeed, design, creativityand creative and cultural industries are still essential motors capable of revamping the cultural system (cf. Creative Europe 2021–2027, Recovery Assistance for Cohesion and the Territories of Europe – REACT–EU, Future cohesion policy 2021–2027).

Therefore, the challenge consists in transforming creativity and culture into innovative processes, possiblydefining measurable impacts through systems and indicators.

In this context of constant transformation, cultural institutions change roles and responsibilities (in terms of both museums and cities). Over time, museums generate a complex network of relationships and a strong influence on civil society – between memory and future, starting from a new system of symbols and a new semantics. The first edition of the *European Report of Cultural and Creative Cities Monitor* (2017) was updated two years later (Montalto *et al*., 2019). This report envisages the monitoring of cultural and creative cities by analyzing a series of indicators measuring the *Cultural Vibrancy*, the *Creative Economy* and the *Enabling Environment* of a city.

Therefore, issues such as *accessibility*, *multiculturality* and *inclusion* redefine the social and political positioning of the current cultural system.

The book is divided into three parts: (1) Territories & Local Development, (2) Museums, Exhibitions & Cultural Experience, (3) Art, Design & Cultural Institutions. Each part touches on the main issues of the book, highlighting different contexts, processes and approaches to the topic.

First, the scale of the territory opens to different design attitudes able to empower the potentiality of the cultural offer, in terms of both valorizing the historical identity and envisioning new ways to enjoy places. In the tourism field, topics such as sustainability and accessibility are defining new models for designing experiences, which has implications for designing the whole chain of this sector: infrastructures, hospitality, museums and communication strategy starting from a renovated perspective focused on social values. The link with the past is important in order to re-read the relationship between cultural

heritage and environment; it opens access to new narratives of the Italian design heritage, going beyond the boundaries of the traditional definition of cultural heritage. At the same time, the complex transformation of cities, landscapes and relationships between people of many cultures implies design attitudes able to accommodate multidisciplinary approaches.

Secondly, in this context, inevitably, the cultural experience in museums and temporary exhibitions assumes a new role: one moves from the concept of visit to one of experience, where audience participation and inclusion is the crucial point. A broadened meaning of inclusivity and accessibility implies improved ways to design museums and exhibit systems based not only on physical ergonomics, but also on multisensory features and synaesthesia. Herein, a new definition of and a new role for museums are required: a museum must be able to embrace several communication registers and languages to engage different visitor profiles; able to envision participatory processes to stimulate multicultural dialogues; able to renew its proxemics according to the emerging circumstances. At the same time, the logics underlying the temporary exhibit system are changing: a sustainable approach is required in order to face the huge problem of ephemeral equipment which is destined to be discarded as waste.
This implies a complete change of mindset around this design field: different approaches, skills, and attitudes.

Finally, the relationship between art, design and cultural institutions, as well as the role of the latter, must be redefined according to new potential synergies. The social innovation approach – as a change process based on strategies to enable the social and economic development of a community – is the aim of several projects focused on new models of a sharing culture. This includes the advent of new technologies, some of which are directed towards new *functions* of the digital culture and digital humanities, in a context where multidisciplinarity and disciplinary dialogue are at the core of the issue.

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PART 1

Territories and Local Development

1. On the post-war Italian design network: challenges for a 21st-century widespread heritage

Paola Cordera

1.1 Reimagining post-war heritage

Stemming from the 1980s Italian debate on cultural heritage and environment, and the concurrent discussion concerning industrial heritage, this essay seeks to re-evaluate the traditional concept of cultural heritage. It aims to explore how this concept can be expanded to encompass Italian design heritage, particularly the narrative of post-World War II production, which has profoundly shaped the country's landscape.

Current circumstances necessitate adopting a broader perspective, especially in light of legislative measures such as the declaration of historical and artistic interest outlined in the *Code of Cultural Heritage and Landscape* (Legislative Decree 42/2004, as amended by Law 136/2023). This legislation encompasses items over 70 years old, including those from the post-war era, notably objects from the 1950s. This complex subject spans our past, present, and future, compelling cultural practitioners – such as scholars and curators within traditional institutions like galleries, libraries, archives and mu-

seums – to assume a crucial role. They must safeguard and promote new forms of art and expression, offering fresh insights into the *ordinary* objects that populate our lives as integral components of collective memory. Moreover, they must adopt updated practices for the preservation and enjoyment of these artifacts, within the framework of sustainable development.

1.2 Preserving and sharing heritage

While the concept of industrial archaeology was forged in the United Kingdom in the 1950s, the discussion on widespread heritage in a mutable post-industrial society in France led to the concept of the eco-museum in 1971. This concept built on the idea of the museum without walls by museologist Georges Henri Rivière (1897-1985) and subsequent experiences by archaeologist and museologist Hugues de Varine (b. 1935). It was only years later that archaeologist Andrea Carandini (b. 1937) put forth the notion of industrial archaeology as the material culture of capitalist societies (Carandini, 1978), spurred by such growing interest in industrial heritage. Henceforth, economic and architectural historians went on to found the Italian Association for Industrial Archaeological Heritage (AIPAI) in 1997, in association with the International Committee for the Conservation of Industrial Heritage (TICCIH). These bodies, commendable for their contribution to broadening our understanding of the recent past, have primarily addressed *monumental* emergencies, such as architectural vestiges failing to restore their complex history, as part of an intertwined process of production, distribution and consumption connected to the social and historical conditions in which they developed. In 2008, the Council of Europe made a valuable effort to embrace a more comprehensive perspective by including the European Route of Industrial Heritage (ERIH) in the list of European cultural routes. As a result, European countries' industrial histories and milestones were brought to the attention of citizens, forming part of a shared narrative.

However, these commendable actions need to be reconsidered when discussing the realm of design, especially Italian design.

As early as 1972, the celebrated exhibition *Italy, the New Domestic Landscape*, at the Museum of Modern Art in New York, emphasized Italian design as a cultural phenomenon extending beyond commercial trends. One could envision it within the history lineage as a *museo diffuso* or *widespread museum* (Emiliani, 1985), embracing ordinary people, professionals, architectures, factories, archives, museums and places. Such expression underlines the idea that Italian cultural heritage is not confined to traditional conservation institutions – e.g., archives, libraries and museums – but it is deeply embedded in everyday life in cities, towns and the countryside. The interconnection of these components could help us understand it from a broader perspective, reminding us how design history transcends (administrative and geographical) boundaries, leaving a mark on our society and collective memory (Halbwachs, 1950). In 1974, art historian Andrea Emiliani (1931-2019) highlighted the inherent contradiction between the need to protect Italy's widespread artistic heritage and its vibrant presence in everyday life and connection with the territory (Emiliani, 1974). Such aporia could extend to the design universe, with particular emphasis on post-war Italian design, which combines traditional craftsmanship and modern aesthetics in an eternal tension between one-off pieces and small series.

Building on the importance of 1950s production for Italy's economic, political and social resurgence, and the forging of a renewed identity on the post-WWII world stage, expositions such as *Il Design Italiano degli Anni '50* (Milan 1981), *Anni Cinquanta* (Milan 2005), and *Il Modo Italiano* (Montreal-Toronto-Rovereto 2006-2007) showcased Italian design. These exhibitions highlighted its aesthetic values and complexities, presenting a creative universe deeply entrenched within the country's tangible and intangible cultural heritage.
Fuelled by a widespread network of artisans, manufacturers, artists, craftspeople, designers and architects, Italian design built on a solid relationship with the territory. Highlighting these distinctive connections, design historian and academician Giampiero Bosoni noted how the history of Italian design emerged from small groups of designers and entrepreneurs collaborating in artisans' workshops, small and medium-sized companies, cultural salons, and art galleries (Bosoni, 2006).

Architect and designer Andrea Branzi expressed such peculiar circumstances in this way:

> **this seeming general weakness, this ever-broken modernity, this relationship with a small to medium-sized industrial fabric, this continuity with handicraft practices and with a historical memory that has never been completely abandoned, have laid the grounds for developing a unique local model of cooperation between companies and design, between technological research and linguistic experimentation, between the universe of the fractioned markets and the ability to produce small runs, and the relevance of experiences based on values such as the concrete community and the territory… excellent conditions to work in post-industrial markets and in a global world (Annichiarico and Branzi, 2009, p. 155).**

This inherent complexity poses obstacles but also presents a unique opportunity when addressing historicized objects and determining the best ways to display and narrate their story to a wide audience.

1.3 On the many narratives of Italian design: new trends

Over time, the distinctive nature of design pieces, which encompass aesthetic and technical aspects, naturally led them to appeal to different types of institution. They transcended disciplinary boundaries, finding their place in museums dedicated to decorative arts (often seen as precursors to modern design items), design museums (within a sectorial narrative), science and technology museums (for their technical features), or industrial museums (as part of the progression of mass production) (Bulegato and Dalla Mura, 2022).

Nowadays, corporate museums further advance the storage of historical memory, building on early experiences from the 1950s (for a survey on this with a focus on Italian museums, see Amari, 1997). By combining cultural, commercial and promotional aspects,

these museums exhibit the industrial and cultural heritage of individual companies. Through their own narrative, they also reflect a collective memory.

In 2001, many of these museums in Italy joined forces under Museimpresa, the Italian Association of Business Archives and Corporate Museums, with the support of Assolombarda and Confindustria (the Italian Entrepreneurial Association). This collaborative effort has indeed been instrumental in showcasing the history of Italian production to a broader audience. However, the network remains fragmented in both space and time, lacking a cohesive narrative. Despite some exceptions, this network fails to fully reflect how industrial culture and its products, many of which are considered iconic Italian pieces, have influenced the lives of ordinary people, becoming integral to individual and collective memory, as well as their impact on territories and local communities.

Building on new trends in museums, which are increasingly open to reshuffling and refreshing their collections every 2-3 years to offer multiple narratives (Bishop, 2013), in 2023, the ADI (Association for Industrial Design) Design Museum in Milan presented in its multifunctional venue an original attempt to stitch individual stories into a comprehensive storyline, featuring a chronicle of projects which have won the Compasso d'Oro award (established in 1954 by celebrated architect Gio Ponti).

Figure 1.
Milan, ADI Design Museum, Showcase of objects awarded prizes in 1954, Milan 2023. Photo by Paola Cordera.

Furthermore, Milan's Triennale Design Museum has innovated by extending its exhibition arena in original ways. Since its inception, it has endeavoured to expand beyond its historical walls with the inauguration of the TBVS Triennale Bovisa (2006-2011) – designed as a temporary exhibition space while the Triennale's headquarters underwent significant renovations – and the opening of a satellite location at the Milan Linate Air Terminal in 2021, showcasing objects from the Triennale collection to an international audience. More recently, as part of an extensive restoration project of its historical headquarters in the Palazzo dell'Arte, the museum inaugurated a new space called *Cuore* (Heart).
Cuore serves as a Research, Study and Archives Centre, aiming to share the Triennale's archives, library and collections with a broader audience, including people, professionals, scholars, academics and the scientific community.
This initiative provides access to historical documents and unveils behind-the-scenes stories, while fostering connections with new audiences and offering participatory experiences (Simon, 2010). Through such efforts, the Triennale aims to establish a closer relationship with stakeholders, signalling a growing disintermediation in the research process (Hvenegaard Rasmussen, Rydbeck and Larsen, 2022).

Figure 2.
Milan, Triennale Design Museum, Cuore, Showcase with wooden models of objects, architectures, and devices created by model-maker Giovanni Sacchi, Milan 2024. Photo by Paola Cordera.

Such practices demonstrate how design museums in Italy employ diverse strategies to share their heritage with the public, with the aim of educating, inspiring, and fostering a deeper appreciation for cultural diversity and history. However, they also underscore the dominant persistence of a top-down approach (for a critical look at different approaches, cf. Sabatier, 1986).

1.4 Different approaches for new times

As is well known, the closure of museum sites due to the COVID-19 pandemic forced an extensive digital transformation of museums. Social distancing measures posed unprecedented challenges, prompting the exploration of digital tools, expansion of online and distance learning (ODL) strategies, and creation of digital resources to engage with audiences (Agostino, Arnaboldi and Lampis, 2020; Luck and Sayer, 2023). This shift to digital accelerated the process of digitizing museums and archives, resulting in the construction of databases, collections and digital archives to offer a wide range of educational resources and experiences to diverse audiences. By providing access to their collections in digital formats, curators are tasked with processes of remediation, which involve interactive engagement and exchanging experiences with audiences through social networking platforms.

It is widely acknowledged that the future of museums in a post-pandemic world hinges on their efforts to maintain the institution's appeal by offering a combination of physical, digital and virtual experiences. Aligned with the International Council of Museums' (ICOM) new definition (Prague, 2022), museums are striving to provide meaningful *traditional* on-site experiences while leveraging digital technologies to enhance accessibility, engagement, and sustainability both online and onsite, for the benefit of broader community participation.

This shift emphasizes engaging experiences for education, enjoyment, and knowledge sharing, particularly in the realm of design cultural heritage.
For example, valuable practices have emerged from the history

of the Olivetti firm. The inclusion of Ivrea – the cradle of the celebrated company – in the UNESCO World Heritage Sites List 2018 revitalized broad interest in Olivetti's industrial, architectural and social heritage. In 2022, the Associazione Archivio Storico Olivetti (Olivetti Historical Archive Association) launched the *La mia Olivetti* (My Olivetti) project, an initiative aimed at recording, collecting and conserving the *voices* of the Olivetti community. Individuals participated by sharing interviews recounting personal memories of the Olivetti company's history in Italy and worldwide. These videos were then integrated into the online Olivetti historical heritage. This approach allowed ordinary people to actively engage in cultural processes, drawing upon individual memories while recognizing, constructing and sharing a collective narrative (Becattini, 2013). Such efforts embody the observations of economic historian Augusto Ciuffetti (2013-2014), who emphasizes the importance of connecting not only with those who designed buildings or worked inside factories, but also with all those who contribute to the shared history of industrial sites. By doing so, works evoke emotions that contribute to the narrative of a place, a factory, and a community, enriching the understanding of their heritage in ways that traditional surveys cannot achieve.

In this context, by 2022, the program *Welc-Home to My House,* fostered by territorial administrations and national institutions, promotes a series of events such as guided tours and conferences to valorize the private and industrial building heritage of Olivetti's history. Historical sites open to a broader audience on selected weekends, involving the participation of residents who live within the UNESCO site. Landlords and homeowners welcome visitors, actively promoting the heritage. These practices enhance community engagement and contribute to the promotion and preservation of heritage sites through the development of sustainable, environmentally friendly practices tailored to specific contexts. They offer the possibility of boosting local economic growth, by shifting from a mere appreciation of objects to offering memorable experiences within the context of the *experience economy* (Pine and Gilmore, 2019). They connect communities with an awareness of the relevance of intertwined stories of art, industry, design and entrepreneurship, boosting a collective narrative for the future (Edmond 2020; for further repercussions on Italian soil,

cf. Bettiol, 2015). Additionally, they represent a concrete attempt to contribute to a broader circulation of national and international tourist flows directed towards Italy's artistic and manufacturing heritage. By offering valuable *slow tourism* experiences, inspired by Carlo Petrini's 1980s Slow Food philosophy (for connections with the tourism field, cf. Lowry and Lee, 2016), this approach aims to reduce tourist congestion in popular major cities like Rome, Milan, Venice and Florence. Instead, it focuses on addressing lesser-known destinations, thereby fostering sustainable tourism principles, including more equitable distribution of tourist flows, and responsible travel practices that minimize negative impacts on the environment, heritage sites and local communities, by aligning with the United Nations targets in the 2030 Agenda for Sustainable Development.

Promoting the Italian design heritage could benefit from a systemic approach that harnesses the country's cultural heritage, *terroir* beauty – including its social, cultural, and physical environment – culinary traditions, and local identities. Such an approach builds on the powerful force of Italian design for social cohesion and inclusiveness.

The benefits of networking in cultural domains have already been demonstrated in projects such as the *Basilicata 2019 Cultural Park* project, which leveraged literary parks networking to increase tourism opportunities and improve the quality of life for locals (Colangelo, 2017). Similarly, the Umbria Regional Museum System has been lauded as «the most successful and innovative form of large-scale sharing of strategies, services, organizational structures, cultural policies, scientific content and administrative and technical equipment» (Montella, 2014).

A systemic approach that integrates collective cultural heritage with the objectives of cultural institutions could greatly enhance the preservation and promotion of the historical heritage of design. The recent regulation for the reorganization of the Ministry of Culture reflects an awareness of the complexity of the issues at hand. The Ministry has been divided into four departments: the Department for General Administration, the Department for the Protection of Cultural Heritage, the Department for the Enhancement of Cultural Heritage, and the Department for Cultural Activities. Additionally, there has been a consolidation of the technical and scientific commit-

tees for archaeology, fine arts and landscape into a single committee (on the benefit of such a reorganization, cf. Carandini, 2023).

However, implementing actions can be complex, particularly when historical brands and collections or corporate museums serve as communication assets for operating companies, as exemplified by the Ferragamo Museum in Florence. These challenges are not unique to Italy, as demonstrated by Gril-Mariotte and Cousserand-Blin (2023) in France. The complexity is further compounded when considering design objects, given their integration into the collective imagination and their aspirational nature, especially in the case of luxury goods. Many Italian design pieces have become fixtures in our homes and pantries, and they possess the ability to communicate their stories, which then become intertwined with our own and those of our friends.

By drawing inspiration from the past and incorporating it into contemporary practices, communities can contribute to a more sustainable and harmonious relationship between human societies and the environment. Such an approach stands to benefit both culture and business alike.

1.5 Conclusion

The exploration of post-war Italian design heritage challenges us to expand our traditional notions of cultural heritage. Legislation recognizing the historical significance of objects from this era underscores the need to incorporate design artifacts into broader narratives of collective memory and social history. Cultural practitioners play a pivotal role in safeguarding and promoting these artifacts, necessitating updated preservation practices within sustainable development frameworks.

Traditional approaches to preserving and sharing heritage often prioritize monumental emergencies over comprehensive historical narratives. However, Italian design heritage, deeply embedded in everyday life, requires a more inclusive approach. Recent innovations in design museums signal a shift towards more holistic storytelling. Yet, challenges persist in achieving cohesive narratives and engaging diverse audiences effectively.

The COVID-19 pandemic accelerated the digital transformation of museums, prompting the adoption of digital tools and online engagement strategies. This shift underscores the importance of maintaining physical, digital and virtual experiences to enhance accessibility and engagement. Leveraging digital technologies facilitates the dissemination of cultural heritage while providing opportunities for interactive engagement and community participation.
Some initiatives highlighted the importance of community engagement in preserving and promoting heritage. By fostering local participation, and offering memorable experiences, these actions contribute to sustainable tourism practices and equitable distribution of tourist flows. They also align with broader sustainable development goals, promoting social cohesion and inclusiveness.

Integrating collective cultural heritage with the objectives of cultural institutions can enhance the preservation and promotion of design heritage. Networking initiatives demonstrate the potential for collaborative approaches to heritage preservation.
However, challenges remain, particularly regarding the communication assets of historical brands and corporate museums, necessitating careful navigation of commercial interests within cultural preservation efforts.

In conclusion, preserving and promoting post-war Italian design heritage requires a multifaceted systemic approach that incorporates inclusive narratives, digital engagement, community involvement and sustainable tourism practices. By embracing these strategies, we can ensure the continued appreciation and relevance of Italian design heritage in the 21st century.

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2. Design for cultural cooperation and sustainable tourism. Inclusive experience, accessible environments and heritage representation

Giuseppe Amoruso, Polina Mironenko

2.1 Sustainable Development Goals and the significance of culture

For the first time, the 2030 Agenda for Sustainable Development has acknowledged the significance of culture in achieving sustainable development. Adopted in September 2015 by the United Nations, the agenda is organized around 17 Sustainable Development Goals (henceforth SDGs) encompassing the five key areas of *People*, *Planet*, *Prosperity*, *Peace* and *Partnerships*. The 2030 Agenda implicitly references culture in many of its goals and targets (United Nations Department of Economic and Social Affairs, 2022).

If the SDGs are organized around the three foundational pillars of sustainable development – economic, social, and environmental objectives – then culture and creativity intersect and cross-cut each of these pillars. Sustainable development's economic, social, and environmental aspects reciprocally contribute to preserving cultural heritage and fostering creativity.

Tangible and intangible cultural heritage and creativity are vital

resources that require protection and thoughtful stewardship (Amoruso and Conte, 2022). They play a dual role in the SDGs: acting as catalysts for achieving these goals, and serving as facilitators, where culturally informed solutions can guarantee the effectiveness of initiatives to meet the SDGs.

Culture's importance is especially evident in Goal 11, which aims at creating sustainable human settlements, with its Target 11.4 focussing on the protection and preservation of global cultural and natural heritage. Additionally, Goal 4, which concentrates on education, includes Target 4.7, which seeks to ensure that learners gain the necessary knowledge and skills to foster sustainable development. This includes education for sustainable development, promoting peace and non-violence, global citizenship, and an appreciation of cultural diversity and the contribution of culture to sustainable development (Hosagrahar, 2019).

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), cultural and creative industries (CCIs) are defined as sectors engaged in organized activities primarily focused on producing, promoting, distributing and marketing goods, services and activities of a cultural, artistic or heritage nature. The term has been under discussion since the 1980s and 1990s, with the British government leading efforts to recognize these industries as part of the economic landscape. These activities fall within the framework of the orange economy, representing endeavours that transform human ideas into cultural products and services across various fields such as technology, theatre, dance, literature, music, art, fashion, design, animation and video games. Since the economic crisis of 2008, CCIs globally have played a significant role in enhancing value-focused economies that are well-positioned for recovery from global economic challenges. These industries contribute to the economy and to sustainable development by supporting the cultural and creative sectors. They particularly impact on social goals by improving quality of life, creating jobs and fostering social cohesion.
The positive impacts of cultural and creative industries on sustainable development are evident in areas such as promoting technological innovation, job creation, social integration, preservation of cultural values, recognition of creative skills as valuable resources, urban revi-

talization, rural development strategies, and fostering new concepts and behaviours that address social aspects (Borre *et al*., 2023).

Figure 1. The Culture I 2030 Indicators and the 2030 Agenda SDGs. Source: UNESCO / Culture I 2030 Indicators.

A recent study addresses the scientific and practical challenge of identifying the link between cultural and creative industries and sustainable development. It models the connection between the sustainable development of regions and cultural, creative industries through a structured method. This involves calculating and analyzing correlation coefficients between the *Sustainable Development Goals Progress Index* and four key socio-economic indicators that define the condition of the cultural and creative sector: value-added, employment, and cultural spending by the state and by households. The research analyzed these indicators across EU countries over a decade, from 2011 to 2021. The findings from the correlation analysis validate the relationship between creative industries and the sustainable development of regions, demonstrating that nations with advanced cultural industries exhibit higher levels of progress toward sustainable development goals. Conversely, in countries with moderate to low correlations, the link between cultural industries and sustainable development achievements is negligible (Plutalov, 2023). The UNESCO Culture I 2030 Indicators is a set of thematic indicators

designed to evaluate and track the impact of culture on the national and local implementation of the Sustainable Development Goals (SDGs) and Targets within the 2030 Agenda for Sustainable Development. This framework aims to measure the role of culture as an independent sector and its cross-cutting influence across various SDGs and policy domains. Developed through a review process, this framework comprises 22 indicators organized into four thematic dimensions that align with the three pillars of sustainable development: social, environmental, and an additional dimension focused on education, knowledge, and skills in cultural fields. Each dimension features specific indicators, including their purpose, data sources and calculation methods. These indicators, both quantitative and qualitative, help assess a country or city's engagement with cultural resources in sustainable development, identifying policy gaps and potential directions for improvement (Figure 1).

The Culture I 2030 Indicators framework is part of UNESCO's commitment to integrating sustainable development concepts across its Culture Conventions and programmes, each offering unique perspectives and focuses. With the 2030 Agenda's adoption, these Conventions have incorporated relevant SDGs into their implementation and monitoring frameworks, aligning their objectives and identifying specific SDGs or Targets for integration. As instruments of international norms that heavily rely on international cooperation and capacity building, all six UNESCO Culture Conventions contribute directly to SDG 17 on Partnerships, especially Targets 17.9 (capacity building) and 17.16 (global partnership), and make a cross-cutting contribution to SDG 5 on gender equality, particularly Target 5.5 on women's participation and leadership.

The UNESCO Culture Conventions and programmes towards the 2030 Agenda are:

- Convention for the Protection of Cultural Property in the Event of Armed Conflict, and its two protocols (1954 and 1999);
- Convention on the Means of Prohibiting and Preventing the Illicit Import, Export, and Transfer of Ownership of Cultural Property (1970) and the Recommendation concerning the Protection and

Promotion of Museums and Collections, their Diversity and their Role in Society (2015);

- Convention Concerning the Protection of the World Cultural and Natural Heritage (1972), the adoption of the World Heritage Sustainable Development Policy (2015) and the Recommendation on the Historic Urban Landscape (2011);
- Convention on the Protection of the Underwater Cultural Heritage (2001);
- Convention for the Safeguarding of the Intangible Cultural Heritage (2003);
- Convention on the Protection and Promotion of the Diversity of Cultural Expressions (2005) and the 1980 Recommendation on the Status of the Artist.

Culture is central to achieving the Sustainable Development Goals, and contributes across economic, social, and environmental dimensions. Placing culture at the heart of development policies ensures a human-centred, inclusive and equitable approach to development.

2.2 Design for cultural cooperation and local development. Envisioning, empowering and practising

Design for cultural cooperation and sustainable tourism is a branch of investigation and a multiverse field of social innovation not yet densely documented by the literature; it encompasses several practices for designing systems for creativity and culture; it is a sector of application of theories and approaches where design-driven methodologies help local communities and emerging countries to foster inclusive society, to make accessible cultural content and to release services for a diverse range of populations including disabled people and young scholars.

Economic expansion and social cohesion are based on developing a knowledge-based society capable of competing internationally (OECD, 2000). A strategic vision that enables greater economic and social resilience. The objective is to limit the economic dimension of

cultural heritage, and its associated cultural industries and practices, so that they find the basis for extending or enhancing their service offer through a framework of qualification and innovation of human resources. The global scenario requires new skills integrating design, creativity, technological and managerial skills as assets for competitiveness and sustainable and inclusive growth.

The operational contribution aims to achieve tangible results in technical-professional training, as one of the main functional areas supporting responsible and sustainable tourism and the conservation of cultural and natural heritage.

Among the specific objectives:

- identify the development potential of sustainable and quality tourism and the strategic areas of innovation, to increase the competitiveness of the cultural tourism industry;
- improve the relevance, quality, effectiveness and attractiveness of Technical and Vocational Education and Training (TVET) in response to the need for innovation and technological advancement in the tourism sector.

The outcomes establish a strategic plan for developing knowledge and skill-intensive human capital to increase the global competitiveness of the tourism industry and improve the visitor experience through innovation in product development. Follow-up actions include identifying innovative professionals and related skills and competence requirements for the tourism industry, conservation, and enhancement of cultural heritage and landscapes (Amoruso *et al*., 2023).

In the sector of cultural heritage, tangible and intangible heritage, local traditions and the cultural landscape, the aim of strategic actions is to:

- strengthen studies on cultural heritage and local traditions;
- develop smart applications for cultural heritage serving museum systems and archaeological sites, new exhibition and user interaction strategies, audience development, and development of digital services;
- enhance the potential of design as an activator of social innovation and as a lever in social inclusion processes;
- design training initiatives for entrepreneurship.

2.3 Delivering a strategic plan for cultural accessibility and dissemination within museum facilities

The chapter addresses a research plan of cooperation and local development in Jordan based on a strategic framework for improving and enhancing cultural facilities, making culture accessible, and increasing awareness about the museum to sustain the inclusion of young scholars and disabled users.
The connection between the thematic framework and the executive research varies according to the different kinds of deliverable:

- creating sustainable tourism and local growth;
- encouraging heritage studies;
- outlining digital documentation standards;
- introducing participatory and co-design processes;
- empowering people, through universal design and cultural accessibility, to have meaningful and memorable experiences in museums and sites of interest.

In the study case, field tests and process references will benefit from the recent research on the Roman Theatre of Amman conducted alongside an international cooperation project (Amoruso, 2023). Actions served to activate regional culture and protect the diversity of cultural heritage, enhancing universal accessibility and dissemination of content.

The Italian Agency for Development Cooperation, in agreement with the Department of Antiquities of the Ministry of Tourism and Antiquities of the Hashemite Kingdom of Jordan, funded the Program for the definition of a strategic plan for the improvement and the enhancement of the Folklore Museum, the Museum of Popular Traditions, and the site of the Roman Theatre in Amman; and the Technical Assistance to Contribute to the Definition of a Strategic Development Plan for Tourism and Human Resources in Jordan.
Both programmes have been operated by the Department of Design of the Politecnico di Milano since 2020, over a three-year action plan under the scientific directorship of Giuseppe Amoruso.
Museums and cultural heritage sites are powerful assets for local

development. They can inspire creativity, boost cultural diversity, help regenerate local economies, attract visitors, and bring revenue. There is also increasing evidence that they can contribute to social cohesion, civic engagement, health and well-being (OECD/ICOM, 2019).

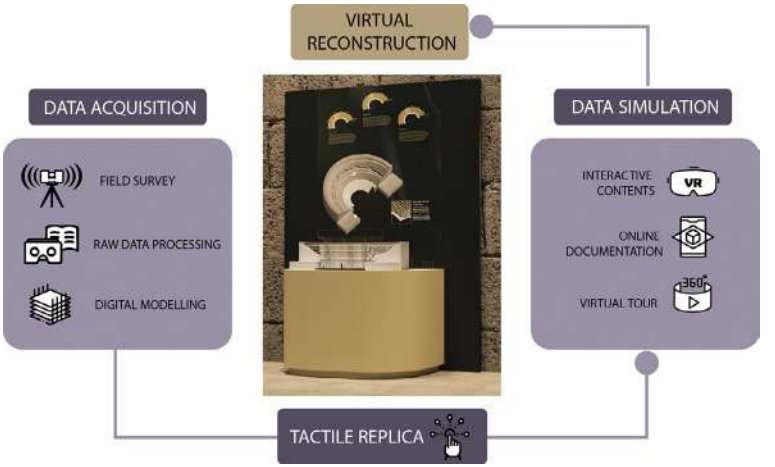

Figure 2.
Museum information modelling. Proposal of a workflow for the production of significant objects and environmental simulation. Source by Giuseppe Amoruso and Polina Mironenko.

