

RESTART_4Danube

**Boosting cREative induSTries in urbAn Regeneration for a
stronger Danube region**

Deliverable

D.T4.1.5 Capitalization the implications of COVID-19 in
Creative Cultural Industries for Urban Regeneration

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1.1 List of Abbreviations

AI	Artificial Intelligence
ARDS	Acute Respiratory Distress Syndrome
AV	Audio Visual
CCC	Cities, Culture & Creativity
CCIs	Creative & Cultural Industries
DR	Danube Region
EU	European Union
EUIPO	European Union Intellectual Property Office
EUSDR	EU Strategy for the Danube Region
EY	Ernst & Young
GDP	Gross Domestic Product
HEI	Higher Education Institution
ICT	Information & Communication Technologies
IT	Information Technology
PA	Priority Area
R&I	Research and Innovation
S2i	Steinbeis 2i GmbH
STEM	Science, Technology, Engineering and Mathematics
SMEs	Small and Medium Enterprises
SVoD	Subscription Video on Demand
UPB	University POLITEHNICA of Bucharest
UR	Urban Regeneration
VoD	Video on Demand

2 Executive Summary

The Creative & Cultural Industries (CCIs) are among the most severely impacted at this time of COVID-19 Pandemic conditions. According to preliminary estimates by Eurostat, the COVID-19 crisis may affect about 7.3 million cultural and creative jobs across the European Union (EU) and over 30% of the people affected are self-employed and lack adequate social protection.

Before the COVID-19 pandemic, the CCIs were, somehow surprisingly, characterized by a delicate economic situation. Despite growth trends in terms of number of employees and added value, the CCIs across Europe suffered from an endemic vulnerability due to their industrial structure and the intrinsic characteristics of many activities. In this respect, the CCIs in Europe are thus characterized by fragmented value chains, dotted with numerous non-standard workers and organizations of various nature and size that need to closely collaborate, in order to offer cultural and creative products and services to consumers/audience.

Today, it's almost impossible to predict when and how a recovery of the CCIs will take place. It is also hard to estimate both the role and contribution of the cultural sector to national economies and to the world economy, and the amount of actual personnel employed in the sector. Furthermore, there is a wide variety of situations across the Danube Region (DR), within each country (e.g. in relation between the capital city and the other regions) and across sectors (the music or movie sector as compared to museums or performing arts).

The lockdown and social distancing measures have also made evident the importance of arts and culture for people's mental well-being – and possibly, through the increasingly documented psychosomatic effects of cultural access, also on mental health of citizens. This recognition provides a new opportunity to capitalize on the role of arts and culture in the prevention and treatment of illness across the lifespan, contributing to solutions for health and welfare systems, such as through reductions in hospitalization or medication rates.

Considering the unfolding over time of the Pandemic situation, and according to majority of specialists that studied the COVID-19 implications, there were two waves concerning creative & cultural industries evolution.

Urban communities, including the creative ones, have been at the epicenter of the COVID-19 pandemic experiencing the highest cases, the most deaths and the biggest economic impact, but their role driving national productivity and growth, and they now hold the key to recovery and levelling up across DR.

Collaborative economic governance should be at the heart of this process, involving citizens, anchor institutions, businesses and investors in shaping a new vision for their places, that will need to respond to the three great challenges: net zero emissions, “Peak Retail” and “Peak Office”, through re-purposing vacant sites, re-imagining city centers, rebalancing urban geographies and creating good jobs. Most cities are already developing plans for greener, smarter cities, with communities that support more flexible hybrid working, a more consolidated and stronger core retail offer, and re-skilling and job matching. Placing people and inclusion at the heart of development efforts is critical. The sustainability and social impact of creative city initiatives rely on their inclusivity, their promotion of the freedom of cultural and artistic expression, and

grounding in local arts and community creativity. Artists and creative communities are the cornerstone of any CCIs and any city that aims to be a creative city.

Dematerialization can be seen as the “opportunities to transform a physical product into a service”, e.g. a book into an eBook, or even a physical facility into a dematerialized service, when banks branches migrate to the app store – accessible through smartphones. As a complication, it is worth to note that being into the internet is not enough. An internet business that needed people in the streets has also had problems with the quarantine. Some sectors have had less trouble, such as the educational field: given that many of the schools did have “distance learning” (e-learning) platforms.

For the CCIs, the coronavirus has in fact already accelerated digitalization processes at a dizzying speed. Even more importantly, it has made clear that culture does contribute to the social and economic vitality of our societies: culture and the strictly connected sector of tourism have been widely recognized as some of the most affected sectors by COVID-19.

A sustainable recovery of CCIs will indeed require a truly “out-of-the-box thinking” to design new business model, develop new partnerships, co-create and strengthen links with the local communities, change criteria/incentives to allocate funds, cooperate with other sectors to develop novel service. Cities will gradually come back to life, streets will be full, pollution will again rise; the social and cultural interchange and interaction will return.

If we discuss about social innovation in Pandemic conditions, the Covid-19 crisis, together with other recent crises, is showing that new modalities of solidarity and collective action are possible. If, however, social innovation is an element that can respond to emerging needs of a community and generate benefits for the community itself, there are many “social-washing” initiatives that aim to use the rhetoric of social innovation to generate individual profit at the expense of collective welfare or to improve the corporate visibility and political credibility of institutions. In addition, social innovation is not always fair and equal for everyone.

Danube Region (DR) is characterized by large competitiveness gaps between the old, the new Member States and the non-EU countries, including their status within the regional innovation ecosystem. In this context, large social and professional categories have been left out from current flows of information and knowledge exchange: students, researchers, teachers, businessmen and other professionals with direct interest in being part of innovation cycles. Across DR, there is a low share of technology and knowledge-intensive activities. The Research and Innovation (R&I) activities are overly concentrated within the western regions or the major urban hubs, including capital cities or university towns. Another main challenge derives from the non-matching innovation profiles of the DR countries e.g. there are heavily unbalanced R&I expenditures and knowledge management capacities.

All above challenges are included in the program’s Territorial Strategy and to be seen in the broader context of existing strategic frameworks such as the EUSDR perspectives (especially with regards to PA 7, PA 8 and partly PA 9), the Territorial Agenda 2030, the New Leipzig Charter, the Recovery and Resilience Facility and the European Green Deal.

Policy makers from EU, respectively DR should address a number of transversal issues, including among others, ecological sustainability, skills development, access to R&I systems, and a re-establishment of the EU freedom of movement and common market.

These are issues that are also crucial for recovering from the existing crisis and that need to be addressed to build stronger CCIs for the future – that can be both drivers and enablers of sustainable development – keeping in mind that there are more crises ahead.

It is crucial to understand the complexity of current legal frameworks for intra-EU cross-border cooperation of the CCIs – including working permits and double taxation agreements, etc. and at the same time open EU-initiatives for the CCIs for further international exchange.

The CCIs is a cross-sectorial engine for transformation of European societies – especially in those areas lagging behind, concentrated in the Eastern part of EU / DR. International cooperation including effective access to EU markets is needed to be successful in this respect.

3 Introduction

UPB, supported by S2i, by consulting a large number of very recent professional studies [1,2,5,7,9,12,13,16,19], emphasized the impact of the COVID-19 crisis over creative urban communities, when seeking for ideas that may help the recovery of creative and culture industries (CCIs).

The CCIs are among the most severely impacted at this time. According to preliminary estimates by Eurostat (<https://ec.europa.eu/eurostat/help/faq/covid-19>), the COVID-19 crisis may affect about 7.3 million cultural and creative jobs across the EU. Over 30% of the people affected are self-employed and lack adequate social protection. The protracted social confinement will have a long-term impact on the cultural and creative sectors by deepening their economic precariousness. Despite these difficulties, these sectors have shown tremendous solidarity amidst the crisis – offering their works for free online, easing feelings of isolation and contributing to the mental and emotional health and well-being of people in these challenging times.

A way to find alternatives to “survive” (e.g. dematerialization of the creative businesses/services) and successfully pass the sanitary crisis, having strong implications in Urban Regeneration (UR) will be proposed for capitalization across future EU Strategy for the Danube Region (EUSDR) – Priority Areas: PA7, PA8 and PA9 (<https://danube-region.eu/about/priority-areas/>) activities during the on-line meetings/workshops of the following Working groups: PA7: Working group 5 – Research and innovation; PA8: Working group innovation and technology transfer & Working group Digital Danube; PA9: Work area 3 - creativity and entrepreneurship.

Concerning dematerialization of the creative businesses/services, it can be seen as “opportunities to transform a physical product into a service”, e.g. a book into an eBook, or even a physical facility into a dematerialized service, when banks branches migrate to the app store – accessible through smartphones [10]. Despite any eventual difficulties to dematerialize the creative sectors/activities, some technological advances (such as artificial intelligence and machine learning) bring more “reasons to concern than to relief”. Take, e.g. the case of “creative machines”, able to produce art and science in an autonomous and independent way; such dematerialized machines, algorithms living in and working from the clouds, may present a new potential competition to those creative sectors that have only started their migration to internet.

The COVID-19 pandemic, due to lockdowns in Europe and in the rest of the world, severely affected the European Union (EU) industries. Disruptions in multiple supply chains across a variety of sectors occurred, especially at the beginning of the crisis (March-April 2020) and particularly in the case of internationalized and complex value chains. Unprecedented policy responses have been initiated across Europe and globally, in an attempt to mitigate the impacts of this economic shock and to help the recovery. However, the pandemic has also created opportunities for certain segments of the economy, as consumers and businesses have radically changed their behaviours [2].

