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Assessment of Digital Skills and Competencies of Creative Professionals and Artists



This document has been carried out for the purpose of the project 'Digital Transformation of Cultural and Creative Industries in the Republic of Moldova', which has been implemented by Artcor Creative Industries Centre in cooperation with the Ministry of Culture of the Republic of Moldova, supported by the UNESCO Regional Bureau for Science and Culture in Europe, and funded by the UNESCO-Republic of Korea Funds-In-Trust for the Development of Creative Industries.

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List of Abbreviations and Acronyms

AGEPI	State Agency on Intellectual Property
AI	Artificial Intelligence
AMTAP	Academy of Music, Theatre and Fine Arts
ATIC	Moldovan Association of ICT Companies
CCS	Cultural and Creative Sectors
COR	Moldovan Association of Creative Companies
CRM	Customer Relationship Management
FTA	Future Technologies Activity
GDP	Gross Domestic Product
GDPR	EU General Data Protection Regulation
ICT	Information and Communications Technology
MITP	Moldova IT Park
MOOC	Massive Open Online Course
ODA	Organisation for Entrepreneurship Development
R&D	Research and Development
SDGs	UN Sustainable Development Goals
SEO	Search Engine Optimisation
SME	Small and Medium Enterprise
STEM	Science, Technology, Engineering and Mathematics

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Introduction

The ‘Digital Transformation of Cultural and Creative Industries in the Republic of Moldova’ project is a collaborative effort between the Artcor Creative Industries Centre and the Ministry of Culture of the Republic of Moldova. Financial support for this initiative is provided by the UNESCO-Republic of Korea Funds-in-Trust for the Development of Creative Industries. The project’s primary goal is to fully harness the potential of digital transformation within the cultural and creative industries, ultimately enhancing these sectors’ capacity to foster inclusive, equitable, and sustainable economic growth in the country. In this context, the present report aims to identify potential digital skill gaps within the cultural ecosystem of the Republic of Moldova (henceforth, Moldova) and offers a set of recommendations to address these challenges.

The initiative is in line with the guiding principles and objectives of the *UNESCO 2005 Convention on the Protection and Promotion of the Diversity of Cultural Expressions*¹ as well as its overarching goals to support sustainable systems of governance for culture and to promote human rights and fundamental freedoms. In 2017, the *Operational Guidelines for the Implementation of the 2005 Convention in the Digital Environment*² were adopted, providing a framework for member states to tackle the challenges and seize opportunities emerging from the digital transformation of the cultural and creative sectors. Key aspects of these guidelines include:

- The technological neutrality of the Convention, which ensures that its provisions remain relevant and applicable regardless of the constant evolution of digital technologies.
- A bottom-up approach to developing national plans for the protection and promotion of the diversity of cultural expressions in the digital age (Article 24.3), which encourages the active involvement of stakeholders at all levels, including government agencies, the private sector and civil society organisations.
- The importance of enhancing digital skills in the cultural and creative sectors (articles 8.3, 8.8, 12, 14.3, 14.4, 14.5, 17.7, 22), highlighting the need for training, capacity-building and access to digital tools and resources for artists and cultural professionals.

Building upon the Operational Guidelines, the *Open Roadmap for the implementation of the 2005 Convention in the Digital Environment*³ was presented in 2018 as a practical tool to help Parties navigate the new technological environment. Among the key outputs of the Open Roadmap is the reinforcement of digital literacy, skills, and competences, which is addressed through several action points, including auditing and identifying specific digital skill gaps in the cultural and creative sectors, establishing training programmes, supporting cultural and media institutions, and designing cultural cooperation projects.

The *Re/Shaping Cultural Policies* report series, with three editions (published in 2015,⁴ 2018⁵ and 2022⁶), serves as a vital resource for monitoring the implementation of the 2005 Convention. Its chapter on digital technologies provides valuable data on emerging trends, such as the use of artificial intelligence in the cultural and creative sectors.

In the context of broader sustainable development efforts, the United Nations’ Sustainable Development Goals (SDGs) provide a global framework for promoting prosperity,

¹ <https://en.unesco.org/creativity/convention>

² https://en.unesco.org/creativity/sites/creativity/files/sessions/digital_operational_guidelines_en.pdf

³ <https://en.unesco.org/creativity/publications/open-roadmap-implementation-2005-convention>

⁴ https://unesdoc.unesco.org/ark:/48223/pf0000242866_eng

⁵ https://unesdoc.unesco.org/ark:/48223/pf0000260592_eng

⁶ <https://www.unesco.org/reports/reshaping-creativity/2022/en>

protecting the planet, and ensuring the well-being of all people. Digital skills play a significant role in achieving several of the SDGs, including:

- SDG 4 (Quality Education): Fostering digital literacy and skills can help ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
- SDG 8 (Decent Work and Economic Growth): Enhancing digital competencies can contribute to the development of sustainable, inclusive, and innovative economies, as well as decent work opportunities in the cultural and creative sectors.
- SDG 9 (Industry, Innovation, and Infrastructure): Strengthening digital skills can help build resilient infrastructure, promote inclusive and sustainable industrialisation, and foster innovation in the cultural ecosystem.
- SDG 11 (Sustainable Cities and Communities): By promoting digital creative skills, it is possible to make cities and human settlements more inclusive, safe, resilient, and sustainable, as well as enhance the cultural vibrancy and diversity of urban environments.