The workflow presents effective methods to digitize resources based on the different natures of various types of heritage, and to devise experiential design and interactive environments through advanced simulation and representation of museum environments. The aim is to appropriately incorporate these resources into the museum's capacity to attract visitors, considering different target groups, stakeholders and inclusion needs (Figure 2).
The study researches all the related objects during a visit to an archaeological/cultural site, including visitors, exhibitions, the physical environment and local people. For this purpose, a model of a cultural landscape museum was issued, and the interaction design within its environment was released.
To achieve the final goals, the process addresses the following questions:

- How can we define and classify regional cultural resources and use appropriate digital technologies to display them visually?
- How can we enable the transformation and accessibility of cultural-regional museums?

- How can an interaction design model be developed based on dynamic simulations of existing installations and experiential environments for cultural sites?
- How can we evaluate the effectiveness of the process and design workflow, introducing modelling (CAD/BIM) and simulation environments (Game Engine/AI)?

The project demonstrates how to put design strategies into practice through a participatory process, test methodologies through digitization, improve awareness through mock-ups and communication artifacts, and engage new audiences by developing the prototype of a digital library to share living traditions among diverse generations (Amoruso *et al*., 2023).

The innovative research addresses digital design and representation, focussing on the emerging themes of digital heritage, content digitization, and universal accessibility. It also tests the use of modelling and simulation environments (BIM and Game Engine) integrated with the emergent need to experiment with the visual programming language (VPL) for interior design (Amoruso and Mironenko, 2022). An itinerary and interactive display of tangible/intangible heritage were presented and tested through the advanced simulation application to visualize immersive 3D environments (Figure 3). From the Building Information Modelling (BIM), the direct link provides a live connection with the game engine suite, and facilitates graphic simulation and audio, and kinematics, with the support of artificial intelligence (AI) (Amoruso and Buratti, 2022).The methodological research objectives are:

- to explore a systematic museum interaction design framework that can use digital technology to highlight cultural content and improve cultural attraction and communication efficiency, rather than just an isolated and interesting interactive device providing entertainment;
- to explore how to use digital technology to digitize different types of cultural heritage and make them accessible;
- the deliverables provided cultural and heritage operators with a flexible interaction design toolkit of applications, installations and contents, according to which they could choose appropriate interactive forms based on factors such as heritage fields, cultural themes and visitor groups.

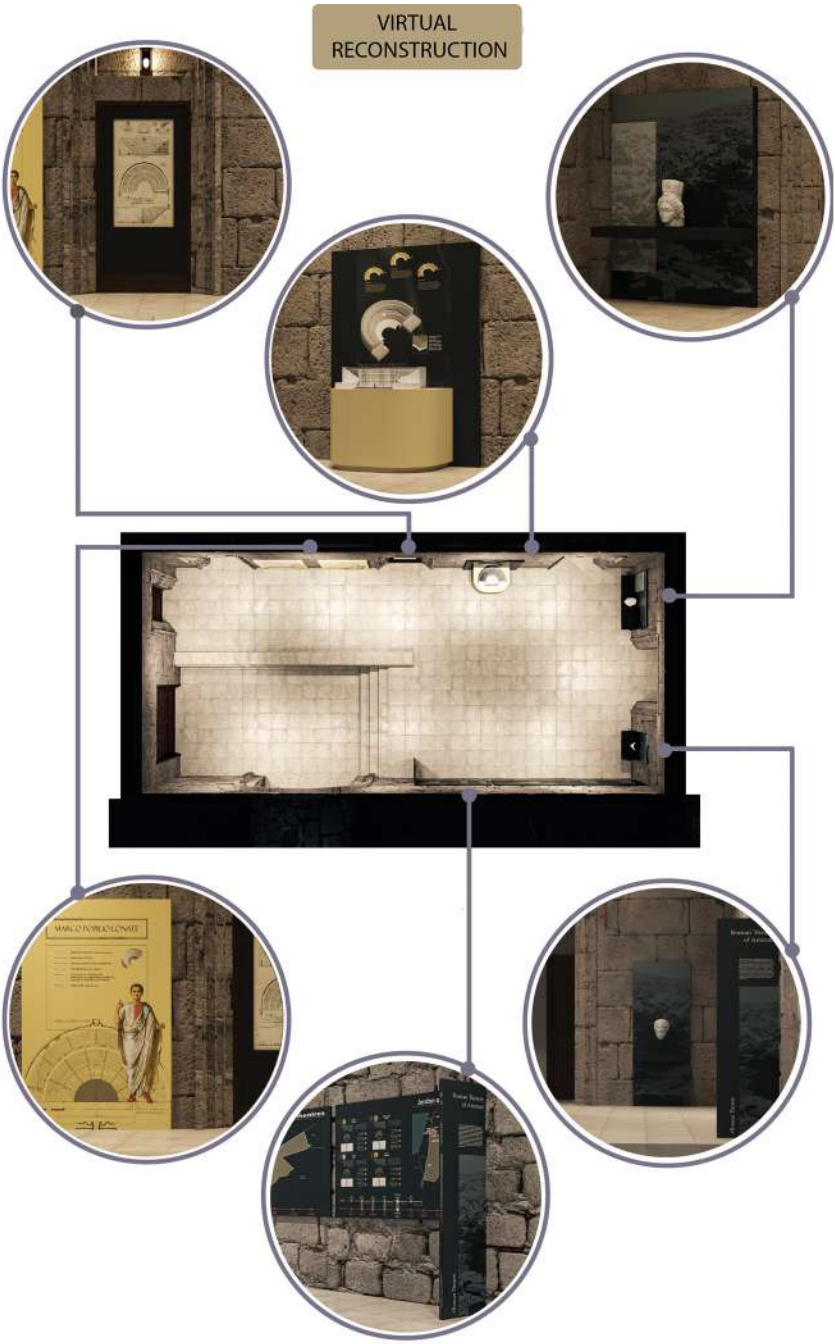

Figure 3.
Interactive installations for the Roman Theatre experience.
Source by Giuseppe Amoruso and Polina Mironenko.

2.4 Future scenario and conclusion

In recent years, national strategies for sustainable development have increasingly acknowledged the cultural and creative sectors as key drivers for achieving cultural, social and economic objectives. Despite this recognition, the broader role of culture and creativity in supporting sustainable development, particularly in the environmental transition, has not received sufficient investment, as noted by UNESCO, despite the SDG report addressing culture as a global public good (2022). The challenge of harnessing the transformative potential of culture and creativity to promote a transition towards more sustainable practices remains a significant task for these sectors.

The experimented workflow makes it possible to idealize the outcomes in the form of vision/approach and application/guideline, to leverage the power of sustainable tourism and cultural facilities for local economic development in international cooperation. Design strategies foster a new concept of heritage and also an innovative vision of nation branding across sustainable tourism policies. Strategic design contributes to the definition of a plan for developing responsible and sustainable tourism in emerging countries and the necessary needs in terms of human resources (Amoruso *et al*., 2023). Analyzing the current international scenario, the strategic plan could have positive effects by increasing the contribution of the tourism sector to the country's economic, social and sustainable well-being, acting on fundamental levers – such as technological and organizational innovation; ability to adapt to market transformations; valorization of territorial and cultural heritage; skills development – as favourable conditions to promote and support new entrepreneurial activities.

The process allows the identification of new professional profiles and technical skills required in a broader perspective of developing human resources and employment in the tourism sector, focussing on cultural heritage, cultural and creative industries, sustainable cultural tourism and cultural infrastructure. Design-driven strategies allow local and regional governments to evaluate and enhance their strategies for optimizing the social and economic benefits of cultural heritage.The study investigated the most promising areas

where museums can significantly contribute to local development. For this purpose, the project included improving the Folklore Museum and the Museum of Popular Traditions in Amman as the manifesto of the Jordanian cultural landscape. It transformed content into experiences by applying technological systems, innovative experiential installations and multimedia stations, and creating educational resources.

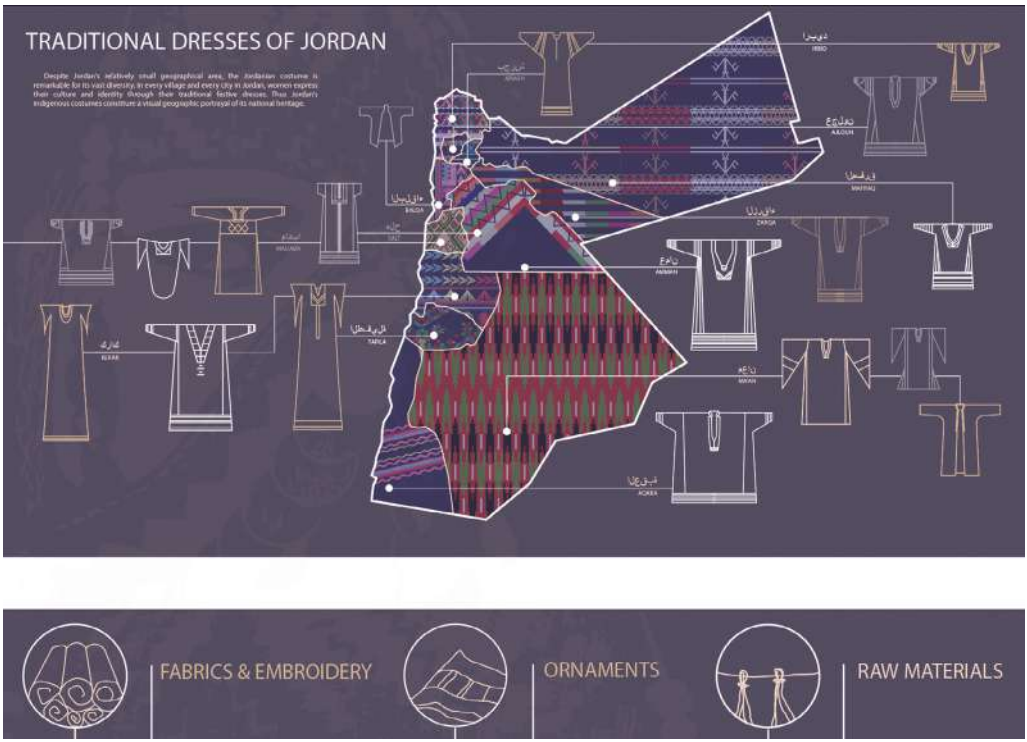

Figure 4.
Parallel of traditional dresses of Jordan. Proposal of an interactive wallboard to display and engage the audience. Source by Giuseppe Amoruso and Polina Mironenko.

The development of a communication plan for the Roman Theatre – envisaged through the 3D reconstruction of the architectural model, and the creation of a universal accessibility system with advanced multimedia systems – brought awareness and social inclusion into play among the young generation, e.g. with the use of gaming and learning tools for school groups (Amoruso and Carioni, 2023).

The objective is to ensure effective implementation of the right of universal access to culture, as indicated in the Faro Convention (art. 12), which introduced the need to «promote actions to improve access to cultural heritage, in particular for young people and dis-

advantaged people, to increase awareness of its value, the need to conserve and preserve it and the benefits that can derive from it».

Key concepts introduced by the Convention consider «cultural heritage», being «a set of resources inherited from the past that people identify, regardless of who owns them, as a reflection and expression of their values, beliefs, knowledge and constantly evolving traditions» (art. 2).

Design for cultural cooperation draws attention to strategies and actions that support the elimination or mitigation of physical and cognitive barriers, so that all people can access culture and can benefit from tourism as a common good and as a means of collective welfare for a global sustainable life. Designers and local stakeholders can effectively contribute to principles and practices using recommendations to monitor targets, set indicators and milestones, and involve direct beneficiaries to foster societies that are both culturally aware and creatively vibrant; it is essential to nurture environments where diversity is celebrated and cross-disciplinary collaboration is encouraged.

This involves creating spaces where individuals from various backgrounds and industries can come together to share ideas and perspectives, thereby enriching collective creativity and cultural understanding.

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3. Dialogues with the past_echoes in the future: cultural heritage and the transformation of buildings and cities

Peter A. Di Sabatino

3.1 Dialogues with the past

Seminal texts from the mid-1800s exhibit contradictory and shifting positions of key figures in dialogues with the past that specifically concern conservation, preservation, and restoration. The historical dialogues, treatises, and arguments underway in the 1850s focus on the two main competing positions or paradigms in the turbulent (and still somewhat nascent) body of thought on conservation, preservation, and restoration... and the consolidation of the discipline and profession of the historian and others. The editors of *Historical and Philosophical Issues in the Conservation of Cultural Heritage* state that, «It is in these decades that archaeology, history of art, and history of architecture were defined» (Price *et al.,* 1996). These conceptual and procedural positions, some translated to English for the first time, are fundamental to how we approach cultural heritage broadly, and how we view and act upon existing specific artistic, architectural, and urban constructs in our time and over time. The main protagonists in this pivotal debate, which was most severe

in the discipline and profession of architecture, include some of the most distinguished leaders in architectural theory, writings, and, to some extent, practice. On the more *conservative* side were Viollet-Le-Duc and his followers, including the most radical expression via what would become known as *de-restoration* and *purism*. And on the more *progressive* side of the debate were Ruskin and Morris, and an extension that would become known as the *anti-restoration* movement (Price *et al*., 1996).

Viollet-Le-Duc basically argues that existing, past work could be known and reproduced through intense observation and deep study. This process requires incredible attention to detail, and a strong understanding and ability in stylistic articulation at the large and small scales, and in the methods and materials of construction of the period (Price *et al*., 1996). We might say that the architect and the restorers must come to a full understanding of the *DNA* of the historic building and then be able to rebuild, or reinsert pieces that may have been damaged, destroyed, or removed by them since they were not *original* and hence not *pure* to the original style. This latter aspect gave rise to the idea of *de-restoration* and *purism* by some of Le-Duc's most extremist followers. In his essay *Restoration* from 1854, he wrote:

> **[...] the best thing to do is to try to put oneself in the place of the original architect and try to imagine what he would do if he returned to earth and was handed the same kind of programs as have been given to us. Now, this sort of proceeding requires that the restorer be in possession of all the same resources as the original master – and that he proceeds as the original master did (Viollet-Le-Duc in Price *et al*., 1996).**

Therefore, and ultimately, the argument reduces to the call for imitation *in the style of the original* and for the removal of anything foreign to the original style and intention. The best light for the rationale of this position would include issues of integrity, authenticity, and coherency. However, not everyone is as sensitive, skillful, and talented as Viollet-Le-Duc; and in any case, the position is vulnerable to a variety of counter-arguments. Even Viollet-Le-Duc had warned about extreme interpretations and actions:

> Let us, however, go on to consider yet another important point: suppose the rebuilt vaults [...] happened to be of remarkable beauty, and, at the time they were installed, they also made it possible to construct glasswork employing stained-glass that is of equally remarkable beauty; moreover, when the modified vaults were added they were fashioned in such a way that the exterior construction of the building now also has great intrinsic value. Should all of these valued features now be done away with merely in order to restore the construction of the nave to its primitive simplicity. Our answer [...] must be: Certainly not. *It is easy to see* from these kinds of examples *that the adoption of absolute principles for restoration could quickly lead to the absurd* (Viollet-Le-Duc in Price *et al.,* 1996).

The easy trap towards absurdities with the extreme positions of purism may be of secondary importance to the denial of the possibility of continuity between the past and present due to a strict freezing and quarantining of time, culture, and voice. Of at least equal importance is a denial of others to contribute to an existing piece of work… which is a denial of an ongoing sense of creativity, experimentation, transformation, innovation, and voice. Lastly, and perversely, it is fundamentally anti-historical as it separates and distances the historical from the present and the future, and it denies fundamental actions that have occurred throughout human history. It also contradicts natural processes that constantly occur due to the passage of time, such as decay, entropy, or at least an acquired weathering or patina… plus the historical and contemporary sense of the palimpsest, stratification, and layering… and the dialogues that these layers, these voices, express individually and collectively. The editors also underline the clear contradiction to history:

> The folly of Purism [...] is an entirely new type of absurdity, without precedence in the history of restoration [...] However far into the past one probes, the prevailing attitude is [...] of reuse, and of changes in functions as may be suitable to various cultural or political changes (Price *et al*., 1996).

Explicit opposing positions are found in John Ruskin's *The Lamp of Memory* essay published in 1849, and further underlined in the *Manifesto of the Society for the Protection of Ancient Buildings* by William Morris in 1877, where the *anti-restoration movement* was fully initiated (Price *et al*., 1996).

In a few sentences, Ruskin presents a clear and comprehensive position towards the value of existing, historical architecture and urbanism, and unites the continuum of the past, present, and future. He restates the importance of time and age (including the processes of time and human/cultural actions over time), and he underlines the critical importance of voice and voicefulness.

> **[...] the greatest glory of a building [...] is in its age, in that deep sense of voicefulness [...] which we feel in walls that have been long washed by the passing waves of humanity [...] It is in their lasting witness [...] through the lapse of seasons and times [...] the decline and birth of dynasties [...] it is in that golden stain of time, that we are to look for the real light, and colour, and preciousness of architecture [...] (Ruskin in Price *et al.,* 1996).**

Ruskin's stance, including that it is simply *impossible* to restore, or recreate, any great work from the past (Price *et al*., 1996), influenced many significant architects and theorists over time. They, in turn, developed the positions and added greater nuances and increased diversity and complexity. For example, Alois Riegl wrote about *age value* and *historical value* in his essay on *The Modern Cult of Monuments* in 1928, and states that «age value has a distinct advantage over historical value, which rests on a scientific basis and therefore can only be achieved through intellectual reflection. Age value, to the contrary, addresses the emotions directly» (Riegl in Price *et al*., 1996).

Cesare Brandi wrote his *Theory of Restoration* in 1963. Beyond underlining the inherent problems and issues of *imitation* in interventions with existing works, Brandi also introduces the idea of an *addition* versus a *reconstruction* as a different typology and process.

> **With an addition there is no imitation; there is, rather, a development or an insertion. A reconstruction, on the other hand, seeks to reshape**

> **the work, intervening in the creative process [...] It merges the old and the new [...] abolishing or reducing to a minimum the time interval between the two creative moments (Brandi in Price *et al.,* 1996).**

Additionally, Brandi posits the progressive concept of a *new unity* (emphasis by Brandi) and the idea of a *new fusion* in his argument about how to approach past interventions, restorations, and additions. He continues,

> **[...] we should always respect the new unity that, independently of the foolishness of restorations, was established within the work of art through a new fusion; the more this fusion affects the work of art, the more it is also a real source of historical material and testimony. Thus an addition will be worse, the closer it comes to being a reconstruction [...] (Brandi in Price *et al*., 1996).**

A contextual interlude may be interesting and valuable here. This reflective pause illuminates the theoretical dialogues being discussed in another light. This may add a critical perspective in wondering, and worrying about, the current general rules and regulations in place that very narrowly control what one may do with existing buildings and towns in Italy and beyond. It is important to note that Carlo Scarpa completed the reworking of the Olivetti Showroom in the heart of Venice in 1957-1958. His initial work at the Castelvecchio Museum in Verona started in 1957 (and continued into the early 1970s), and his initial work at the Fondazione Querini Stampalia in Venice was done in 1961-1963 when Brandi was likely writing the essay above (Dal Co and Mazzariol, 1985). These three seminal projects are not meant to be exhaustive. Other work not mentioned include Michelangelo's significant work in the formation of the new Piazza del Campidoglio in the heart of ancient Rome in 1567-1959 (after having moved and restored the equestrian statue of Marcus Aurelius in 1538), and at the new Laurentian Library in Florence from 1524/1525 and 1558/1559 (Hibbard, 1974). And again, we have not mentioned the vast amount of building, and rebuilding, over the span of human existence... Yet a narrow reading of these theoretical, highly influential writings seems to exclude the realities of time and built/transformed

activities over time. The use of such narrow blinders is concerning. Is this about the danger of narrow, theoretical, and academic focal points… the distancing from the actual conditions on the ground and in the communities… or the mingling of works of fine art with buildings and towns in the formation of theories and practices? How, and why, did current rules and regulations get put in place, and how was the structure and system of reviews and approvals – which hardly exist in significant and democratic terms – put into place? While becoming clearer, these concerns, as well as strategies for interventions, adaptations, and additions, will be developed in future iterations of this work.

Lastly in this brief overview of some principal European theorists, architects, and leaders in conservation from the mid-1800s, we turn to Paul Philippot and his lecture *Restoration from the Perspective of the Humanities* published in 1983. Beyond his long academic activities, he served as the deputy director and director of ICCROM for many years, and hence provides a more rounded, contemporary, and global perspective. Philippot's most significant contributions to the dialogues with the past and in relationship to this chapter's intentions, include the importance of the inclusion of contemporary and past *context* and *use* in the decision-making process, and in the design and execution of those decisions in the actual field. According to Philippot, these considerations should be lead factors governing decision-making and execution from the start of the process, and should also include any past and present *ritual value* that could affect how the public has traditionally used, and presently uses, the space, building, or object (Price *et al.,* 1996).

The factors of context, use, and the inclusion of the public were rather novel and challenging, but Philippot understood that the public is ultimately the real significant ambassador and caretaker of the works from the past surviving into the future. He also cautioned that very narrow, or too restrictive and abstract, ideas of cultural heritage may hamper the engagement and enthusiasm of the public, and that conception and processes could be more socially and community inclusive and liberal. He wrote that:

> [...] this restrictive conception of heritage is incompatible with the desire to save the totality of the living cultural environment of a population, an environment threatened not only by modern development, and especially land development, but also by an abstract and far too narrow conception of the work of art [...] this definition will have to be broader and more comprehensive than the traditional one.
> [...] To place emphasis on the social dimension of a building is to [...] free the protection of cultural heritage from a museum-oriented definition of the monument and from the tendency to transform it into an exhibition piece (Philippot in Price *et al*., 1996).

Philippot's progressive positions are unfortunately contrasted by other conservative and possibly *protectionist* positions favoring historians, while also quite *negative* and damaging to architects.
Is this a basic *power-struggle*, and possibly political and economic in nature, and hence about the preservation and enhancement of control, position, and power? Is there room for more interdisciplinarity? In the same essay he writes:

> A certain shift could be observed in the relationship between the disciplines concerned with architectural conservation: the architect seemed increasingly to take precedent over the historian or the archaeologist. This phenomenon could be explained by the growing necessity to find new, creative solutions. It carried an obvious danger, which was the exploitation of the historical monument to the extent that the architect considered it above all from the perspective of a developing whole – that is to say, of an environmental totality that could not survive without creative intervention (Philippot in Price *et al*., 1996).

3.2 Additional voices & strategies for the present & future

> *New ideas need old buildings.*
> (*The Death and Life of Great American Cities*, Jane Jacobs, 1961)

A very different voice emerged in the United States of America in the 1960s. Perhaps it reflected the pragmatism, simplicity, and directness of American life and public debate at the time… or perhaps the voice reflected its carrier, who rose from the rather ordinary ranks of active citizens in New York City.

In any case, Jane Jacobs serves as a kind of *break* and *bridge* in this chapter, and her writings demonstrate aspects of being both a dialogue with the past and, not only an echo in the future, a growing body of work that is creating ideas and strategies for the present and future. She bridges the shifting theoretical foundations above with a simple and accessible tone, and offers strategies of inclusion, transformation, and development for existing buildings and cities.

Jane Jacobs recognized, understood, and articulated the importance of *old buildings* assisting new innovative activities in a community. She understood the economic and ecological benefits of reuse and adaptation of the existing fabric of the city, and, at least as equally important, she recognized the social and communal benefits for both the new *occupants* and for the existing community.

> **These old, and often dilapidated, buildings with new ideas and lives typically not only brought new investments to the city and community, but also new vitality and energy [...] and new perspectives and activities. They brought diversity, freshness, and hope for both the new entrepreneurs or artists and for the existing community (Jacobs, 1961).**

These small, simple sentences were a large contribution in her advocacy for relevant, vibrant, and inclusive cities that truly respect the actual environment – what might be called *quotidian* buildings and urbanism – of, by, and for actual people… and their voice, value, and potential. As a New Yorker, she was surrounded by diversity, and hence

experienced first-hand its vitality and importance. The diversity was not simply in people, but also in buildings and the urban fabric. All of which she advocated for, through direct, pragmatic, and often primary research and writings, throughout her life. The initial quotation that starts this section of the chapter is a slight simplification and a popular verbalized version of her original text included below.

> **As for really new ideas of any kind – no matter how ultimately profitable or otherwise successful some of them might prove to be – there is no leeway for such chancy trial, error and experimentation in the high-overhead economy of new construction. Old ideas can sometimes use new buildings. New ideas must use old buildings. Cities need old buildings so badly it is probably impossible for vigorous streets and districts to grow without them. By old buildings I mean [...] a good lot of plain, ordinary, low-value old buildings, including some rundown old buildings (Jacobs, 1961).**

More recently, Richard Florida elaborated and modified Jacobs' research and writings, and perhaps made them more conducive to governments, industry leaders, and developers. His principal claim is that the creative class is a very large social, economic, and cultural engine that can drive urban development more than «companies, firms, and industries drive regional innovation and growth» (Florida, 2003). He writes that the *super-creative core* includes

> **scientists and engineers, university professors, poets and novelists, artists, entertainers, actors, designers, and architects, as well as the "thought leadership" of modern society: nonfiction writers, editors, cultural figures, think-tank researchers, analysts, and other opinion-makers (Florida, 2003).**

For Florida, the key drivers and needed conditions for this systemic strategy to create economic and urban change include what he terms as «the 3Ts of economic development: technology, talent, and tolerance».

He continues:

> To attract creative people, generate innovation, and stimulate economic development, a place must have all three. I define tolerance as openness, inclusiveness, and diversity to all ethnicities, races, and walks of life. Talent is defined as those with a bachelor's degree and above. And technology is a function of both innovation and high-technology concentrations in a region (Florida, 2003).

3.3 Dénouement

> *The treasured past is said to overwhelm French culture and politics. «Everything is indiscriminately conserved and archived», notes a historian of the patrimony. «We no longer make history», charges the philosopher Jean Baudrillard. «We protect it like an endangered masterpiece». The Dutch architect Rem Koolhaas calls preservation a «dangerous epidemic» spread by «clueless preservationists who, in their zeal to protect the world's architectural legacies end up debasing them», gentrifying and sanitizing historic urban centers. Noting that UNESCO and similar bodies sequester one-sixth of the earth's surface, with more to come, he terms heritage as a «metastasizing cancer»* (*The Past is a Foreign Country*, David Lowenthal, 2015).

There is certainly no real *conclusion* at this point. The dialogues with the past have certainly not ended… nor will they, or should they, ever do so. In fact, needed now are additional critical dialogues about, and with, the past, and about the relationship of the past to the present and future. We need a sense of continuity and engagement, an awareness and understanding of the needs and desires of the past, present, *and* future. We need to be aware of the past, and feel its contributions and forces, but we cannot *live* there, nor can we overly bias towards it. We must also tend to the fertile gardens of the present and future… or we will truly live a barren, dull, and uninspired life distanced and removed from direct engagement with the past. We must argue not only for contemporary voice, but for the future voices of those

emerging and yet to come. We must bring voice, care, and support to the past, but also to the present and future.

Seemingly *simple* things like cultural heritage and its theories and positions that lead to rules and regulations that ultimately control, limit, or ban creative work in existing built environments are extraordinarily serious, and not only for the creative communities, but also for the public that is being stifled and divorced from an enhanced and transformed continuity of time and place. Additionally worrisome, overly narrow and conservative positions and policies may prefigure, or further articulate, larger problematic political, economic, social, and cultural paradigms. Rather, let us create climates that foster openness, creativity, and innovative work.

Let us conclude with three final positions, voices, provocations, and reminders:

1. Memory and forgetting have been increasingly intertwined in a complementary systemic way, in contrast to previously oppositional theories about their relationship. For example, an article in *Time* magazine in 2022 by Corinne Purtill notes that:

   «We were all taught forever… that forgetting is a passive breakdown of the memory mechanisms», says Scott A. Small, a professor of neurology and psychiatry at Columbia University and author of the 2021 book *Forgetting: The Benefits of Not Remembering*. «The fundamental insight […] of the new science of forgetting — is that our neurons are endowed with a completely separate set of mechanisms […] that are dedicated to active forgetting». The brain forms memory with the help of a complex tool kit of neurotransmitters, proteins, and carbohydrates, as well as other cells, Small writes; forgetting, too, has its own set of dedicated molecular tools working to clear away what's no longer relevant.

   So, it now seems that science is confirming long held thoughts by many that forgetting is a fundamental part of memory, and that without the ability to forget, we would all likely be driven insane by non-diminishing and non-hierarchical memories. This sets an interesting segue to Lowenthal's

(and others') call for *culling*:

> **The end result of indiscriminate preservation would be a stultifying "museumized" world, in which nothing ever made or done was allowed to perish. Failure to winnow is madness. Yet heritage is such a sacred cow that few dare call for its culling. Italy is so stuffed with treasure that only a fraction of it is adequately cared for, let alone accessible [...] Only two World Heritage sites have ever been delisted [...] (Lowenthal, 2015).**

2. If *new ideas need old buildings* is true, then, old buildings need new ideas… *new* ideas, that are actually ancient ideas and practices. We must foster a climate of adaptation, transformation, and reuse… these in turn often foster innovation, creativity, and community. They create economic, social, and cultural ecologies that thrive by and for the individual and the collective. And if there isn't an appropriate idea available, then a possible strategy is to remove (cull) the building(s) and make room for a natural ecology that benefits the community and planet.
3. The very last words go to Calvino from his essay on *Lightness*, where he writes of a sense of constant change, movement, and flux that counter the permanence, rigidity, and heaviness of the world and existence, and that offer the opportunity of unending, flowing possibilities. «For Ovid too everything can be transformed into new forms; for Ovid too knowledge of the world entails dissolving the solidity of the world; for Ovid too there is among everything that exists an essential equality that runs counter to all hierarchies of power and value». And that in Ovid's lexicon, everything and everyone «can change itself into radically different forms» (Calvino, 2016).