CCIs, as one of the fastest growing sector in EU, are an important component of the European economy. Its successes over the last years were largely based on its ability to combine industrial methods with the innovative power of individual creativity. This sector does not only connect

intellectual and material capacities but also serves as bedrock for our European identity, culture and values.

Today, the consumer market is going through disruptive changes, associated to the digitalization process of different creative domains, e.g.: design, lifestyle, arts, media production and so on, thus becoming an important force that accelerates economic growth and offers huge potentials for future prosperity. In this respect, CCIs make up about 4% of the European Union's Gross Domestic Product (GDP) and provides about 7.6m jobs. This makes it one of the most important sectors of the European economy, while offering promising opportunities for a digital future and shaping the unique characteristics of European markets [6].

Within the last legislative period (2014-2019) the EU recognized CCIs as one of the most important economic sectors of our modern economy. Creators and other people from this sector have had their moments on the political stage, enhancing the on-going dialogue between creativity and politics.

Consequently, CCIs have steadily acquired relevance in recent years – more than any other business sector – for the competitiveness of the European economy as a whole. They are already a leading sector for economic growth and job creation, even when their full potential is far from being fully reached.

People living in the Danube Region (DR) are generally recognized as a creative and innovative one, such observations coming from nearly all countries in DR, as clearly revealed in the deliverable D.T1.1.1 (Danubian baseline study) elaborated in the project RESTART_4Danube [25]. However, levels of innovation (not inventiveness, which is mostly associated with creativity) are different, with some countries that recognize it as high (i.e. Austria, Germany), respectively lower (Croatia), in order to mention only two extreme situations, the other countries from DR being somewhere in between. Presence of Higher Education Institutions (HEIs) is recognized as essential to drive the innovation and creativity in the regions/municipalities (i.e. Austria, Germany, Slovenia, Ukraine, Moldova). Also the support from local authorities is recognized as important in shaping well the innovation capacity and more especially the entrepreneurial and start-up sector (i.e. Austria, Slovenia). The main characteristic of the CCIs sector is being dominated by micro-enterprises and self-employed persons (i.e. Croatia, Slovenia) and, due to its small size actors, not being able to obtain incentives or compete at project calls (i.e. Croatia, Slovenia), with issues associated to overburdened staff being mentioned in Hungary, Slovenia and Romania, also. On the other hand, Small and Medium-sized Enterprises (SMEs) in the CCIs sector are more agile and prone to change and adopt innovative business models, with the negative specificity that in, e.g. in Moldova, they face the situation where CCIs operate as freelancers on a “black market”.

When it comes to specific strengths of the CCIs sector, different specializations are recognized, like: software, games, architecture, design (i.e. in Austria, also in Germany, and Ukraine), web marketing, digitalization (i.e. in Bosnia-Herzegovina (B&H), and Germany), film and media (i.e. in Germany, and also in Ukraine), film & multimedia and fashion (i.e. in Slovenia, and Ukraine) and music, where there are good job opportunities all along the value chain (i.e. in Ukraine), strong focus on manufacturing with Artificial Intelligence (AI, i.e. in Germany - Karlsruhe), photography, film producing, 3D animations (in Hungary), software, publishing and advertising and

Information & Communication Technologies (ICT, i.e. in Romania, and Ukraine), strong and growing ICT sector is also emphasized in Ukraine.

Lack of institutional monitoring and potential support for the sector is mentioned in B&H and Moldova, lack of clustering (in B&H), Research and Innovation (R&I) is developed spontaneously, without some structured strategies (in B&H, Bulgaria, Moldova), additionally, in Moldova, majority of research is done for foreign owned companies. In Croatia and B&H lack of investment in R&I is noted, especially in the state-owned companies, not being the case in Hungary. R&I as result of internal processes is detected in Romania, with smaller companies facing human capital issues of overburdened staff (in Slovenia). In both last mentioned countries, the recognition of CCIs is noted in privately owned companies (also in Bulgaria) and within large companies (in Germany, Slovenia). EU policies and national findings are available to support the sectors of CCIs (in Bulgaria, Slovenia, Croatia, and Moldova).

Another concrete example is coming from Romania, where in 2011 CCIs represented 4.5% of the Romanian GDP and hired 3.8% of its workforce. By comparison, with 2009, in Romania this contribution stood at 5.93% of the GDP and 4.48% of the workforce, noting an undesired diminishing process.

One very positive example is coming from Austria, where the characteristics of Austria's SMEs active in CCIs are: small sized (one-person-company (60%) or SME) and young (almost 70% are not older than 10 years). So, in 2016 the gross value added was approx. 22bn € and the CCIs make up to almost 11% of all businesses in Austria. The most important area was software & gaming. In conclusion, the growth of Austrian CCIs is higher than the economy's growth as a whole, and manifests as an important positive influence factor for the whole Austrian economy.

In average, the CCIs encompassed a vigorous development in the recent years, mostly due to the rise of ICT, which dominates in terms of revenues. ICT, printing and advertising subsectors accumulate over two-third of the economic results in the Danube Region's CCIs. The resources for a stronger networking collaboration between CCIs need to be developed, and a stronger spill over across sectors needs to be linked with cross-funding and the development of cohesive regulatory ecosystem.

4 CCI before COVID-19: a fragile & fragmented ecosystem

Before the COVID-19 pandemic, the CCIs were, somehow surprisingly, characterized by a delicate economic situation. Despite growth trends in terms of number of employees and added value, the CCIs across Europe suffered from an endemic vulnerability due to their industrial structure and the intrinsic characteristics of many activities (e.g. project-based working, public good character, unpredictability of success). This fragility is revealed by numerous data and analyses related to the ecosystem structure, employment and working conditions, access to finance and remuneration models [23].

Considering the history, CCIs are an economic sector having globally developed into one of the most important and dynamic economic sectors since 1980. As drivers for innovation and transformation, CCIs are densely located in metropolitan areas. Many regions face today a strong challenge of transformation from traditional industry to a more digitized society - with focus on renewable energy, circular economy, service-based economy and artificial intelligence [4]. When talking about CCIs in Europe we have to consider that the cultural and creative sectors in Europe accounts for 4.4% of the EU's GDP, making up 12 million full-time jobs and €509 billion in value added to GDP [23].

In 2017, there were more than 1.1 million cultural enterprises in the EU-27, representing approximately 5% of all enterprises within the non-financial business economy. Together, they generated a total value added of more than EUR 145 billion, equivalent to 2.3% of the total nonfinancial business economy. The number of enterprises born in the cultural sector in the EU-27 has grown between 2012 and 2017 to an average rate of 1.5% per year, slightly above the average rate of the whole non-financial business economy, which grew at a rate of 1.4% yearly. Small and Medium-sized Enterprises (SMEs - enterprises with less than 250 persons employed) dominate the vast majority of cultural activities within the EU-27, while large enterprises are predominantly active in programming and broadcasting activities. In 2017, SMEs employed the majority share of the EU-27 workforce for a range of cultural activities, including:

- 97.1% of total employment for photographic activities;
- 91.5% for specialized design activities;
- 85.9% for printing and the reproduction of recorded media; and
- 84.6% for motion picture, video and television program production, sound recording and music publishing activities.

What makes the CCIs unique is that organizations are often small-sized (with 10-49 persons employed) or even micro-sized enterprises (with less than 10 persons employed). A closer examination reveals that a majority of the EU-27 workforce in photographic activities (86.5%) and in specialized design activities (78.3%) was employed by micro-sized enterprises [18]. Furthermore, the CCIs ecosystem is also made up of a large number of freelancers and temporary and intermittent workers. In this respect, the CCIs in Europe are thus characterized by fragmented value chains, dotted with numerous non-standard workers and organizations of various nature and size that need to closely collaborate, in order to offer cultural and creative products and services to consumers/audience. This fragmentation is further deepened by the high diversity in

cultural and creative expressions, services and goods, as well as its linguistic diversity. In some cases, the linguistic diversity also poses challenges to the export and circulation of cultural products abroad. The theatre sector is certainly among the most striking examples, given the predominance of the linguistic components in live performances.

5 Impact of COVID-19 on the Creative & Cultural Industries

The coronavirus (COVID-19) outbreak is affecting all countries in Europe. The Creative & Cultural Industries (CCIs) are one of the sectors most affected – where thousands of businesses, most of them SMEs, have been impacted by the current crisis. The suspension of live shows, concerts, film & TV production, exhibition and distribution, sporting events, writers’ readings and photo assignments, and the dramatic drop in the sales of books (to name a few) – on such a scale and for such an extended period of time – with the loss of many jobs, freelance and otherwise, is unprecedented [2].

In October 2020 the European Federation of Journalists (<https://europeanjournalists.org/>) announced the publication of a report mapping in a database covering 44 European countries, containing different emergency packages, direct financial support and long-term measures.