The cultural and creative sectors comprise a diverse array of fields, such as film, publishing, music, design, performing arts, cultural heritage, videogames and more.⁷ Digital skills, on the other hand, refer to the abilities required to effectively use digital technologies and navigate the digital environment. In this sense, when discussing digital skills in the cultural and creative sectors or digital creative skills, we are referring to digital skills applied to one or more links in the cultural value chain – creation, production, distribution, access, and participation –, in any creative field.

A variety of qualitative and quantitative research methods were employed in studying the digital skills gaps in Moldova for this project,⁸ which included:

- Desk research: a comprehensive review of numerous reports, press articles, and other materials pertinent to the topic.
- A survey conducted with 78 respondents from diverse backgrounds and sectors within Moldova's cultural and creative industries.
- 13 semi-structured interviews with key local stakeholders in the cultural and creative sectors.

This report is divided into two main parts. The first part (1) provides an overview of 1.1) opportunities, 1.2) challenges, and 1.3) major projects related to digital creative skills in Moldova. The second part (2) proposes a series of recommendations in areas such as 2.1) the development of new digital skills courses, 2.2) the promotion of international mobility and networking, 2.3) the updating of curricula in universities and schools, 2.4) the implementation of monitoring and awareness-raising activities, and 2.5) the introduction of new public sector policies.

⁷ When defining the scope of the concept 'cultural and creative sectors', there are various approaches and classifications (see, for example, UK DCMS, <https://www.gov.uk/government/collections/creative-industries-economic-estimates>, or UIS, <http://uis.unesco.org/en/glossary-term/cultural-domains>). In this project, an ad hoc classification was utilised, tailored to the Moldovan context.

⁸ The research activities were carried out in March and April 2023.

1. Overview of Moldova's Digital Creative Skills Landscape: Opportunities, Challenges and Projects

1.1. Opportunities

1.1.1. Moldova's strategic position

Moldova's unique characteristics present a multitude of opportunities for the development and promotion of digital skills within the cultural and creative sectors. One of the key advantages is the country's proximity to and strong relationships with the European Union, which not only fosters joint projects and cooperation but also opens the door for potential EU accession. Furthermore, Moldovan citizens benefit from visa-free travel within the EU, facilitating partnerships and cross-border collaboration.

Moldova's multicultural and multilingual nature is an additional advantage. The country's diverse linguistic and cultural background fosters an environment that can encourage creativity and adaptability. Moldova's openness to external influences and its role as a bridge between East and West further contribute to its potential as a hub for innovative projects.

Access to the Romanian market is another key advantage for Moldovan companies, as the shared language and cultural ties create significant opportunities. The Moldovan diaspora, comprising more than one million individuals living abroad, also represents a potential external market, providing further avenues for trade, collaboration, and cultural exchange.

1.1.2. IT, innovation, and educational infrastructure

On the other hand, Moldova's robust tech infrastructure is essential for the successful implementation of digital endeavours. This solid foundation can support the growth of startups and private IT companies.⁹

Moldova's vibrant IT sector, which contributes to 10% of the country's GDP,¹⁰ showcases the nation's commitment to digital innovation. Furthermore, Moldova's internationally competitive prices in the technology market make it an attractive destination for both local and foreign investors.

In 2020, Moldova was ranked 48th in the Ease of Doing Business ranking among 190 countries.¹¹ Notably, the country ranked 13th for starting a business, reflecting a supportive environment for entrepreneurs.

The educational infrastructure in Moldova, comprising 16 state and 15 private institutions of higher education, provides a strong foundation for nurturing talent and fostering the development of digital skills. The country's 99.4% literacy rate is indicative of its significant emphasis on education.

1.1.3. Cultural and creative sectors

Moldova's cultural and creative sectors have seen considerable growth, with over 2,800 enterprises generating \$200 million in revenue, and employing 13,000 people across various fields.¹² While the primary concentration of cultural and creative industry activities is in Chişinău, other cities such as Cahul and Bălţi also exhibit potential for the development of these sectors. The main cultural and creative industries in the country are: visual arts and crafts, performing arts, publishing, design, software and games, heritage, architecture, fashion, and creative services.