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4. Reframing design for hospitality towards a cultural and sustainable approach to tourism

Elena Elgani

4.1 Unsustainable tourism

In the era of the Great Acceleration (McNeill and Engelke, 2014), tourism is still considered one of the main tools for territorial development and for regenerating communities, as affirmed by the UN World Tourism Organization: «an ever-increasing number of destinations worldwide have opened up to and invested in tourism, turning tourism into a key driver of socio-economic progress through export revenues, the creation of jobs and enterprises, and infrastructure development» (UNWTO, 2014). Tourism experiences can promote the cultural development and the transmission of the cultural heritage of a specific geographical context (Faro Convention, 2005).
The processes of globalization and time-space compression have determined the popularization of international travel and the accompanying global expansion of the tourism industry (Niewiadomski, 2020). The tourist experience has become an integral and constant part of the lives of a significant number of people, and the places and hospitality spaces where tourist experiences take place are multiplying.

Tourism is defined through a complex combination of several services spread across multiple touchpoints, including spaces for hospitality. Tourism experiences involve systems of spaces-products-services in which spatial, and in particular interior design has a strategic role. Indeed, design has moved from product-oriented research to a strategic, systemic and *integrative* focus (Buchanan, 1992), because of its capacity to connect and integrate knowledge from different disciplines into the creative processes that enable the definition of complex systems.

The massification of the tourist experience has made tourism unsustainable, leading to phenomena such as overtourism and, above all, the exploitation of natural and local resources, causing damage to the environment, heritage and local communities.

Established tourism models promoted on a global scale are focused on fixed business models, repeated formats, high profits and short-term feedback. The tourism experience often revolves around a hospitality space: primarily a hotel or hostel, but also a home booked through a hospitality web platform. All the welcoming spaces that make up what is known in the English-speaking world as the hospitality industry are often subject to refurbishment processes (Perkins and Will, 2021) and have a significant impact on the environment (UNWTO, 2018).

Nowadays, as tourism recovers back to pre-pandemic levels, and the effects of climate change are increasingly evident, there is a need to rethink the entire tourism sector to transform unsustainable behaviours, and harmful economic models and processes, aiming to create innovation in experiences and related spaces to preserve the ecosystems in which the world's human citizens are moving ever more rapidly. In fact, the urgent question that arises is: how can design promote a transition in the tourism sector capable of creating meaningful and valuable experiences linked to a system of spaces and services while preserving natural and cultural contexts? A new approach would go beyond mere guest satisfaction to create a deeper and more emotional connection with the natural environment, cultural heritage and local community, leading to the promotion of responsible behaviour.

4.2 Design research for post-pandemic tourism

The pandemic has introduced a period of uncertainty (Murphy-Greene, 2022), a polycrisis situation in the environmental, geopolitical and economic spheres, which is becoming permanent (Ciravegna *et al*., 2023).

According to Gaziulusoy (2021), there is a need for radical transformations and structural changes in society (Loorbach, 2010) that require a new ecological mindset, a systemic approach (Battistoni *et al*., 2019) and long-term vision (Ceschin and Gaziulusoy, 2016).

Design, by its anticipatory nature, can contribute to transforming tourism, starting with how contexts are interpreted and how spaces are designed. Indeed, «designers and artists are able to formulate, through artifacts and concepts, urgent political questions that cannot rely solely on regular processes to enter public discourse. In regard to the environment and all associated concerns, in particular, state policy is driven towards reform by the priorities that researchers, designers, activists, scientists, architects and citizens set forth» (Antonelli and Tannir, 2018, p. 29). In this sense, design can drive change to achieve the shared prosperity goals (UNWTO, 2023) focussing on: economic growth and job creation; inclusive development; cultural preservation and revitalization, and environmental protection in the post-pandemic era.

Therefore, this paper discusses how a regenerative approach based on strategic design for sustainability can support the transition of hospitality space-product-service systems into sustainable systems. The focus is on the design of hospitality spaces. In addition, how can design support the definition of responsible tourism practices to influence people's behaviours towards adopting responsible attitudes? The focus is on the relationship with the environment, cultural heritage and local communities, reducing the impact of tourism activities. In fact, cultural and creative industries can move the tourism experience into a sustainable dimension by giving special attention to hospitality spaces.

In the first part, the paper presents a research-based approach that offers a conceptual framework for integrating regenerative

design-oriented processes into the development of tourism experiences focussing on the design of spaces for hospitality.
The second part presents two research projects developed using a design practice-based approach. Starting from the reading of different situations, both the case studies are presented in terms of the way they draw innovation trajectories in the design of future spaces for hospitality, able to foster environmental and social sustainability in tourism. The reflections explored and the practice-based projects are part of an ongoing funded research project in the Design Department of Politecnico di Milano.

The paper contributes to the study of sustainable interiors for hospitality. Starting from a new way of understanding hospitality spaces, and improving sustainable design strategies that implement the cultural approaches to design for hospitality, the aim is to promote systemic change in tourism.

4.3 Regenerative approach applied to hospitality spaces

Considering tourism as a complex system (Thackara, 2005), based on a mix of tangible products and spaces and intangible services designed and combined so that they are jointly capable of fulfilling the end-client's needs (Tukker and Tischner, 2006), a design-led approach can be used to connect the needs of new generations of guests with cultural and natural environments. Indeed, «systemic and interconnected problems need systemic and interconnected solutions» (Battistoni *et al*., 2019).

Design promotes a regenerative approach that «departs from the sustainable development paradigm by positioning tourism activities as interventions that develop the capacities of places, communities and their guests to operate in harmony with interconnected social-ecological systems» (Bellato *et al*., 2023).

The practice-led regenerative development paradigm (Mang and Reed, 2011; Mang and Haggard, 2016), applied to spaces for hospitality (Hes *et al*., 2015), has been explored little in relation to hospitality design (Inversini *et al*., 2024). It is therefore important to apply it to

hospitality spaces, with the aim of introducing high-tech and/or low-tech practices and technologies that reduce the impact of human actions on the environment. Above all, however, a regenerative approach serves to identify processes that can restore biodiversity, repairing the damage caused directly or indirectly by human actions, and promote well-being. An additional aim is to engage local communities and provide accessible and inclusive cultural experiences, based on transmission of the cultural, tangible and intangible heritage for all types of tourist. Design operates through an interdisciplinary approach, applying different tools such as metadesign processes and storytelling, and oriented strategies. This supports the spread of awareness, knowledge sharing and promotion of behaviour change (Del Bò, 2018) for a new *tourist's gaze* (Urry, 1990).

This is a paradigmatic shift that will drive the restoration of conditions in which plant, animal and human species can coexist and co-evolve in nature, establishing unexplored connections (Wakkary, 2021). This means that a sustainable approach to design expands from a technical and product-centric focus towards large-scale system-level changes in which sustainability is understood as a socio-technical challenge (Ceschin and Gaziulusoy, 2016).
The process-based, multi-scale and systemic approach (Ceschin and Gaziulusoy, 2016) may lead to a reconnection between humans, culture and nature, while also aiding in the restoration of ecosystems.

The aim for the future is to enable people to access responsible tourism experiences, transforming tourism activities to restore biodiversity and regenerate communities, achieving the *2015 United Nations Sustainable Development Goals* (SDGs). Thanks to its ability to connect different fields and establish new relationships between social trends, lifestyles, scientific developments and technological tools, design can help to materialize «possible and desirable futures, making them tangible through design thinking» (Bertola, 2022).

4.4 Hòstraka

The first research project is the regenerative floating resort Hòstraka, developed by Rosanna Caldarella, Giulia Ettori, Davide Grasso and

Elisa Schembri with Elena Elgani, from the Department of Design, Politecnico di Milano. Hòstraka won the Sustainable Hospitality Challenge in 2023. The development of the nautical issue and applied technologies was studied with the support of Andrea Ratti and Arianna Bionda (Department of Design, Politecnico di Milano) and yacht designer Matteo Costa (*costadesign.it*).

Considering that anthropic pressure on extremely delicate places, such as marine ecosystems, is causing irreparable damage, the project focused on both environmental regeneration and community activation. Specifically, the project tries to define how a hospitality space can regenerate the ecosystem in which it is located. The product-space-service system, based on a nature-inspired concept, is structured in a system of spaces anchored to the seabed represented by the common areas mixed with floating private spaces. Hòstraka's life cycle is designed such that circular design strategies are applied in hospitality spaces (Elgani *et al*., forthcoming 2024). The floating suites are low-impact boats for the guests, and each suite has a water filtration system to collect microplastics, combined with immersive experiences for divers to encourage responsive behavioural changes. Through the guest journey, guests can play an active role in the sustainable transition to a cleaner world, being involved in collecting microplastics from the water, as well as educational activities in recycling laboratories, which are open to local communities.

The project is initially located in the Gulf of Aqaba, Saudi Arabia, where there are unique coral reefs, but the development of the project demonstrates its scalability and applicability to different aquatic ecosystems. The design approach of this project still seems to be focused on defining a remedial strategy, known as the end-of-pipe approach, which aims to direct design efforts towards reducing the impact of microplastics on the aquatic ecosystems. However, this project seeks to take a systemic approach to the complexity of the tourism experience. Specifically, it aims to create innovative water-based tourism by innovating in both the hospitality space and the guest experience, with the objective of stimulating the resilience of the environmental context and prompting an active response from the local communities.

Regarding environmental impact, the project aims to create:

- an easily removable spatial system with low environmental impact, ensuring minimal impact on the ground (temporariness). The design approach prioritizes adaptability over time, allowing for variation in aggregate space based on use and enabling structures to be repositioned;
- the system's life cycle is designed with the aim of minimizing its impact in all phases.

Considering the social impact, the project aims to define a community-based tourism model (Bozzato, 2021) that can host activities and services to involve the local community and create positive interactions between guests and locals. The social impact of this system has been examined in two directions:

1. guest oriented. The guest experience relates to the educational dimension of the experience, promoting a cultural approach to the natural context. This is achieved by combining leisure with learning opportunities;
2. local community oriented. The project aims to involve the local community in promoting their cultural and food heritage and natural aquatic environments. Additionally, workshops will be held to teach the local community specific skills related to reusing and recycling microplastics, because collaborative creative processes can have a positive effect over time.

4.5 MODE's suite

The second research project is defined through two interconnected research actions supported by an international cooperation activity. The first activity *Del enfoque sostenible al proyecto de la hospitalidad (muebles textiles/interiors)*, coordinated by Giovanni Conti and Elena Elgani, took place in Cuba for the Italian Design Day 2023 involving young Cuban professionals in a training activity.

A process of analyzing the socio-cultural context of Havana through the lens of the local design community was initiated, leading to the identification of significant themes of Havana's cultural heritage. These would be developed in significant locations to host

tourist experiences designed to overcome a stereotypical view of the city. This provided the means to share different approaches and methodologies related to design processes and tourism development; to foster the dissemination of sustainable tourism strategies in the Caribbean context, with a peer-to-peer approach between researchers and young professionals; and to stimulate reflection on social innovation within the local design community.

The second activity is developed through a collaboration between ICE, the Italian Embassy in Cuba, and the School of Design, Politecnico di Milano. Three young Cuban professionals were invited to participate in a workshop developed in Milan with Teamwork Hospitality (TH), an Italian company specialized in marketing and concept development projects for the hospitality industry. TH is currently realizing a sustainable and LEED-certified hotel called MODE, as a pilot project, the aim being to reduce the environmental impact of the hotel and engage guests to promote responsible behaviours. The developed process can be a benchmark for hospitality operators in Italy, in terms of design, the management of spaces and the provision of services that are guided by sustainability principles.

The regenerated hotel will be built in 2024 via a process of adapting and reusing an existing hotel in Rimini, with the intention of revitalizing an area that has significance for the history of local tourism. The project – which is of modest size but representative of the Italian hotel building scene – involved eleven design studios that are researching sustainability in hospitality design, for nine suites and indoor and outdoor common spaces. This approach differs significantly from the established design process in the hotel industry, but it is inspired by a similar approach developed in 2004 during the construction of the Puerta America hotel in Madrid. This conceptual approach originated from the Grand Hotel Salone exhibition at the Milan Furniture Fair in 2002.

The design workshop, organized with TH and attended by Cuban professionals and students of the Interior Design course at the School of Design, aimed to stimulate a cultural exchange on tourism and to create different scenarios that anticipate new tourist experience models on the Riviera Romagnola, the first Italian destination for mass tourism in the 1960s that has a long-standing history.
The aim of the meta-design process is to realize different concepts

for the same suite, focussing on the application of design strategies for sustainability to the interior of an existing hotel building.
The concepts developed from these scenarios cater to various sensitivities. Subsequently, TH decided to conduct further research and the executive design of the *From Rimini to Havana* concept, developed by an Italian-Cuban team of young professionals and students (Elisa Cattaneo, Rolando Antonio Escobar Hidalgo, Benedetta Franci, Elisa Panizza and Erika Spanu).

The research and executive design phases have begun at the Design Department of the Politecnico di Milano, a collaboration between Francesco Scullica, Elena Elgani, Cinzia Pagni, Claudia Borgonovo and Federico Salmaso. The executive design of Suite no. 2 of the MODE Hotel allows the first strategies identified in the concept phase to be developed and implemented in order to realize the space.

In particular, the project team has focused on the processes of:

- research and selection of sustainable technologies and materials for the FF&E [furniture, fixtures, (finishes) & equipment design]. In line with the design concept, technologies and materials are selected to ensure durability in performance, confirmed by product certifications, for use in the hotel sector and to achieve LEED certification;
- re-use and refurbishment (Talamo, 2022) of existing furniture, which will furnish the room by innovating on the traditional criteria used to select facilities for hotel interiors.

The aim is to create a prototype of a sustainable room that can show the workings of an innovative design process and propose to guests new responsible approaches to interiors.

4.6 Beyond Tourism

In both research experiences, the metadesign approach is used to prefigure scenarios, considered a tool for shaping possible futures, concepts and projects with the aim of defining new fields where sustainable innovation in tourism can be expressed.

The case studies explore the creative role of design in connecting cultural approaches and technical competences, defining a more

sustainable space-product-service system for hospitality.
In the short to medium term, these spatial prototypes will support responsible approaches to tourism. Both projects affirm how a renewal of tourism experiences can also start from the hospitality spaces.

This means interpreting the permeable and porous edges of spatial design by considering various social, cultural and emotive, but also technical and material, exchanges between the design of spaces, sustainable strategies, and tourism experiences. Therefore, recognizing «interiors as unbounded and undefined – more as actions than as forms – constructed from constellations of relations and interactivities» (Tipene and Preston, 2021).

Additionally, sustainable processes of rethinking spaces and connection with communities can generate audience development, understood as those dynamic, strategic and interactive processes that aim to make arts and culture as accessible as possible to all (*Engage Audiences. EU Research Report*). In this sense, the tourist experience that is materialized through the relationship to a system of spaces-products-services is considered a cultural experience of discovery, encounter, and relationship with the natural and historical cultural heritage. To achieve a truly sustainable transition in environmental, social, economic and, above all, cultural terms, the strategic design approach can make cultural content and specific competences more accessible, more understandable and less remote, considering the bio-regional contexts (Atelier LUMA), the environmental impact of certain behaviours, and the proactive role that individuals can play in the multi-species relationship.

Design becomes a driving force capable of promoting both experimentation and unexplored interactions, through innovative processes that shift the focus from the environment and heritage to be preserved to the environment and heritage to be reactivated and regenerated, involving those who participate in the tourist experience.

This process of inclusion can be achieved through the specific tools of design, such as storytelling, which can work by stimulating the senses and reason, allowing the public to be more easily involved by proposing experiences that can be transformed into a personal or collective memory heritage. In this way, contemporary uncertainty becomes an opportunity, and design provides a route to «dream new

dreams…, designing for how things could be» (Dunne and Raby, 2013), considering not only technical and material solutions, but also new universes of meaning.

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PART 2

Museums, Exhibitions and Cultural Experience

5. Sustainability challenges of exhibition systems

Raffaella Trocchianesi, Rossella Locatelli

5.1 Current and urgent matters around sustainability in temporary exhibition systems

The core of this essay revolves around the concept of *sustainable culture*. In particular, it looks at sustainable exhibit systems for temporary cultural events in terms of both the process and specific artefacts. Its intention is to change attitudes as regards the whole process of organizing temporary events.

Nowadays it is necessary for the whole system of creative and cultural industries to respond to sustainability issues. According to the 2022 definition of *museum* by ICOM, «The museum is open to the audience, accessible and inclusive, and museums promote diversity and sustainability». This mission includes exhibit systems in terms of both process and product. Therefore, the role of museums is changing: they are becoming new activators of inclusive and accessible cultural experiences; but to do this in a way that aligns with the ICOM defini-

tion, they have to include sustainable features and adhere to certain requirements in their cultural, economic and environmental approach. This *new* attitude involves stepping away from the previous linear model and applying a sort of *circularity* to the heritage field: renting devices and equipment, using recyclable materials, and reusing the same exhibit system for several exhibitions. This last point leads to a delicate issue, because one has to take into account the designer's rights: how can the methods of transfer be included in the contract terms? Does the author have to have a licence for reusing/recycling?

How can one manage the constants and variables of a design exhibit system if one wants to reuse it for a different topic and context?

Where does one store the set of exhibit artifacts? If they cannot be reused, the alternatives are disposal and licence to third parties. If the materials are no longer usable in the museum, one can go ahead and dispose of them, but this solution creates a vicious circle which the professionals who work in this field have a responsibility to break. Above all, in the case of temporary exhibitions, another aspect to factor in is the impact of transporting the exhibit system to different places. Sometimes it is possible to use a system multiple times, but after that reuse and/or disposal currently look like the only options.

There is another important variable to consider: how the *customization factor* affects the exhibit systems recirculated for reuse. In this case the exhibit designer – in agreement with the communication team – has to work on a system based on constants (reusable on several occasions) and variables (designed for a specific topic).

A recent study carried out by ICOM (2023-2024) collected interesting data including percentages on a couple of crucial points: the elements of the exhibit systems already reused, and the life of the exhibit system after the event. On the first issue, pieces of furniture and display cases are often reused in different contexts; graphic artifacts and scenography installations are sometimes reused, as are indoor direction signs, outdoor communication signage and the lighting system; finally, shelves and mannequins are rarely reused.

On the second issue, the data reveal: 51% disposal; 36% stored internally; 7% stored externally for a fee; 4% stored externally for free or given away. The whole *professional chain* of the exhibit sector should address all these issues in order to regulate good practices and shift

attitudes in handling these kinds of project. This topic is not new; there are several Master's-level designs of exhibition systems whose default approach integrates consideration of such problems (albeit with different boundary conditions). In the following paragraph we will mention a *virtuous* case related to a historical palace, developed when sustainability themes were not perceived as urgent and were less present in the design debate.

5.2 From the *unique piece* to the flexible exhibition system

The question of reusing elements of exhibition systems arose in the context of an important museum/historical palace, at a time when reuse for sustainability was not coming to the fore so urgently and had little presence in the design debate. In particular, since the 1980s, Fruttiere di Palazzo Te in Mantua focused on this topic, with the primary aim of curbing the cost of the planned series of exhibitions (Sartori, 2009). Between the 1980 and 1990, Poltronieri hypothesized an *exhibit machine* able to offer flexibility in staging every kind of exhibition in a short time and at low cost. The theoretical machine is multifunctional and able to create a variable exhibit path according to different needs and topics, and it assumes different configurations: flowing, rotating, moving. In this way, horizontal, vertical and sloped surfaces – as well as display cases and wings – are part of a variable *grammar* of flexible elements. Unfortunately, this project never saw the light. Along similar lines, in 1991 for the book *Wiligelmo e Matilde. L'officina romanica*, the author Quintavalle – embracing the same approach – designed an autonomous piece of equipment able to show boards and drawings illuminated every time according to different features, thanks to devices provided with joint booms. It is a sort of wooden framed *gate* on wheels, with two textile panels. This system changes and evolves over time according to the heterogeneity of the collection on display and the functionality, but the main concept based on mobility, flexibility, durability and customization persists, and guarantees a coherent and sustainable system. Indeed, in *Leon Battista Alberti* (1994) some changes

reconfigure the system: the flat surface on which the boards and the system of fabrics are placed diffuses the light in myriad ways.

After five years this system (used in all Fruttiere exhibitions) was showing a great deal of wear, so much so that in *Domenico Fetti* (1996) the semi-transparency of the fabric was replaced by antique beige and pink wooden panels.

In 2004-2005 Studio Benedini was tasked with designing a new solution, based on mobile flexible walls that could show different kinds of artwork. In this case the pliability of the panels does not lie in their mobility on wheels, but in a lighter system where the panels are suspended among the architectural pillars. A tilting light system with a variable angle of incidence is installed on the panels.
This new structure – neutral and versatile – is easily integrated with temporary exhibitions, and can be used not only as a display system, but also as a dividing wall.

In this essay, the case described represents a paradigmatic design attitude to dealing with the service life of an exhibition system, and the evolution of attitudes and awareness – by a historical institution like Fruttiere di Palazzo Te – regarding the need to invest in reuse and sustainability. The dissertation will go on to examine another cultural institution – *Venice Biennale* – that, almost twenty years later, in 2023, is tackling this issue in a very interesting, engaging and unconventional way.

5.3 A virtuous synergy between art and architecture to activate new forms of participatory reuse

At the *2023 Venice Architecture Biennale* – an international event devoted to topics of care, repair and maintenance – German Pavilion took advantage of its participation to interpret and take a stand on the important issue of the sustainability of temporary exhibition systems. *Open for Maintenance* is not a real exhibition, but rather an action framework for a building culture, beyond the prevailing model that hinges on the exploitation of resources and humans (Femmer *et al*., 2023).

The focus is on previously used materials that were gathered from over 40 national pavilions and exhibitions at the *2022 Art Biennale*, with a view to making visible certain processes that are usually kept hidden, relating to the care and upkeep of social spaces and facilities.

In this way, the *Art and Architecture Biennales* collaborate to give shape to a new concept of a cultural message, born out of a rich and intertwined partnership.

The German Pavilion takes shape as an active infrastructure – a laboratory, serving to collect, catalogue, provision and process used materials from the *Biennale* – that has an impact beyond the boundaries of the institution. The *Maintenance* workshop programme features interventions within the Pavilion as well as in the urban space of Venice, where university students and craft apprentices assist several groups from civil society in maintaining, repairing and caring for social infrastructures across Venice.

This design attitude transforms the monumental German Pavilion into a living place of (re)production. As an action framework for a building culture beyond the prevailing model hinging on the exploitation of resources and humans, it sheds light on the social, material and urban dimension of maintenance, demonstrating that ecological sustainability is inextricably linked to the social question.

The pavilion assumes the role of a productive infrastructure, promoting principles of reuse and circular construction in accordance with the social responsibility of the architecture.

The interior layout follows the paradigm of the flat: each part of the space corresponds to a specific room of a house and suggests sustainable ways to solve the functions. In addition, a specific *workshop room* is devised as a dynamic place where students (in architecture, art and design) create specific installations to be placed in the Venetian Lagoon in order to communicate the soul of this process.

Every year, the *Biennale* grounds in Venice host a new exhibition. Hidden from the visitors' eyes, heaps of materials are transported to the city and then ferried to the various national pavilions by boat and handcart. Six months later, most of them end up being discarded. Since 2008 the Venetian organization Rebiennale/R3B has been dis-

> **mantling exhibition architectures and artworks every year after the end of each *Biennale* and using the materials for new projects (Greb, 2023, p. 2).**

The project underlines that ecological sustainability is indissolubly linked with the social issue, and itself represents a virtuous model of collaboration between art and architecture in a circular model.

5.4 Towards an expanded notion of sustainability

Moving beyond the anthropocentric focus of the Brundtland Report's definition of sustainability, studies indicate that our conceptual grasp of this term has transitioned from considering it a fixed objective to recognizing it as a fluid and evolving goal, adapting to our deepening comprehension of the intricate interconnections between social and ecological systems. Attaining sustainability necessitates adopting a process-oriented, multi-scale and systemic approach to sustainable design, driven by a vision rather than relying only on traditional goal-based optimization methods. This expanded notion conceives sustainability as a system property rather than a property of individual elements of systems (Ceschin and Gaziulusoy, 2016).

From this perspective, Design for Sustainability integrates sustainability practices into current objects and processes.
This paragraph analyzes through this evolving definition of *Sustainability*, on some points linked to futuring theories, the intersection in the existing context between Design for Sustainability (DfS) approaches and Exhibition Design.

Because the climate crisis is irreversible, the necessity to question what «sustains the Unsustainable» (Fry, 2009) has evolved rapidly in the past decades, and accelerated in the past ten years in the exhibition design field. It is creating a vigorous debate about transient exhibition systems for cultural events, and demands particular attention as regards managing and designing the production and the end-of-life chain of temporary solutions. DfS strategies have developed in many design fields and have undergone several evolutions

(Ceschin and Gaziulusoy, 2019). DfS has since evolved from green to eco-design into a more holistic notion that includes social justice and environmental responsibility. Sustainability-oriented strategies can consist of life cycle thinking (Hauschild *et al*., 2018) and related industrial ecology strategies (McDonough and Braungart, 2002), recycling design, design for disassembly, and product-service systems (Vezzoli and Manzini, 2008).

Nevertheless, while in other design disciplines – for example, in architecture through Green Building Rating Systems such as the recognized BREEAM (UK) or LEED (USA) – research has long been working towards sustainably innovating paradigms, from concept to construction. Exhibition design is slowly combining these aspects into its creation and management structures. This criticality crosses the museum sector and the cultural and temporary events sectors because the issues associated with practical exhibitions are similar. The legislative framework reflects these critical aspects.
Despite efforts such as establishing the Gallery Climate Coalition in 2020, and initiatives by organizations such as the Federal Cultural Foundation in Germany, and ICOM Lombardy in Italy, to promote sustainability in the fields of exhibition design and museums, official regulations and policies for ecological transitions are lacking.
The first legislation on sustainable events only emerged in 2012, with Expo 2015 being one of the first large-scale events to apply it. Recent developments in ministerial policies – such as the approval of Minimum Environmental Criteria (CAM per Eventi, 2022) by the Italian Ministry of Ecological Transition, and the National Recovery and Resilience Plan (PNRR) – aim to support the cultural sector's sustainability-oriented transitions (Crippa *et al*., 2023). In spite of exhibition design being recognized as a critical player in helping the ecological transition in the cultural sector, strategic monitoring of its environmental impacts, at both macro and micro scale, remains a long way off.

5.5 Futuring in exhibition design: reading an evolving context through sustainable strategies and tactics

In exhibit systems, the emerging panorama of sustainability-oriented methods is evolving, coming from different research approaches; among them, futuring stands out, suggesting a strengthening of the link between theory and practice. Scholars from varied design fields, such as product, service, fashion, and speculative design, are inquiring as to how futuring uses a systematic process for thinking about and planning future scenarios (Dunne and Raby, 2013; Berardi, 2017) and pictures possible outcomes by interrogating, observing, sourcing and examining sustainable practices (Barucco *et al*., 2021; Payne, 2021). In exhibition design, futuring sits at the intersection of museum futures analysis (Bechtler and Imhof, 2014, 2021) and sustainability-oriented tools. The latter range from eco-efficiency tests developed by museums or cultural institutions, alongside the definition of sustainable guidelines (Abeyasekera and Matthews, 2007; Byers, 2008; Biedermann *et al*., 2021) to quantitative LCA-based evaluation systems, limited to specific exhibition setups and strategies (Muñoz-López *et al*., 2021; Toniolo *et al*., 2021). The definition of sustainable change as «actions and practices directed towards furthering justice for the human and non-human world alike» (Payne, 2021, p. 208) resides in this dimension, and the associated practices, understood as strategies or tactics, align with it. As a subdiscipline of its own, design strategy may be defined as a plan of action based on vision, defined objectives, and specific criteria for measuring its results (Payne, 2021). Conversely, tactics are decisions made by individuals with limited power who cannot fully foresee the outcomes of their actions. Through a selection of case studies, the study suggests that strategies and tactics are available to most professionals working within the exhibition design system.

The contribution examines several case studies analyzed in a progression that starts from strategies and tactics proposed by cultural institutions and then delves into the dimension of practice through cases involving both service system design and sustainable

management to reuse materials or components. The first two are guidelines developed in 2022 by the *27th Biennial of Design* (BIO27) in Ljubljana in collaboration with the Museum of Architecture and Design (MAO), and in 2023 by the Design Museum in London with the collective URGE. The first case (Kobal et al., 2022) arises from an explicit urgency on the part of BIO and MAO, based on the awareness that the implications of each exhibition production should be faced, and that it is essential to reduce the waste and environmental impact associated with cultural events and temporary exhibitions. The document is organized into categories: *museum, exhibition and exhibition design, graphic design/print, digital communication* and *design*. For each category, practical guidelines are proposed, organized by areas, and applicable both at the management and supply levels (e.g. for the *museum* category, guidelines include *Building renovation/Energy, Mobility – Low-carbon travel guidance, Administrative operations efficiency, Digital and electronics, Emails, Advertising, Water, Catering, Waste, Greenery/Biodiversity, Community building/Outreach and education*; for EXHIBITION, *Programme, Shipping/Transport, Materials, Construction/Deconstruction of the Exhibition, Electronics*). The document presents a selection of existing tools for the environmental impact assessment, ranging from a series of carbon footprint calculators to a life cycle assessment method for paper used in exhibitions to the B IMPACT ASSESSMENT. The latter is a digital tool that can help measure, manage and improve positive impact performance as the first step towards B Corp Certification. The choice of whether and which calculators to apply is left to the individual institution. The document's tactical nature lies in the fact that there are potentially applicable guidelines at multiple levels. Still, the possibility of evaluating their impact is fragmented and not tailored to the proposed guidelines. However, this does not diminish the power and strength of the document's ability to interrogate the biennale's practices and future, gain a deeper understanding of its environmental and social impact, design a roadmap setting decarbonization targets in the future, as well as demonstrate and communicate innovative approaches to sustainable cultural production.