In its policy report, the Joint Research Centre of the European Commission (<https://ec.europa.eu/jrc/en>) showed the impact of COVID-19 on cities with a high share of arts jobs and where the cultural offering is a main driver of the local economy, notably tourism [23]. The report revealed the higher vulnerability of medium-sized cities in Southern Europe. It can be concluded that the important contribution of tourism and culture to the economy manifested as a major challenge for economies in the Balkans, Central and Eastern Europe. The impact of COVID-19 was even more severe as often these countries overlook the importance of CCIs in the economy and in their territorial attractiveness. The local creative ecosystems, aside from major national cultural institutions, were clearly at risk in the absence of accompanying support measures. COVID-19 was shedding an interesting spotlight on the importance of cultural infrastructure in the tourism and travel economy. Reciprocally, the cultural sector had to reassess its relevance to the local economy and citizenship in the absence of international travellers.

The long-term damages for culture and creativity will come from the diminishing philanthropy, i.e. both businesses and non-commercial foundations will suffer a lack of liquidity due to the crisis, and, as a consequence, their possibility and willingness to contribute to the arts and culture creations could be largely compromised.

Given the nature of the Creative & Cultural Industries (CCIs) and the cultural “ecosystem”, in which cultural practices and policies are embedded, a comprehensive assessment of the impact of COVID-19 on the CCIs is difficult to implement, both methodologically and theoretically/practically [7].

However, in several studies, some insights were drawn based on the initial data gathered from some EU partner countries. The initial survey data from [1] confirms that, in several countries cultural actors are among the most vulnerable groups, and that the CCIs are extremely sensitive to the vagaries of the market and to the socio-political situation since it lacks robust counter-cyclical tools.

Among the characteristics that make this sector particularly weak are, as follows:

- The non-standardized form of many jobs in this area and the parcelled nature of its economic structure. Many cultural workers are self-employed or are part of a small enterprise, and frequently have a precarious or non-standard form of work (i.e. the informal economy), meaning

that the vast majority are subject to precarious forms of employment. This means that they often have limited access to traditional funding sources and that they presumably do not meet the eligibility criteria for main relief and recovery measures;

- Not only is the job market extremely exposed to any form of social uncertainty or economic shocks, but it is also highly difficult for such a job market to cope with, e.g. pandemic shocks and different type of socio-economic turbulences, and to find the appropriate form of public and private support when this is the most needed.

The impact of the COVID-19 pandemic situation was severe and affected all countries. For the countries, whose survey data was available, it is possible to state that the nature and “relative magnitude” of the impacts have been similar, i.e.:

- The COVID-19 crisis affected the core activities of many cultural organizations, with a widespread cancellation of all scheduled events;
- Organizational implications included the temporary or permanent closure of activities, temporary or permanent staff reductions, and the cancellation of local and international trips;
- Organizations have also been financially impacted, with a dramatic reduction of income, reduced access to financing, and a diminishing of co-financed project opportunities.

Today, it’s almost impossible to predict when and how a recovery of the CCIs will take place. It is also hard to estimate both the role and contribution of the cultural sector to national economies and to the world economy, and the amount of actual personnel employed in the sector. Furthermore, there is a wide variety of situations across the Danube Region (DR), within each country (e.g. in relation between the capital city and the other regions) and across sectors (the music or movie sector as compared to museums or performing arts) [9].

Most likely, the recovery will depend on a number of factors, including:

- The evolution of the pandemic and the magnitude and extent of confinement and social distancing measures;
- Advances in terms of COVID-19 therapy and vaccination;
- The policies launched in favour of CCIs in the various countries from DR;
- Access to the digitization process by CCIs operators;
- The nature and characteristics of each cultural sub-sector;
- The evolution of multilateral cooperation (e.g.: a strengthening of isolationist and power politics trends will further slowdown the recovery path of the cultural sector and the entire global economy).

The venue-based sectors (such as museums, performing arts, live music, festivals, cinema etc.) are the hardest hit by social distancing measures. The abrupt drop in revenues puts their financial sustainability at risk, and was accompanied with reduced wage earnings and lay-offs, with repercussions for the value chain of their suppliers, from creative and non-creative sectors alike.

Some cultural and creative sectors, such as on-line content platforms, have profited from the increased demand for cultural content streaming during lockdown, but the benefits from this extra demand have largely accrued to the largest firms in the industry [8].

The negative effects of the crisis on distribution channels and the drop in investment by the sector will affect the production of cultural goods and services and their diversity in the months, if not years, to come. Over the medium term, the anticipated lower levels of international and domestic tourism drop in purchasing power, and reductions of public and private funding for arts and culture, especially at the local level, could amplify this negative trend even more. In the absence of responsive public support and recovery strategies, the downsizing of cultural and creative sectors will have a negative impact on cities and regions in terms of jobs and revenues, levels of innovation, citizen well-being and the vibrancy and diversity of communities.

Creative & Cultural Industries (CCIs) are largely composed of micro-firms, non-profit organizations and creative professionals, often operating on the margins of financial sustainability. Large public and private cultural institutions and businesses depend on a dynamic cultural ecosystem for the provision of creative goods and services [11].

Massive digitalization coupled with emerging technologies, such as virtual and augmented realities, can create new forms of cultural experience, dissemination and new business models, real positive market potential. With the lockdown, many public and private providers moved their content on-line for free, in order to keep audiences engaged and satisfied, within the sharply increased demand for virtual cultural content. While the provision of free and digitally mediated cultural content is not sustainable over time, it has “opened the door” to many future innovations. In order to capitalize on this situation, there is a strong need to address the digital skills shortages within the sector and to improve digital access beyond large metropolitan areas, with the additional consideration that digital access does not replace a “live / face-to-face” cultural experience.

Building on the impact of the COVID-19 crisis on both education (of all types) and CCIs, strategic complementarities can be developed. Both sectors experienced accelerated digitalization, which brings new opportunities for local and regional development but also risks of exacerbating inequalities without accompanying measures. Such accompanying measures should include, for example, the development of methodologies and technological solutions for distance and distributed learning, with digitally mediated access to cultural resources and experiences [12].

The lockdown and social distancing measures have also made evident the importance of arts and culture for people’s mental well-being – and possibly, through the increasingly documented psychosomatic effects of cultural access, also on mental health of citizens. This recognition provides a new opportunity to capitalize on the role of arts and culture in the prevention and treatment of illness across the lifespan, contributing to solutions for health and welfare systems, such as through reductions in hospitalization or medication rates.

Going forward, cities and regions may consider CCIs as well as cultural participation as a driver of social impact in its own right and throughout the economy. In many cities and regions, specializations in the CCIs are evolving, being used also to tackle competitive and societal challenges from new angles, favouring resilience, skills creation and pro-social behavioural

changes. In the recovery, there is an opportunity, for dense metropolitan areas and remote, lagging regions alike, to reconsider growth models moving away from culture-based large-scale tourism towards models fostering cross-innovation between CCIs and traditional manufacturing and services (e.g. design and furniture making) that can be incorporated into creative tourism programs. They can also capitalize on the role of culture, in order to help raising awareness about the complex challenges of climate change and population ageing. The contribution of culture can also be important in other areas of local development, from rebuilding public trust to contributing to post-pandemic urban design adapted to social distancing rules [13].

On-line sales of physical books exploded to the detriment of bookshops. News media are affected by less advertising whilst seeing an increase in on-line subscriptions. The period also witnessed a greater demand for video games, and “in-game concerts” (<https://www.trendhunter.com/protrends/ingame-concert>), representing a new phenomenon in cultural consumption.

At the present moment, it is difficult to assess the overall economic impact on the CCIs value chain and its sub-sectors, principally due to the fact that the sector estimates vary in methodology and content. In addition, the uncertain future circumstances require continuous monitoring and evaluation to seriously assess the situation. Nevertheless, some estimates provide an essential snapshot of the seriousness of damage suffered by the industry at the present moment [16].

The current crisis will have long term impacts on the competitiveness and sustainability of our sectors as it will take months – if not years – for them to return to a “new normality”. An important public recognition is given by the registered charity & company Ltd. Creativity Works (<https://www.creativityworks.org.uk/>) from UK, welcoming the initial steps taken by the European Commission in support of the creative economy, emphasizing that CCIs have a hugely important role to kick-start the recovery process as providers of local, high growth services and quality employment.

The CCIs are among the most severely impacted at this time. According to preliminary estimates by Eurostat, the COVID-19 crisis may affect about 7.3 million cultural and creative jobs across the EU. Over 30% of the people affected are self-employed and lack adequate social protection [22].

CCIs were more affected than most other industries. With this loss of 31% from its 2019 turnover, the CCIs sector was one of the most affected in Europe, comparable with air transportation (-31%), but more than the tourism (-27%) and automotive industries (-25%). In addition to the impact of lockdowns and other restrictions, the relationship between culture and tourism is one of the main impact factors [19]. Cultural tourism accounted for 40% of tourism in the EU, according to the European Commission. In October 2020, the World Tourism Organization (<https://www.unwto.org/>) recorded a 68% reduction in international arrivals in Europe. When cultural activities were not cancelled, travel restrictions resulted in a very sharp drop of attendance. For instance, the Rijksmuseum in Amsterdam now welcomes about 800 visitors a day, down from 10,000 daily visitors in 2019 (a 92% drop), well below the 2,500 visitors allowed with strict social distancing. The Rembrandt House Museum, with 80% of visitors being international, expects to be back to its normal affluence in 2024.

