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Human Body Interaction

edited by Michele Zannoni, Roberto Montanari



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CULTURE AND CREATIVITY IN INCORPOREAL CITIES. DESIGNING COLLECTIVE CREATIVE BODIES

Elena Vai*

Performative events as design agents for new cultural behaviors

Cultural and creative sectors are a significant driver of local development through job creation and income generation, spurring innovation across the economy. Beyond their economic impacts, they also have significant social impacts, from supporting health and well-being to promoting social inclusion and local social capital.

OECD, Culture and the creative economy in Emilia-Romagna, Italy, 2022

In the visual and performing arts, the body and its representation have always been assumed as a parameter for measuring space, crystallizing presence, and sublimating the body in time.

In design cultures, the body becomes raw material for constructing relationships between cultural-social content and the spaces and objects (material or immaterial) that preserve the trace of this relationship (NORMAN, 1990).

Today, design, creativity, and cultural and creative industries are listed among the drivers that can drive the contemporary phase of uncertainty and crisis.

The contribution moves from the research question about how much can policies, design processes, cultural and creative practices and events contribute to create responses to the need for continuous adaptation of people in the cities.

With the first but brief experiments in immersive Virtual Reality in the late 1980s and early 1990s (CARONIA, 2010) and the irruption of incorporeality, the body-creativity-project-time relationship, previously experienced in a uniquely phenomenological-perceptual and situated dimension, breaks down.

Of this privileged lost physical relationship and the revolutionary emergence of the concept of incorporeality, traces can be found in the prophetic narratives contained in *The City*

* Dipartimento di Architettura, Alma Mater Studiorum - Università di Bologna, Italy of Bits. Spaces, Places and Information Highways (MITCHELL, 1997), in which the author investigates the epiphany of "online environments", tracing the genesis of the founding of the "global village" of the twenty-first century. A territory connoted by "electronic agoras" inhabited by antispatial, fragmented, incorporeal identities, whose conversations are asynchronous and participation conditioned by broadband connection, with the possibility of leaving by establishing or severing the connection to the network.

The purpose is to describe an emerging but still invisible reality, the city of the twenty-first century [...] to imagine and create environments, digitally mediated, for the kind of life we want to lead and the kind of community we want to have. (MITCHELL, 1997)

The interest in analyzing the role of design in the construction of relationships between bodies and spaces and its generative capacity lies in my personal experience as a practitioner of embodied creativity in the production of events. I have been aware of their value as agents of transformation (CELASCHI et al., 2019), anticipatory prototypes of the future (VAI, 2021), spatiality, corporeality, proximity (FORMIA et al., 2021a), community (DJALALI et al., 2019) and digital synchronicity heir to Mitchell's anticipatory scenarios:

the digital telecommunications revolution, the increasing miniaturization of electronics, the commodification of bits, and the growing dominance of software over material form [...] were building an information highway, thus reconfiguring space-time relationships in ways that promised to transform our lives for good. (MITCHELL, 1997, p. 6)

I have been interested in this reconfiguration of spatial-temporal relations that bodies are undergoing in an increasingly incorporeal city context, identifying temporary events as the enabling space for experimentation and design of new cultural products, services and behaviors.

In the preface to the American edition of *A Landscape of Events* (2000), Bernard Tschumi illuminates Virilio's analysis of the acceleration of time to the point where space itself is swallowed up by time: "Space becomes temporal. [...] Time is what allows us to measure space."

In the past two decades, time has progressively assumed the role of a product that conditions any body-creativity-design-environment relationship. It is in the dimension of time, even more than in physical space, that every relational action is designed and performed.

We live bodies augmented by technological prostheses thanks to increasingly intelligent miniaturized and dematerialized *software*. Paradoxically today our memory, the technologies themselves and the objects that surround us, are subject to rapid obsolescence.

Since the first decade of the 2000s with the emergence of social networks and sharing platforms, encounters, relationships, and the production of cultural products and services have been designed through the mediation of devices that have enabled the migration of many behaviors into the digital dimension.