From October 2021 to February 2022, the *Waste Age* exhibition at the Design Museum in London delved into the potential of design to

transcend the throwaway culture. With a commitment to minimizing the exhibition's carbon footprint, the organizers collaborated with architecture practice Material Cultures for spatial design, and engaged SPIN studio for the 2D experience, assigning both the task of devising strategies to eliminate waste in the exhibition's design and production processes. To ensure accuracy and gather actionable insights, the organizers enlisted URGE Collective to conduct an environmental audit, marking one of the pioneering Life Cycle Assessments for exhibitions in the UK. URGE Collective developed an Impact Model to track three key stages: pre-exhibition, live exhibition, and post-exhibition, shedding light on the primary sources of environmental impact. Through interviews and data collection, the curation, design, facilities, and production teams contributed to the audit process.

The model integrated data from various sources, including stakeholder interviews, desk research, energy procurement and usage, resource consumption analysis, waste generation assessment, transportation of materials and exhibits, and observation of the production process. This experience led to the creation of the guide published in March 2023 by the Design Museum and URGE, entitled *Exhibition design for our time. A guide to reducing the environmental impact of exhibitions* (Design Museum in London and URGE Collective, 2023). The report collects the key findings and their related strategies – some of which are summarized as follows: *Reducing impact starts with curatorial decisions, Chasing data, Choosing materials wisely, challenging convention, Working together, Counting digital carbon, Minimizing air travel, Building a network for sharing resources*.

The document proposes object and material decision trees to help stakeholders, sponsors, designers and suppliers in the exhibition design development process and commissioning. The guide's final focus is on measuring the impact and the presentation of the tool studied for this purpose. The Design Museum's Impact Model is an Excel-based tool (beta version) designed to estimate the carbon footprint of exhibitions. It assists exhibition, curatorial and project management teams in decision-making throughout an exhibition's development. The model covers stages such as *Project Development, Object Transport, Build / Setworks, Reused Resources, Museum Operations, Waste and Touring*. The exhibition project team can manage

it, encourage ongoing input, and offer a detailed user guide.
The open-source model is adaptable for broader use in museums, galleries, events and exhibition spaces, promoting continuous refinement and expansion.

The shared, long-term breadth of view, the key figures involved, and the effort to work on the assessment of the results underlines the strategic vision of the guide.

The following paragraphs describe other emblematic practices capable of providing innovative directions for the sustainability and circularity of the sector. They are close to the tactical approach; small firms often initiate them, and they act at a small scale or focus on reusing and recycling a single component. For most usable components/materials in exhibition design, the reuse options are varied, taking forms such as from-and-for-reuse systems or take-back schemes and sales. From this perspective, describing some practice examples of System Design for Sustainability (SDS) is essential.
By this, we mean the design of the Systems of Products and Services that are together able to fulfill a particular customer demand based on the design of innovative interactions among stakeholders, where the ownership of the product/s and its life cycle responsibilities/costs remain with the provider/s so that the provider/s continuously seek to make environmentally beneficial new solutions accessible (Vezzoli, 2010; Vezzoli *et al*., 2022).

Spazio META is a startup offering a fee-based service to collect, process and exhibit materials and structures used in sets, exhibitions, and installations. Notably, each year META recovers and redistributes over 16 tonnes of materials that would otherwise be wasted (Crippa *et al*., 2023). Product sales are confined to their Milan Bovisa location. They record volumes and quantities of recovered materials on the urban territory to provide annual reports regarding the practice of reuse. They have also created a database on the flow and consequent reuse of recycled materials, to monitor the efficiency of the recycling process and achieve higher impacts on waste reduction.
The aim is to connect stakeholders, who may be able to reuse recovered exhibit elements from different events.

Exhibition carpets are a vast area of leftover material, but today, the following recycled and recyclable options are changing the indus-

try and considerably reducing waste. Many manufacturers adhere to these processes, in order to meet increasing market demand in this direction. For example, a company called Tarkett investigates innovative solutions to turn used flooring into valuable, reusable materials. It proposes services to help customers take back and recycle flooring through its ReStart programme, and ensures that used flooring will be collected, recycled and introduced into the remanufacturing processes within the company.
Another example is Montecolino, in Italy. Since 2017, the company has been harnessing its experience in recycling internal waste, and has proposed a recovery system for used carpet. The company developed a management system for the exhibition industry that transforms old carpets into raw materials for new products. The deconstruction process pays attention to the destination of the non-resin-coated textile trimmings, which are part of the production cycle, and the resin-coated textile trimmings are separated according to their composition and destined for recovery outside the company.

These examples are systems aimed at *detailed* design, and constitute interesting experiments that can be scalable.
The originality values behind the selected cases are diverse.
They propose new management and economic sustainability models, organizational structures, collaborations within the sector, and ways of engaging suppliers and decision-makers. They offer opportunities to reduce environmental impact and bolster economic sustainability, in order to sustain the development of this cultural sector from a future-facing perspective.

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tion design: reading an evolving context through sustainable strategies and tactics were written by Rossella Locatelli.

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6. Elevating inclusivity. Film's role in redefining museum engagement at Brera

Ilaria Bollati, James M. Bradburne

6.1 Pandemic, reimagining museum-visitor dynamics

The pandemic has shown how important it is for every cultural institution to develop digital communication tools (Parry, 2013; Dal Pozzolo, 2021). The COVID-19 crisis has provided the impetus for a complete rethinking of museum visits, museums' engagement, and the differences between interactions with the public. An extraordinary circumstance occurred: the pandemic encouraged museums to reconsider their relationship with their collections, spaces, and community. Museums were obliged to shut their doors and mitigate the closure this through a predominantly online, socially distanced dialogue with their public. It had an impact on the demand side as much as the supply, generating possibilities and scenarios for cultural experiences that could coexist with the traditional modes (Bollati *et al*., 2024). Museums' responses have increasingly involved designing and shaping their digital experiences, shifting their focus from a mere online presence to crafting compelling narratives that truly engage

people both cognitively and emotionally. Also, museums have learned that neither the total number of visitors nor the revenue are appropriate parameters to measure the value of a great cultural institution. Quantity does not correspond to quality. Since:

> **many museums, however, have suffered the forced closure unprepared, without the skills and technological equipment to successfully implement the necessary changes (Solima, 2021, p. 37)**

the Pinacoteca di Brera decided to revolutionize the museum visit. This included introducing the *BreraCard* in substitution of the conventional museum ticket, and launching the *BreraPlus* platform: a special channel committed to replacing the *traditional* model of the museum visit with a wider subscription that recognizes the museum's work both in situ and online. In effect, this changes our perception: from the museum as a noun – a space to be visited – to the museum as a verb – a hub for cultural production. By purchasing the BreraCard, similar to a library card or an online newspaper subscription that lasts for a set time, people can access the museum physically for three months from the date of their first entry and enjoy the *BreraPlus* online content or participate in city events for one year. Thanks to these changes, the Pinacoteca is redefining the museum experience, transcending the boundaries of traditional visits, in the hopes of fostering a deeper connection between the people and the museum, empowering them to tailor their experiences according to their preferences, and building a sense of intimacy and familiarity with the museum's spaces and collections over time.

6.2 *BreraPlus*, an *open* digital narrative experience

BreraPlus is a new museum experience available 24 hours a day, 7 days a week, and it is accessible to the public from anywhere, and at any time. It is a cross-media platform that extends the Pinacoteca experience in space and time with specially crafted content, new

voices and novel perspectives. It is an online and dynamic platform that reproduces the characteristics of a live museum experience (Wittgens, 1956) even when the museum building itself is closed; a way to transcend the physical and conceptual thresholds (Parry *et al.,* 2018) of the institution.

With this *open* narrative interaction, the users can determine their cultural exploration however they like and for as long as they like. This makes for a more flexible and dynamic user experience with the *BreraPlus* multimedia content offered on the platform, as if it were an endless game, initiated and sustained by the user, just as the autonomous museum visitor shapes their own learning experience. For instance, while a film follows a predetermined linear structure with fixed emotional peaks, a museum visit offers a flexible duration characterized by chance encounters with both works of art and other people.

Similarly, *BreraPlus* allows for diverse exploration methods; its content is varied, interconnected, and can be consumed continuously or in a stop-start manner. Each video is accompanied by supplementary multimedia content, extending and enriching the narrative experience. Comparable to embarking on a train ride, users can navigate through the entirety of the main content or pause at intermediate stops along the way, exploring the depth that the journey offers.

BreraPlus presents new content each month, enhancing and complementing the knowledge and experience offered by the museum during a physical visit. Since its inception in 2021, *BreraPlus* has expanded steadily, encompassing over one hundred multimedia items, organized into seven distinct sections that serve as a repository of memories, voices, videos, images and music. Among these sections, *FilmPlus* features experimental films by Pinacoteca di Brera, while *DocPlus* offers untold stories with interactive elements. *MusicPlus* explores and researches the intersection of visual arts and music with performances by top musicians, while *StoriesPlus* delves into Brera's oral history. *Once Upon a Time Plus* presents multilingual tales read by renowned figures, and *High Resolution Plus* showcases high-definition masterpieces. Additionally, *ChatPlus* facilitates user engagement through discussions and insights shared in front of a high-resolution painting, representing the platform's latest addition.
If *DocPlus* stands as the section that most accurately embodies the

train metaphor, *FilmPlus* hosts two experimental film self-productions, a notable exception for a museum: *Great Men* (2021) and *Peregrin and the Giant Fish* (2022).

6.3 *Great Men*

Great Men (2021) marks the museum's debut film, and its title suggests an unconventional exploration of the lives of Napoleon Bonaparte and Dante Alighieri. It draws significant connections between the experience of forced separation – geographical, cultural or spiritual – and familial relationships. Written by Emily Renée, a young English playwright esteemed as a writer, director and actress, the two-act play reveals a nuanced plot revolving around parental, human, and intimate relationships. While Napoleon's initial exile to Elba meant that he never saw his eldest son, Dante experienced exile alongside his two sons. These figures, with their notable reputations and distinct experiences of parenthood, fuel a curiosity to understand and empathize with their offspring. Thus, the narrative is told through the lens of two contemporary young men, Thomas and Bijan.
While chatting during a Skype call, these lifelong best friends navigate a rapidly evolving world and their unresolved bonds with their fathers. The onset of the pandemic prompts them to confront their inner thoughts. Thomas arrives in Milan in pursuit of his father, while

Figure 1.
Great Men, theatrical performance in the Gallerie D'Italia, Milan.

Bijan finds himself confined at home with his. *Great Men* underwent an unusual evolution, starting as a covert theatrical performance and later transformed into an innovative online experience. Initially, the performance took place in secrecy at Brera's Biblioteca Nazionale Braidense and the Gallerie D'Italia, where the audience was recorded and seamlessly integrated into the final film.

Subsequently, the recorded performance became available for online viewing through the *BreraPlus* platform. What sets this online rendition apart is its interactivity: viewers can experience the narrative from two distinct starting points, following either Thomas or Bijan's perspectives. This innovative approach transforms the film into an immersive and engaging experience, blurring the lines between spectator and participant.

6.4 *The Giant Fish*

Peregrin and the Giant Fish (2022) stands as a pioneering marionette opera, drawing inspiration from a 1923 tale authored by Tom Seidmann-Freud, the niece of Sigmund Freud, unfolding in the aftermath of the Habsburg Empire's collapse after World War I. Comprising original music by Andrea Melis and a libretto inspired by the original text, the opera ingeniously utilizes marionettes, echoing the historical significance of puppets in the avant-garde movement.

Under the direction of Francesco Fei, the opera was captured on film and released on *BreraPlus* and in selected Milan cinemas on December 26th, perfectly coinciding with the Christmas period.
The narrative follows Peregrin, the young protagonist who dreams of a utopian realm, as he is transported by a colossal red fish, which serves as a poignant reflection on post-World War I society. The avant-garde marionettes, meticulously crafted by the Compagnia Carlo Colla, bring Freud's original illustrations to life, complemented by creative set designs made from paper and cardboard like a huge pop-up book.

Moreover, marionettes have historically played a vital role in modernist literature and theatres, representing a transition evident in the works of Cocteau, Picasso, Schnitzler, El Lissitzky, Meyerhold, and Brecht, all of whom utilized marionettes – either metaphorically or lit-

erally – to move from actor-driven theatre paradigms to director-driven ones. Similarly, in this film, puppets continued to serve as a medium through which directors assert greater control over the narrative and visual elements. Replacing live actors with marionettes introduces a new cinematic dimension where puppet gestures and movements take precedence. In line with Tom Freud's storytelling approach, the film's fusion of adult themes with the captivating world of marionettes challenges common misconceptions, elevating the puppets to a more sophisticated level beyond only associating them with childhood.

Figure 2.
Peregrin and the Giant Fish, a frame from the film.

6.5 *Filmplus*, cultivating new connections

Even at first glance, and despite their different traits, *Great Men* and *Peregrin and the Giant Fish* reveal several parallels and exhibit several resemblances. These can be categorized into three overarching levels of comparison.

1. Firstly, *their plots draw inspiration from the past and translate it into our present*. They concentrate on historical narratives but reveal themselves as deeply contemporary works. If the former reinterprets the stories of two key historical characters, linking them to the challenges of the pandemic era, the latter, originating in the aftermath of World War I, remains relevant, reflecting modern-day shadows. *Great Men* features the lives of Napoleon Bonaparte and Dante Alighieri, juxtaposing their experiences of separation and familial

relationships against the backdrop of the COVID-19 pandemic era, mirroring the isolation felt during the lockdowns, while *Peregrin and the Giant Fish*, exploring life and society after the Habsburg Empire, offers a century-old story with contemporary echoes. Produced at the end of 2022, it spans 100 years from 1923 to 2023, and reveals resonances with more recent historical events, such as the war proximity felt with the outbreak of the Ukrainian-Russian conflict and the accompanying sense of uncertainty, reigniting fears akin to the shadows of the corrupted world from which Peregrin flees.

2. The two films offer *distinct modes of multidisciplinary experience and engagement*: *Great Men* through theatre performances, and *Peregrin and the Giant Fish* with marionettes and music. *Great Men* starts with live theatre shows, involving the audience in a new cultural experience before becoming films. In *Great Men*, the use of technology transforms the spectator into an actor, directly involving him or her in the cultural experience. This approach not only brings audiences closer to contemporary theatre, but also opens up new opportunities to transmit theatrical experiences beyond the traditional physical confines of the theatre and into the digital realm. The interaction between presence and distance, between observers and the observed, emphasizes the importance of exploring the possibilities offered by the convergence of different forms of artistic expression. On the other hand*, Peregrin and the Giant Fish* offers an equally innovative experience through the integration of cinema, opera, puppet theatre and paper-based set designs. This fusion of media enables engagement with a broad audience of all ages, conveying complex themes through accessible and engaging visual language. The combination of different disciplines and languages challenges traditional artistic conventions, inviting people to explore new perspectives and topics, and to confront deep existential questions.
3. Moreover, they realize the Brera project's desire to break out of institutional confines, engage diverse audiences and cultivate new connections, especially with people who are

less inclined to visit physical museums. Making their way to cinemas (Pusnik, 2015), these productions connect with the local community and the urban audience. In the case of *Peregrin and the Giant Fish*, the film has been requested in other cities, neighbourhood cinemas, and other museums, expanding its reach nationwide.

Great Men initially premiered on *BreraPlus,* making the artistic experience accessible to a wider audience. Following its online debut, the film moved to the outdoor setting of Cinema AriAnteo during the summer months, offering audiences a unique open-air cinematic experience in the Chiostro dell'Incoronata. This outdoor screening, indeed with a double screen, provided an immersive environment for the viewers. In this way, in line with the *BreraPlus* interactive experience, people could choose to watch the film from the point of view of either Thomas or Bijan.

In contrast, the distribution strategy for *Peregrin and the Giant Fish* took a different path, debuting directly in Milanese cinemas, particularly around Christmas – the 26th, 27th and 28th of December. Following its cinematic release, *Peregrin* was made available online on *BreraPlus*, ensuring continuous access to the performance beyond the cinemas. This multi-platform approach effectively reached cinemagoers, museum visitors and digital audiences, maximizing the film's exposure and audience engagement. Moreover, following the success of this first experiment at Anteo, additional requests were made for more showings, leading to the film being screened at Cinema Orione in Bologna, during the spring of 2023. Then, in January 2024, the marionette opera made its way to Rome, where it was showcased at MAXXI as part of a film festival titled *C'era una volta… favole al cinema* (*Once upon a time... fairytales in the cinema*), thereby further broadening its cultural influence to reach new audiences and territories.

6.6 Elevating inclusivity, greater access and new opportunities

The essay extrapolates replicable strategies from these two experiences, challenging the notion of conventional museum engagement

and approaching the ongoing change of the cultural landscape in an unconventional way. It contemplates hybrid cultural consumption, exploring the nuances between tangible and intangible, touchable, and untouchable interactions. It argues how these films – and the broader *BreraPlus* platform – can be read as catalysts for encountering new people, stimulating curiosity for a diverse audience, and, in the end, sparking interest in in-person visits. They highlight the importance of film and digital accessibility while underscoring the irreplaceable authenticity of physically experiencing the museum and its collections.

Great Men and *Peregrin and the Giant Fish* embody a paradigm shift, redefining museums as dynamic hubs of informal learning rather than static repositories of artifacts. Embracing not only Sherman Lee's notion of museums as «permanent storage batteries» (personal communication, 1992) but even Nelson Goodman's vision of them as «institutions for the prevention of blindness» (Goodman, 1985), these films facilitate a seamless transition from mere display to knowledge transfer. The decision to showcase these films in local and city cinemas highlights the significance of community engagement and cultural resonance. Coupled with the option to view the films online, it exemplifies the notion that museums should think globally while acting locally (Bradburne, 2001), while becoming dynamic centres of informal learning and cultural exchange. *Great Men* and *Peregrin and the Giant Fish*, as clear examples, demonstrate that museums need to evolve through the activities they create, breathing new life into their collections. In essence, *BreraPlus* is deeply connected to what Pinacoteca di Brera does – not only to the collections it displays.

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7. Decolonizing design for cultural heritage and museums within a systemic change framework: discussing the participatory paradigm

Eleonora Lupo

7.1 Cultural heritage at the crossroads of the sustainable transition

In today's world, despite awareness of the need for systemic change and calls for a pluriverse, with a post-human or – better – more-than-human and planet-centric perspective (Forlano, 2017; Escobar, 2018; Tironi *et al*., 2024), design still often acts as a structure of authority and power. It operates as an exogenous entity on complex systems, somehow disregarding the value of endogenous processes.

In the Cultural heritage domain (hereafter CH), already the subject of a profound discussion and transformation (Borowieki, Forbes and Fresa, 2016) and at the crossroads of the twin transition (JPI Cultural Heritage and JPI Climate, 2022), and therefore regarded as an ecosystem with great cultural complexity (Dameri and Demartini, 2020), the inconsistency of this pretentious design approach emerges clearly.

Acknowledging the importance of the cultural system in sustainable development (European Commission, 2019), heritage must have

a social, political and economic impact, bringing innovation in community advocacy, sustainable change and/or professional practices (Jelinčić, 2017): to embrace the challenge of a holistic innovation based on culture (Sonkoly and Vahtikari, 2018), design for CH places its action at the intersection between heritage, technologies, local development, and social and cultural innovation (Irace, 2013; Lupo, 2021).

Accordingly, one may have observed a recent exponential increase in projects that aim to be democratic, addressing the DEAI (diversity, equity, accessibility and inclusion) imperative: they are mainly based on participatory and community-centric approaches, through to co-creative ones.

In our view, most of these experiences are unconsciously biased by a design approach infused with prejudices of values and potential misuses relating to inclusion, participation and co-creation. They are conceived as intrinsically sustainable premises, but without considering the potential bias with which they are framed and practiced in a positivist mode of design thinking, and rational ethic, instilled by western hegemony in the development of sustainable design processes.

The CH system is the one that magnifies the tremendous urgency of decolonizing its processes (Tolia-Kelly and Raymond, 2020) possibly with a design approach (Tunstall, 2023; Tironi *et al*., 2024) to really address a pluriverse development. In any case, few heritage studies fully succeed in truly decolonizing (Brulon Soares, Chagas, Mellado González and Weil, 2022), while others still refer to a post-colonial perspective that merely «enables new voices» (Turunen, 2020).

This study therefore proposes a critical discussion of participatory design (PD) processes in CH based on literature review, in order to evaluate and assess the effectiveness and impact of such practices.

The essay starts with a brief problematization of the concepts of participation in design and in CH, and the concept of decolonizing design. Next it moves into discussion of the selected research articles within mainstream design journals, the methodology used for selection and analysis, and then the results.

7.2 Challenges to face

Participation in design and CH

Participation in cultural heritage has an extensive literature and a rooted history (Roued-Cunliffe and Copeland, 2017; Hetland, Pierroux and Esborg, 2020). The concept has acquired different meanings over time: it can be based on contributive or collaborative projects led by cultural institutions in a context of shared authority, or on bottom-up practices outside of formal institutions, based on community initiatives that are not fully professionalized and akin to DIY (do it yourself) approaches. This complex scenario calls for a better definition of these different nuances.

The origin of participation can be traced back to the end of the 1960s, with Arnstein's seminal work on citizen participation: an eight-step *ladder* encompasses forms of illusory participation, approaches driven by tokenism and real citizen power and control (Arnstein, 1969). This initiated an assertive approach, by correlating high levels of participation with a positive stance and a high degree of democratization.

The concept of participatory culture regained visibility at the beginning of the year 2000, with the integration of new social media technologies and a transformation from expert-driven projects to alternative models of knowledge production. For marginalized or contested heritage, where the institutions were more reluctant to digitize collections, the role of volunteer communities became crucial in preserving and archiving (Roued-Cunliffe and Copeland, 2017). In this interpretation, participation is interrelated with community heritage discourses (Watson, 2007), indigenous practices in curating (Kreps, 2009) and the formation of interpretive communities (Hooper-Greenhill, 2007). However, at the same time technology affects the opportunities and capabilities for non-participation, such as resistance, rejection and exclusion (Wyatt, 2003).

Within museums, participatory approaches are coping with visitors and audience engagement in different ways: in 2010, Nina Simon outlined four different types: *contributory projects*, *collaborative projects*, *co-creative projects* and *lastly hosted projects*, in which the level of institutional involvement decreases and the required community skills increase. Following this trend, museums developed contrib-

utory practices, with the creation of user-generated content, and by co-curation strategies, often focused on preservation (Mydland and Wera, 2012) and promotion (Salvesen and Keithsch, 2021). A co-design approach can be recognized where the collaboration between people and formal institutions is encouraged by design processes (Lupo and Trocchianesi, 2016; Vermeeren, Calvi and Sabiescu, 2018; Avram *et al*., 2019).

In the scenario of co-creation (Grcheva and Oktay Vehbi, 2021), scholars started to talk about *crowdsourcing*, specifically connecting the participatory approaches to digital content (Oomen and Aroyo, 2011). In this context, the concept of sharing authorship also became relevant (Ridge, 2014). Crowd involvement can also come into CH organizations' data collection processes through visitor sensing technologies (Cappa, Rosso and Capaldo, 2020).

At the beginning of 2020, the *participatory turn* (Bonet and Négrier, 2018) was acknowledged as a framework calling for institutions to change their model of interaction with all their stakeholders, through participatory heritage management (Heras *et al*., 2019). Cultural democracy is virtuously linked with the creative economy in order to bridge top-down participation with bottom-up approaches that also endorse creation from non-experts (Bonet and Négrier, 2018; Arnaboldi and Diaz Lema, 2021).

Only recently has some criticism of the participatory approach emerged: top-down institutional management promoting community participation has been a subject of concern in that it may inadvertently strengthen some forms of control of the heritage (Aykan, 2013). A critical stance on collaborative approaches started, seeking to avoid the risk of *romanticizing* participation (Collins and Cook, 2014). Participatory forms should challenge the idea of experts as a source of power and authority (Greenbaum and Loi, 2012; Herlo, Pierri and Schubert, 2019); therefore, scholars are questioning how concepts of democratization are framed and enacted, generating divides (Hetland, Pierroux and Esborg, 2020).

Finally, the post-colonial theory entered the participatory discourse as an attempt to frame the concept of emancipatory participation and decentr participatory design knowledge (Mainsah and Morrison, 2014).

7.3 Decolonizing design

The concept of decolonizing design has only recently entered the design literature (Tlostanova, 2017; Schultz *et al*., 2018; Akama *et al*., 2022; Tunstall, 2023). Its genealogy is comprehended within a wider discourse about the call for systemic change, regarded with different approaches that share a conscious understanding on new balances between all living beings. Some are more concerned with respect for all human beings, for example plurality and pluralism (Alvelos and Barreto, 2022), endogenous design (Cardini, 2022), autonomous Design (Pierri, 2019), indigenous design (Munroe and Hernandez Ibinarriaga, 2022), transformative design (Hakio and Mattelmäki, 2023) and hypervernacular design (Kosten and Huybrechts, 2023); others look at coexistence with non-human agencies, such as post-human design (Forlano, 2017), more-than-human design or post-anthropocentric worlding (Tironi *et al*., 2024), pluriverse (Escobar, 2018; Leitão and Noel, 2022) and decentring designers' privilege accounting for multi-species (Nicenboim, Oogjes, Biggs and Nam, 2023). In this broad frame (whose implications cannot be discussed here in detail), decolonizing design means recognizing that what are intended as *global design practices* belong mainly to the Global North, and therefore call for new balances between dominant and marginalized discourses, between centre and periphery, that:

> **resist "common denominators" and singular frames of reference, avoiding an "understanding" that seeks to pacify, control, erase, or occupy (colonize) the situation from which the "other" speaks (Schultz *et al*., 2018, p. 2).**

In this section we will outline the contributions that make explicit reference to PD or CH or both. Some authors emphasize the need to decolonize participatory research (Seppälä, Sarantou and Miettinen, 2021), as well as for co-design (Hernandez Ibinarriaga and Martin, 2021). Some design explorations tending towards the pluriverse (Miettinen, Mikkonen, Loschiavo dos Santos and Sarantou, 2023) are related to CH, discussing the way in which interactive technologies enable participation (Häkkilä, Paananen, Suoheimo and Mäkikalli,

2022) but only to respond to a plurality of users. A systematic literature review has been conducted by the same authors (Paananen, Suoheimo and Häkkilä, 2022) about decolonizing design with technology in cultural heritage contexts, using participatory approaches that support the integration of politics and power within the local and cultural context.

Some works focus specifically on decolonizing PD in CH, for instance in memory-making with youth (Smith, Winschiers-Theophilus, Kambunga and Krishnamurthy, 2020) arguing how decolonizing PD practices may be developed through contextualized, transdisciplinar, and transcultural approaches. At the forefront of the challenges, the black-feminist approach is used by Clark and Lewis (2016) to question the perpetuation of existing Eurocentric models of heritage, and the historical exclusion experienced by minority ethnic and refugee women when accessing museums.

7.4 Framing the CH narratives within design journals

For the purpose of this essay, an analysis has been conducted on design research articles in mainstream design journals which present, to different extents, reflections or case studies employing community-based participatory design practices (hereafter PD). The objective is to discuss how the participatory approach is framed in the dominant narrative, and if it is affected (inadvertently) by exogenous thinking that leads to bias or misuses of participation, or conversely, is consciously employed to address effective decolonizing processes in CH.
The selection criteria were as follows:

- span of years: 2013-2024;
- search base: a list of renowned international design focused journals selected from (Gemser *et al*. 2012) plus some recently established international journals (cf. Table 1);
- no paper from any conference has been considered, nor open access articles in the *Open Research Europe Collections*, or books (a deliberate choice in order to reveal the mainstream design narrative promoted by design journals);

- to determine the *Panel 1* related to PD, a list of keywords has been applied (from participation to collaboration, engagement, co-design, up to accessibility, inclusion, diversity, community, etc.);
- to determine the *Panel 2* PD in CH, the articles from the previous panel were refined, by direct references, within the article, to institutional typologies of CH only (e.g. museum, collection, ICH);
- as regards databases, only the journals' websites have been used.

The analysis has been qualitative, reviewing the content by detailed reading in order to compare and evaluate the different assumptions, definitions, aims, developments and uses (or misuses) of participatory practices in CH.

Table 1.
Design Journals list.

Journal	List
The design Journal	from Gemser et al. 2012
Design and Culture	from Gemser et al. 2012
Design Issues	from Gemser et al. 2012
Design Studies	from Gemser et al. 2012
International Journal of design	from Gemser et al. 2012
She-Ji	added
CoDesign	added
Strategic Design Research Journal	added

7.5 An overview on criticalities of participation in CH

More than 100 design research articles have been scrutinized, and 50 have been considered relevant and analyzed (the complete list can be found in Annex I).

Many of the articles in *Panel 1* are merely instrumental, discussing PD research methods, tools and techniques (Broadley, 2021) without questioning or even mentioning the possible risk of a domesticating approach and falling into solutionism and toolification.

There is now an army of people trained or self-equipped with an arsenal of methods being invited into boardrooms, co-working hubs, and community halls, or participating in jams, hackathons, and living labs, where they are co-designing products, systems, or services to affirm design's orientation towards making a *positive impact* (Akama, Hagen and Whaanga-Schollum, 2019, p. 60).

Others have a paternalistic approach in the way they try to use design to empower low-income and *developing* contexts to overcome *deficiencies* in knowledge (Jagtap, 2002). In any case, some authors acknowledge that in PD with vulnerable groups, any attempt at *genuine inclusion* can be challenging, since barriers to participation remain (Hodson, Svanda and Dadashi, 2023).