In order to offer more concrete data, in Germany, a report from the “Kompetenzzentrum Kultur und Kreativwirtschaft” (<https://kreativ-bund.de/>) of the Federal Government provides the most comprehensive estimates of the damages on the national CCIs. Thus, the report makes some estimations on the impact across various subsectors (music, film and performing arts), and it considers the turnover losses (with a conservative scenario) to be respectively EUR 2.5 billion, 3.4 billion and 2 billion for the previously mentioned sub-sectors. Consequently, there is estimation that all CCIs in Germany will experience a turnover loss of approximately EUR 21.7 billion or 12.7% of its annual turnover (conservative scenario). Unfortunately, the most “severe scenario” predicts a 23% loss (EUR 39.8 billion), and, considering the “social crisis” aspects, the report stresses also that CCIs employs approx. 1.7 million people in Germany, but only half of them being employees benefiting from social protection.

Another case applies for Slovenia, where a survey shows that cultural workers noticed that the turnover of their businesses decreased by an average of 44% in 2020. Also, 63% of cultural entrepreneurs “felt” that state measures were insufficient to cover the losses.

In Ukraine, almost 70% of CCIs workers, surveyed in May 2020 by their Economic Development Agency - PPV Knowledge Networks, supported by the Ministry of Culture and Information Policy of Ukraine (<https://www.ppv.net.ua/en>), claimed a revenue loss between 50% and 75%.

Also, the book editors and publishing sector has been hit due to the closure of bookshops in many EU Member States for several months and by the postponement or cancellation of many planned new titles releases. A report, issued in July 2020, by the Federation of European Publishers (<https://fep-fee.eu/>), analyzed the consequences for the sector’s value chain and revenue evolutions. Albeit, the percentage of people reading during the confinement was higher than normal (+33%), mostly using digital libraries, the loss estimate being 80-90% in sales during the first wave, even if the percentage of increase in e-books was noticed in many countries.

The Audio-Visual (AV) sector and film/TV production experienced similar problems. At the production level, all shootings had to stop for months. Distancing measures were difficult to implement in production phases and those productions restarted, during the 2020’s summer, needed to purchase protective equipment, set the on-site organization with constant testing of the entire crew etc. In this regard, a panoramic overview of different guidelines to assure a healthy set at the national level is offered by the European Film Commissions Network (<https://eufcn.com/>).

On another side, the German Federal Government’s Centre of Excellence for CCIs (<https://kreativ-bund.de/>) estimated that the national film industry lost between 33% and 72% of its annual turnover, in 2020.

European cinemas, providing 42.000 screens, welcomed 1.35 billion viewers, by generating EUR 8.8 billion revenues in 2019. On 23 October 2020, UNIC (<https://www.unic-cinemas.org/>) - the International Union of Cinemas (38 countries), published detailed information on national closure processes, support mechanisms, measures relating to employment, taxation, rent and related costs as well as a selection of key box office figures. The report showed that most European markets reopened their cinemas during the summer months of 2020, but its annual report also

indicated the severe impact of COVID-19 on cinema attendance, with an estimate of 70% revenue loss in 2020.

According to the survey conducted by the Network of European Museum Organization (<https://www.ne-mo.org/>), numerous museums reported a loss of income of 75-80%. In this sector, the social-distancing problem is adding additional difficulties to the closure requirement.

In its latest Global Collections Report, CISAC (<https://www.cisac.org/>), the international organizations representing authors' societies, shows that royalty collection for creators of music, audio-visual works, visual arts, drama and literature were likely to decline in 2020 by up to 35% - or EUR 3.5 billion in lost income.

However, it is also important to highlight that not all CCIs activities are victims of COVID-19. E.g., on-line content services benefited from increased demand in subscriptions or on-demand services. Companies like Netflix, Amazon Prime Video, national "Video on Demand" (VOD - <https://www.dacast.com/blog/vod-streaming/>) services or Spotify enjoyed substantial business growth reflected in increased membership, customers or share price. Whilst impacted by the production pause, the streaming giant Netflix gained more than 26 million paid subscribers. The music-streaming platform Spotify witnesses increase (27% Y/Y) subscribers in the first two quarters of 2020.

The estimated value of the "Subscription Video on Demand" (SVoD) global market by 2025 is estimated to reach USD 100 bn, doubling the USD 50bn recorded in 2019, according to a report from Digital TV Research (<https://www.digitaltvresearch.com/>), based on SVoD activity in 138 countries. The number of SVoD subscriptions will increase from actual 529 million to 1,170 million, until 2025.

It is also important to consider the social impact of the crisis on cultural workers. In this respect, CCIs organizations are not fully similar with any other businesses. Across the EU-28, one third (33%) of the cultural workforce is self-employed, compared with an average of 14% for the whole economy. As such, the relative scale of self-employment in the field of culture is more than twice as high as the average for the total employment. Also, the precariousness of working conditions is specific to this industry.

The CCIs are a European strategic asset, and a significant provider of jobs and economic growth. In this respect, according to the EUIPO / European-Observatory (<https://euiipo.europa.eu/ohimportal/ro/european-observatory>), CCIs generated approximately 509 billion Euros in 2018 and represented 5.3% of the EU's total GDP. CCIs employ 15 million people (directly and indirectly), accounting for 7.5% of the EU's employment workforce and making our industries the third largest employment sector in the EU.

In 2020, the economy of culture and creation lost approximately €200 billion in revenues. According to Ernst & Young's (EY's) analyze (https://www.ey.com/en_gl/assurance/benchmark-analysis), the total turnover generated by CCIs in the EU decreased from €643 billion in 2019 to €444 billion in 2020. This represents a net decrease of €199 billion or 31% of total revenues in 2019.

The shock wave was felt in all CCIs, and full resumption of activities will not mean the end of the crisis. Total performing arts revenues may fall by 90% and music revenues by 76% due to massive restrictions on concerts, plays and performances for most of 2020 [13]. Indeed, live performances were among the first activities to be severely restricted and will likely be among the last to resume without restrictions. And the near impossibility of maintaining rehearsals will further impede the release of future performances. In addition, for the music sector, the restrictions imposed on venues such as stores, bars and restaurants will also seriously affect copyright (-35% for performing rights). The decline in revenues could also continue in the coming months, due to the general economic situation. Given the way royalties are distributed, these will be approximately completely lost in 2021, and creators' revenues will be affected until at least 2022, with no one really able to say when and how live performances and events will recover from the fear of infection.

With the intention to emphasize once more the “negative” impact of COVID-19, in 2019, as already mentioned in EY’s analyse, the CCIs sector generated approximately €643 billion in turnover, contributing to about 4.4% of the EU GDP. Also, around 7.6 million people in the EU are employed in CCIs, representing almost 4% of total employment. In the EU, self-employed constitute about 33% of the cultural sector, a proportion representing more than double the average observed for the rest of the EU economy (14%). Moreover, the sector features a significant presence of short-term, seasonal and part-time contracts, while many of its professionals belong to the informal economy. For these reasons, employment in CCIs is frequently qualified as precarious, and the severity of the impacts of COVID-19 on the sector can be only partly captured by national statistics [14].

Finally, considering the unfolding over time of the Pandemic situation, and according to majority of specialists that studied the COVID-19 implications, there were two waves concerning creative & cultural industries evolution, as follows [23]:

- First wave:

At the outbreak of the pandemic, almost all cultural production sites were forced to close down in most EU countries in an effort to contain the spread of the virus. Whereas some CCIs actors had the capacity, skills and resources to adapt their business models to the new circumstances (e.g. through on-line performances and virtual museum visits), this was not possible for many businesses. Moreover, the cultural sector’s higher fragmentation level, its jobs reliance on live events / physical venues and the lack of capacity of a large part of its employees to benefit from social protection schemes indicate that cultural industries were generally more affected than creative ones. IT and software industries, on which economic growth concentrated during the crisis, contributed to the restructuring and repositioning of CCIs industries in the market, with new value chains appearing in the music, cinema and publishing industries. Television, streaming, music and radio services endured a solid uptake; technology and logistics providers and suppliers of home-based leisure (e.g. Netflix, Amazon, Facebook) also largely profited. In addition, quarantine conditions triggered the emergence of new activities, including home-based arts & crafts, and practitioners. Whereas the crisis was more severe for cultural professionals, COVID-19 impacted various subsectors of the whole CCIs, including suppliers of infrastructures, equipment and facilities constituting the CCIs production system, providers of marketing, advertising, selling

and distribution of products and services. In a survey carried out with more than 7,000 European CCI representatives between March and April 2020 [12], 60% of respondents indicated they experienced or anticipated a drop in sales over to 30% during the first two months of the crisis; in the long-term, 45% expect a decline in sales of up to 40%, and 52% expect losses of 50% to 75%;

- Second wave:

With many EU Member States easing restriction measures, from June 2021 onwards, certain production activities will re-start, and cultural production places partly will re-open with the adoption of stringent sanitary rules and social distancing measures. Clubs and other live venues were, for the most part, excluded from such partial re-opening. In addition, citizen behaviour affected by the high risk of contagion linked to limits to the mobility of people contributed to discouraging the frequentation of creative venues, concentrated in large European cities where the numbers of COVID-19 cases were substantially higher. Thus, most CCIs subsector experienced drops in both supply and demand. In October 2020, the increasing number of COVID-19 cases across the EU and subsequent governmental restrictions triggered the shutdown of spaces that had benefitted from partial re-opening in the summer. In many countries, the situation has not changed up to date. Based on available sectorial data, it was estimated that, in 2020, the overall European industry experienced a net decrease in revenues by 31% (worth €199 billion) from 2019. In this context, it is important to note that the gains from the further acceleration of digital trends in the overall sector are far from compensating the losses through the absence of live and physical event sales. Music and performing arts were the worst-hit, with an expected revenue decrease by 90% and 76%, respectively. The only domain that to date benefitted from the crisis is that of video games, for which an increase of 9% in revenues was foreseen for 2020.