The poetics of many contemporary artists, the productions of the cultural and creative industries expressed in events can be documents and signals of the restlessness we are experiencing as human beings (body-mind) in the attempt to find a balance between the real world and its digital double.

Already Mitchell mentioned the reduction of many objects to "repertoires of digital archaeology", introducing the value of digital memory. The issue of preservation, and new fruition of digitalized heritages is increasingly emerging in the areas of creativity and culture, that are considered non-alienable public goods (UNESCO, 2022).

Today, the need to record, save, store, in order to preserve, reproduce and share cultural content, some born in the virtual dimension, opens up unprecedented realms of production of new "cultural bodies" and innovative models of their fruition in performative events, designed themselves in hybrid and dual modes.

The question this chapter seeks to answer is whether policies, products and services designed by cultural and creative industries can be relieving solutions to the need for continuous adaptation of bodies in more and more incorporeal cities.

Bodies as living archives

The metaphor of the body-archive refers to the idea that the materiality of the body can be understood as a set of documents capable of suggesting meanings beyond the physical dimension and guarding remote and constantly changing knowledge.

Susanne Franco, Corpo-archivio: mappatura di una nozione tra incorporazione e pratica coreografica, 2019

The various theorizations of the body as archive (FRANCO, 2019) elaborated by researchers, critics and artists are not only fueling new theoretical and practical approaches to the histories of different cultural and creative disciplines, but are helping to broaden the debate in design cultures about Human Body Design, and the emergence of new behaviors.

Innovating the design of "cultural bodies" involves actively engaging those who research, experiment with, and enjoy these products, taking into account their interaction and the dual nature of the environment (real and digital).

In the artistic avant-gardes of the 1960s and 1970s, Viennese Actionism, performance, happenings, and radical design, the body became the subject, object, and practice of actions that engaged physical spaces and viewers in experiments that drew on literary repertoires of myths, rituals, and tragedies.

In the next two decades, in the 1980s and 1990s, the body-action gradually gives way to its representation. There is a progressive thinning of bodily substance, reduced to pure painting (i.e. the Transavanguardia movement), not interacting with the users. In those decades in the field of design, designer-star authorship is expressed through serial iconic forms (one among many, Philippe Starck's Juicy Salif for Alessi) with respect to which a critical-contemplative, rather than tactile and functional, attitude is demanded.

Since the late 1990s, abetted by the digital revolution initiated by CERN's public release of the *World Wide Web* technology in 1993, artists and designers have gradually drawn closer together in the production and distribution models of works and objects.

To the unambiguous definitions of design as a specific discipline pertaining to industrial design, which had marked the

literature from the postwar period onward, the conceptual positions of Critical Design emerged in those years, which essentially and progressively elided the functional relationship of the body from the design of the object.

Indeed, at the same time that practices that used art forms were spreading in design, artistic practices that enacted design forms were multiplying in the contemporary art world. Faced with this double movement, it then becomes legitimate to ask what differentiates these practices, which often focus on the same objects. (QUINZ, 2018, p. 15)

The reflection on the "same objects" conducted indiscriminately by designers and artists in collaboration with scientists is investigated in *Art*, *Technology and Science* (MANCUSO, 2018), in which elements of convergence between different disciplines and practices are emphasized, thanks to the diffusion of enabling technologies in all fields of knowledge, in art, design and more generally in the areas of contemporary culture production.

The body becomes a prototype, a field of experimentation, an environment for implants of technological prostheses and wearable devices.

The evaluation that is expressed is that of an artistic panorama in the field of New Media Art changed in its relationship with industrial research (hardware, software and networks) and science, thanks to its own ability to activate systems between different entities:

In fact, one observes an increasing number of artists, designers, creatives and industries – in ICT and scientific research circuits – involved in the design of sustainable development models for the realization of a cultural and artistic "object." The new creative classes [...] are today able to connect industry with an ecosystem made up of research centers, laboratories, academies, and exhibition spaces such as to activate systems of conception and circulation of a work to which, normally, the company would not have access. (Mancuso, 2018, p. 13)

Therefore, the following reflection aims to explore the role of CCIs and policies in their support, also in light of the impacts due to the pandemic crisis (LHERMITTE et al., 2021), in the construction of ecosystems that allow original interactions between culture, creativity, cultural and creative productions.