Some authors instead raise concerns about PD: Kelly (2019) calls for ethical principles for PD practice; Dore (2020) emphasizes the potential instrumentalization and failure of PD, challenging its claims to be democratic if it is used with a technocratic and uncontested institutionalized approach; Kraff (2020) explores *agonism* within PD processes to question power structures, but also highlights some preconditions for engaging in agonism. The notion of commoning and agonism have also been investigated by Hillgren, Seravalli and Agger Eriksen (2016) with regard to counter-hegemonic practices in PD, without excluding tensions in connecting adversaries.

In general, the concepts of indigenous design became relevant when discussing the legacies of colonialism and entrenched systems of *othering*. Indigenous-focused design methodology based on storytelling is conceived as a co-design space for cohesiveness and conversation by Barcham (2023). Akama, Hagen and Whaanga-Schollum (2019) propose respectful, reciprocal and relational approaches as an ontology of co-designing social innovation, to overcome the asymmetry of collaboration by reciprocity and mutual understanding; these authors also contest the use of binary categories like *Indigenous* and *non-Indigenous*. Others propose the concept of *autonomy* in design, to contrast with forms of control and unequal power relations and move towards *cultural co-design* (Testori and d'Auria, 2018). Recently the topic has also been approached indirectly through *transversal relationalities in co-making*, comparing strategies of resilience from the Global South and Global North

(Antaki and Petrescu, 2023), or infrastructures of oppression that render participants invisible (Del Gaudio, 2023).

Finally, a few papers explicitly rebut optimism about participation (Pierri, 2018), or highlight the risks co-design poses for democracy in the redistribution and delegation of power (Del Gaudio, Franzato and de Oliveira, 2020), and present the contradictions and limits of co-design when acting without calling into question categories such as development (Noronha, 2018).

However, the effective results of these concerns are not always evident. Almost all the papers do not properly assess their decolonizing proposals. The value of collaborative research is fully acknowledged in the literature (Whitham *et al*., 2019), but PD practices are only usually assessed in the context of participants' capacity to participate and the quality of results (Drain and Sanders, 2019), without problematizing in a decolonial framework.

Raman and Tara (2022) claim to contribute to a right-based ethos for PD and provide a framework to shift the mindset of PD through the use of individualized and subjective methods on sensitive topics. However, they do not fully explain how they mitigate their dominant position in terms of knowledge and perspective to really pursue their *ethos of practice* (Raman and Tara, 2022).

Kambunga, Smith, Winschiers-Theophilus and Otto (2023) argue that it is an intentional design practice that is capable of supporting alternative ways of knowing and doing in *practice*, even in the PD field: in a participatory memory-making project in Namibia, they employ a *safe space* framework for decolonizing PD, a space informed by the notion of *cultural hybridity* (Bhabha, 1994).

Among the articles of *LR Panel 2*, some speak broadly about heritage in the form of art (Knutz and Markussen, 2020), memory (Grisales-Bohórquez, Reynolds-Cuéllar, Muñoz Martinez and Sicard Currea, 2022), or community (Tang and Nakarada-Kordic, 2023), and are therefore not fully transferable.

Most of the articles related to CH and museums consider participation and co-design as merely instrumental to enriching the experience of the heritage (Avram, Ciolfi and Maye, 2020; Rørbæk Olesen, Holdgaard and Sundnes Løvlie, 2022), without mentioning any potential bias. Similarly, Bosco, Gasparotto and Lengua (2023) conducted a

comparative analysis of four projects that apply co-design processes to CH, showing the different forms that PD can assum, but ending up simply identifying good practices.

Critical thinking seems prevalent in the problematization of PD in CH, but without explicitly mentioning the word decolonizing. Taffe and Kelly (2020) highlight the difficulty of using PD approaches for creating community museums, because participants' roles became ambiguous, resulting in the need to continually negotiate leadership of the project. Tang and Nakarada-Kordic (2023) claim to use critical design as a means of sparking discussion and debate in participatory exhibitions; however, it's not acknowledged that using conversational artefacts can bring intrinsic bias into community engagement.

Finally, a few studies explicitly refer to decolonizing PD in CH. According to Rizvi (2018), decoloniality becomes a critical heritage discourse when it is critically negotiating the past and can be unfolded by community-based participatory practices. The abovementioned study by Kambunga, Smith, Winschiers-Theophilus and Otto (2023) is the only one in which the approach towards decolonial PD practice is described in detail. Researchers are engaged in very contextual and situation-specific discussions while aiming for inclusion and transparency, about memories of past colonialism and the apartheid system in Namibia.

In general, however, in the papers analyzed, all the critical stances on decolonizing design, participatory practices and cultural heritage remain at a somewhat theoretical level, discussing such concepts as sensitivity, reciprocity, dignity, positionality, dialogue, democracy, intersectionality, activism and resilience in PD. However, it is not yet evident how these critical stances are applied and working in practice, nor any clear assessment of their effectiveness is provided. Empowering and enabling community-led heritage by PD seems to be the most-employed approach, but its practical use is still debatable and needs further study, since it often seems to be infused with the dominant design position of condescending supremacy of knowledge, conceived in a western and Global North perspective.

7.6 Overcoming the gaps for decolonizing CH

Albeit with some limitations (for instance: span of years; limited list of journals; exclusion of conference papers and books; choice of keywords; and above all, qualitative analysis based on desk research data and subjective reading from a western and privileged perspective), the analysis illustrates how intrinsic and unintentional biases remain to be overcome, characterized by a so-called tokenism approach (Leitão and Noel, 2022) which does little to change the disparity and inequalities of dominant and stereotyped participatory-driven CH narratives based on empowerment. The analysis reveals cases of rhetorical (openly declared, fictitious and/or disguised) use of participation in CH, without sufficiently demonstrating whether and how it is improving comprehension and experience of the patrimony, nor assessing its real long-lasting impact on better knowledge and transmission; therefore, there is a risk of critical instrumentalization of such practices in a frame of citizenship rhetoric (Aykan, 2013; Dore, 2020).

This is noteworthy, considering how the topics are instead critically investigated in the design discourse (Lupo, 2023) by books, papers in design or design-related conferences and articles in non-mainstream design journals, whose authors, in any case, are usually the same people, as evidenced by the recurring names. It seems that a small but well-known and established community of design scholars has a specific interest in and knowledge of those topics.

Reassuringly, some critical standpoints about decolonizing design emerged in the mainstream journals too. The topic has gained visibility in the last five years, especially thanks to a few authors who publish in books and design conferences but also in prestigious design journals.

Moreover, starting from a post-colonial and decolonizing perspective, some design approaches challenge global homogenization practices in CH, calling for more plurality and considering the needs of the CH ecosystem as priorities, in order to debate and transform the participatory paradigm, and reposition PD and co-design (Avram *et al*., 2019).

In any case, further work is needed to verify and fully assess design practice, for instance detailed analysis of collaborative research projects in the field and their practical application in decolonizing PD, and potential misuses or bias that can generate divisions

in a collaboration. A systematic analysis of collaborative research projects funded under competitive EC calls is currently under way, and will be presented in a future work.

7.7 Conclusions

To drive systemic change through design, it is necessary to rethink the dominant design vocabulary and position of supposed supremacy, and therefore challenge the democratic claims of participation in CH, acknowledging the legacy and inheritance of more endogenous and autonomous design processes (Cardini, 2022) also in the CH system, which is an intrinsically evolving and complex entity that lives and grows with an inner intelligence and balance in self-preservation and transformation.

Design should seriously question its consolidated vision on CH, sometimes taking a step back, but not assuming a renunciative position. Although in this essay we do not yet provide suggestions on how to achieve an effective pluriverse and decolonized practice of participation in CH, we argue that our theoretical contribution, based on evidence in the literature, can contribute to a wider awareness on the topic, and stimulate more attentive monitoring and self-analysis of the most potentially triggering and cumbersome design processes for CH.

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8. Accessibility design for museums. Synaesthetic communication tools

Dina Riccò

8.1 The relevance of the topic of museum accessibility

The importance assumed by the theme of museum accessibility is demonstrated by the recent redefinition of *museum*. After years of work and discussions, the ICOM (International Council of Museums) – an international organization founded in 1946, with a history of representing museums and their professionals – presented at the Extraordinary General Assembly in Prague, on 24 August 2022, a new definition of museum:

> **A museum is a not-for-profit, permanent institution in the service of society that researches, collects, conserves, interprets and exhibits tangible and intangible heritage. Open to the public, accessible and inclusive, museums foster diversity and sustainability. They operate and communicate ethically, professionally and with the participation of communities, offering varied experiences for education, enjoyment, reflection and knowledge sharing.**

One of the new features is the inclusion of the word *accessibility*. In fact, the new definition requires museums to be *accessible and inclusive* and to promote *diversity and sustainability*.

This reformulation action is extremely important, because it constitutes a declaration of intent aimed at designing museum spaces that are more accessible and inclusive for all.

The importance and necessity of this action in Italy is demonstrated by the data that Istat provides on the usability of museums. The *Istat Report on Italian Museums*, published in December 2019, just before the COVID-19 pandemic, returned the following data: 53% of museums are equipped for physical accessibility, with ramps, elevators, etc. useful for people with motor disabilities; only 12% of museum structures have alternative modes of use to the visual, providing «tactile itineraries and information materials for the visually impaired and blind» (Istat, 2019).

If we compare the subsequent *Istat Report*, relating to the year 2021 and published in 2022, we find that after two years physical accessibility has increased by 8 percentage points, but sensory accessibility does not seem to have improved as much. The data from the two reports are aggregated differently, so it is not possible to compare the percentages of accessibility of the same services.

However, if we consider that in 2021 there were 4,292 museums open to the public in Italy, and 61% have ramps, wedges and/or slides, lifts or lifting platforms, which can be used by people with motor disabilities – but only 9.5% of those 4,292 museums have tactile itineraries and/or cards with relief drawings, and/or explanatory panels in Braille – that means only around 400 museums out of the total are sensorially accessible.

This may seem like a setback compared to the 12% previously indicated for the year 2018, but presumably the discrepancy is simply due to a different aggregation of the data. In any case, there is still a lot of work to be done on improving accessibility in museums.

The critical issues regarding accessibility of museums, and of places of culture more generally, are also highlighted by the Ministry of Culture, which aims – thanks to PNRR investments – to achieve 80% accessibility in overcoming architectural barriers and 50% in overcoming sensory-perceptive barriers. According to the *Piano Stra-*

tegico per l'Eliminazione delle Barriere Architettoniche (Strategic Plan for the Elimination of Architectural Barriers, MIC/PNRR, 19.05.2022), the deadline for achieving the accessibility objective throughout the national territory is June 2026. In the document we read the following:

> **Through the implementation of the investment envisaged by the PNRR it is possible to overcome architectural barriers in 80% of places of culture, including State Archives and Libraries, and in 50% of these the overcoming of perceptive barriers.**

Furthermore specifying that:

> **Accessibility understood in its most all-encompassing and all-comprehending meaning (overcoming architectural, perceptive, cultural and cognitive barriers) still constitutes a critical issue today for places of Italian culture: this emerges from the annual report on the management of services for the public at state institutes and places of culture, published by the MiBACT General Directorate of Museums in July 2020 [Ministero della Cultura, PNRR "Piano Strategico per l'Eliminazione delle Barriere Architettoniche" (Decree no. 534, 19 May 2022); in particular, cf. "Rimozione delle barriere fisiche e cognitive in musei, biblioteche e archivi per consentire un più ampio accesso e partecipazione alla cultura"].**

Italian institutions therefore express awareness of the critical issues of accessibility in places of art and culture, combined with the desire to pursue and offer expanded accessibility. However, responsibility and commitment are also needed on the part of schools and universities, in order to offer training opportunities for new generations that allow them to acquire specialist skills, to encourage and experiment with expanded ways of use and to respond to the needs of people with differing capabilities, and thereby satisfy a diverse user base.

8.2 Best practices in museum accessibility. The origins

The data demonstrate how numerically limited the museums that apply sensorial accessibility practices are. However, there is no shortage of qualitatively excellent experiences, at an international and also Italian level, including some practices that can be understood as models, to be replicated in multiple contexts. It was in the 1970s, even before the concept of accessibility in the project was introduced and set as an objective, that experimentation began in exhibition solutions aimed at broadening the sensorial involvement of visitors. Solutions that go beyond the *work to be seen*, and that break the *do not touch* taboo so characteristic of museums. As Pia Vivarelli (Director of the Galleria Nazionale di Arte Moderna, Rome) writes in the presentation of *Le mani guardano* (1980, p. 8):

> **the "do not touch" of museums remains and will remain an ineliminable condition of a way of understanding the management of a cultural heritage, on the one hand, and of enjoying it, on the other, which can only be based on the profound common belief that the first task of individuals who believe in history is to protect the conservation of documents.**

By creating targeted solutions for specific needs, we can see how solutions designed for relatively few individuals, and specifically people with visual disabilities, actually benefit everyone. Not only that, but pursuing a design practice that allows people with sensory disabilities to access content, culture and art leads to experimentation activities and the creation of new communication solutions.

The exhibition *Les mains regardent* certainly played a pioneering role, set up at the Center Pompidou in Paris in 1977 – the year the centre was inaugurated – to provide a place where visitors are *allowed to touch* (Giraudy, in *Le mani guardano*, 1980, p. 9). To allow people to discover the potential of tactility in art appreciation, develop knowledge of the third dimension and ways of perceiving the senses, train tactile perception to know and recognize objects even with eyes closed. As Marianne Seydoux writes:

> in France, the "forbidden to touch" notion is still sacrosanct, and "allowed to touch", typical of supermarkets, is not a rule for museums (Seydoux, in *Le mani guardano*, 1980, p.10).

Similarly, and more recently, Maria Antonella Fusco (Ministry for Cultural Heritage and Activities) wrote about Italian museums:

> The detection of touching the works concerns basic principles of heritage conservation (*Museo Statale Omero*, ed., 2006, p. 28).

Bruno Munari (1985) describes the same concept when talking about the sense of touch in the introduction to *I laboratori tattili*:

> *Don't touch!* How many times do children hear this imposition repeated? No one would ever say: don't look, don't listen, but it seems that touch is different, and many think that we can do without it.

Les mains regardent is a project to overcome the inhibitions on tactile sensoriality produced by a cultural and communicative context of the work of art based on prohibitions, in a period in which *looking, but not touching* is imperative in museums and exhibitions. The exhibition already explains its purpose in the title, suggested – writes the curator Danièle Giraudy – by the curiosity of a blind little girl, from whom one day she heard an unusual question: «Madam, what colour is the wind?». We then discover, says Giraudy, that

> our five senses work badly, while the four senses of the blind work miracles, so much so as to teach us how to find the way from a smell, read a smile with the tips of the fingers, feel the tiredness of a voice or its sweetness.

That question about the *colour of the wind* prefigured the name of a travelling exhibition created thirty years later by the National Federation of Institutions for the Blind, dedicated to books created for children to touch: *Di che colore è il vento. Alla scoperta del libro tattile illustrato* (*What colour is the wind? Discovering the illustrated tactile*

book), set up at the Loris Malaguzzi International Center in Reggio Emilia (22 January -25 February 2011) with the collaboration of the local Institute for the Blind.

The exhibition itinerary is divided into seven sections:

1. the hand (a series of gloves and hand sculptures are on display);
2. caressing (compositions and surfaces of different materials are on display, to be caressed, or touched with light acts);
3. bury/buried (collections of things immersed in surrounding bodies are on display);
4. imprint (marks left on surfaces or objects by bodies imprinted on others);
5. volume (three-dimensional objects and bodies);
6. assemblage (union and combinations of heterogeneous parts);
7. the city (paths, labyrinths, structures).

In the edition edited by the Galleria Nazionale di Arte Moderna of Rome, two more sections are added:

8. a tactile path through twentieth-century sculpture (with works by artists from the collections of the relevant Gallery);
9. *Il Serpentone* sensory path (a structure featuring a 40m path).

In summary, as the curator Giraudy writes, the exhibition begins with the handprint, the gestures to draw it, then:

> **surfaces for the fingers, volumes for the palms and, at the end, contemporary sculptures to "feel" ("à jouer") with your hands (*Le mani guardano*, 1980, p.9).**

The exhibition – the result of a heterogeneous working group made up of researchers, architects, doctors, sculptors and animators, with the collaboration of blind people – is designed for children under 12 and initially dedicated to blind people, but in fact it becomes an exhibition event visited and appreciated by all (Vivarelli, in *Le mani guardano*, 1980).

The exhibition *Le mani guardano* becomes itinerant, and in the following years it is set up in various countries, including Italy: first in the same year (1977) in Milan, where Munari inaugurates the first tactile laboratories directly connected to the exhibition, coordinated by

Renate Ramge Eco, and three years later in Rome (Galleria Nazionale di Arte Moderna, 1980). Of the original exhibition we find iconographic documentation relating only to the materials and works, available in the catalogue (*Le mani guardano*, 1980), and not addressing the exhibition design. It is therefore interesting to observe the exhibition design of the Lisbon edition (1980), complete with iconographic documentation, in which the thematic sections and the types of works and objects are recognizable (Figure 1).

This first exhibition can be understood as the wellspring of a new typology of exhibition experiences, which will be followed by other important travelling exhibitions, in which the opportunity to *touch* the work, expanding the possibilities of enjoyment, becomes the principle that guides accessibility.

Figure 1. Exhibition design of *As Mãos Vêem / Les Mains Regardent* (Lisbon, 1980). Available at https://gulbenkian.pt/historia-das-exposicoes/exhibitions/137/.

In this direction, *Vietato NON Toccare* (Siena, 2004) was created, a project carried out by a research group from the University of Siena, to experiment with good practices in accessible exhibition planning, dedicated to historical, archaeological and naturalistic themes. It consists of multisensory exhibition projects – the first was inaugurated in Siena, at Palazzo Patrizi – travelling to various Italian cities, including Florence, Ferrara and Grosseto (available at *unisi.it/vietatonontoccare/*).

The exhibition projects include itineraries through prehistory with tactile, olfactory and auditory information, to help visitors understand the characteristics of spaces and objects with a visit that takes place in the dark, integrated during the itinerary with the relevant scientific

information. The visits are accompanied by other activities, workshops, and training courses for university staff (Sarti and Poesini, 2020, p. 130). Of great interest is the use and remodulation of consolidated techniques usually used for other purposes, e.g. the tactile reproduction methods applied in experimental archaeology research are used, now with a new purpose which is to make the finds accessible to all.

Another exhibition of the same name is set up in Milan (*Vietato Non Toccare*, Muba. Children's Museum, Triennale di Milano, 2016). This is a tribute to Bruno Munari in the year of his centenary, a travelling exhibition that goes from Milan to Rome, Naples and San Paolo. In the exhibition we find a selection of projects that Munari dedicates to pre-school children (2-6 years), combined with tactile workshops and workshops for the creation of *pre-books*.

Finally, I mention *Toccare la beauty / Touching beauty* (Ancona, 2019; Rome, 2021), an exhibition set up first at the Omero Museum in Ancona, the only state-run tactile museum in Italy, and subsequently at the Palazzo delle Esposizioni in Rome. Here the concept of *beautiful* is translated from the visual to the tactile, and the exhibition presents the work of Maria Montessori and Bruno Munari, two authors who understood tactility – one in pedagogical activity, the other in design – as a central sensorial modality of their own work. Also in this exhibition the references between the tactile experience and the visual mental image, or vice versa, are strictly interdependent in the exploration of each object. Montessori's material is designed to train the senses:

> **Sensory material can certainly be considered from this point of view a "materialized abstraction". It presents the "colour", the "size", the "shape", the "smell", the "noise" in a tangible and distinct way and ordered in gradations that allow us to classify and analyze the qualities (Montessori, 1950).**

Along similar lines, Bruno Munari (1985) explains in the Tactile Workshops the importance of refining tactile perception in the construction of scales of gradations and contrasts, both in the same sensorial register and in the relationship with other sensorial qualities.

8.3 Synaesthetic translations for the accessibility of the work of art

A recurring aspect, and something we may notice when examining examples of museums that activate enjoyment methods for people with visual and auditory disabilities, is how the accessibility of the work of art passes through translation practices. That is, content becomes accessible – consistently with the guidelines of the *European Accessibility Act* (2019) – when it can be used in different ways.
In the case of a visual work, there are essentially two ways to make it usable via different senses:

1. *tactile translation*: i.e. three-dimensional materials, or in any case featuring appreciable reliefs that can be explored by touch (Riccò, 2016, 2019);
2. *audio description*: or spoken word element, e.g. part of an audio guide, which phenomenologically describes the work, not so much as a historical/critical object, but rather how it appears, what are its formal characteristics, colours, organization in space, etc.

We know that the tactile translation of visual content requires simplification processes, since tactile discrimination capabilities are less refined than their visual counterparts. Interesting examples of this are the tactile translations of pictorial works. I particularly remember the *Josef and Anni Albers exhibition. Voyage inside a blind experience* (Siena, 2018), where the tactile translations of 12 works by Josef and Anni Albers were exhibited, some in bas-relief and others three-dimensional, made in resin by the Istituto dei Ciechi of Milan.
By separately comparing the visual exploration to blind tactile exploration, without seeing, it is possible to detect which characters facilitate recognition. This happens in particular when the visual representation reproduces a two-dimensional figuration and the tactile equivalent is in bas-relief. It is more complex, however, to translate abstract figurations that represent three-dimensional figures where the concave/convex alternation is visually perceptible; this kind of perceptive reversal proves difficult to reproduce for tactile exploration.
Another option, for a video or a film, is to provide an audio description,

i.e. describe what is happening on the screen with a voice-over, which is added to the original audio, therefore to the voices, music and on-screen noises; similarly, an audio description could accompany any static visual artifact. This is a complex task, because the possible descriptions – of a scene, of the characters, of their actions, of an object or a work – are multiple, and may or may not be capable of suggesting visual mental images; and also because things can be perceived differently by different people. We consider that any description passes preliminarily through observation, reading and visual exploration by someone other than the user. On audio description, see the research conducted by Bustamante 2011, and a summary in Riccò, Caratti and Bustamante 2011; see also Riccò 2012, with the results of an accessibility analysis test conducted on the film *Mojito*, directed by Stefano Bruno, 2007.

As Carlucci (2023) writes, regarding audio description in museums, «a neutral description can be proposed, or a subjective, objective and/or enriched description, or one designed to be heard by children»; in other words, there are a number of ways to describe, in terms of styles and pre-established time limits, and these should be defined from time to time in relation to the user and the communication functions.

To facilitate such a complex task, the National Subvedenti Association (ANS) promoted research that led to the definition of *DescriVedendo*, a method for making the contents of visual works of art accessible to people less able to see. Based on descriptions, the evocative potential of language, and guidelines to follow when describing a work of art, it comprises ten points:

1. Provide a dimensional framework;
2. Technique and materials used;
3. Define the subject of the work;
4. Specify the point of view;
5. Agree on the descriptive sequence;
6. Locate the parts in the whole;
7. Indicate postures and shapes;
8. Characterize;
9. How is the light;
10. What about colours.

The guidelines are the result of a collaboration between people with and without visual disabilities who took turns in the roles of describer and listener/validator, i.e. those who had to form a mental visual image of a painting from the story alone.

Tactile translation and audio description are principles and techniques that we apply in teaching activities with students and in research by graduate students. I mention in particular an educational experience called *ControSenso* – an exhibition project sponsored by the School of Design and the Department of Design of the Politecnico di Milano, with the scientific collaboration of the Fondazione Istituto dei Ciechi di Milano and Rai Accessibilità – designed to experiment with vicarious possibilities of sensory information, based on the translation of contents to ensure that they are usable in multiple media and with different sensory modalities, to support accessible communication of the work of art (Riccò, 2023). Another example on the same principles is the project on accessibility to the Civic Museums of the Visconteo Castle of Pavia, in Jacopo Dufour's degree thesis (2023) (Figure 2), carried out in collaboration with the Fablab Spazio Geco of Pavia, in which several possibilities of reading come together: visual by seeing the typography, tactile by touching the Braille and the 3D printed relief portal, and auditory by listening to the audio description accessed via NFC technology.

8.4 Conclusions: designing with accessibility requirements

Touching in order to see, put into practice in the cases mentioned above by preparing materials to be enjoyed even with eyes closed, has been demonstrated scientifically. Studies conducted with neuroimaging techniques – see the works of Sadato *et al*. (1996), Zangaladze (*et al*., 1999) and Sacks (2003) – demonstrate how plastic the brain is, and how, for example, a tactile stimulus can activate the visual cortex, i.e. produce visual mental images even in the absence of corresponding stimuli. This happens in blind subjects, who remodulate the lost ability on other senses, but the same happens for sighted subjects who are temporarily deprived of access to the visual, i.e. when they are

Figure 2.
Jacopo Dufour (2023): panel with the tactile translation of the portal of S. Stefano, exhibited at the Visconteo Castle (Civic Museums, Pavia). Photo by Dina Riccò.

temporarily blindfolded while carrying out a tactile task. Therefore, even exclusively tactile and haptic perception can – through synaesthesia – enable us to see and produce visual mental images.

Offering the same content on multiple sensorial registers, and working to offer synaesthetically congruent translations, allows us to broaden access – to the work of art, to cultural heritage and more generally to contents and information – to users who have different needs. The possibilities of tactile sensorial rendering that current printing techniques allow, even on a single specimen, are an opportunity to experiment with solutions and to acquire new skills and knowledge about sensory discrimination capabilities.

We would like to point out that it is not a question of making content or a work of art accessible, but of designing with consideration of accessibility requirements, i.e. in the initial phases of the project, providing for expanded fruition methods. This is a task that requires specific knowledge and skills, paying particular attention to the continuous evolution of accessibility in digital technologies, which opens up new application possibilities for making communication accessible to all people. Ensuring everyone has access to content should be a priority in the work of every communication designer.

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9. The museum from the perspective of cultural proximity

Ico Migliore

9.1 What do art and a handle have in common?

The aim of this essay is to emphasize the urgent need for change in the design approach for cultural spaces in light of new technological tools, a shift in feelings and a new style of using the spaces.
In this scenario, reformulation of the museum exhibition space must take place from the perspective of what we call *Cultural Proximity*, that is, a paradigm within which the visitor goes from being a mere passive guest of the itinerary to becoming a true protagonist called upon to carry out constructive actions throughout the itinerary, building an unprecedented relationship of closeness and personal connection to the cultural contents. This new paradigm necessarily implies that the accessibility of the design is conceived not only in physical terms but also in ergonomic terms; that is, paying attention to the visitor's ability to read and memorize.

Starting from the assumption that every object (whether artistic or instrumental) is much more than the mere fruit of the technical

knowledge used to make it – it is, rather, also a reflection on the context in which it is inscribed, on what this artefact is and why we use it – I would like my reflection on the accessibility of culture and its places to be based on the principle of this seemingly bizarre question posed by Alva Noë in his book *Strange Tools. Art and human nature:* what do art and a handle have in common?

Figure 1.
Natural History of Humans Gallery, Natural History Museum of Milan, Milan 2023, Migliore+Servetto, photo by Andrea Martiradonna.

We all use handles to open and close doors. We could therefore say that we are all able to describe what a handle is. But imagine for a moment that our civilization disappears and that, in the future, a new population finds an abandoned handle on Earth. It is a curious, apparently banal object, but one that is not at all simple for them to decode. In order to understand the meaning of this object, it would not be enough to study its mechanism.

Rather, it would be necessary to understand an entire culture: a system of relationships built by people who have bodies, with hands shaped in a certain way, who inhabit spaces where one enters and exits, and where there are doors that must be closed or opened. The new population should then understand the reason for closed

spaces, our need to protect ourselves and the fear of being *violated* in our property (and who knows what property is, then), the possibility of violence and, finally, the very concept of inhabiting *one's own* space.

And yet none of us can claim to think of all this when using a handle normally. Now let's add in another condition: let's imagine that an artist isolates this object by proposing it as a work of art. In this case we would be forced to reflect on everything that the use of a handle means to us. And, necessarily, to reflect on the practice of entering and leaving a room, of opening and closing doors, on how this very everyday activity organizes our lives in a certain way. That is why we can say that an art object is not only the fruit of the technical knowledge used to make it but, rather, a reflection on what that object is and why we use it.

So what do art and a handle have in common? From the point of view of the American philosopher from whom we have chosen to borrow this thought experiment, all the tools we create make us what we are in a continuous process of organization and reorganization. Art illuminates the way we engage with our practices and technologies to organize our lives in an optimal way. This is because art is an organized activity, whose purpose is to show us our practices: by pointing to a handle, the artist reveals everything that is normally hidden behind the use of this artefact. Art removes tools from their contexts and makes them strange. Making them strange is like showing them for the first time.

Accepting Noë's assumption on the decontextualization of an object of use, I believe at the same time that while on the one hand, a handle becomes a mute object when isolated from its function, on the other, an art object is in itself an artefact whose disruptive force lies in the ability to be able to involve, excite and make people think, establishing multiple and personal connections with contexts, meanings, languages or signs. For this reason, places for using art must offer visitors the best opportunities to approach these perspectives of vision and personal growth.

This broad premise is useful for once again suggesting the centrality and value of cultural spaces and museums. They are places of community and sharing, propagators of identity and historical consciousness, promoters of critical thinking and, it should be noted,

places of belonging and communities primarily dedicated to initiating dialogues, including with themselves. Having been historically founded through the progressive transformation of private collections into institutions open to the public, the mission of social inclusion and cultural sustainability through art and culture resides in their DNA.

9.2 The future of cultural places

As a scholar and designer, I imagine a future for the places designated to welcome these *strange tools*, works of art, where even the concept of sustainability, which is sometimes used an umbrella term for approximate contents today, takes on a precise and new meaning. Indeed, the focus of the reflection shifts from the topic of the material to the question of the actual accessibility of the museum, which is all the more sustainable insofar as it manages to open up to different audiences, as well as being a source of enrichment and cultural evolution.
An intelligent and empathetic museum. The museum goes from being a place *to visit* to a place *in which to stay and a place to come back to.*

This kind of new way forward conceives museums as lively laboratories in the broad sense of experimentation, in which the experiential trait is predominant and experience becomes a tool of knowledge *par excellence*, unseating mute observation of the exhibits. In order for the visitor to approach these exhibitions positively, an underlying design idea is required that develops from experiences, from the actions that each person is invited to carry out along the way, a viaticum for getting to know the subject and entering into an empathetic relationship with it.