6 Impact of COVID-19 on urban creative communities. Unlocking the power of CCIs in cities

Urban communities, including the creative ones, have been at the epicenter of the COVID-19 pandemic experiencing the highest cases, the most deaths and the biggest economic impact, but their role driving national productivity and growth, and they now hold the key to recovery and leveling up across DR [3,8,11,15].

As city centers re-open and the furlough scheme draws to a close, it will be clear the full extent of the social and economic harm left in the pandemic's wake. As in other previous shocks, the pandemic has accelerated some trends already in flux, whilst also generating its own specific effects of social distancing on cities, whose "raison d'être" is social proximity. Yet, what feels more certain is that we have reached "Peak Retail" (<https://peak.ai/sector/retail/>) and "Peak Office" (<https://www.archdaily.com/880448/peak-office-pure-architect>) much faster than expected, alongside the wider impacts of the pandemic that is now added to pressures on city authority finances, which now face the twin challenges of increased spending demand and reduced tax revenue.

Recovery and leveling up should become priorities for DR countries, translated into regional and national programs; in order that mentioned priorities to be achieved, the adopted measures should be delivered at place level within our urban communities, where jobs, businesses and innovation, along with poverty and health inequality are most concentrated, and where a core component of recovery strategy should be supporting the development of clusters of supply chains in growth sectors, that link cities across wider economic corridors, including CCIs.

One solution to counteract the impact of COVID-19 could be the implementation of a so called "Inclusive Renewal Deal" between cities and public authorities / government, that will drive recovery and leveling up, in fact giving cities the freedom, flexibility, power of investment, and revenue base, to enable them to actively act on their offer, in order to generate additional economic activity and to deliver on leveling up, by following measures:

- Creating a series of new growth, and leveling up deals;
- Joint commitments on good jobs, employment support and skills;
- Investment in innovation, net zero emissions, green jobs, housing and regeneration;
- Health improvement and public service reform;
- New powers to drive future growth opportunities, including on data.

The proposed "Inclusive Renewal Deal" process will create local ownership of the government's leveling up plan, and establish locally agreed milestones and metrics for sequencing leveling up over the short, medium and long term. It will embed this within a joined up and strategic place led approach to recovery, being very important because leveling up requires both early action, to demonstrate immediate progress, as well as long term interventions to develop human capital and change the economic trajectory of places.

Cities will need to develop a mixture of approaches to funding and investment based on investable propositions for major capital projects and outcome agreements for public creative services. The sources of investment should include patient capital equity funds, revolving investment funds, impact investment and multi-year revenue agreements. The principle of local partnership working should be embedded into both funding and delivery. This should bring together public and private sector partners, investment funding, and other assets to drive investment and delivery of major transformative renewal projects.

Culture and creativity have untapped potential to deliver social, economic, and spatial benefits for cities and communities. CCIs are key drivers of the creative economy and represent important sources of employment, economic growth, and innovation, thus contributing to city competitiveness and sustainability. Through their contribution to urban regeneration and sustainable urban development, CCIs make cities more attractive places for people to live in and for economic activity to develop. Culture and creativity also contribute to social cohesion at the neighborhood level, enable creative networks to form and advance innovation and growth, and create opportunities for those who are often socially and economically excluded.

The ongoing COVID-19 pandemic has had a deep impact on the cultural sector, yet it has also revealed the power of CCIs as a resource for city recovery and resilience. More generally, cities are and should continuously develop as hubs of the creative economy and have a critical role to play in harnessing the transformative potential of CCIs through policies and enabling environments at the local level [20,21].

“Cities, Culture, and Creativity” (CCC) provides guiding principles and the CCC Framework is destined to support cities in unlocking the power of CCIs for sustainable urban development, city competitiveness, and social inclusion. Drawing from global studies and the experiences of some diverse cities from across the world, the CCC Framework offers concrete guidance for a wide range of actors, i.e.: a) city, state, and national governments; b) creative industry and related private-sector organizations; c) creative people; d) culture professionals and civil society, to harness culture and creativity with a view to boosting their local creative economies and building resilient, inclusive, and dynamic cities.

Cities around the world, and focusing on DR, that have effectively enabled the development of CCIs, have achieved important outcomes in terms of urban regeneration, economic growth, and social inclusion [15].

Firstly, when linked to urban development processes and place making, culture and CCIs have helped create attractive, safe, inclusive, and resilient cities for residents and tourists alike. CCIs also serve as an important driver of these cities’ economies, contributing significantly to the employment of women and youth, and facilitating a better quality of life for all residents, including vulnerable groups.

Secondly, creative cities can provide ecosystems for innovation and scale-up of creative activities that increase city competitiveness, propel local economies, and offer jobs for a diverse set of residents including marginalized groups.

Thirdly, culture and CCIs can serve to connect communities, expanding their horizons and tolerance, strengthening social cohesion, and helping unite people post-conflict and during difficult times of crisis.

Creative city decision makers have responded quickly to the COVID-19 crisis—recognizing the vulnerability of their cultural and creative activities during times of crisis and their potential outsized contributions to recovery, resilience, and long-run vibrancy. Yet, many countries and cities, particularly in developing countries, have yet to sustain and fully enable their CCIs through this Pandemic and beyond. This may reflect the extremely difficult situation they find themselves in managing the health crisis, with respect to both fiscal pressures and human resource availability. It could also be due to an absence of dedicated institutions within them to manage their creative economies. Regardless of the reason, inaction now could hurt their cities, societies, and economies.

Placing people and inclusion at the heart of development efforts is critical. The sustainability and social impact of creative city initiatives rely on their inclusivity, their promotion of the freedom of cultural and artistic expression, and grounding in local arts and community creativity. Artists and creative communities are the cornerstone of any CCIs and any city that aims to be a creative city. Concentration or rapid growth of the creative economy generates positive outcomes in terms of urban regeneration and social inclusion, but if such growth is not managed well, negative externalities such as gentrification and over commercialization may impede new ideas and can harm or displace local communities. The well-being of all communities must be given due consideration and protected.

Cities seeking to enhance the resilience of their culture and CCIs, in the short run, and their impact on their neighborhoods, city competitiveness, and communities, in the long run, should implement the following actions [18]:

- Map their cultural resources and CCIs: measuring the size, range, locations, actors, and impacts of these activities is a key for short- and long-run actions;
- Identify key constraints to the growth and structural change of these industries—such as absence of affordable production spaces and/or limited knowledge to scale-up production—and to their ability to offer spatial and social spillover benefits;
- Prioritize interventions to tackle the key constraints impacting the development of CCIs in consultation with key stakeholders as well as sequencing for implementation;
- Build and empower an effective coalition of policy makers at the local and national level, artists and representatives of cultural institutions, and CCIs across public, private, and local community stakeholders within cities to help better target interventions and amplify the impact of government interventions.

Supporting and promoting CCIs requires collaborative work from different levels of local, regional or national government structures. Constraints to growth of CCIs may stem from multiple policy arenas, not all of which are necessarily under the realm of city government. Local authorities are clearly better-positioned to lead the dialogue with the community and address specific municipal infrastructure and public-space issues, including access to physical premises and other forms of

support to creative talent. Yet, regional & national government structures could take the lead in developing and improving the regulatory framework governing creative industries: by strengthening copyright protections as well as other legal protections stemming from labor regulations and financial support, including through subsidies and tax relief. But many other policies could require joint work and close collaboration [12].

Education and skills development initiatives combine support from local government as well as national universities and cultural institutions and networks. International partnership and promotion activities often require support from foreign trade and investment promotion agencies at the national level. Cities interested in supporting CCIs would do well to understand that they need support from other levels of governance, and thus seek ways to expand their area of influence through making the most of relevant national level initiatives, partnering with other local governments to exchange experience and resources, negotiating with national authorities, and even lobbying. Similarly, there is an important role for the private sector and philanthropy to play in support of artists and creative talent, including through commissioning work and sponsorships.

7 Automation plus dematerialization as solutions for diminishing COVID-19 negative influence

Dematerialization can be seen as the “opportunities to transform a physical product into a service”, e.g. a book into an eBook; or even a physical facility into a dematerialized service, when banks branches migrate to the app store – accessible through smartphones [10]. A crucial question to the creative sectors during the quarantine is: how capable are we to dematerialize our businesses in order to reach the public at home?

Despite any eventual difficulties to dematerialize the creative sectors/activities, although the cornucopia of technical solutions already available, the truth is that some technological advances (such as artificial intelligence and machine learning) have bringing more reasons to concern than to relief. Take, for example, the case of “creative machines”, able to produce art and science in an autonomous and independent way. Such dematerialized machines, algorithms living in and working from the clouds, may present a new potential competition to those creative sectors that have only started their migration to internet.