The aim is to anticipate possible scenarios and processes to protect micro creative realities, to offer them the right of existence, fostering and expanding their metabolism through interaction with international realities.

The hope is to direct actions and tools toward the design of new cultural and creative products and services that influence new cultural and social "bodies". These new "collective creative bodies" could be considered prototypical solutions, based on the return to the centrality of the presence, the need for real encounter and the need to feel part of a large community.

New collective creative bodies: the role of CCI and policies in designing ecosystems

Knowledge is no longer a disciplinary corpus, but "is" the environment in which we are immersed. Therefore, the artist is no longer connoted to the role of the revolutionary-genius, but, like the designer, engineer and scientist, he investigates the environment that surrounds us. Art, cinema, theater, music, and design all recover the aspect of their craftsmanship, becoming themselves tools, overcoming disciplinary boundaries and contributing, through new fusion processes, to defining new aesthetics for the future.

Elena Formia, Elena Vai, La cura del futuro, 2019

In a book written in the early months of the pandemic, *Design and Mutations*. *Processes for the Continuous Transformation of the City* (FORMIA et al., 2021b), I had focused attention toward processes, practices and methodologies deployed by designers and creatives for responsible transformation in the social and cultural care of cities, which had arisen in response to a radically and subtly transformed context.

Unprecedented practices were devised by designers, planners, curators, and citizens – from the invention of new models of engagement to the reactivation of places, from the creation of original content to unconventional uses of online heritage, from the hybridization of channels for communication to new processes of cultural production and dissemination – that, thanks to digital platforms, were rapidly disseminated, entailing immediate impacts in different spheres. (VAI, 2021)

In this contribution my aim is to explore the role of design and policies supporting CCI as agents of transformation, introducing interaction and the generative capacity of relationships as macro categories. Through this generative perspective I have selected actions, strategies and initiatives related to the context of Emilia-Romagna region, which I believe are potential tools in response to the need of CCI to design unprecedented interacting and immersive relationships between bodies and spaces, open to contamination with international experiences.

The methodology adopted in choosing themes refers to initiatives, projects and policies, related to the Emilia-Romagna region, in which CCI sectors and design assume centrality as agents in designing relationship and people engagement.

The criteria by which strategies and actions are listed follows themes:

- designing relationships through the interaction of physical bodies and physical spaces;
- designing relationships through the interaction of physical bodies and digital spaces;
- designing relationships through the interaction of virtual bodies and physical spaces;
- designing relationships through the interaction of virtual bodies and digital spaces.

Designing relationships through the interaction of physical bodies and physical spaces: festivals

Since the founding of the D.A.M.S. program at the University of Bologna in the early 1970s, Bologna became a place of experimentation that attracted and trained generations of creatives in the different disciplines of the Visual and Performing Arts, Music and Cinema.

Over the decades, the city and the territory, not only on a regional scale, have been crossed-fertilized by design practices for the development of cultural and creative products, many of which materialized and distributed thanks to the birth of important festivals.

From 1977 to 1982, the International Performance Weeks attracted famous artists such as Marina Abramović, Vincenzo Agnetti, Renate Bertlmann, Giordano Falzoni, Geoffrey Hendricks and Brian Buczak, Robert Kushner, Hermann Nitsch,

and John Cage. Today these "actions of relationship" between body art actions and spaces are being enhanced through the public exhibition of the original videos, thanks to the opening of a new permanent section of the MAMbo Museum entitled Archival Surveys. International Performance Weeks and the 1960s and 1970s in Bologna and Emilia Romagna.

In the field of theater and dance, Santarcangelo dei Teatri activates a temporary community composed of artists, citizens and the audience who confront each other through events and a schedule of appointments throughout the year, reflecting on the relationship between art and the city. Since 1971, the Festival has become the European benchmark for experimenting with new models of content creation, interaction between people and public space, and unprecedented models of sociality.