But when is an exhibition really designed and set up for everyone? The answer that I have come up with over the years is as follows: when it not only makes the guest autonomous and a protagonist of the knowledge process – at all levels of cognitive and perceptual abilities determined by age, or physical or cultural abilities – but when it also manages to produce or trigger a transformation in this guest, who should therefore be able to develop a new relationship with the place of culture as a place of exchange and elaboration in their own path of knowledge/awareness, a place of experimentation with concepts such as infinity, diversity and love of difference.

Figure 2. *Leonardiana*. Un museo nuovo, Castle of Vigevano (Pavia) 2016, Migliore+Servetto, photo by Andrea Martiradonna.

Ultimately, the concept of museum inclusivity coincides with the ability to look at visitors as subjects in transformation (not passive objects) and to make them independent and curious, opening them up to the new and the different and, consequently, encouraging their empathy, their stance and their critical spirit. This is a two-way process in which the museum itself must become equipped with structures capable of evolving and changing according to the interactions with its public.

Searching for new narratives in the cultural field to respond to the needs of an accelerated changing world must therefore be a fundamental requirement for designers. This means grasping the importance of shifting the attention of the gaze from the subject of the exhibition to the people who benefit from it, understanding their needs, desires and learning skills, as well as their limits.
This therefore opens up a reflection on what kind of culture there is a need for today. It may seem complex to identify a unique answer; however, from our point of view, key themes such as curiosity, understanding of the world and comprehensibility of messages, reflection and critical spirit, valuable content (that promotes genuine dissemination and information), empathy, awareness and entertainment certainly contribute to outlining its profile.

9.3 Museum accessibility

We must acknowledge that the issue of museum accessibility is very topical today. Not surprisingly, ICOM (International Council of Museums), the international organization that sets professional and ethical standards for museum activities, has recently released a new definition of the museum, which differs from the previous one presented in Vienna in 2007, precisely because it introduces the concepts of accessibility and inclusiveness. In fact, the new definition stresses that museums must be «Open to the public, accessible and inclusive», and that they must promote diversity and sustainability. But what can designers do to make this possible?

Before answering this question, we should briefly consider the meaning of accessibility. As Riccò points out, the European *Concept of Accessibility* – a study on the legislation and practice of accessibility that began in 1985 at the request of the European Community – led to the publication of the European Manual for Accessibility (1990, first ed.):

> **a first European manual in which accessibility criteria and standards are indicated, which took the title of "European Concept for Accessibility" (1996) in a later edition; until the 2003 edition, in which accessibility is simply defined as an essential attribute of a "person-centred environment" (Riccò, 2023).**

However, accessibility comes in different degrees and forms, especially when referring to the museum or cultural environment, where it is necessary to ensure that the visit experience (online and offline) is equal and inclusive for all visitors, regardless of their ability, gender, age, social background and culture. In the aforementioned document, it is argued that:

> **accessibility criteria are to be determined on the basis of human characteristics, considering that people are different, no one corresponds to the average person, everyone deviates from the average in terms of height, sight, hearing, strength, speed, etc. (Riccò, 2023).**

Ultimately, as Riccò argues, it is precisely the differences that constitute the criteria for designing the built environment.

Faced with the question to be asked – that is: in what direction is the museum going, and should it go, today as a place to be designed? – a possible answer is then given by a new installation concept, which cannot be separated from design understood as part of a total direction that involves not only the curatorship but also the visitor as an active interlocutor.

Figure 3.
Coats! Max Mara Exhibition, Dongdaemun Design Plaza (DDP), Seoul 2017, Migliore+Servetto, Digital Installation by Yiyun Kang, photo by Jae Young Park.

Within a renewed design inclusiveness that conceives the visitor as a dynamic subject and activator of the designed space, they are, in fact, the active protagonist and activator of the articulated narrative scheme imagined with the almost directorial skill of the designer alongside the curator.

For this reason, it is urgent to focus attention on an aspect of accessibility that, in general, is considered less than others, and is difficult to detect and therefore more insidious: cultural accessibility. Although considerable efforts are being invested in many museums to make them welcoming places for everyone, there are still sections of the population who consider them to be places with a high cultural

level in which it is easy to feel inadequate and ill-equipped to understand their contents.

As Miglietta also highlighted, it is possible to identify cultural barriers in all situations that:

> **lead the visitor to a state of discomfort (or even refusal to visit a museum) for reasons often related to the contents (already known or presumed): little or nothing is understandable in relation to their level of schooling, or it is simply not relevant or of little interest, or too virtuous, too serious, requiring considerable effort to be understood (Miglietta, 2017).**

In the study, Miglietta also points out that, for some people:

> **visiting museums does not fall within life's priorities, and that others, often younger people, detect a disconnect between activities considered to be "cultural" and their personal problems, recognizing the museum as an environment that is unable to reflect their identity or self-perception (Miglietta, 2017).**

There are also negative aspects related to orientation within museums or difficulty understanding the informational media made available to museums. In fact, the study in question shows that the content proposed by museums is, from the point of view of the average visitor, inaccessible, as it is expressed in a specialist language. It also emerges that digital content is considered to be of poor quality or infrequently updated. This is why the younger public often does not identify the museum as a stimulating place for creativity or a place for social gathering. «Not feeling at ease in a place from the point of view of one's cultural background» Miglietta specifies, «means, for example, simply not being able to decode the explanatory texts of the panels or the contents of the audiovisuals: communication and language are the first and most important form of accessibility».

9.4 The museum seed in the perspective of cultural proximity

Therefore, this fact relating to the perception of museums emerges as increasingly urgent for defining the characteristics of the museum of the future in the perspective of Cultural Proximity. In this scenario, new technologies will be useful for expanding the museum experience. Aiming to achieve a fertile crossover between analogue and digital, the museum of the future will be a sort of *augmented museum*, an environment almost devoid of perceptual boundaries. It will be a place where, by touching materials and objects with their own hands and smelling the scents, visitors will be able to access a concrete experience, and not just a passive experience of visual beauty. We also know that this aspect is very important for the majority of younger visitors, even before they physically approach the museum: 80% of visitors under 35 (Millennials and Gen. Z) prefer to visit interactive museums with integrated technologies, while 42% of young people visit social media channels and the website before going to a museum to understand how the institutions apply technology, from primary services to the installations. In this perspective, the exhibition model that imagines the museum as a neutral and hermetic container, that is, the concept of the *White Cube*, is considered obsolete. In contrast to this, we speak instead of the *Dynamic Cube*: a formula that expresses the sensory interaction component, even synaesthetic, of an exhibition space capable of determining its form according to the narrative that can be built on a case-by-case basis at will.

From the point of view of Cultural Proximity, therefore, it is desirable to adopt a new conception of places of culture and aggregation that revolves around the concept that we define as the *Museum Seed*. According to this perspective, like a seed, a place of culture must be able to graft itself into the urban and social fabric of the surrounding territory to become an activator of new behaviours and a reference to the community. In this design vision, museums and places of culture are not interpreted as *architectural safes*, closed spaces for fencing in objects, but rather as dynamic systems that are permeable and open to exchange, capable of building awareness and community. It becomes a place of culture, from the museum to the urban installation, where all

Figure 4.
Chopin Museum,
Ostrowski Palace,
Warsaw 2010,
Migliore+Servetto, photo
by Żelazowa Wola.

the design elements are crossed by a common thread, which we could define as a sort of narrative dramaturgy.

In this perspective, like a seed, the museum grows, transforms and extends itself to take on an *increased* version in constant evolution, which, moving between conservation and narrative, opens up new forms of accessibility and inclusion. Inhabiting spaces of culture today requires a new design capable of integrating architecture, design and graphic design in the encounter with the evolution of technologies, neuroscience and artificial intelligence.

It is not just a matter of exploiting the potential of the visual components, to which we have become accustomed over the last 50 years, since the advent of the internet. Rather, while computers and smartphones have unleashed their potential, today, with the emergence of artificial intelligence, this wave is becoming even more impressive, with surprising effects and repercussions, including in the field of space design. This means the possibility of generating increasingly high-quality visual or spatial narratives in extremely compressed times.

Although it is of fundamental importance to question the limits and possible dangers inherent to this tool, we cannot fail to highlight

its benefits. In the luxury industry, for example, personalization has always been central to delivering a unique customer experience. Artificial intelligence, combined with the Metaverse, opens up multiple opportunities for hyper-personalization. By exploiting artificial intelligence algorithms and data analysis, museums can therefore also gain in-depth knowledge of the preferences, behaviours and desires of their visitors. This knowledge will allow museums to create routes that are specifically tailored to the individual visitor, thus offering increasingly accessible experiences.

The museums of tomorrow, with a view to Cultural Proximity, should increasingly equip themselves with a clear *hypertextual learning* system, which allows visitors to select the level of in-depth study they feel up to facing at that precise moment. In fact, it is established that the more rewarding the experience (due to a suitable level of learning), the greater the increase in skills and knowledge, and the more the visitor will tend to consider the museum a place to revisit. Within this future scenario, the role of neuroscience is central: a series of studies conducted at the neurobiological level offers important measurement tools. Think, for example, of Brain Imaging techniques, which are at the centre of considerable advances in analyzing the brain *in action*, that is, studying the reactions and brain mechanisms of individuals involved in motor, cognitive or perceptual activities.

Now more than ever, places of culture have enormous potential to be sites of reference for the communities in which they are rooted, shared places for encounters that are accessible to all according to the most diverse objectives and interests. They can be places that provide awareness, belonging and relationships, even before knowledge.

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PART 3

Art, Design and Cultural Institutions

10. Can cultural institutions in the field of architecture and design play a role in fostering social innovation?

Qing Yu, Suzie Attiwill, Luisa Collina

10.1 The new role of cultural institutions

Cultural institutions have been actively transforming themselves in recent decades to become more sustainable and inclusive. These ongoing significant waves of change are starting to redefine the role of cultural institutions in society, and therefore, it is useful to explore how and whether cultural institutions can play a role in the transition to social innovation, one of the defining aspects of contemporary global society.

Generally, cultural institutions are organizations within a culture that work for the interpretation, preservation, or promotion of culture (Mariotti, 2022). They encompass a wide range of entities, including museums, exhibition centres, galleries, theatres, etc. Historically, cultural institutions have played a role as elite institutions, where institutions are symbols of power and exclusive knowledge and preservation (Sandell, 2005) within cultural and sociological analyses, as means through which social inequalities have been constituted, reproduced, reinforced. The hierarchical arrangement of objects, the presentation

of partial and biased histories, the marked absence of (certain forms of. Current museology literature emphasizes that the role of cultural institutions should be transferred such that they become *agents for social change*. (Eid and Forstrom, 2021, p. 21). Museums, as a representative sector of cultural institutions, demonstrated the potential of their role as *agents for social change* at the International Council of Museums (ICOM) conference in 2019. The conference proposed an alternative definition of the museum as a pluralistic space that must work with diverse communities and create critical dialogues (ICOM, 2019).

However, Mirko Zardini, former director of the Canadian Centre for Architecture (CCA), in an interview entitled *Critical Condition*, says the role of contemporary cultural institutions is frustrating as they are not providing the critical debate/thinking that society needs. Most of them are repeating the traditional mode of an institution (Kafka, n.d.). This suggests that cultural institutions require further support in addressing social aspects, such as accessibility and audience development. Yet, when cultural institutions consider audience development, the number of visitors cannot be the only indicator of success (Bollo A., Da Milano C., Gariboldi A. *et al.,* 2017, p. 51).

This measurement cannot be considered in isolation when evaluating social innovation, as an increase in numbers may be an indication of marketing success rather than the impact of social innovation.

In this complex context, the question *Can cultural institutions in the field of architecture and design play a role in fostering social innovation?* seems critical in relation to the role of design.
By which means and approaches have curators and exhibition designers engaged in social innovation in cultural institutions? What are the factors that characterize exhibitions whose curators and designers have made social innovation a central concern?

In this chapter, we aim to explore exhibition projects in various types of cultural institution in the field of architecture and design, in order to extract and summarize information and create a preliminary horizontal overview of the research field. The selected examples can help in identifying possible common factors of social innovation through exhibition-making, in cultural institutions in the field of architecture and design. Five aspects, five factors, and several sub-elements are the results of this analysis. These have ultimately

been synthesized in a visual diagram that can be used as a referential tool for understanding the main characteristics and approaches of selected exhibitions that engage with the social innovation agenda.

10.2 Theoretical perspective

Social innovation and cultural institutions

Social innovation is a broad term that refers to the innovations and solutions of new ideas (designs, products, services and models) that address social needs, lead to new social relationships and enhance society's capacity to act (European Commission, 2013). In *The Open Book of Social Innovation* Murray *et al*. (2010) point out that social innovation is a relatively open field with open processes that can bring about changes and lead to new outcomes, relationships and forms of collaboration.

A number of organizations, networks and multidisciplinary teams that are dedicated to social innovation activities have been established worldwide, including think tanks, do tanks and social design labs. Examples include the global network Social Innovation Exchange (SIX), Australia's National Centre for Social Innovation (TACSI) and the Centre for Social Innovation in Toronto. The Jockey Club Make a Difference Social Lab, in Hong Kong, made a *Global Social Lab Landscape Report* (Social Innovation Exchange, 2023), which looked at ten different social design labs in Asia and around the world.
From these social innovation organizations and labs, we can see that an increasing number of successful social innovation projects have been completed in the fields of social science, economics, business, policy, governance, health, service design, etc. The collaborative teams in these organizations and labs usually include designers who facilitate the process and play the role of design at multiple levels. However, projects in relation to cultural institutions in the field of architecture and design and exhibitions are still rare.

Similarly, in the discipline of design, the DESIS network – Design for Social Innovation and Sustainability – is a global cultural association that is actively involved in promoting design for social innovation in design-oriented universities. There are many clusters of projects and thematic areas in design for social innovation, but still fewer projects

related to cultural institutions. These phenomena indicate that there is insufficient investigation in cultural institutions in the field of architecture and design exploring social innovation, showing an under-researched facet.

10.3 Cultural institutions in the field of architecture and design

It is important to note that this study is conducted in cultural institutions in the field of architecture and design, rather than in other disciplinary areas. Cultural institutions in the field of architecture and design are part of the arts and culture sector, which is emerging as a particularly fruitful field for the development of social innovation (Cancellieri *et al*., 2018, p. 79).

The Museum Is Not Enough, a recent book by the Canadian Centre for Architecture (Borasi *et al.,* 2019), explores the roles of contemporary cultural institutions and responses to the massive social dilemmas associated with the notion of social innovation.

Architecture is a way of reading and redefining the present, the society in which we're living and working (Allen, 2020). Hence, the focus on exhibitions and curatorial practice in architecture and design cultural institutions aims to explore the under-researched aspects of social innovation. In particular, considering that architectural and design exhibitions have the capacity to make statements, construct new meanings and stimulate critical discussions. Therefore, curating and exhibiting architecture and design in cultural institutions in relation to social innovation can be seen as a critical voice in terms of situating, provoking thought on, reflecting, and communicating the current social and environmental emergencies.

These statements resonate with the capacity of social innovation to improve social relations, solve social problems, meet social needs, create social connections (MacCallum, 2009; Moulaert *et al*., 2010) and make things local, open and connected (Manzini, 2015). In this sense, cultural institutions in the field of architecture and design can act as social institutions that drive social innovation in a spatial and experiential formality and offer things that are different from other disciplines.

10.4 Example review and methodological frameworks

This study adopts the method of reviewing examples of work, and examines fourteen exhibition projects relating to social innovation in cultural institutions in the field of architecture and design.
The existing ambiguity about where and how cultural institutions can engage with social innovation through exhibitions leads us to choose a horizontal review of examples rather than a vertical review of cases. This horizontal-level review of examples aims for variety, rather than depth and detail. It can provide a landscape and overview of the research area, which can help to understand the current state of the art and address the research question.

In combination with analyzing the examples, we bring in the method of literature review to understand the methodological frameworks of the approaches to enabling social innovation and engaging the public. We notice that when it comes to curating exhibitions in cultural institutions in the field of architecture and design, there is a traditional top-down approach to decision-making (Bøe *et al*., 2019; Baurley and Younan, 2021). Sandell (1998) points out, in *Museums as Agents of Social Inclusion*, that cultural institutions in the culture sector may contribute to social exclusion due to issues of access, participation and representation.

Regarding audience participation approaches, Nina Simon's *The Participatory Museum* (2010) raises similar concerns about accessibility, participatory spaces, and social connection.
She further categorizes participatory approaches in cultural institutions into four types of project: contributory, collaborative, co-creative and hosted projects, which represent different levels of community and audience involvement and engagement in cultural institutions' programmes. The *European Commission's Report* (2017) re-identified three main audience categories regarding audience development: *audience by habit*, *audience by choice* and *audience by surprise*, based on Kawashima's approach (2000). These three categories represent three types of audience who usually, occasionally, or hardly participate in cultural activities for a variety of reasons related to social exclusion and accessibility. Therefore, this study looks not only at

aspects of the exhibition content, such as social issues, but also at the display format and approaches to curating and designing exhibitions that enable audiences to encounter the content.

10.5 Data collection

The fourteen projects were selected with a specific intention, by applying sampling criteria and maximum variation sampling in order to establish a credible, valid and reliable study (Patton, 2002). The sampling criteria were: exhibition projects based in cultural institutions, in the field of architecture and design, and relevant to the concept of social innovation. Maximum variation sampling was applied by selecting examples from a wide range of cultural institutions in the field of architecture and design, and from different geographical locations around the world. Examples were collected from four continents: Europe, North America, Asia and Australia. The types of cultural institutions included museums, galleries, exhibition centres, design centres, art centres and major temporary events (triennials, biennales, and design weeks).

Furthermore, the study drew on numerous data sources to examine each project. First, data were collected by reviewing academic literature, articles and reports related to the research area, and then the scope was broadened to include the institutional case study documents, official publications, websites, project publications and final project reports. Data and insights were also gathered from journal articles on the projects, public presentations, speeches, press interviews and articles, both printed and digital. Example review is an evidence-based research approach. By analyzing data from multiple sources, this review integrates and exemplifies different points of view of curators and exhibitors, and looks for patterns in different exhibition projects. Table 1 lists the selected projects and their data sources.

No.	Institutions	Institution type	Exhibition field	Exhibition name	Year	Curators/ exhibitors team	Main data sources
#1	Pavillon de l'Arsenal (Paris, France)	Exhibition centre	Architecture	Paris Habitat	2015	Javier Arpa Fernández	Institution website Journal review article Domusweb article
#2	Triennale di Milano (Milan, Italy)	Fondazione La Triennale di Milano	A&D	Home Sweet Home	2023	Nina Bassoli	Institution website Press articles and interview
#3	17th International Architecture Exhibition (Venice, Italy)	La Biennale di Venezia	Architecture	AIR/ARIA/AIRE	2021	Olga Subirós	Curator and project website Press articles
#4	18th International Architecture Exhibition (Venice, Italy)	La Biennale di Venezia	Architecture	Partecipazione Austrian Pavilion	2023	AKT & Hermann Czech	Biennale website Project website and publication Press articles
#5	18th International Architecture Exhibition (Venice, Italy)	La Biennaledi Venezia	Architecture	Neighbours – Swiss Pavilion	2023	Karin Sander Philip Ursprung	Biennale website Project publication Press articles
#6	The Canadian Centre for Architecture (CCA) (Montreal, Canada)	Research institution and museum	Architecture	A Section of Now: Social Norms and Rituals as Sites for Architectural Intervention	2021-2022	Giovanna Borasi	Institution website Project publications Press articles
#7	Yerba Buena Centre for the Arts (San Francisco, USA)	Arts Centre	A&D	Teddy Cruz & Fonna Forman – Visualizing Citizenship: Seeking a New Public Imagination	2017	Lucía Sanromán Martin Strickland	Institution website Project publications

Table 1.
Data sources.

#8	OCAT Biennale (OCT ontemporary Art Terminal (Shenzhen, China)	Biennale	A&D	Boomerang – OCAT Biennale 2021 – Park for the People	2021	Jason Ho (Mapping Workshop)	Institution website Public presentation Press articles
#9	Singapore Design Week + National Design Centre (Singapore)	Design Week	Design	Playground of Possibilities	2023	Jackson Tan (BLACK)	Institution website Project website Press articles
#10	Melbourne Design Week + The National Gallery of Victoria (NGV) (Melbourne, Australia)	Design Week	A&D	The Silo Project	2023	Ancher Architecture Office, Corey Thomas, Josee Vesely-Manning	Institution website Project websitePress articles
#11	Sydney Design Week + Powerhouse Museum with Tin Sheds Gallery (Sydney, Australia)	Design Week	A&D	Lacaton & Vassal: Living in the City	2023	Anne Lacaton Jean-Philippe Vassal Hannes Frykholm Catherine Lassen	Institution websites Press articles
#12	The National Gallery of Victoria (NGV) (Melbourne, Australia)	Gallery	Architecture	The NGV Architecture Commission – pond[er]	2021-2022	Taylor Knights James Carey	Institution website Press articles
#13	National Museum of Australia (Canberra, Australia)	Museum	A&D	Inbetween: Cultural connections through design	2021-2022	Jefa Greenaway Tristan Wong	Institution websites Press articles
#14	Centre for Architecture Victoria Open House Melbourne (Melbourne, Australia)	Organization	A&D	Take Hold of the Clouds	2022	Tara McDowell Fleur Watson	Institution website Project publication Press articles

10.6 Data analysis

In order to compare the differences and similarities, all selected projects were analyzed within individual examples and cross-examples. Notably, all projects were developed within the last decade, and most were within the previous four years. Selecting recent examples ensures this review can reflect the current situation.

Through the literature review and analysis of examples, we can find some emerging tendencies of exhibitions in cultural institutions, in the field of architecture and design, moving towards social innovation. Architecture and design cultural institutions have found it challenging to exhibit architecture, i.e. the conventional products of architecture, such as buildings (Figueiredo, 2013). Hence, innovation is taking place within cultural institutions. There are emerging institutional initiative programmes for exhibiting architecture and design, such as associated research centres and architecture commissions by galleries, as well as innovative formats of exhibition, for example film as exhibition and programmes for visiting actual buildings.
The content of the exhibitions is also strongly representative of responses to the current social/environmental emergencies. Exhibition design and curatorial approaches are related to mapping social issues and amplifying their visibility (Manzini, 2015, p. 121), increasing audience participation, enhancing accessibility, and extending exhibition places and spaces into the public realm. As a result, we have summarized this trend into five aspects, factors, and several sub-elements.

The purpose of using grouping as a way of analyzing exhibitions related to social innovation is to better understand the possible characteristics of exhibition design in architecture and design cultural institutions, and to reflect on the situation, rather than to evaluate their advancement. Table 2 shows the five aspects, factors, and their sub-elements. Figures 1 and 2 illustrate the five aspects and use example no.1 to show how to read the diagram.

Label	Aspects	Factors	Sub-elements
●	Format	Display factor	Exhibition experience
			Interactive exhibits
			Spatial encounter
			Architectural ideas
			Narratives
			Material
●	Content	Representation factor	Contexts
			Scenarios
			Themes
			Groups i.e. Indigenous Communities
			Cultures i.e. Indigenous Country
			Social/political/environmental emergencies
●	Approach	Process factor	Contributory participation
			Collaborative participation
			Co-creative participation
			Hosted participation
			Mapping and amplifying
●	Place	Access factor	Expanding into the cities/communities/public spaces
			Reuse existing spaces/sites
			Visibility
●	Audience	Experience factor	Public awareness
			Public engagement
			Meaning making
			Critical discussion
			Audience by habit
			Audience by choice
			Audience by surprise

Table 2.
Aspects, factors, and sub-elements.

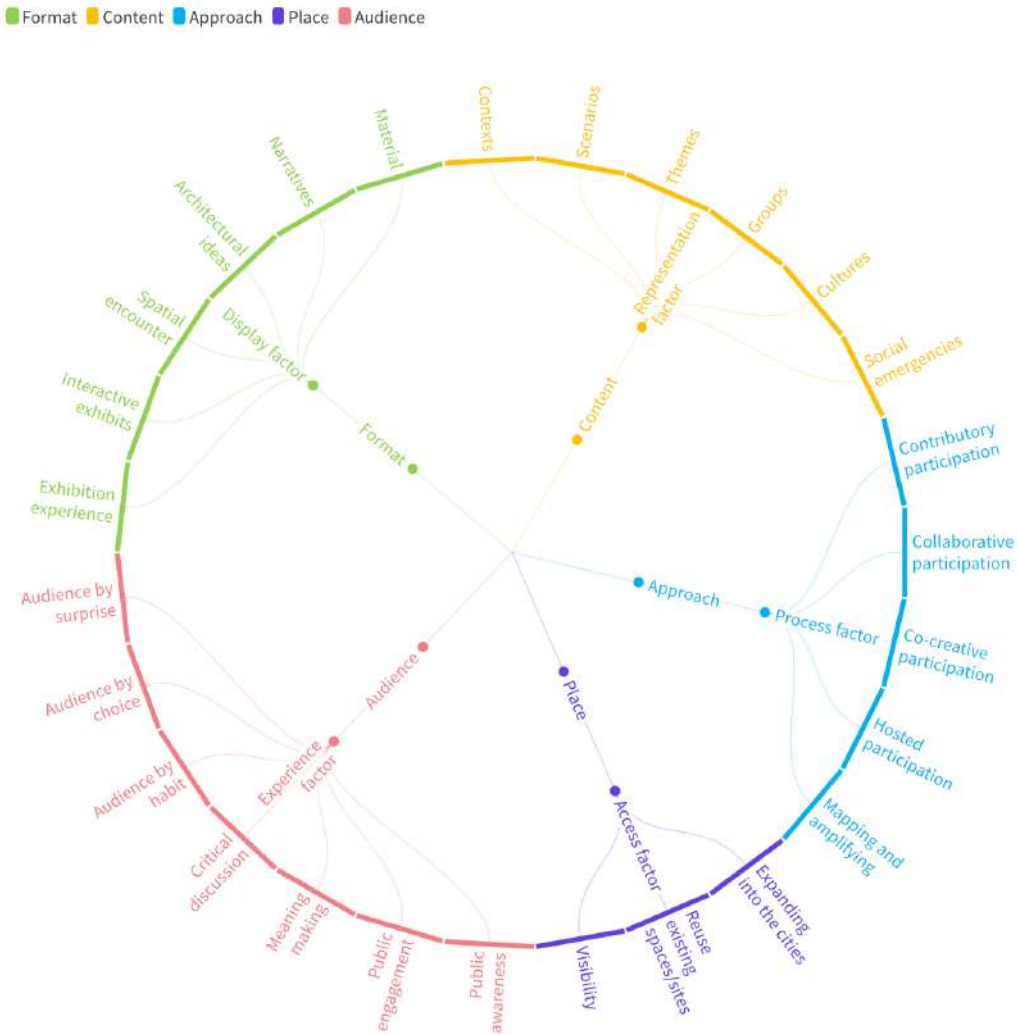

Figure 1.
Mapping the five aspects, factors, and their sub-elements.

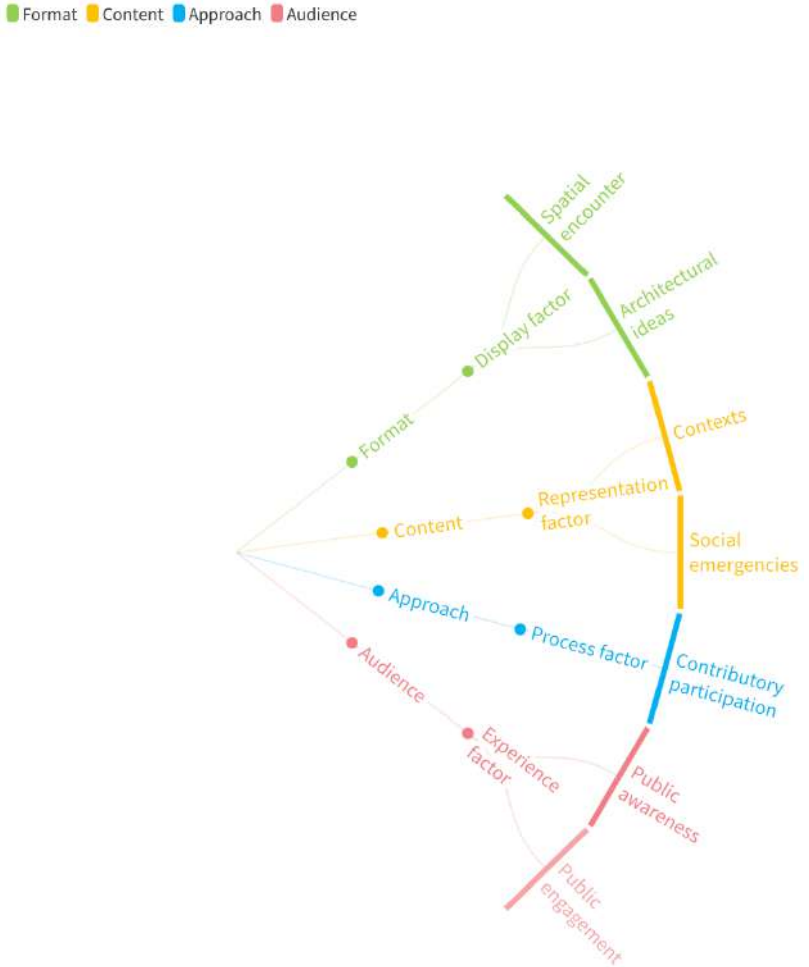

Figure 2.
The positioning map of example no.1, using project no.1 as an example of how to read this diagram. Project no.1 involved four main aspects and factors, as well as several sub-elements within each group (from the inner circle to the outer circle).