But the same technology has been also put to the service of society, since the artificial intelligence is one of the instruments been used in the search for a vaccine, to monitor/predict the spread of the virus, and to manage the resources (personnel, material, medicines, and premises) in a situation of extreme demand for health care. According to the Science Daily (<https://www.sciencedaily.com/> - 2020), the “new AI tool found that changes in three features (...) were most accurately predictive of subsequent, severe disease (, helping) to predict risk of “Acute respiratory distress syndrome” (ARDS - <https://www.lung.org/lung-health-diseases/lung-disease-lookup/ards>) with up to 80 percent accuracy”.

Even before the sanitary crisis, automation was already seen as a threat to human employment and as for wealth concentration - for instance. Now, that millions of persons lost their jobs, and other millions have seen their work conditions being downgraded (shifts with less hours and smaller salaries), the subject of automation comes back stronger. Artificially intelligent machines (e.g. algorithms), that perform as effective “social agents” may pose a real risk to human employment. Communicative and artistic machines have been studied, in a way to conclude that the creative class has strong reasons to rethink its “métier”. Amidst such expected intensification in general automation, technology shall become a highly sensitive subject within the creative economy – since it works both as helper and competitor.

It is highly expected and desired that the sanitary crisis will end soon, and all population start coming out again – not at once and surely not altogether. Even if the movement at the streets come to an almost “normal” again, it seems reasonable to fear that the economy will suffer to recover: for each recession demands time, hard work, and resilience. It’s important to remember continuously how many persons have lost jobs, salaries, income, sales... and even lives. But what happens with those who have lost so much with the lockdowns, and whom perhaps have not enough resources to endure the required time to the recovery? Based on that, the players on the creative sectors ought to start seeking a way to “make a real change” – immediately! That may imply dematerializing their businesses/services, following the steps of those who have survived the crisis.

As a complication, it is worth to note that being into the internet is not enough. An internet business that needed people in the streets has also had problems with the quarantine. Some sectors have had less trouble, such as the educational field: given that many of the schools did have “distance learning” (e-learning) platforms. Anyway, the same technology that offers a solution to the creative class may be, also, a source of additional competition – with “artificially intelligent machines (that) have been programmed to become creative: once capable of generating (art,) innovation (,) and discovery by themselves, AI machines can be seen as assets that create new marketable value in a very autonomous way”.

Therefore, in order to conclude and to pay special attention, the new economy is a necessity for the creative class, but it comes with new warnings and challenges as well.

8 Measures of relief after COVID-19 Pandemics in the context of CCIs

Due to the multifaceted and highly fragmented nature of the so called CCIs, it's not easy to get a precise estimate of the potential impacts and losses due to the COVID-19 pandemic, but data on cultural employment in Europe offer insights about particularly vulnerable jobs. According to Eurostat's EU-Labor Force Survey (<https://ec.europa.eu/eurostat/web/microdata/european-union-labour-force-survey>), art and culture amount, on average, to 3.7% of total employment in the 27 member states of the European Union, with value well above the EU average for countries such as Estonia (5.6%).

Nevertheless, survey data are likely to underestimate the weight of art and culture in employment as much cultural work remains in many ways invisible: the life of a few known institution or companies depends, in fact, on the contribution of many workers who stand "off the radar". The economic consequences of closure and cancellations that have affected places of art and culture institutions and venues will therefore go far beyond cinemas, museums, and theaters. Artist, authors, directors and many other varieties of professionals that make such institutions work, and who not only risk of losing their job, but cannot even count upon any form of income support or sickness benefit schemes, as they are mostly self-employed and relying on month-to-month pay checks and earning flows. Social protection generally works well for employees with stable occupations and significant work experience and career development, whereas those with unstable occupations, or limited experience and career history, as well as the self-employed workers is considerably higher (32%) than in the whole economy (14%) and this difference has remained almost stable over time [17].

The CCIs are one of Europe's main assets, in economic terms, of course, but also much more than that. Their contribution to the well-being of Europeans is enormous. We have seen that culture has helped many of us cope with the challenges of 2020. What culture does for Europe is very clear – the question now is what Europe can do for culture. Having already recognized culture as a priority ecosystem, the EU must now allocate to it a specific proportion of stimulus measures. This is an opportunity not to be missed the EU must now allocate to it think strategically about its cultural industry in the long term and develop new strategies for culture and creativity sector.

CCIs are a world of small businesses and freelancers (who represent one-third of workers in the creative economy) as well as large firms, sometimes leaders at the international level. They contribute to Europe's identity, diversity and regeneration, with a proportion of women in employment higher than in the European economy (48%) and a creative workforce younger than the average in 21 of the Member States. Cultural activities – including music, literature, visual arts, cinema, museums, theatres, architecture and video games – are vectors of communication, inclusion and social cohesion. But culture is one of the most impacted economic sectors in Europe, with a massive drop of 31% of its revenues in 2020 due to the COVID-19 crisis and full recovery not expected before 2022. This situation might weaken the entire CCIs value chain for a very long time: artists, producers, publishers, technicians and, of course, authors, who are the fundamental but also the most threatened link in the sector. Fortunately, it's not too late to take action. If specific measures and recovery plans are put in place, CCIs could be much more than "one of the problems to be solved" following the crisis, becoming a significant part of Europe's solution [12].

Thus, European authors' right societies (<https://authorsocieties.eu/>) suggest to the authorities that they should implement concrete solutions to tackle three main challenges:

- Financing the cultural recovery by promoting massive public and private funding for cultural and creative businesses, non-profit organizations, entrepreneurs and creators;
- Empowering CCIs to reinforce their positive impact by ensuring a solid legal framework, allowing an adequate return on investment and guaranteeing fair remuneration for creators;
- Preparing for the future by using CCIs – and the multiplied power of their millions of individual and collective, private and public talents – as a major accelerator of social, societal and environmental transitions in Europe.

The COVID-19 crisis has shed a different light on the support scheme for the cross-border distribution of performing arts works (theatre, dance, circus and street arts) developed under the Work Program 2020 (https://ec.europa.eu/info/publications/2020-commission-work-programme-key-documents_ro). Two issues have gained an acute relevance: the impact of mobility on the environment and the role of digital culture/virtual mobility. Hence measures will be proposed to mitigate the sector's carbon footprint. At the same time, they will include a forward-looking reflection on the longer-term effects the circulation experience may have. Live recording and streaming of the supported performances will be another way to ensure sustainability and a broader outreach through future viewing experiences online.

CCIs can play an important role in innovation throughout the economy. The sector produces new products and services and is also an important supplier of ideas and new approaches for other companies to innovate. In particular, some of this innovation potential is associated with sectors that are less exposed to market pressures and that for this reason can engage in more radical forms of experimentation, such as visual and performing arts. Another justification for public support to these sectors is therefore its potential to contribute to innovation, both for other parts of the CCIs (such as cinema, videogames, fashion, advertising or design) and for other sectors. However, CCIs typically have difficulties in being recognized as an innovative sector and in accessing public innovation, and notably R&I, support measures. This is because public programs are often designed for more technological forms of innovation. While many innovations in CCIs do include technology—particularly in light of increased digitalization trends—there are other forms of innovation based on the creative content that are perhaps under-recognized in public programs. Much can also be done at the city and regional level through wider regional innovation policies which could further recognize the value and the characteristics of the cultural and creative sectors. Intellectual property is another important area to support CCIs actors in the crisis recovery and beyond. Attempts to relax copyright restrictions through legal mechanisms may undermine business models for many businesses just at the moment when they need support. Rights holders themselves can also help. For example, during the lockdown period, Skribble (<https://www.briarcliffmanorlibrary.org/subscribe-to-news.html>) made its library of reading materials free for a month & Microsoft has increased access to Minecraft education (<https://education.minecraft.net/en-us/homepage>). More radical options can include governments licensing cultural content from the creators on behalf of the public both as a support mechanism for creative businesses but also as a support for households.

For the CCIs, the coronavirus has in fact already accelerated digitalization processes at a dizzying speed. Even more importantly, it has made clear that culture does contribute to the social and economic vitality of our societies: culture and the strictly connected sector of tourism have been widely recognized as some of the most affected sectors by COVID-19. Nevertheless, due to the highly fragmented and somehow informal nature of many cultural and creative activities, it is not easy to quantify losses. A sustainable recovery of CCIs will indeed require a truly “out-of-the-box thinking” to design new business model, develop new partnerships, co-create and strengthen links with the local communities, change criteria/incentives to allocate funds, cooperate with other sectors to develop novel service. Cities will gradually come back to life, streets will be full, pollution will again rise; the social and cultural interchange and interaction will return. How the cultural economy will get rebuilt is an open question: it provides scholars with an (unlooked for, and unwanted) opportunity to witness the ‘cultural heart attack’ at first hand, it also provides a unique opportunity to address the systemic problems of precariousness and injustice in the urban cultural economy and (hopefully) to change it. The Covid-19 moment has given us a glimpse of the fragile thread that city, culture and society hang from.