In the film industry, unique is the presence of cult filmmakers who have chosen the region's characters and landscapes as locations for the production of their films (Pier Paolo Pasolini, Federico Fellini, Michelangelo Antonioni, Bernardo Bertolucci, Marco Bellocchio, Valerio Zurlini, Pupi Avati, etc.), or as Carlo Di Carlo questions "I don't know to what extent it is a land of filmmakers or a landscape that has suggested to filmmakers to be interpreted." (*The Roots of Dreams*, 2014)

It is highly likely that the movie industry that has developed in the region has contributed to the emergence of more than 50 festivals, many of them with an international scope. See among them the thirty-sixth edition of Il Cinema Ritrovato in Bologna, a unicum in the programming of unreleased and/or restored films by the Fondazione Cineteca di Bologna; the fortieth edition of Bellaria Film Festival, dedicated to independent cinema; the twenty-second edition of Future Film Festival dedicated to animation, visual effects, virtual and augmented reality, gaming and media arts; the eighteenth of the Biografilm Festival, dedicated to biopics.

In the music sector, Node festival in Modena (nominated Creative City Unesco for MediaArts) combines live media performances, audiovisual projects and educational formats to bring young people closer to the new digital arts. These were the same objectives that have driven the design of the Robot Festival in Bologna since 2008.

1. Archive surveys. The International Weeks of Performance and the 1960s and 1970s in Bologna and Emilia Romagna. Exhibition view at MAMbo -Museum of Modern Art of Bologna. Detail: The third International Performance Week. The new dance. Gallery of Modern Art of Bologna, 1-7 June 1979. Photo Ornella De Carlo. Courtesy Settore Musei Civici Bologna.





2. Archive surveys. The International Weeks of Performance and the 1960s and 1970s in Bologna and Emilia Romagna. Exhibition view at MAMbo -Museum of Modern Art of Bologna. Photo Ornella De Carlo. Courtesy Settore Musei Civici Bologna. In the area of representation, Fotografia Europea Festival in Reggio Emilia has been exhibiting the best of international production in cloisters, churches, galleries and museums since 2007, through exhibitions, meetings and performances, and it has activated synergies with the biennial event FOTO/INDUSTRIA promoted by the MAST Foundation in Bologna since 2015.

In the area of design, the five editions of Bologna Design Week have helped to activate transversal relationships between students, professionals in the different fields of the discipline and CCI. The goal has been to map and bring together the cultural, educational, creative, productive and distributive excellences of the territory in a logic of open innovation and participatory design.

Regarding dance, the National Aterballetto Foundation based in Reggio Emilia, in 2022 proposes the project *Primavera di corpi, luoghi e danza*, a spring to decline new artistic and social horizons, between virtuosity and fragility, between research and technological innovation, between stages and urban spaces where performing choreographies and their fruition with completely new models.

These festivals, which are not exhaustive of the plurality of annual offer, demonstrate the vitality of the CCI sectors, which the pandemic crisis has to some extent limited, but which nonetheless has prompted reflection on new ways of digitally enjoying content, no longer just in presence, thus opening up the creation of new multiplatform formats and new multimedia profiles.

Designing relationships through the interaction of physical bodies and digital spaces: online platforms

Over the past decade, the region has turned its attention toward building reports and online repositories dedicated to mapping the emerging phenomenon of CCI (CELASCHI & VAI, 2021).

The performing arts system was observed through the emiliaromagnacreativa.it platform, which collects more than 70 annual festivals, addressed to music, urban dance, theater, performing arts, and so forth.

The regional museum system has brought together nearly 150 public and private institutions thanks to the initiative of



3. The Roots of Dreams, feature film by Francesca Zerbetto and Dario Zanasi, 2014. Still image © Dario Zanasi_ Francesca Zerbetto.

4. The Roots of Dreams, feature film by Francesca Zerbetto and Dario Zanasi, 2014. Still Image © Dario Zanasi_ Francesca Zerbetto.