10.7 Description of selected examples

In the face of unprecedented climate and environmental emergencies, the idea of social innovation in architecture and design has become critical in terms of thinking about how people, as societies and socialites, inhabit the world; that social is environmental. Examples 3, 4 and 5 at the 17th and 18th International Architecture Exhibition at the *Venice Biennale* bring design initiatives into the concerns about the emergencies. Through in-depth research into the project, Example 3 curator Olga Subirós explores the concept of air and its significance in our daily lives. The exhibition also engages visitors through immersive experiences and interactive displays in the exhibition spaces to raise public awareness. Examples 4 and 5 are the Swiss and Austrian pavilions, which foreground issues of audience participation, social exclusion and space expansion by engaging with neighbours and citizens (Sander and Ursprung, 2023; Scheppe *et al.,* 2023). These exhibitions also provoke critical debates about the boundaries and role of cultural institutions in the field of architecture and design.

Example 7 curator Lucía Sanromán's presentation of public projects by *activist architect* Teddy Cruz and political researcher Fonna Forman raises questions about politics and citizenship. It looks at how architectural projects have responded to them. Jackson Tan curates Example 9, an exhibition of experiential installations that discuss Singapore's most pressing environmental issues, showcasing innovative solutions and inspiring provocations through design. Example 2 at the Triennale di Milano presents a selection of drawings, photographs and films originally exhibited in Example 6 at the CCA. The two exhibitions resonate on different continents by highlighting the mutual concerns of social relations, which also question how architecture and design cultural institutions can reposition themselves to address present challenges.

Exhibition 8 is part of the *Shenzhen OCAT Biennale*. Curator and architect Jason Ho led students in his *Mapping Workshop* (Ho, 2017) to recreate the blocks – art installations originally made by artist Daniel Buren in a public park in 2011. The exhibition strategy is to engage residents and have them recreate these blocks based on how they use them. The exhibition is designed to be exhibited in a public

park to reach more audiences, help raise people's awareness of their living environment, and create a new meaning for the public space.

Example 1 is an institutional initiative – an architecture commission by the Pavillon de l'Arsenal for a social housing project. The curatorial approach is rooted in the local site and enables audience contributory participation. The team researched and curated by visiting many homes of local workers and residents and listening to their experiences (Arpa, 2015). Similar institutional initiatives can also be seen in Australia. As there is no specific cultural institution dedicated to architecture and design, the innovations in terms of exhibiting architecture and design are taking place within cultural institutions – the examples include *Design Weeks*, Architecture Commissions by galleries, the recent Swayn Centre for Australian Design associated with the National Museum of Australia, and the Centre for Architecture that is connected with the Open House programme.

For instance, example 12 is an architectural installation in the garden of the National Gallery of Victoria, as part of an annual architecture competition held by the gallery to activate and promote the public's engagement with architectural ideas. The architectural installation invites the public to move around the walkways and the pink water pond, representing Australia's inland salt lakes. In so doing, the installation aims to raise people's awareness of the impact people are having on the environment.

People are invited to sit and ponder – to imagine new futures and the critical relationship to land and water custodianship. It is an open and inclusive environment enabling visitors to reflect on the current environmental situation.

The *Design Weeks* are also innovative platforms for fostering design and architectural ideas to build a better society. Examples 10 and 11 are both architectural and design exhibitions in the *Design Weeks* (Melbourne and Sydney) that explore the adaptive reuse of existing spaces – former industrial grain silos and social housing – as interventions to collectively respond to urban renewal. Example 13 is an immersive and experiential film exhibition that presents a reimagination of the exhibition in the Australian Pavilion at the *2021 Venice Biennale of Architecture*. Most importantly, social innovation in Australia is also about connecting with Indigenous Communities and Country.

This exhibition highlights the importance of Indigenous people and diverse cultures. Example 14 is from the Open House programme, part of the Open House Worldwide Network, which aims to open up various places and spaces across Melbourne City for public engagement and encounter. The programme uses existing architecture to curate and exhibit, which is an innovative approach to encourage audiences to participate and reflect on the built environment, their relationship with nature, as well as interior and exterior spaces. Example 14 also held a curated exhibition entitled *Take Hold of the Clouds* in a series of heritage sites across Melbourne; the programme addressed accessibility for visually impaired people, from wayfinding to their publications (McDowell and Watson, 2022).

10.8 Conclusions and future developments

This chapter investigates whether and how cultural institutions in the field of architecture and design play a role in fostering social innovation. After reviewing the contextual literature and methodological frameworks at the intersection of social innovation and cultural institutions in the field of architecture and design, we find that the existing research is unclear on where and how cultural institutions in architecture and design can engage with social innovation through exhibitions. Therefore, the study conducted a horizontal review of fourteen exhibition projects across the globe. This study combines literature review with an inductive example review.

Based on the patterns that emerged, five aspects were articulated. The five main aspects are format, content, approach, place and audience, with five factors: display, representation, process, access and experience. The main aspects and factors are further subdivided into several sub-elements to summarize the underlying characteristics. In addition, a diagram was used to further visualize the five aspects, and then each example was briefly described.

The findings of this study conclude and confirm that cultural institutions in the field of architecture and design have the potential to promote social innovation, and their impact can benefit their stake-

holders and the wider public. Meanwhile, this research is a contribution to knowledge about the intersection between social innovation and cultural institutions. The outcomes also interpret the specificities of where and how social innovation can be achieved through exhibition design in cultural institutions in the field of architecture and design.

Although the findings are in fact summarized groups of aspects, they provide insights to help cultural institutions in the field of architecture and design, researchers, and practitioners improve their understanding of the current situation and develop strategies for promoting social innovation.

Future research can be carried out on a vertical level of case analysis, based on the current findings. Field observation research, interviews and exhibition-related design practice could continue exploring this matter to further develop these initial findings.

Authorship attribution

Sections: *The new role of cultural institutions, Theoretical perspective, Example review and methodological frameworks* have been edited by all three authors, while sections *Data collection, Data analysis, Description of selected examples, Conclusions and future developments* have been edited by Qing Yu.

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11. Art and technology as tools for creating inclusive and sharing spaces

Giulia Gerosa, Federica Guarnieri

11.1 Origins and evolution of technology in art

The artistic trend of digital art developed in the 1960s and 1970s within the science and technology laboratories of universities in the United States, and later in Europe.

During those earliest years of experimentation, the trend evolved into the multiple fields of activity and languages that still characterize it today. But despite more than fifty years of activity and research, it only began to attract the attention of a wider audience in the new millennium (Galansino and Tabacchi, 2022).

Digital art was first touched upon in Europe with the 1968 exhibition *Cybernetic Serendipity*, organized by the Institute for Contemporary Art (ICA) in London with the aim of highlighting how computers were being employed in many traditional creative processes: from art to music, poetry to dance, sculpture to animation (Paul, 2015). Although the exhibition was a success, as time passed, interest in anything that required the use of technology in the pro-

duction of works diminished. As can be read in the article *Computers and the Visual Arts* (Mezei, 1967), while there was great interest in using computers to create works of art, there were few interesting results at the time due to the technical difficulties of processing two-dimensional images, the complex nature of use and the high cost of the software.

Digital art, however, was beginning to carve out a niche for itself within the vast artistic landscape, thanks to experiments – by painters, sculptors, architects, photographers, scientists and engineers – with new techniques for creating and manipulating images by means of computers, from the 1970s onwards.

The event that led to the change and (re)discovery of digital art was a Christie's auction on 11 March 2021, when Mike Winkelmann's NFT work sold for 69.3 million dollars (Galansino and Tabacchi, 2022). From that point on, the art world turned its attention to the digital world, leading to explosive growth in the number of NFT works.

In recent decades digital art has changed dramatically, as it involves the use of tools and technologies that are in continuous development and modernization: it is defined as a fluid art, one that is changing all the time because the technologies and the society in which it operates are also in constant evolution. Using digital technologies and interactive tools, the phenomenon has challenged traditional concepts of artwork, the artist and their audience (Paul, 2015) and, ultimately, the definition of appropriate spaces for production and enjoyment of the works themselves. In fact, digital artists have always created their pieces in the *wrong places*: beyond the artistic sphere, and instead on the web, in laboratories, in scientific and technological research facilities (Quaranta, 2010).

The strong link with the Internet has also made it possible for artists to create real communities by forming a network in which there is no sale and purchase of artworks; rather, they are exchanged for free via websites, email lists and alternative spaces.

Digital art was therefore born to be characterized by free and accessible sharing to anyone, which is typical of the anti-establishment spirit of the web: an ephemeral spirit that reflects this art's aesthetics and technologies (Tribe and Jana, 2006).

It is exactly this ephemeral appearance that has slowed down the

development of digital art, leading to strong misgivings among collectors and gallery owners regarding the procedures for the creation, storage and display of artwork.

This naturally leads to the question of what has changed in recent years and, in particular, what has prompted the collective interest of the artistic and cultural scene in the digital world.

As the movement has grown in recent years, there has been an increase in the number of research and outreach centres, festivals and museums, and more traditional institutions are even taking steps into the digital world. Many art galleries were founded in recent years with the objective of acting as a bridge between the public and digital art. As the place of investigation changes, many other aspects inevitably do, too: the artist's tools, the stimuli, the means of production, and consequently the places of creation, preservation, and display of digital works.

11.2 Definition of the first centres: from 1970 to 1999

Since the early 1970s, which were marked by significant experimentation, digital art has evolved into multiple fields of practice and languages. It is, however, as a result of the rapid development of the Internet and new media, which has mostly occurred since the early 1990s, that the European digital art scene has evolved.

Throughout these twenty years of intense activity, the first communities for the popularization, discussion, and documentation of digital culture – institutions and centres for research and creation, as well as festivals and conferences – began to emerge, playing a key role in the international evolution of the movement.

Among the places that have contributed to the birth of the European system of reference is the *Ars Electronica* in Linz, which has been in a continuous process of reinvention since it was founded in 1979. From it sprang forth the Ars Electronica Futurelab, a research and development laboratory that brings art, technology and society together, dealing with topics ranging from future narratives to Art Thinking to creative artificial intelligence, from virtual and mixed reality

to co-immersive spaces, and green innovation to Industry 5.0. Another example is the IRCAM in Paris, founded in the 1970s at the request of George Pompidou as a centre for musical creation to accompany the eponymous National Centre of Art and Culture, and hidden until 1990 under the iconic *Stravinsky fountain* by Jean Tinguely and Niki de Saint Phalle. A more recent icon is iMAL in Brussels, a non-profit organization founded in 1999 by Yves Bernard, aimed at stimulating the process of creative appropriation of new technologies. In 2007, iMAL inaugurated a 600 m² Centre for Digital Culture and Technology focussed on new artistic forms, emerging cultural practices and industrial innovations arising from the convergence of information technology, telecommunications, networks, media and digital manufacturing processes. An integrated space, it is a cross between a contemporary art centre for holding exhibitions, lectures, concerts and performances, and a multimedia laboratory where artists can research, experiment, share, discuss and exchange new technologies.

Born out of the gathering of artists and scientists to discuss the digital revolution and its possible consequences, these venues are tasked with communicating the multiple themes addressed by Digital Art through different initiatives, methods and approaches.

It should be noted that although the nature of each centre's activities varies, in general they seek to support artistic and technological innovation, providing spaces for exhibitions, residencies, workshops and discussions in the field of digital art.

The mapping process made it possible to identify these places and gain an understanding of their characteristics.

Four main macro-areas have been identified in which each centre promotes its initiatives:

- *events* (festivals, conferences, talks);
- *exhibitions* (permanent and temporary);
- *disclosure* (physical/online archives, publications);
- *production* (artistic residencies, workshops, fablab).

While most of the centres promote a wide range of events and exhibitions, some differentiate themselves by presenting an experimental research component, a space where art, research and creation can coexist.

Figure 1.
Development of the European scene between the '70s and '90s.

These are places such as the Ars Electronica (1979), the V2_Lab for Unstable Media (1981), Transmediale (1988), FACT (1989), the KZM Centre (1989), IRCAM (1990), NOTAM (1992), the Ljudmila Digital Media Lab (1994), the WAAG Futurelab (1994), the Hangar (1997) and iMAL (1999), all of which have maintained the original spirit of Digital Art and created an extensive production activity.

These spaces differ from others in that they promote open, free and accessible sharing for all, employing several common strategies and practices such as:

- involving artists from different backgrounds, with the aim of presenting themes and artworks that reflect the cultural diversity of society;
- initiating a programme of artistic residencies offering resources, spaces, tools, materials and financial support to artists;
- actively involving the public in the creation process through workshops, laboratories and other initiatives.

By means of these creative activities even among people who are not necessarily artists, the idea of art being accessible to everyone takes shape and begins to unfold, and digitization begins to be seen not so much as a technological development, but rather as a social development (Granata, 2009).

The social aspect therefore becomes a key element of digital art, which involves artists, scientists, technologists, designers, developers, entrepreneurs and activists from all over the world, gathered together to address the issue of the future development of digital society by focussing not simply on what technology can do, but on what it can do for sustainable development.

11.3 The evolution of the system: from 2000 until today

The production centres that emerged in Europe in the early years played key roles in supporting, promoting and developing digital art. They themselves have developed during a historical period characterized by ongoing novelties, defining a dynamic and ever-changing artis-

tic landscape, leading to the emergence of new centres and initiatives. It was, however, during the '00s, as a result of the evolution of digital technologies, new artistic trends and an increasingly extensive internet, that digital culture underwent a profound transformation.

Much like in the early '60s within the academic laboratories where the earliest relationships between technology companies and artists were established (Mancuso, 2018), the early '00s ushered in the first collaborations between the centres and some of the companies dealing with digital tools, software development and hardware innovation. Scientific research centres, and laboratories of quantum physics and science, are also showing an interest in digital art, creating unique partnerships to explore the deep connection between art, science and technology through international projects and unseen art residencies.

Among the many places that have contributed to the growth of the European system in the last two decades are the *Node Institute* in Berlin (2008), the *Resonate Festival* in Belgrade (2012) and the MEET Digital Culture Centre in Milan (2018), which co-creates and distributes digital culture in Italy by means of projects and initiatives implemented with national and international partners, aiming to narrow the digital divide and enhance skills in the expressive and creative use of technologies. Despite the exponential growth of technological devices and the increase in funding from public and private bodies, the centres that have sprung up over these years continue to have a structure very similar to the original, dividing their offerings into events, exhibitions, dissemination and production.

The swift growth of the internet has contributed to the emergence of a multitude of free and accessible online platforms and resources such as the DAM (Digital Art Museum), which since 2000 has been collecting works, testimonies, biographies and texts, often unpublished, relating to the most influential artists in the history and practice of Digital Art from the 1960s to the present day. In 2003 it initiated *DAM Projects*, to mediate digital art and make it more widely available thanks to a collaboration with Berlin's Center Potsdamer Platz (then known as the Sony Center) presenting the artists' work on the square's screens, and in 2005 the *DAM Digital Art Award*.

Other online resources include *Digicult*, founded in 2005 in Milan to give a voice and visibility to a new generation of artists interested in

exploring and narrating the impact of digital technologies. *Digicult* publishes interviews, news, professional calls and reports through its own online journal, and is dedicated to putting artists in touch with leading institutions, festivals, galleries, research centres and national and international academies. Another example is the *Archive of Digital Art* collective project, created in collaboration with media artists, researchers and international institutions to explore a wider concept of documentation, reflecting the process-oriented, ephemeral and interactive nature of digital artworks.

Compared to the analysis carried out during the first development phase of the *Digital Art system* (1970-1999), in this second phase of evolution there was an increase in the number of spaces dedicated to the exhibition of digital works.

Collectors and gallerists, who had initially raised doubts about seeing this art exhibited within traditional circuits (Tribe and Jana, 2006), begin to develop new strategies for conserving and exhibiting the works. They not only organize themed exhibitions or integrate permanent collections into museums, but the first dedicated museums such as MuDA in Zurich, the Museum of Contemporary Digital Art in London and HeK in Basel are now beginning to emerge.

In parallel with the emergence of museums, exhibition spaces, events and festivals, the European system has been enriched by further centres offering the opportunity for research to produce works and work of a digital nature, even though centres promoting creative support workshops and artistic residencies continue to be in the clear minority. The Edith Russ Haus for Media Art (2000), MediaLab Matadero (2002), Laboral Centro de Arte y Creacion (2007), Baltan Laboratories (2008), IMERA (2011), Arts@Cern (2011) and Lab for Electronic Arts and Performance (2011) are true training places that not only provide the opportunity to take part in artistic residencies, but also represent the first step on research paths with reputable institutions that offer financial support through scholarships, grants or other means in support of artistic production and the creation of innovative projects.

The primary objective of these locations remains the promotion of open, free and accessible sharing for all, not only for the wide range of talents and artistic expressions, but also in terms of involving the public.

Figure 2.
Development of the European scene from the '00s to the present.

In particular, the system of these international institutions seeks to get the public increasingly (actively) involved through a wide and dynamic programme of initiatives that includes:

- organizing theme-based workshops and laboratories during which artists can interact with the public, encouraging them to engage in digital art;
- running educational programmes that promote and teach not only artistic but, more importantly, technological skills to groups of people of different ages and backgrounds.

As further evidence of this, the centres aim to create a true community able to include anyone who is interested in being part of it, offering a packed programme of initiatives that can meet the needs of everyone: from artists looking for a place where they can be supported and nurtured, to visitors who want to learn more about digital art and deepen their interests, to the curious who want to acquire new skills.

11.4 Interviews with artists: nowadays' needs

From the 41 centres mapped, only 18 are engaged in production by offering spaces for creation, artistic residency programmes, support for artists, and initiatives for the public such as workshops and educational programmes.

To understand more about the importance of these places and how, through their offerings, they help to create an inclusive community that promotes free and accessible sharing, we wanted to conduct a series of interviews to investigate how artists and figures involved in distribution, exhibition and conservation experience these spaces, examining their research, work and creation methods, and understanding their ideas and needs.

The interviews reinforced the importance of having spaces for production, understood as places where a physical community can be formed, beyond the online opportunities.

Based on their own experiences, the interviewed artists identified three functional macro-areas:

- *communal spaces:* to encourage artists and visitors to meet

Interviewed	Profile	Comment
A. Rubini	Education and Cultural Innovation Manager of MEET	"Having spaces for arts production is essential; it's necessary to have a system where the state, public and private entities are involved".
M. Mancuso	Founder of Digicult	"There's a need for creative spaces for artists in Milan, where ample human and professional resources are available".
L. Lamonea	Artistic director of Video Sound Art	"In addiction to a lack of working spaces, there's also a lack of professional networks that support artists in technical and curatorial aspects".
A. Crespi	Artist	"Working in a shared environment that allowes collaboration with other artsits is truly inspiring. Having a space to discuss and support each other is fundamental to creativity and work".
M. Cadioli	Artist	"As artist, we're not given the support needed to deal with what happens between the end of a work and its exhibition. This support would be important and critical".
C. Zanni	Artist	"Working in a shared space allows artists to implement a sustainable circular system: if I'm experimenting with a tool, and I know that an artist working in the same space as me has it, then I can establish a dynamic of mutual exchange, where I don't buy but borrow".
F. Lattanzi Antinori	Artist	"Working with most of my colleagues, whom I met during art residences and studio-visits, I created important synergies. Having a shared workspace is a useful resource for everyone".
D. Quayola	Artist	"Despite my being a hermit, I think it is crucial for artists, especially emerging ones, to create their network and work in a shared space with other artists. This allows them to take a first step to connect with different figures".
A. Bonaceto	Artist	"Sharing in the sense of being together with other human beings is the essence of art, and so having a space where this can happen, I think is very important".

Table 1.
Interviews with digital art insiders and artists.

and interact, these are places where what happens inside and what comes from the outside are connected;
- *shared workspaces:* understood as places where tools, machinery, equipment and materials are available to all, creating a circular system;
- *individual workspaces:* although there is a desire for shared working spaces, it is important to have more personal spaces available that do not, nevertheless, restrict artists in their ability to work with others.

Building on the findings of the production centre map and the interviews carried out, it is possible to identify a number of useful functions to promote inclusive and sharing spaces:

- *hybrid spaces:* places that can be adapted to meet different needs, in order to host exhibitions, conferences, themed workshops and educational programmes that can bring artists and the public together;
- *physical archives:* to support artists' research, which is open to the community, in order to increase and expand the cultural heritage of digital art;
- *workstations:* ensuring a personal space where an artist can individually develop their research, and present it to colleagues, gallerists, and the public by opening these spaces for organized studio-visits;
- *digital laboratories:* shared spaces that provide digital tools used both by artists to further their research, and by the public during the workshops and laboratories organized by the centre;
- *manufacturing laboratories:* shared spaces that provide machinery, equipment and materials;
- *set-up spaces:* places where the artist can be accompanied, supported and guided during the creation phase of the installation that follows the work.

These venues are a real resource for artists, not only professionally but also in personal terms: they can meet other artists, network, form collaborations and promote an ongoing exchange on many levels.

11.5 Conclusion

Providing these spaces and activities within centres that encourage digital creation, involving artists and the public, contributes to the growth of a vast community, boosting interest in art and technology.

The needs of the users must be central to the organization of the promoted services, initiatives and activities, with the aim of building and consolidating an inclusive, active and participatory community.

Public involvement is central in the arts and culture sector specifically, because the need to interact with visitors in a more conscious, dynamic, stimulating and interactive way has grown in recent years (Simon, 2010).

Promoting the diversity of offerings and the inclusion of artists and audiences demands an ongoing commitment and a willingness to adapt to the changing needs of communities.

Adopting a participatory approach makes it possible to interface with an audience that is as broad and diverse as possible, to establish a close relationship with citizens (Simon, 2010) and to strengthen cultural, social and creative capital.

Being a dynamic and inclusive centre of digital creation, promoting open sharing accessible to all, involves providing to the public a viable cultural and educational programme and initiatives that the community really needs.

By adopting a participatory approach, driven by collaborative and co-creative activities, the centres may be able to reach an audience with whom they can share their thoughts, desires and, most importantly, their needs.

In doing so, these spaces are able to establish and develop new partnerships, modernizing their programmes and offerings while also keeping pace with changes in society, through a participative and engaging approach that can bring an ever-widening public closer to the world of art and technology.

The aim of the production centres is, of course, to increase their social and cultural value and to establish themselves as creative places, where new ideas are born, developed and circulated, yet not only among artists. The initiatives also seek to involve local people, the surrounding area and categories of users such as young adults,

so that the centres become inclusive places of cultural participation, an intersection of creativity, art, innovation and technology for the benefit of the local community.

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12. Design cultures and digital humanities. The case of *Design Philology*

Agnese Rebaglio, Laura Carugati

12.1 Archival practices within digital environments

This essay aims to investigate processes of valorization of university digital archives, conceived as tools for preserving the historic traces of research and education, but above all as areas of innovation in the dissemination of knowledge. The reference framework is that of the broader contemporary reflection on digital humanities (Schnapp, 2014, 2016), namely on how the digital environment impacts on models of production, dissemination and transmission of culture, including that fuelled by archival systems.

The archive is first and foremost a cultural space and as such plays a leading role in the construction of knowledge and new individual and collective imaginaries, with evident cultural, social, and even political repercussions (Ghaddar and Caswell, 2019). Rapid technological advancement has deeply entrenched, across all fields of knowledge and social spheres, the necessity to feed and manage archives of the current babel of digital data. Today, moving on from archives' original

vocation – nestled in the history of western mnemonics – of collection, preservation, and testimony, reflections mainly revolve around how best to valorize, utilize and disseminate the documents and data they gather, and even the collaborative engagement of increasingly vast audiences. Such processes are gradually becoming more design-driven, aiming to define innovative dynamics of interaction, experiment with cross-media narrative forms, and construct virtuous networks of actors and audiences.

Building upon these premises, this essay introduces the *Design Philology* project, an initiative promoted by the Department of Design, in collaboration with the School of Design and the POLI.design Consortium, aimed at initiating both archival collection and narrative experimentation of the thirty-year history of the *Design System* at Politecnico di Milano. *Design Philology* thus seeks to experiment with models of interpreting a multimedia archive, through digital curatorial and exhibition systems, as well as hybrid, open, and collaborative editorial proposals. Ultimately, the project aims to ground research and education in the field of design within its historical identity, reinterpreting it within the perspective of contemporary and future design culture.

12.2 Exhibition and narrative design between digital and collaborative ways

The archive plays a crucial role in transforming narrative modes and creating new relationships between institutions, contexts and the public through a variety of actions: from storytelling and exhibition to the blending of materials and digital environments (Zanella and Trocchianesi, 2021). Within a digital archive, the digitization, classification, description and organization of materials are fundamental activities that facilitate the creation and enjoyment of cultural content online (Cameron and Kenderdine, 2007). These processes enable the development of accessible and interactive digital archives, allowing users to explore cultural heritage through innovative perspectives and approaches. A significant case study in this regard is the *Museum of the World*, developed by the British Museum in collaboration with the Cultural Institute. It features a multi-level interactive timeline ena-

bling visitors to explore a curated selection of the museum's collection from temporal and geographical perspectives. Similarly, the *Codex Atlanticus* project, promoted by the Veneranda Biblioteca Ambrosiana in collaboration with The Visual Agency, enhances accessibility to the contents of Leonardo da Vinci's *Atlantic Codex*, enabling users to explore Leonardo's work according to theme and the year of composition, thereby enhancing reading and comprehension methods.

Curation, analysis, modification and modelling are all fundamental activities in the field of digital humanities, involving archives, collections and repositories of cultural materials (Burdick *et al*., 2016).

Curation involves the selection and organization of materials within an interpretive and/or exhibition context, leveraging the potential of digital media to create advanced forms of presentation and storytelling.

The interactive and collaborative nature of digital information, fostering an interdependent system of sharing and curating digital information, also encourages experimentation through *collaborative ways*; within this context, the concept of *crowdsourcing* emerges, first introduced by Howe (2008). In the context of cultural heritage, crowdsourcing –understood as involvement by many external contributors in the production, preservation, realization of collections, research, and the like – results in significant benefits for both the community and the institutions themselves, particularly those dedicated to preserving memory (Ridge, 2014); in this case, cultural institutions benefit from the ability to evoke a sense of *the common good*, thus producing a *participatory heritage*.

Some initiatives carried out by cultural institutions stand out in the creation of true *collaborative museums*, allowing members of a specific community to actively contribute to the collection of contents that comprise their heritage. An example of this is the National Museum of African American History and Culture, inaugurated in 2015, and conceived since the *Act of Congress* in 2003 through a contributory virtual platform, allowing African-American citizens to preserve their history in a network of collective social memories.

12.3 Educational institutions and the project of memory

Design Philology is based on the assumption that the memory of a complex social and cultural actor such as a university constitutes a cultural asset to be preserved and enhanced. This premise is the same as that underlying the design of institutional university archives which, according to the guidelines developed by the *Conferenza dei Rettori delle Università italiane* (CRUI, 2009), contribute to the primary goal of maximizing the visibility of research produced and its impacts on various stakeholders (Swan and Carr, 2008, p. 31), through the management and dissemination of knowledge materials produced by the institution and its members in digital format. At the same time, they represent the most important testimony of the evolution of scientific communication models, which now go beyond their original aim of initiating *conversation among peers* and also seek to engage non-specialist audiences. In 2013, Politecnico di Milano established an articulated system of Historical Archives, a collection of document assets that tells of the university's historical role in society and the advancement of technical-scientific knowledge (Cappelletti, Morosini and Vitale, 2023).

The narrative of the history of a cultural institution is therefore a tale of people, places, and events, of results and impacts derived from research and dissemination efforts, of relationships woven with local and global actors. No exception is made for the institutional system consisting of the School and the Department of Design and the POLI.design Consortium, which originated within Politecnico di Milano as far back as 1993, accompanying the launch of the Industrial Design Degree Programme, the first of its kind in Italy. The story of this programme, which despite its brevity is deeply rooted in the Polytechnic's history, is that of an institution dedicated to knowledge about design. The culture of design, i.e. the source of the objects being archived, drives the evolution of the archives themselves through the enhancement of multiple memories and identities, responding to those forms of knowledge – digital-based, fragmented, shared, and co-constructed – towards which we are steered by contemporary society.
Some well-known archives, such as the Centro Studi e Archivio della

Comunicazione (CSAC) in Parma and the Archivio del Moderno in Mendrisio constitute important references for design-driven innovation in enhancing collections of cultural heritage. In both cases, they not only collect a wide range of analogue and digital documents, but above all, they function as research centres and producers of research, exhibitions, and collaboration initiatives with the local community. Another exemplary case is repressented by initiatives promoted by Parsons New School in New York on the occasion of its centennial anniversary. The digital archives feature four sections (Collections, Objects, People, Organization), but from these, digital narratives are presented, illustrating historical and multimedia knowledge paths, as well as a programme of public exhibitions.

12.4 *Design Philology*

Design Philology, as anticipated in the introduction, arises from the desire to create an archive of the historical memory of the Design System at Politecnico di Milano and, at the same time, to develop a collective and shared action of reflection on the identity – both past and future – of the increasingly broad community. The considered period of time begins symbolically from the first *trace* of the construction of a *polytechnic design culture*, identified in the *Progettazione artistica per l'industria* (*Artistic Design for Industry*) course led by Alberto Rosselli in the academic year 1963-64 (was run until 1984 when the discipline merged into the *Industrial Design* course.

Initially entrusted to the teaching of Alberto Rosselli, the course was later also taught by Achille Castiglioni and Marco Zanuso). However, the project mainly focusses on the more recent history, namely the 30 years since Italy's first Degree Course in Industrial Design was established in 1993 thanks to the vision of masters such as Tomás Maldonado, who had been the coordinator of the first cycle (Cycle V) of the PhD in Industrial Design since 1990. The project to introduce the Industrial Design Degree Program into the Italian University System (DM 24/2/93), and the proposal for its implementation at Politecnico di Milano, stems from a cultural and political initiative spearheaded by Tomás Maldonado, with support from the then Dean

of the Faculty of Architecture, Cesare Stevan, and the Department of Planning, Design, and Building Production of Politecnico di Milano. Since then, years of great experimentation have passed, which have strongly contributed – through the structuring of a wide range of educational offerings and the maturation of national and international research experiences – to the evolution of design itself, in its scientific-cultural, as well as educational and professional expressions. The testimony of a history as brief as it is intense and complex could only be based on collaborative work, which gave space to diverse and complementary voices and visions, sometimes even opposing ones. Through the experimentation of hybrid tools and innovative methods of collection, representation, and narration of content, the project aimed to offer the scientific community, as well as a broader audience, especially in the field of education, an awareness of the evolution of polytechnic design thinking.