9 Implications of CCIs in the Danube Transnational Program 2021-2027

If we make references to one important domain of creative industries, i.e. Heritage & Cultural Tourism, based on Eurostat findings, high tourist activity is correlated with lower regional unemployment rates [24]. There is a great potential still very much left untapped in involving different vulnerable groups to these sectors which otherwise often face unemployment. Besides the sector's direct contribution to GDP, tourism plays an important role in employment in the EU. Amongst the Danube Region countries, the role of tourism is essential to employment, in Croatia (23%) and Austria (16%). The share of tourism in employment is relatively high in Slovenia (13%), Germany (12%) and Bulgaria (11%), moderate in the case of Hungary (9%) and Czech Republic (9%), respectively low in the case of Slovakia (6%) and Romania (6%). However though up until Covid-19, a largely successful sector for the macro-region, the concentration on a relatively few traditional resorts limits cohesion and opportunity. There are insufficient interconnections and level of cooperation between destinations, services, products and related stakeholders. The Danube Region has developed (accommodation) facilities in terms of quantity measures typically in capital cities, the Alps, the Adriatic, the Black Sea and a limited number of renowned destinations in each country.

With the expansion of heritage and culture tourism through the Danube Region, much of the knowledge will lie with the local communities and tourism management structures should be developed, which recognize community involvement and is inclusive in terms of management from the community. Therefore, the strong need for capacity building in management schemes should be mentioned in relation to the enhancement of the role of tourism in economic development.

This approach can be connected with the Recovery and Resilience Facility (https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility_en) and potentially the European Green Deal (<https://clustercollaboration.eu/tags/european-green-deal>).

Also, if we discuss about social innovation in Pandemic conditions, the Covid-19 crisis, together with other recent crises, is showing that new modalities of solidarity and collective action are possible. If, however, social innovation is an element that can respond to emerging needs of a community and generate benefits for the community itself, there are many “social-washing” initiatives that aim to use the rhetoric of social innovation to generate individual profit at the expense of collective welfare or to improve the corporate visibility and political credibility of institutions. In addition, social innovation is not always fair and equal for everyone. For example, some individuals and group may be excluded from the process of emancipation. It follows that “social innovation is often seen as a set of tools to provide instant solutions to pressing problems”.

Consequently, social innovation can be a driver for new approaches and can lead to diversification thus creating jobs and alternative, additional income sources in areas where there is a lack of employment opportunity because of weak economic structures or bad accessibility. Innovative solutions can open up new opportunities for people with disabilities, the elderly, and excluded

minorities. Often the given regions and strata of population possess outstanding cultural and natural heritage on which to innovate [11].

DR is characterized by large competitiveness gaps between the old, the new Member States and the non-EU countries, including their status within the regional innovation ecosystem. In this context, large social and professional categories have been left out from current flows of information and knowledge exchange: students, researchers, teachers, businessmen and other professionals with direct interest in being part of innovation cycles. Across DR, there is a low share of technology and knowledge-intensive activities. The R&I activities are overly concentrated within the western regions or the major urban hubs, including capital cities or university towns. Another main challenge derives from the non-matching innovation profiles of the Danube Region countries e.g. there are heavily unbalanced R&I expenditures and knowledge management capacities. Current scientific and technological transnational cooperation are hindered by factors such as different levels of knowledge transfers and innovations capacities. This means that the ability to implement knowledge-based and technology-intensive policies and activities is still weak in many parts of the DR.

Furthermore, considering the overall entrepreneurial sector and, in particular, the SMEs, the innovation levels are below standards, which results in a share of innovative enterprises below the EU average. Consequently, the added value generated is unsatisfactory, e.g. product and technological development and advancement of SMEs are below expectations. Because of this, structural problems arise, especially in regard to the development of hi-technology economic sectors or the level of ICT employment (below the targets). To overcome such bottlenecks, transnationally coordinated policy support for producing higher value-added products and services is needed, especially in the quest for intensifying the innovation uptake process. Also, generating support for transnational cooperation and capacity building within supplier networks and cluster policies in order to integrate the SMEs into vertical and horizontal value chains can be seen important, especially towards the process of adopting new/advanced technologies across the macro-region [17].

However, in other social and economic aspects e.g. developing skills for smart specialization, [just transition], industrial transition, entrepreneurship, competitiveness, DR is still characterized by large cohesion gaps. The macro-region consists of various sub-regions of transnational importance in specific fields of actions such as agricultural (e.g. the Hungarian Great Plain, Wallachian Plain), industrial (e.g. Moravian-Silesian Region), service (e.g. Tyrol, Adriatic Croatia) and technology (e.g. Upper Bavaria). This is crucial also since the macro-region could capitalize from acting as a transition zone and a region of interaction for trans-European business relations including trade, R&I and technology transfer etc. To this end, solutions to the above cohesion gaps can be delivered through digitization and digitalization, industry 4.0 processes and or smart specialization strategies and policies (S3 - <https://ec.europa.eu/jrc/en/research-topic/smart-specialisation>) – with a special focus on SMEs. It is a real challenge that there are still insufficient measures to capitalize from comparative advantages and economic peculiarities on a transnational level in order to support more robust catching-up policies. There are large differences in S3 in terms of field of specialization, sectors and territorial coverage. While some states have their own national plans as well as their regional economic administration, in some countries it is still considered as a new, emerging topic. Therefore the lack of related planning and

management is quite common. Subsequently, support for transnational alignment of S3 strategies is of great importance. The transition to a smarter economy is hindered by the current situation of the human capital. The employment in hi-tech sectors is very uneven across the Danube Region. With regard to 'The Skills Composite' of advanced industrial technologies, that captures the share of professionals with advanced technology skills within EU, the share of Science, Technology, Engineering and Mathematics (STEM - https://ec.europa.eu/education/study-in-europe/news-views/stem-study-europe_en) graduates and firms with ICT skills, the value can be considered low across the macro-region.

In the very recent times, the situation of entrepreneurship was heavily affected by COVID-19. With regard to the economic sentiment indicator, economic actors had a positive view in 2019 [22]. Due to the pandemic, the confidence of economic actors decreased seriously in 2020. The value of the economic sentiment indicator dropped by 11.2% (from 101.3 to 90) between September 2019 and September 2020 in the EU-28. Based on the changes in the values of the above-mentioned indicator, the DR was particularly affected by the negative economic effects of the pandemic. Except for Germany (-2.9%) and Slovenia (-9.7%), all countries of the DR have suffered an above average decrease in terms of economic confidence. Montenegro (-44.1%) has suffered an extraordinary decline, furthermore the values of the economic sentiment indicator have significantly dropped in the case of Croatia (-21.9%), Serbia (-19.2%), Hungary (-17.0%), Romania (-13.7%) and Slovakia (-13.6%) as well. The DR was particularly affected by the economic consequences of the pandemic, thus the recovery of the region's economy requires increased attention.

All described challenges are based on the program's Territorial Strategy and to be seen in the broader context of existing strategic frameworks such as the EUSDR (especially with regards to PA7, PA8 and partly PA9), the Territorial Agenda 2030, the New Leipzig Charter, the Recovery and Resilience Facility and the European Green Deal.

10 COVID-19 and the media & culture sector, from the perspective of EUSDR - PA 3 (Culture & Tourism)

The COVID-19 pandemic has underlined the importance of the media and culture sector in uplifting people during difficult times. Hundreds of millions of people were confined to their homes, during the pandemic, many turned to music, films, television and other art forms for entertainment, education and cultural enrichment, leading to a surge in streaming and on-line services. Yet, at the same time, it was extremely difficult to continue cultural production, from live performance to recorded media, under lockdown and confinement measures, with the sector hit hard by unemployment and closed productions [24].

Globally, COVID-19 has increased the volatility of the media and culture industry, which has witnessed a fall in economic returns and job losses. It is estimated, for instance, that the music sector has lost US\$10 billion in sponsorships due to the shutdown.

The pandemic has accelerated existing trends, which are poised to change the media and culture labor market and its business models, together with the working conditions and rights of workers in the sector.

Different parts of the sector, from live performance to recorded media production, have capitalized unevenly on new technologies to find new ways of “monetizing” consumption. Live entertainment has not been able to take advantage of digital media to preserve its privileged relationship with its audience, while the consumption of on-demand music and audio-visual content has further increased, with streaming services taking the lion’s share and further replacing physical sales. Technology is also transforming how music is made, and this has accelerated during the pandemic. The changing use of applications and platforms is already raising intellectual property rights issues.

Technological solutions have been used on improvised film sets to maintain social distancing, with extras sometimes being replaced by computer-generated images. In some cases, actors have been provided with equipment to film themselves. Similarly, dubbing and voice-over work has been carried out in artists’ home studios, sometimes with equipment provided by the production, or with trailers parked near their homes and artistic directors calling in remotely. In some cases, alternative technologies, such as smartphones, have been used for the production of small budget movies and documentaries, although most professional studio production has largely been incapacitated by the crisis [20].

The push towards digitalization may have implications for the future labor market in the sector. The penetration of advanced technologies in the film sector may further reduce employment for certain types of technicians and audio-visual workers, while increasing the use of visual effects and the employment of specialized technicians.

In live performance, the cancellation of concerts and other events, including festivals, has caused the release of new recordings to be delayed and has encouraged greater recourse to performance live streams, including by orchestras and ballets performing for a virtual audience. While this model has helped to maintain a relationship with their audiences, it may not be a viable solution in the long term given the essence of live performance and the fact that some sectors are less

adaptable to this type of production. For example, operas and classical concerts are often too complex to be carried out virtually with members performing in different settings.

Moreover, the broadcasting, webcasting or streaming of live events may offer lower financial returns. Indeed, these models tend to favor established artists with access to platforms and label support. The increased use of online platforms also raises issues concerning remuneration, as they have become an important source of revenue for performers, and the technologies remain inaccessible to small venues, such as bars, pubs and tiny theatres, where a very large number of live performances usually take place.