5. DumBO -Multifunctional urban district of Bologna, former Ravone railway yard, Bologna, Robot Festival 2019. Photo © Robot.

6. Herbert List, Tuna being hoisted up after the catch, Favignana, Italy, 1951. FOTO/ INDUSTRIA 2021. Collezione MAST. Courtesy of The Herbert List Estate / Magnum Photos. the former Institute of Cultural Heritage (IBC – Istituto dei Beni Culturali), today the Cultural Heritage Service. Since 2021 in collaboration with the Region, ART-ER and the Clust-ER Create, the Cultural Heritage Service has promoted meetings specifically addressed to the digitization of Museums and Theaters, in order to bring together demand from institutions for updating digital cultural heritage models (cataloging, display, fruition, communication) and the supply of technologies for enhancement the CH in multiplatform mode. In December 2021, with the release of the online platform emiliaromagnaosservatorio-culturaecreativita.it/, ART-ER has initiated a process that aims to integrate different repositories, in order to offer a quantitative reading of the CCI phenomenon.

Since 2020, the Research Center for Interaction with Cultural and Creative Industries within the University of Bologna and the Digital Humanities Center within the University of Modena and Reggio Emilia were established, thanks to funding provided through a regional call for proposals for the activation of research laboratories to develop territorial impacts through research-actions exploiting enabling technologies.

Both laboratories are mediating infrastructures that enable digitization processes in different cultural and creative fields. The synergy between the two centers and the open dialogue with ART-ER and the region, have led to the development, among many other projects, of the CCI Space.

This online platform is promoted by CRICC in collaboration with Flaminia Foundation. The aims is to observe, analyze and offer a qualitative reading of the region's creative and cultural metabolism, focusing on the narrative of the relationship models through which CCIs meet and collaborate. Among the patterns that emerged in the research approach through surveys, interviews with actors in the system, it is evident that engagement between different actors occurs through relational processes and mutual knowledge. The design of the Stories section was set through content storytelling that reflected the actual metabolism of the encounters, the digital fruition and the user experience. The aim is to map the various CCI through hypertext narratives, linked through keywords, which allow a set of tags to be related to each other. Each tag can be considered a node in a narrative network and is the outcome of a direct or indirect relational encoun-

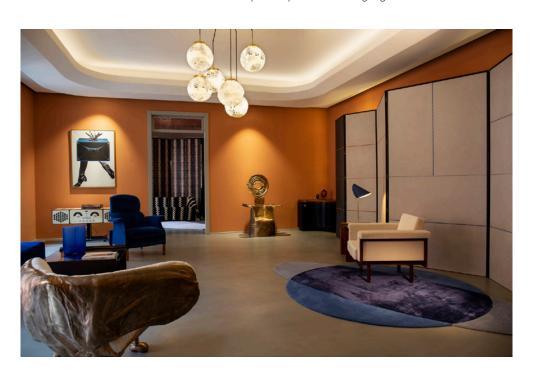
ter. Within the CCI Space, plural reading paths are possible and aim to describe the articulation of meetings and relationships. The care in proposing a more personal interaction between user and content related to people, places and cultural and creative products and services was influenced by an additional line of research conducted by CRICC, in collaboration with the Advanced Design Unit of the same university, dedicated to Human Body Design. This area of research activated a second repository about cases and practices related to the body-human-machine relationship. The online repository was presented at the Future Design Human Body Interface International Symposium in June 2021. While the CCI Space platform was made public in September 2021 during the CCI Days Festival, an event produced by CRICC to celebrate culture, creativity and the realities belonging to the CCI sectors. A series of workshops (related to new emerging profiles) were also developed during CCI Days, and among them, the Body Interaction. Human and Rhythmic Communication explored ways in which technologies can effectively dialogue with the body through the use of features inherent in sensory channels. The goal of CCI Days 2021 has been to highlight how much research, innovation, experimentation and enabling technologies can be put at the service of institutions and businesses, create new products and services, enable cross-overs in different productive sectors, generate new economies, and activate new behaviors.