Figure 1.
The genesis of *Design Philology*'s narratives: fragments (documents, stories, testimonies, ...) recomposed into meaningful frameworks.

12.5 Activating the archive: documents, links and co-creation

Design Philology revolves around a platform based on a digital archive that collects, catalogues, and makes accessible a wide – and continuously expandable – selection of heterogeneous materials, including official documents, photographs, publications, diagrams and video testimonials. The project approach is based on a *philological* principle, aiming to reconstruct the history of *polytechnic design* through con-

crete traces gathered in collaboration with the community of the Design System of Politecnico di Milano. This includes contributions and materials sourced from researchers, professors and teaching staff, administrative personnel, alumni and others: more than a hundred people, along with the Historical Archives of Politecnico, participated in establishing the archive.

A distinctive feature of *Design Philology* is its open infrastructure, which does not confine the collected contents to a predefined container but instead allows for continuous and simultaneous updating, enrichment, and expansion.

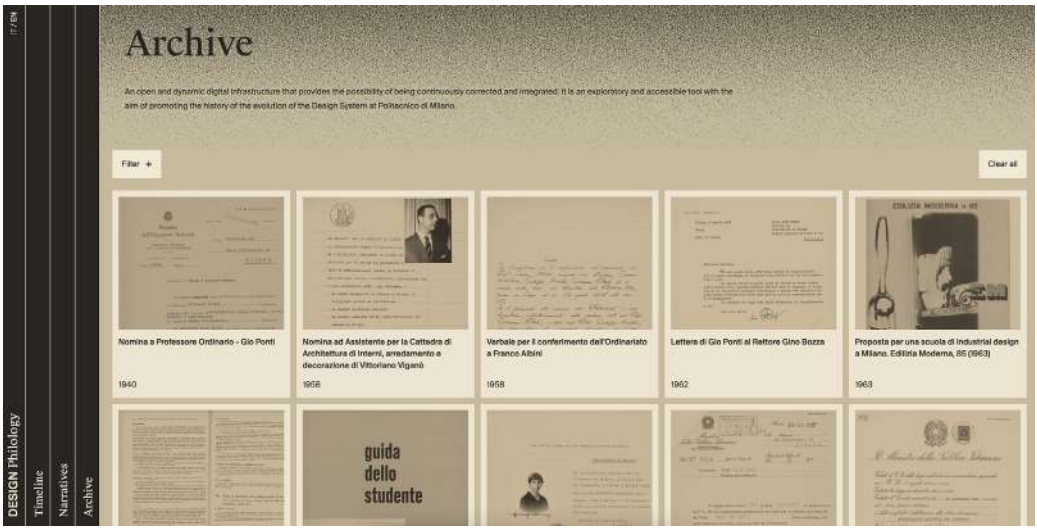

Figure 2.
Design Philology's digital archive.

The digital archive ensures a comprehensive exploration of its contents, navigating through fragments with the aid of an infrastructure that allows for the application of temporal, typological and thematic filters. However, the purpose of *Design Philology* goes beyond this, focussing primarily on experimenting with narrative modes capable of presenting an overarching framework, while simultaneously offering multiple viewpoints and insights into the recent history that characterizes the Design System.

Alongside the collection of documents and the implementation of the digital database, the project has focused on developing innovative and effective modes of presentation and narration. Two different types of engagement and storytelling have been devised: Timelines

and Narratives. These have been made possible through a sophisticated infrastructure and the use of advanced data-mining models, which highlight relationships between documents, events, locations and protagonists, thus offering a dynamic and hypertextual view. The Timelines are based on the arrangement of collected traces within the database (events, documents, people) along multi-dimensional and multi-level timelines. This provides a comprehensive view of the Design System's evolution, segmented into its two dimensions of Education and Research. The second mode of navigation and storytelling within the archive focuses on a more exhibition-oriented dimension, aptly named Narratives. Stemming from the concept of generating temporary digital exhibitions, through the perspectives of various curators, this system can narrate *portions* of history via pathways characterized by brief texts and a predominance of visual elements, made possible by the abundance of materials available in the archive.

12.6 Narrating through documents: narrative paths as exhibition devices

The heterogeneous nature – in terms of typology, support, and origin – of the documents collected in the *Design Philology* database allows for the reconstruction of insights into the history of the institution through various scopes and perspectives, anchoring the narrative to a fundamental temporal framework. The density of the *fragments* comprising the digital archive reconstructs a varied and comprehensive memory and identity: as previously illustrated, to enhance and diversify the use of the platform, there was a decision to design an editorial schedule of small digital exhibitions, called *Narratives*, to offer curators the opportunity to construct their own displays of materials and thus present their vision on themes, people, and contexts in a pluralistic view of history.

The reference model for the construction of these *hypertextual digital exhibitions* lies in the use of a vertical scrolling format, the *long form*, which ensures a continuity of reading while allowing for the in-depth exploration of individual contents. An example of this is the *Google Arts & Culture* project (artsandculture.google.com/explore),

which, starting from the vast database of artworks and cultural materials of various kinds, presents thematic deep-dives built with interactive modules; similarly, the Smithsonian Anacostia Community Museum offers a digitized version of some exhibitions, such as *A Right to the City* (2018-2020), following the same model and making the experience interactive through clickable and expandable content.

Figure 3.
***Design Philology*'s narratives modules.**

The *Narratives* section of the *Design Philology* platform adopts the long form structure, constructing the narrative on an open and dynamic grid of modules of different sizes and colours that offer a wide narrative autonomy, adapting to the needs and preferences of the curator. Events, documents, people, texts, quotes and videos can be freely juxtaposed, fully utilizing the potential of the digital realm to build hypertextual and multimedia pathways, which can be very different from each other, not only in terms of content but also in terms of length, reading time, and depth of analysis.

Furthermore, the modules comprising the *Narratives* are clickable and can display in-depth pop-up information sheets for each event, document, or person, corresponding to the contents stored in the digital database that forms the archive.

The initial narrative paths presented on the *Design Philology* platform in October 2023, coinciding with the project's launch, reflect the varied possibilities of using the modular layout: they range from more

historiographic approaches (*The Beginnings*, *30 Years in a Glance*) to thematic ones (*Design Convivio, Designing Design Education, Research Trajectories*), which combine texts, events and documents. These are juxtaposed with pathways where the narrative is predominantly entrusted to the visual component through photographs, images, posters and videos (*Beyond the Borders*, *Echoes from Alumni*).

For instance, the *30 Years in a Glance* narrative path, commemorating the 30th anniversary of the founding of the Industrial Design Degree Course, reconstructs the fundamental stages that led to the creation of the complex Design System. By juxtaposing regulations, official acts, teaching apparatus and iconographic documents – such as the *Industrial Design Degree Course Instituting Document*, or the photograph of the first Executive Committee of the Industrial Design Degree Course on the back cover of the *Student Guide* for 1999-2000 – the narrative highlights the milestones of a thirty-year history, identifying its significant phases such as *the startup years*, *the foundations of Design Research*, *Experimentation and Consolidation of the Teaching project* and *opening up to internationalization*.
In addition to and in support of the Narratives, *Design Philology* includes *Essays*, hypertextual essays designed for dual online and offline consumption. Online access is facilitated through clickable links, while offline access is provided via QR codes that directly link to the digital platform's contents. The project plans to enrich the *Narratives and Essays* sections through an annual call for curatorial contributions, structured around three main sections: *Themes*, in-depth explorations dedicated to the various thematic areas; *Protagonists*, detailed analyses dedicated to key figures at Politecnico di Milano; and *Networks and Contexts*, detailed analyses aimed at tracing the relationships between the internal history of Politecnico di Milano and various national and international university contexts.

The *Essays* of *Design Philology*, together with the *Narratives*, integrate innovative editorial models into the digital platform, generating a closely connected multi-level project. By supporting the participatory dimension of an extended academic community in the field of design, it is able to construct a living digital archive of the Design System.

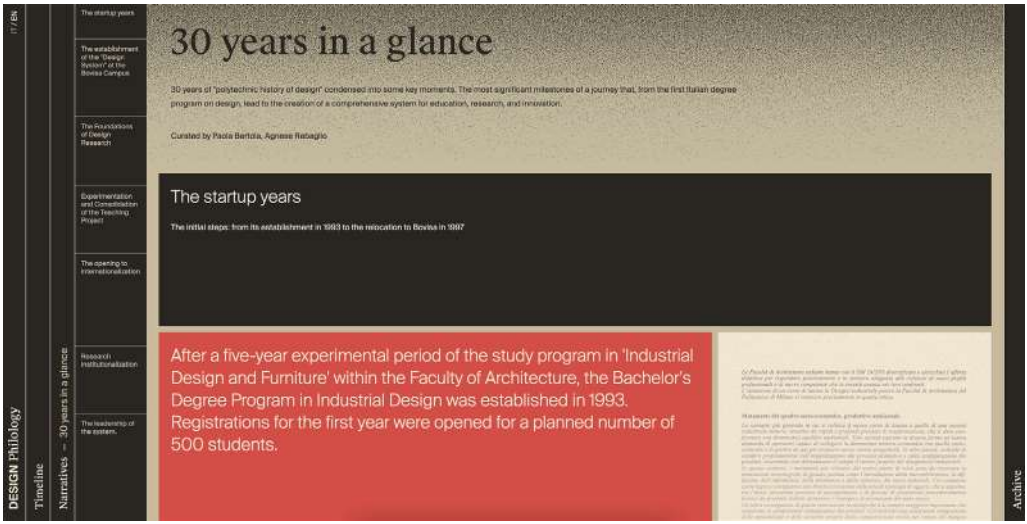

Figure 4.
Design Philology's narratives.

12.7 Conclusions

Memory, by its nature, is an evolutionary process, nourished by the sedimentation of events, stories, places and people. The digitization of archives has exponentially increased the mass of materials accumulated over time by cultural institutions. The recent and rapid history of a degree course in Industrial Design amplifies the complexity of a narrative that is still *alive* and present. The challenges regarding the valorization of this history and memory are diverse.

First and foremost, it is necessary to embrace the complexity and multiplicity of narratives that can be evoked, while respecting subjective sensitivities and viewpoints. Despite being anchored in the objectivity of documentary materials, it is acknowledged that knowledge occurs through *fragments* that rearrange themselves along sometimes highly personal trajectories. Thus, in the *Design Philology* platform, even the *timelines* multiply and overlap in reading, and the relationships between the archived fragments are more significant than the whole.

Furthermore, it is essential that the archive and the stories that emerge from it are the result of collective effort, in which the community of reference feels engaged. This implies a responsible *taking charge* by the promoters, but above all, the design of an open,

cross-pollinated, networked process among the many actors of a complex and living community, in order not to lose the memory that is constructed over time.

Lastly, the design of the archive should be envisioned as a continuous effort towards its *activation*: «Storage is easy; activation is difficult» (Schnapp, 2016). If we consider that the university is first and foremost a place of knowledge, education, and relationships, perhaps we could also envision the repository of its cultural memory as a living, active *narrative space* that is designed daily, firmly rooted in cultural heritage but decidedly forward-looking.

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Annex I

Eleonora Lupo

The Design Journal

Year	Author	Title	LR panel
2023	Alyssa Tang & Ivana Nakarada-Kordic	Unpacking notions of community: Critical design and exhibition as a creative participatory research method	02 PD in CH
	Kirsi Hakio & Tuuli Mattelmäki	Turning inwards for change – The role of inner conditions in transformative co-design	01 PD
2022	Sneha Raman & Tara French	Participatory design in sensitive contexts: A proposal for a conceptual framework	01 PD
2021	Cara Broadley	Advancing Asset-Based Practice: Engagement, Ownership, and Outcomes in Participatory Design	01 PD
2020	Helena Kraff	A Critical Exploration of Agonistic Participatory Design	01 PD
	Simone Taffe & Meghan Kelly	Exchanging Expertise across Cultures and Time: Participatory Design Approaches for Creating Community Museums	02 PD in CH

Design and Culture

Year	Author	Title	LR panel
2023	Mayane Dore	Designing With or Against Institutions? Dilemmas of Participatory Design in Contested Cities	01 PD
	Chiara Del Gaudio	(In)Visible Participants	01 PD
	Shana Agid & Paula Austin	Designing Against Infrastructures of Harm: Introduction	01 PD
2022	Emīlija Veselova & İdil Gaziulusoy	Bioinclusive Collaborative and Participatory Design: A Conceptual Framework and a Research Agenda	01 PD
2021	Desiree Hernandez Ibinarriaga & Brian Martin	Critical Co-Design and Agency of the Real	01 PD
2020	Manuela B. Taboada, Sol Rojas-Lizana, Leo X.C. Dutra & Adi VasuLevu M. Levu	Decolonial Design in Practice: Designing Meaningful and Transformative Science Communications for Navakavu, Fiji	01 PD
2019	Yoko Akama, Penny Hagen & Desna Whaanga-Schollum	Problematizing Replicable Design to Practice Respectful, Reciprocal, and Relational Co-designing with Indigenous People	01 PD
2018	Uzma Z. Rizvi	Critical Heritage and Participatory Discourse in the UAE	02 PD in CH
	Tristan Schultz, Danah Abdulla, Ahmed Ansari, Ece Canlı, Mahmoud Keshavarz, Matthew Kiem, Luiza Prado de O. Martins & Pedro J.S. Vieira de Oliveira	Editors' Introduction	01 PD

Design Issues

Year	Author	Title	LR panel
2023	Niek Kosten & Liesbeth Huybrechts	Hypervernacular Design: Rethinking the Vernacular Design Paradigm	01 PD
2022	Manuhuia Barcham	Weaving Together a Decolonial Imaginary Through Design for Effective River Management: Pluriversal Ontological Design in Practice	02 PD in CH
2020	Eva Knutz & Thomas Markussen	Politics of Participation in Design Research: Learning from Participatory Art	02 PD in CH
2019	Mona Sloane	On the Need for Mapping Design Inequalities	01 PD
2018	Miso Kim	Designing for Participation: Dignity and Autonomy of Service (Part 2)	01 PD
2018	Paola Pierri	Participatory Design Practices in Mental Health in the UK: Rebutting the Optimism	01 PD
2018	Annapurna Mamidipudi	Constructing Common Knowledge: Design Practice for Social Change in Craft Livelihoods in India	02 PD in CH
2016	Ilpo Koskinen	Agonistic, Convivial, and Conceptual Aesthetics in New Social Design	01 PD

Design Studies

Year	Author	Title	LR panel
2023	Asnath Paula Kambunga, Rachel Charlotte Smith, Heike Winschiers-Theophilus and Ton Otto	Decolonial design practices: Creating safe spaces for plural voices on contested pasts, presents, and futures	02 PD in CH
2021	Dagny Stuedahl, Ageliki Lefkaditou, Gro Synnøve Ellefsen and Torhild Skatun	Design anthropological approaches in collaborative museum curation	02 PD in CH

International Journal of Design

Year	Author	Title	LR panel
2020	Andrea Botero, Sampsa Hyysalo, Cindy Kohtala & John Whalen	Getting participatory design done: From methods and choices to translation work across constituent domains	01 PD
2019	Andrew Drain & Elizabeth B.-N. Sanders	A collaboration system model for planning and evaluating participatory design projects	01 PD
2016	Chiara Del Gaudio, Carlo Franzato & Alfredo Jefferson de Oliveira	Sharing design agency with local partners in participatory design	01 PD

She Ji

Year	Author	Title	LR panel
2022	Manuhuia Barcham	Decolonizing Public Healthcare Systems: Designing with Indigenous Peoples	01 PD
2021	Juan de la Rosa, Stan Ruecker, Carolina Giraldo Nohora	Systemic Mapping and Design Research: Towards Participatory Democratic Engagement	01 PD

CoDesign

Year	Author	Title	LR panel
2023	Elise Hodson, Annukka Svanda & Nastaran Dadashi	Whom do we include and when? participatory design with vulnerable groups	01 PD
	Manuhuia Barcham	Towards a radically inclusive design – indigenous story-telling as codesign methodology	01 PD
	Nicola Antaki & Doina Petrescu	Designers' roles in civic pedagogies of co-making: lessons from the Global South and North	01 PD
2022	Claudia Grisales-Bohórquez, Pedro Reynolds-Cuéllar, Gloria Inés Muñoz Martinez & Andrés Sicard Currea	Participation reimagined: co-design of the self through territory, memory, and dignity	02 PD in CH

	Sneha Raman & Tara French	Enabling genuine participation in co-design with young people with learning disabilities	01 PD
	Anne Rørbæk Olesen, Nanna Holdgaard & Anders Sundnes Løvlie	Co-designing a co-design tool to strengthen ideation in digital experience design at museums	02 PD in CH
	Santosh Jagtap	Co-design with marginalised people: designers' perceptions of barriers and enablers	01 PD
2021	Andrew Drain, Aruna Shekar & Nigel Grigg	Insights, Solutions and Empowerment: a framework for evaluating participatory design	01 PD
2020	Gabriela Avram, Luigina Ciolfi & Laura Maye	Creating tangible interactions with cultural heritage: lessons learned from a large-scale, long-term co-design project	02 PD in CH
	Chiara Del Gaudio, Carlo Franzato & Alfredo Jefferson de Oliveira	Co-design for democratising and its risks for democracy	01 PD
2019	Janet Kelly	Towards ethical principles for participatory design practice	01 PD
	Roger Whitham, Simon Moreton, Simon Bowen, Chris Speed & Abigail Durrant	Understanding, capturing, and assessing value in collaborative design research	01 PD
	Gabriela Avram, Jaz Hee-jeong Choi, Stefano De Paoli, Ann Light, Peter Lyle & Maurizio Teli	Repositioning CoDesign in the age of platform capitalism: from sharing to caring	01 PD

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Year	Author	Title	LR panel
2023	Alessandra Bosco, Silvia Gasparotto and Margo Lengua	Participatory flows. A comparative analysis of co-design processes in the field of cultural heritage	02 PD in CH
2018	Tristan Schultz	Mapping Indigenous Futures: Decolonising Techno-Colonising Designs	01 PD
	Giulia Testori, Viviana d'Auria	Autonomía and Cultural Co-Design. Exploring the Andean minga practice as a basis for enabling design processes	01 PD
	Raquel Noronha	The collaborative turn: Challenges and limits on the construction of a common plan and on autonomía in design	01 PD
	Andrea Botero, Chiara Del Gaudio, Alfredo Gutiérrez Borrero	Towards a polylocal polylogue on designs and autonomías – an intro.	01 PD
2016	Per-Anders Hillgren, Anna Seravalli and Mette Agger Eriksen	Counter-hegemonic practices; dynamic interplay between agonism, commoning and strategic design	01 PD

Authors

Giuseppe Amoruso: Civil Engineer, Associate Professor at Politecnico di Milano, Department of Design, from 2020, Scientific Habilitation as Full Professor, PhD in Drawing and Measured Drawing. He investigates CAD&BIM, heritage studies, and experimental museology. He is the author of 175 publications. Chair of INTBAU ITALIA, the International Network affiliated with the King's Trust in London, and of the project *Regenerating Amatrice*. An expert in cultural cooperation, he recently directed the *Program for the definition of a strategic plan for the improvement and the enhancement of the Folklore Museum, the Museum of Popular Traditions, and the site of the Roman Theatre in Amman* (2023).

Suzie Attiwill: Professor of Interior Design at the School of Architecture & Urban Design, RMIT University, Australia. She holds a PhD (Architecture & Design), a Master of Arts (Design), and Bachelors' degrees in Interior Design & Art History. Since joining RMIT in 2000, Suzie has regularly taught undergraduate & postgraduate interior design students, and supervises practice research PhD Interior Design candidates in Australia, Europe, and Asia. Her research is conduct-

ed through a practice of designing with a curatorial inflection that arranges and re-arranges spatial, temporal, and material relations to intervene in contemporary conditions and experiment in the production of interior and interiority.

Ilaria Bollati: Architect and designer with a PhD in Economics of Culture. Previously, she worked at Studio Azzurro and Fabbrica del Vapore. Currently a researcher in Politecnico di Milano's Department of Design, she seamlessly integrates research, planning and design within the realm of cultural economics. As an external consultant, she collaborates with institutions such as Pinacoteca di Brera, Biblioteca Nazionale Braidense, and Fondazione Pini. Ilaria specializes in producing exhibitions, designing set-ups, and curating content. Her expertise extends to teaching and advocating for the adoption and benefits of digital technologies. She focusses on the intricacies of cross-media cultural experiences, and takes unconventional approaches to studying the evolving demand for culture.

James Bradburne: Anglo-Canadian architect, designer and museologist who has designed world exhibition pavilions, science centres and international art exhibitions. Educated in Canada and England, he holds a degree in architecture from the Architectural Association and a doctorate in museology from the University of Amsterdam. Over the past twenty years, he has carried out exhibitions, research projects and conferences on behalf of UNESCO, national governments, private foundations and museums in various parts of the world.
From 2006 to March 2015, he was Director General of the Fondazione Palazzo Strozzi, dedicating himself to transforming the Palazzo into a dynamic cultural centre. Now retired, from 2015 – 2023 he was Director General of the Pinacoteca di Brera and the Braidense National Library.

Laura Carugati: Designer and Research Fellow at the Design Department of Politecnico di Milano. Her research interests include delving into the themes of digital archives, innovative approaches to visualization, and communication of cultural heritage and culture proximity. Furthermore, she explores and examines experimental and participatory curatorship, with a dedication to advancing knowledge in the field

of design history and culture, and exploring effective methods for its dissemination.

Luisa Collina: Full Professor of Design at Politecnico di Milano, with a PhD in Architecture. Her teaching, research and practice are related to interior and service design, focussing on strategies, meta-design, and design-driven innovation. She has previously served as Dean (2016-2021) of the School of Design at Politecnico di Milano. In 2013 she was elected President of Cumulus, the International Association of Universities and Colleges of Art, Design, and Media, and remained in the role until 2019. Since July 2021, she has held a position in the Italian Ministry for University and Research: National Expert for Horizon Europe Cluster 2 – Culture, Creativity and Inclusive Society.

Paola Cordera: Associate Professor at the Politecnico di Milano. She was the Leon Levy Fellow at the Center for the History of Collecting, at the Frick Art Reference Library in New York (2016) and a visiting scholar at the American Academy in Rome (2023-2024). Building upon a multidisciplinary background developed over time through research projects and publications, her research interests include the history of art, decorative arts, and Design from a transdisciplinary perspective in museums and cultural heritage. She is currently the Principal Investigator on the VO Project *Voices of Objects. The Italian Design from Museum to Home* (2021-2024) focussing on the travelling exhibition *Italy at Work* (1950-1954) in the framework of post-war Marshall Plan funding in Europe.

Peter Di Sabatino: A licensed architect in California and has held senior positions in significant studios. Since 2016, he is a Professor at Politecnico di Milano teaching in graduate-level degree programs. His research focuses on creative, responsible, and resilient interventions in the city with an open, progressive, and comprehensive paradigm that engages place, time, modernity, and cultural heritage. Peter was previously Professor and Dean of the College of Architecture, Art, and Design at the American University of Sharjah in the UAE, and Professor and Chair of the Department of Environmental Design at Art Center College of Design in Pasadena.

Elena Elgani: PhD in Interior Architecture and Exhibition Design. Research fellow in the Department of Design, at Politecnico di Milano. Her research interests are in the field of interior design, with a focus on design for hospitality. Recently, she has focussed on the relationship between spatial design and environmental sustainability, taking into account customized solutions and furniture systems for interiors (funded research project, 2022-2024) and regenerative spaces for tourism. At the School of Design – Politecnico di Milano she teaches Interior Design, and she is secretary of the Programme Board for the Bachelor's in Interior Design.

Giulia Gerosa: Architect and PhD in Industrial Design and Multimedia Communication. She writes articles, publishes books, and participates in research and conferences focussed on interior spaces, with particular emphasis on the communicative component of the architectural project and the brand identity. She has collaborated with Politecnico di Milano's School of Design since 1998. She is an Associate Professor at the Design Department of the Politecnico di Milano, and Co-Director of the Master's in Interior Design, coordinated by Politecnico di Milano and Scuola Politecnica di Design.

Federica Guarnieri: Interior and Spatial designer and Research fellow at the Department of Design, Politecnico di Milano, where she studies the role of interior design as a tool for identity creation within university campuses, and how it contributes to the quality, creativity and innovation of teaching and research. In parallel, she collaborates with the Department of Design in the implementation of interior renovation projects for other departments of the Politecnico di Milano.

Rossella Locatelli: trained as an architect, Rossella is a PhD candidate in Design at Politecnico di Milano, researching the connections between future approaches and sustainability methods in exhibition design for temporary events. Her interests move between exhibition design and architecture, focussing on trans-disciplinary approaches. From 2011, as architect of AOUMM, she worked in exhibition design for cultural institutions and museums. She has taught and presented in workshops and conferences at design universities and academies, such as the New

Academy of Fine Arts in Milan, the University of Art and Design in Basel, the Geneva Haute École d'Art et de Design, and Paris 8 University.

Eleonora Lupo: Associate Professor at the Politecnico di Milano, with a PhD in Industrial Design and Multimedia Communication. Her main research interests concern product and process design cultures, *humanities-centred innovation*, Design for the Cultural Heritage system, and cultures of design research and scientific publishing, dealing with a pluriversal approach for decentring design knowledge and narratives. She is a member of the Board of the PhD Program in Design at Politecnico di Milano, and of the Collegium of Reviewers of The Design Journal.

Ico Migliore: Professor at the Design School of the Politecnico di Milano, chair Professor at Dongseo University of Busan (South Korea) and member of the Scientific Committee of the Franco Albini Foundation. Architect, three-time winner of the Compasso d'Oro award, co-founder of the studio Migliore+Servetto, he has signed international interventions for some of the main cultural destinations in Europe such as the Egyptian Museum in Turin, the ADI Design Museum in Milan and the Chopin Museum in Warsaw. He was co-curator and art director of the Italian Pavilion 4 *Elements/Taking Care* at the XXII Triennale Internazionale di Milano, *Broken Nature: Design takes on Human Survival* (2019). His books include *Museum Seed. The Futurability of Cultural Places* (Electa, 2024) and *Time to Exhibit* (FrancoAngeli, 2019).

Polina Mironenko: Dipartimento Politecnico di Ingegneria e Architettura - Univeristà degli Studi di Udine. Interior Designer, a graduate of Politecnico di Milano; PhD in Civil-Environmental Engineering and Architecture in experimental museology and advanced simulation. Researcher in *Experiential design for museum interiors and the representation of cultural heritage. Interaction and access strategies to heritage for the representation of Jordanian culture*, Department of Design, 2021-2022. She is an expert in CAD/BIM systems and works with digital systems for Design and advanced visualization of architecture. She focusses on the emerging themes of digital museology to deepen the use of two modelling and simulation environments, BIM and Game Engine.

Agnese Rebaglio: Designer and PhD, she is an Associate Professor at the Department of Design, Politecnico di Milano. Her research activity focusses on the role of Design in the innovation processes of urban spaces, from a perspective of sustainability and inclusion. She is Scientific Director of the Specializing Master's in *Design for Public Spaces* provided by POLI.Design. She has developed research in the fields of Design for urban social inclusion, processes of urban regeneration, energy sustainability promoted by Design, and circular economy for new production chains. She is a promoter for the Interior Design Degree Course of GIDE (Group for International Design Education), a network of European design schools that collaborates in educational programmes.

Dina Riccò: Associate Professor at the Department of Design - Politecnico di Milano. A graduate of architecture, and with a PhD in Industrial Design, her main subject of study is applied synaesthesia to design and multimedia, communicative accessibility in audio-video and museums. She is the author of over 130 publications in books, journals, and national and international conferences, including the recent curations of the books *Accessibilità museale* (FrancoAngeli, 2023) and *Accessibilità comunicativa* (with M.C. Andriello; Rai Libri, 2024).

Raffaella Trocchianesi: Architect and Associate Professor at the Department of Design, Politecnico di Milano, she teaches Interior Design Studio and Exhibit Design Studio at the School of Design. Director of the Specializing Master's *IDEA_Exhibition Design*, she mainly deals with Design for Cultural Heritage in terms of museography and exhibition design, communication and enhancement of local areas, new models and narratives of cultural experiences, and the relationship between design, Humanities and arts. She is currently scientific lead on the project *Sound Design & Cultural Heritage*.

Qing Yu: Interior designer and Research Fellow under the Marie Skłodowska-Curie Actions programme. She is trained in interior architecture and design through her Bachelor's and Master's degrees. She also has experience of conducting Design ethnographic research on a post-disaster architectural construction project in a Fijian village.

In 2022, she started her double-degree PhD research project (co-funded, EU Horizon 2020). Within the RMIT European Doctoral Innovators programme, the project collaborates with Politecnico di Milano, RMIT University, and Triennale Milano. This unique research experience in an innovative PhD programme led to a merging of her roles as an interior designer, researcher, exhibition designer and curator.

This volume focuses on the dynamic systems of creativity and culture within diverse design fields, merging theoretical reflections, case studies, methodologies, technologies, tools, and original practices. Twelve essays underscore design's role in sustainability, emphasizing local growth, community revitalization, and the co-creation of cultural, economic, and social values. In today's global society, crises in productive cycles, amplified by COVID-19, have accelerated change and influenced behaviors. Digital technologies have transformed the media landscape, bridging the gap between designers and stakeholders and expanding possibilities in both real and virtual domains. As a new era emerges, this book revisits concepts like *sustainable culture*, *inclusive sociality*, and *participation* in cultural heritage as a common good. It proposes a holistic approach to the Anthropocene Age's challenges, highlighting creative industries' importance in local development and community engagement.
By adopting multidisciplinary approaches, the volume seeks to inspire new models for cultural engagement and community development, contributing to a more inclusive and sustainable future. It redefines issues like accessibility, multiculturalism, and inclusion, reshaping the social and political positioning of the cultural system.

FrancoAngeli
La passione per le conoscenze