A change in the way live entertainment is performed for a virtual public would require different occupational profiles and the need to provide appropriate skills to the workers involved. It would also give rise to severe challenges concerning the implementation and observance in a home or informal work environment of terms and conditions established through collective bargaining.

11 Responding to COVID-19 with Science, Innovation, and Productive Development, from the perspective of EUSDR – PA 7 (Knowledge Society) and PA 8 (Competitiveness)

In times of COVID-19, the scientific, innovation, and business communities are working frantically to support emergency responses and government actions. We are witnessing real-time collaboration between scientists across the globe in a race to develop the production of vaccines and antiviral medications. The industrial sector is repurposing production processes to produce health supplies on a large scale. Technology innovators and start-ups are teaming up to provide solutions to the most pressing issues [24].

However, we are only at the beginning of the most challenging part, which is how we will emerge out of this situation and return to a “new normality”. This is a race against the clock. The quarantine imposed on the population buys some time to curb infections and thus lighten the burden on the healthcare system, but countries should also take advantage of this time to prepare a proposal on how people could gradually resume their normal lives. We do not know exactly what the post-pandemic world will look like, but there seems to be a growing international consensus that any return to economic production will have to be supported by large-scale testing capacity and intensive monitoring of the evolution of infections, active health, and safety policies in all economic sectors, as well as urgent drug and vaccine development. In addition, as shelter-in-place measures will likely remain over the short term, digitalization to the extent possible has become a priority in various sectors. These challenges highlight the importance of science, technology, and innovation as the decisive factors in any scenario of emergence from the crisis and economic recovery.

First, it is critical to have a comprehensive strategy to address the economic crisis. There should be a proper balance between emergency interventions to support companies and other pro-growth measures. Providing financing to prop up the liquidity of SMEs would make little sense if it comes at the expense of defunding programs that support innovation, business upgrade, and dynamic entrepreneurship. Without the former, many of our companies may not survive the crisis, but without the latter, it will be difficult to achieve a recovery at the speed we all desire.

Second, it is important to have strong local capacities to respond in a way that is consistent with the needs and realities of the DR countries. Despite the global nature of the pandemic, some solutions are not universally applicable. A case in point is the problems with using diagnostic tests developed in Europe, given the speed of viral mutation and the weaknesses in local sampling capacities. Another example is the challenge of applying the sophisticated technological solutions for tracing, as these solutions are often at odds with the social, technological, or regulatory reality in DR countries. It is important to have abundant local capacities in terms of laboratories, infrastructure, and experts in order to respond effectively to the challenges posed by this pandemic, especially considering the risks of similar future outbreaks.

Third, countries with more mature innovation ecosystems and developed institutional capacities can respond to the crisis more quickly and decisively. Investment in developing these capacities has proven to be the key to providing value-added solutions. There is also great potential in

regional collaboration, which can shorten the learning curve of DR countries and help develop solutions that harness each one's relative strengths.

Finally, crises can present opportunities to drive transformation agendas and new business models. The involuntary digitalization imposed by social distancing strategies can be a way to accelerate the digital transformation of the DR, which was previously lagging behind. Furthermore, support for the recovery process should make a point to promote—in some cases vigorously—environmental sustainability and social inclusion.

12 COVID-19 and entrepreneurship, from the perspective of EUSDR-PA 9 (People & Skills)

The COVID-19 pandemic calls for all hands on deck by governments, in containing both the health and economic impact of the outbreak. Many entrepreneurs are among the most vulnerable, and have already experienced a huge drop in revenue whilst meeting ongoing costs. Governments have set-up a variety of instruments to help entrepreneurs and SMEs withstand the crisis [24].

The crisis is also bringing examples of entrepreneurship and small business creativity in coping with the crisis. For example, Digital education tools developed by start-ups in Estonia help to put in place long distance learning in other countries where schools have been closed. More generally, e-learning platforms see a large boost in activity, with small firms and entrepreneurs moving their content online. Also in other sectors, such as disinfectants, start-ups are booming. Platforms have been set-up to share world-wide creative initiatives in dealing with the crisis and containment measures. In several countries, Fintech (<https://builtin.com/fintech>) initiatives are being launched or speeded up, to alleviate liquidity problems of entrepreneurs. Several reports suggest that blockchain technology and other industry 4.0 advances such as Big Data, 5G and AI have helped speed up business recovery, and have played a part in efforts to control the spread of the virus and to develop a COVID-19 vaccine. In several countries, hackathons have been organized to harness the creativity of start-ups and entrepreneurs to contribute to solutions to the crisis. In many countries, industry organizations are playing a strong role in harnessing the entrepreneurial capacity of small firms. Industry associations are stepping up their efforts in supporting entrepreneurs during the crisis. Large corporates intensify their cooperation with small firms in biotech innovation to help find a vaccine to COVID-19. The private sector and non-governmental organizations are also taking part in efforts to support entrepreneurship during the crisis. Several large tech firms have announced or extended funding initiatives to support the innovative potential of start-ups and SMEs.

In several countries, crowd-funding initiatives have been introduced to keep local entrepreneurs in business. In this respect, many German stores and other service providers (e.g. cinemas and restaurants) are asking clients to buy “Gutscheine” (vouchers) for future use in order to stay afloat despite the closure. Beyond any doubt, the environment for SMEs and entrepreneurs in the coming period will be challenging, with government support needed to help firms to survive. At the same time, “pandemics and recessions are accelerants to innovation.” In responding to the crisis, governments should take this entrepreneurial contribution and potential of SMEs into account.

13 Conclusions and recommendations

Policy makers from EU, respectively DR should address a number of transversal issues, including among others, ecological sustainability, skills development, access to R&I systems, and a re-establishment of the EU freedom of movement and common market.

These are issues that are also crucial for recovering from the existing crisis and that need to be addressed to build stronger CCIs for the future – that can be both drivers and enablers of sustainable development – keeping in mind that there are more crises ahead.

There are six transversal perspectives, as follows:

- Ecological sustainability;
- R&I for CCIs;
- CCIs skills and capacity building;
- Improved sector representation and advocacy;
- Enhanced role(s) of non-public funders; and
- Re-establishment of EU's, and respectively DR's, freedom of movement and common market.

Ecological sustainability is the most fundamental transversal issue for the recovery and transition towards the long-term sustainability of the European CCIs. It constitutes an important prevention action for an ongoing second major crisis – the climate and ecological crisis – with potential for more substantial harm. The CCIs have the potential to play an important role within the European Green Deal and the New European Bauhaus (https://europa.eu/new-european-bauhaus/index_en) by raising awareness, to initiate the debate on climate change and ecology and to prototype solutions together with civil society and the economy. At the same time, the CCIs also need to transform themselves in an ecological and sustainable way.

In order to make the transition to a sustainable ecosystem, the CCIs need to innovate themselves, and also help other sectors to innovate. In this respect, R&I are fundamental pillars for longer-term sustainable CCIs businesses and initiatives, while the current settings do not allow for a continuous research approach. Within this approach we need to take into account regional differences in capacities as well as diversity in access to the CCIs by all, especially in the Eastern part of DR, establishing the CCIs as a democratic value and channel for innovation.

Mastering (new) skills are paramount in actual changing times. Mapping and addressing the main skills deficiencies in the CCIs is crucial and related to future challenges. The specific needs on a sectorial level need to be identified to provide the best fitting skills programs. There is a need to allow full involvement in lifelong learning of the self-employed and freelance parts of the CCIs (e.g. paid training time) and to acknowledge forms of informal capacity building such as peer-to-peer learning.

The degree of sectorial organization and representation in the EU and DR is underdeveloped in some sub-sectors and geographical territories, especially in the Eastern part of Europe. Especially the freelance parts of the CCIs are underrepresented. The sector can only grow and take up its

rightful place within the DR when EU-wide initiatives will prove having the power and financial backing to advocate and negotiate for the sector as a whole.

There is a large part of the CCIs that is not publicly funded. On the other hand, there are many private funders that are not connected to the CCIs. It is important to encourage the private sector to get more familiar with the CCIs and their important potential for the restructuring of the economy and European democratic societies after the crisis. From the inventory of the support measures provided to the CCIs during the COVID-19 crisis, we understand the non-public funders have interest in innovation. More and better links between the non-commercial and commercial parts of the CCIs can establish (longer-term) partnerships.

We need to re-establish frameworks to ensure the Freedom of Movement and of Services (<https://www.europarl.europa.eu/factsheets/en/sheet/40/freedom-of-establishment-and-freedom-to-provide-services>) to ensure a faster recovery built on the potential of the whole EU territory, respectively DR included. Re-launch programs should carefully address the cross-border and international cooperation needs. The engagement potential of the CCIs in EU & DR programs of all kinds should be strengthened in order to re-establish freedom of movement and make full use of the common market possibilities, including by making available sufficient co-financing means in local and regional recovery programs.

It is crucial to understand the complexity of current legal frameworks for intra-EU cross-border cooperation of the CCIs – including working permits and double taxation agreements, etc. and at the same time open EU-initiatives for the CCIs for further international exchange.

The CCIs is a cross-sectorial engine for transformation of European societies – especially in those areas lagging behind, concentrated in the Eastern part of EU / DR. International cooperation including effective access to EU markets is needed to be successful in this respect.

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