Connections with regional, national, and international networks, through dialogues with curators and managers of centers for innovation and creativity, also allowed to explore the value of interaction with other European ecosystems, in order to multiply the impacts and effects of these relationships.

Designing relationships through virtual bodies and physical spaces: from digital to real cultural and creative hubs

The public presentation of the CCI Space platform during the CCI Days 2021 contributed to recognize it as remarkable prototype to be adopted as a designing tool for the creation of the Emilia-Romagna cultural and creative hub.

In fact, since the last few years, the idea promoted by ART-ER is establish a creative hub, a hybrid one-stop-shop that provides, in addition to the physical dimension, virtual access via an online platform.



7. Paradisoterrestre Editions, the historical art and design brand founded by Dino Gavina. Bologna Design Week 2019. Photo ® Mattia Tonelli.

On the one hand, the hub will be aimed at integrating and systematizing skills, infrastructures, equipment, initiatives and actions developed on the regional territory in favor of the CCI sector, its development and its innovation, and will represent a facilitated access method to all the opportunities available.

On the other hand, the hub will act to encourage operational collaborations between the various territorial actors by promoting open innovation that focuses on the integration between new technologies, in particular digital, and cultural and creative skills.

The action of the hub will be aimed at stimulating the digital transition of the various subsectors of the CCI system and, at the same time, supporting the competitive growth of the regional production system in general, facilitating collaborations, intermediated by specialized figures, between traditional companies and CCI companies.

The methodology in the creation of the CCI hub will follow three main actions:

Action 1_Establishment of a multi-stakeholder steering committee which intends to develop governance mechanisms that can improve the fragmentation of the regional cultural and creative ecosystem, generated by its heterogeneity. The aim is to develop greater integration between different territorial stakeholders on the interaction between art, technology and traditional industries, promoting collaborative decision-making processes.

Action 2_ Establishment of the Emilia-Romagna cultural and creative hub which implies the design and implementation of a tender for the financing of a cultural and creative regional hub to foster cross-sectoral collaborations, the development of skills, creativity and innovation.

Action 3_ Establishment of a task force for the synergic development of regional measures, to encourage the improvement and innovation of regional calls dedicated to CCIs and to promote greater integration with new technologies and cross-fertilization with other production areas.

Designing all these actions will imply the improvement of one-to-one relationships between all the different actors involved in the establishment of the physical space. The network of relationships will be mapped and communicated through the site which will be the digital CCI space for access to plural consulting services.

Designing relationships between virtual bodies and digital spaces: Culture & Creativity Knowledge and Innovation Community

As part of the New European Bauhaus initiative, and within the framework a connectivity, digitalization, and climate change transition, the European Institute of Innovation and Technology (EIT) (EIT CULTURE & CREATIVITY, S.D.) has envisaged the creation of a new Knowledge and Innovation Community (KIC) in the area of Cultural and Creative Industries and Cultural Heritage. In fact, CCIs are considered major drivers of economic growth and job creation throughout Europe. EIT Culture and Creativity is intended as a pan-European platform to support Europe's recovery and cohesion. The release of the call for proposal for this new KIC took place in October 2021, the evaluation process concluded on June 23, 2022 with the selection of the string promoted by ICE – Innovation by Creative Economy consortium. The ICE consortium, led by the Fraunhofer-Gesellschaft, is composed of 50 partners from 20 European countries: Italy is represented by the National Research Council (CNR), the University of Bologna through Una Europa, the Emilia-Romagna Region by ART-ER, as well as many other public and private entities.

The ICE partnership will operate through six Co-Location Centers, in Amsterdam, Barcelona, Bologna, Helsinki, Kosice and Vienna. The call stated that a Co-location Centre should be located in one physical location, and it will be up to applicants to justify that the proposed site for a Co-location Centre meets the requirement of "physical proximity". Bologna Co-Location Centre will see ART-ER as the host partner and will be physically located at the Tecnopolo, the former Manifattura Tabacchi, which will host also the European Centre Medium Weather Forecast (ECMWF).

Indeed, the Tecnopolo Manifattura will not just be a data center equipped to provide services to multiple clients, but a sort of a physical and web factory, a network that will channeling the needs and expectations of local and regional systems, providing services adapted to each reality and stakeholder groups (students, startups, investors, institutions). For expanding and drawing relationships, the strategy envisions that the Bologna Co-Location Centre will target the Mediterranean area. It will support the processes of innovation, digitization and collaboration of the entire CCI system, providing the development

CCI space























of new products, services and market opportunities having as reference the cultural heritage, performing arts and creative sectors, without forgetting the human development's concept as a process of enlarging people's choices (UNDP, 1990).

CCI Space interface © CRICC - Research Center for Interaction with Cultural and Creative Industries, Fondazione Flaminia.

Human Body Design in incorporeal cities

Culture is not only our common language, it is also an innovating ecosystem. The new EIT Culture & Creativity Innovation Community will capitalise on the unique richness of European diversity to ensure that creatives are ingrained in the pan-European Innovation Ecosystem. Mariya Gabriel, 2022

In the creative disciplines, the search for new tools, techniques and technologies for the production of meaning has always accompanied the most avant-garde experiments. These experiments anticipated inventions and/or the adoption of tools, borrowed from other fields, to empower the body of the producer (artist, performer, designer) and the user. Culture and creativity have always been embodied and materialized in products, services and performance events.

Today, the challenge that invests research across disciplines, CCI practices and policies is to preserve this "embodied creativity" (GRIFFITH, 2021) in increasingly disembodied contexts.

The issues about the effects on bodies of the coexistence of reality and the digital, of the interaction between virtual and real ecosystems, are absolutely topical. Plural positions can be found in the reflections on *onlife* existences (FLORIDI, 2015), on movement and our interactions in the spatial dimension as the foundation of our thoughts (TVERSKY,2019), on the alienation of proximity in the digital with the erasure of bodies and the sensible fall that follows (LE BRUN, 2020), on the digital order that has taken over from the earthly order (HAN, 2022). Therefore, the thoughts elaborated in this contribution are intended to offer additional space for attention for the future of the role of CCI and its impact on bodies, behaviors, and cities.

In fact, as also confirmed in the meeting at R2B 2021 titled *Platforms, Data and Artificial Intelligence: New Models of Social and Cultural Spaces*, policies and the design of specific calls to support CCI can determine the future course of the entire country, which for culture, creativity and cultural heritage has always been recognized in its unique trait of materializing culture and creativity that is intrinsically identity-driven and *made in Italy*.

Policies can create the conditions and enable those with the ideas to develop them, facilitate the chances of success, implement processes to protect micro creative realities, to provide them with the right of existence, fostering and expanding their metabolism through interaction with international interlocutors.

Digital *endless spaces* can enable ecosystems, encounters and original interactions between culture, creativity, and cultural and creative productions. However, the need to converge in physical spaces remains as an all-human way of conceiving life as the encounter with the other than oneself.

On the one hand, the hope is to capture elements of balance in this conjuncture full of great funding for creativity, and on the other the great need for balance between embodied creativity and digital dematerialization of culture. Design can play this mediating role in order to direct projects in order to fund actions, tools and processes for the design of new cultural and creative products and services that influence new cultural and social *bodies*, prototypical solutions, based on the centrality of the body, the need for real encounters and the need to feel belonging to *limited spaces*.

References

CARONIA, 2010

Caronia A. (2010). Virtuale. Mimesis.

CELASCHI et al., 2019

Celaschi F., Formia E., & Vai E. (2019). Mutating City: Designing Events as a Matter of Social Innovation. *Strategic Design Research Journal*, 12(03), 323-337.

CELASCHI & VAI, 2021

Celaschi F., & Vai E. (2021). Design Processes in Cultural and Creative Industries' Oriented Development: A Regional Case. *DIID - Disegno Industriale Industrial Design*, 73, 12-23.

DJALALI et al., 2019

Djalali A., Gianfrate V., Longo D., & Vai E. (2019). An advanced design approach to support urban transformations through multistakeholders collaboration. *Strategic Design Research Journal*, 12(02), 235-246.

EIT CULTURE & CREATIVITY, S.D.

EIT Culture & Creativity (s.d.). European Institute of Innovation & Technology (EIT). Retrived July 21, 2022, from https://eit.europa.eu/eit-community/eit-culture-creativity.

FLORIDI, 2015

Floridi L. (2015). The Onlife Manifesto. Being Human in a Hyperconnected Era. Springer Open.

GABRIEL, 2022

Gabriel M. (2022). https://eit.europa.eu/

HAN, 2022

Han B. (2022). Le non cose. Come abbiamo smesso di vivere il reale. Einaudi.

FORMIA et al., 2021a

Formia E., Gianfrate V., & Vai E. (2021). Proximity as space of opportunity: connecting people, productions and territories. In Di Lucchio L., Imbesi L., Giambattista A., & Malakuczi V. (eds.), *Design Culture(s)*. *Cumulus Conference Proceedings Roma* 2021 (Vol. 2, pp. 2984-2997). Aalto, Cumulus the Global Association of Art and Design Education and Research. Aalto University, School of Arts, Design and Architecture, Cumulus Conference Proceedings Series.

FORMIA et al., 2021b

Formia E., Gianfrate V., & Vai E. (2021). Design e mutazioni. Processi per la trasformazione continua della città. Bononia University Press.

FORMIA & VAI, 2019

Formia E., & Vai E. (2019). La cura del futuro. DIID - Disegno Industriale Industrial Design, 68, 40-47.

FRANCO, 2019

Franco S. (2019). Corpo-archivio: mappatura di una nozione tra incorporazione e pratica coreografica. *Ricerche di S/Confine*, Dossier 5, 55-65.

GRIFFITH, 2021

Griffith A. (2021). Embodied creativity in the fine and performing arts. *Journal of Creativity*, 31, 100010. https://doi.org/10.1016/j.yjoc.2021.100010.

LE BRUN, 2020

Le Brun A. (2020). L'eccesso di realtà. La mercificazione del sensibile. BFS Edizioni.

LHERMITTE et al.,2021

Lhermitte M., Alvarez H., Marcout C., Nam Q., & Sauze E. (eds.) (2021). *Rebuilding Europe. The cultural and creative economy before and after the COVID-19 crisis.* EYGM Limited.

MANCUSO, 2018

Mancuso M. (2018). Arte, tecnologia e scienza. Le Art Industries e i nuovi paradigmi di produzione nella New Media Art contemporanea. Mimesis.

MITCHELL, 1997

Mitchell W.J. (1997). La città dei bits. Spazi, luoghi e autostrade informatiche. Electa.

NORMAN, 1990

Norman D. (1990). La caffettiera del masochista. Psicopatologia degli oggetti quotidiani. Giunti.

OECD, 2022

OECD (2022). Culture and the creative economy in Emilia-Romagna, Italy. OECD Local Economic and Employment Development (LEED) Papers, No. 2022/05. OECD Publishing. https://doi.org/10.1787/841f1338-en.

QUINZ, 2018

Quinz E. (2018). Contro l'oggetto. Conversazioni sul design. Quodlibet.

TSCHUMI, 2000

Tschumi B. (2000). Introduction. In P. Virilio, *A Landscape of Events*. The MIT Press.

TVERSKY, 2019

Tversky B. (2019). Mind in motion. How Action Shapes Thought. Basic Books.

UNESCO, 2022

UNESCO Global Report (2022). Re | Shaping policies for creativity – Adressing culture as a global public good.

UNDP, 1990

UNDP - United Nations Development Programme (1990). Human Development Report 1990: Concept and Measurement of Human Development.

VAI, 2021

Vai E. (2021). Design agente del cambiamento: cura della città e nuovi comportamenti culturali e sociali. In Formia E., Gianfrate V., & Vai E., *Design e mutazioni. Processi per la trasformazione continua della città* (pp. 113-143). Bononia University Press.