⁹ ITA (2022).

¹⁰ Ibid.

¹¹ <https://archive.doingbusiness.org/en/data/exploreconomies/moldova>.

¹² Invest Moldova (n.d).

Figure 1: Main cultural and creative industries of Moldova, with their respective sub-sectors



Source: Artcor.

The Ministry of Culture oversees numerous cultural institutions, while civil society organisations also play a growing role in the cultural landscape. In 2022, the Creative Moldova National Programme was launched by the Ministry of Culture, in partnership with other stakeholders including the Moldovan Association of Creative Companies (COR),¹³ a significant organisation supporting about 60 private enterprises and NGOs within the creative industries. The plan is aimed at boosting the development of creative industries and position Moldova as a regional hub of creative services and products.

Moldova’s thriving videogame sector stands as one of the largest creative industries in terms of turnover. This prominence highlights the country’s potential for innovation and growth within the digital entertainment space.

1.1.4. Access to European programmes

Horizon Europe¹⁴ presents a remarkable opportunity for Moldova to enhance its digital

¹³ <http://cor.md>

¹⁴ https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en.

competencies in the cultural and creative sectors. The programme provides a platform for the digital upskilling of cultural professionals and organisations, equipping them with the necessary tools and knowledge to navigate the digital landscape and foster innovation. Moldova has been granted the status of an Associated Country under Horizon Europe, which enables local research entities to participate in Horizon Europe on an equal basis with entities from EU Member States.¹⁵

In a parallel fashion, the Creative Europe programme¹⁶ emerges as another valuable prospect for Moldova to foster digital skills in the cultural and creative sectors.¹⁷ Looking to harness the opportunities offered by Creative Europe, the Government of Moldova included in its 2023 Activity Plan a series of training sessions, designed to build the capacities of non-profit organisations for applying and participating in future cycles of the programme.

Erasmus+, the EU's comprehensive initiative supporting education, training, youth and sport, presents another opportunity for Moldova to enhance digital creative skills.

1.1.5. International agencies and donors

Many international agencies and donors are present in Moldova, actively contributing to the design and execution of local projects. Among the main entities, it is worth mentioning UNDP,¹⁸ USAID,¹⁹ UN Women,²⁰ Goethe-Institut²¹ and various embassies such as the Embassy of Sweden and the British Embassy.

Future Technologies Activity (FTA)²² is an initiative led by USAID, with Swedish financial contribution and implemented by Chemonics, that has supported a considerable number of endeavours aimed at bolstering the nation's efforts in digital transformation.

1.1.6. Pro-innovation, collaborative government dynamics

Another significant development for Moldova was the creation of a Deputy Prime Minister for Digitalisation position in August 2021. This move highlights the government's commitment to promoting digital advancements across a variety of areas.

Furthermore, the strategic focus on the cultural and creative sectors, led by the Ministry of Culture and supported by inter-ministerial collaboration, further underscores the nation's dedication to fostering a conducive environment for these domains to flourish.

1.2. Challenges

1.2.1. Economic challenges: instability, informal economy, and market limitations

Despite the numerous opportunities at its disposal, Moldova confronts numerous challenges. The nation is experiencing high inflation, which erodes purchasing power and increases the cost of living for its citizens. Moreover, the ongoing war in Ukraine has brought

¹⁵ https://research-and-innovation.ec.europa.eu/strategy/strategy-2020-2024/europe-world/international-cooperation/moldova_en

¹⁶ <https://culture.ec.europa.eu/creative-europe>

¹⁷ In 2015, five projects were proposed by Moldova, and this number increased to eight in 2016. In 2017, the project proposals reached a total of 17, including 11 for cooperation, one for a film festival, one for an educational film, and four for literary translation. In 2018, the number of project proposals was six, all of them for cooperation, and in 2019, there were four projects, with three for cooperation and one for a film festival.

¹⁸ <https://www.undp.org/moldova>

¹⁹ <https://www.usaid.gov/moldova>

²⁰ <https://moldova.unwomen.org/en>

²¹ <https://goethezentrum.md>

²² <https://openaid.se/en/activities/SE-0-SE-6-15148A0102-MDA-32130>

about significant regional instability.²³

With a small population and a correspondingly small internal market, Moldova faces limitations in its economic growth. The country's limited consumer base and workforce constrain the development of large-scale industries, making it challenging to achieve economies of scale and global competitiveness. Moldova's grey economy, encompassing unregistered and untaxed business activities, presents another challenge.

There are notable imbalances between Moldova's capital, Chişinău, and smaller cities, as well as between urban and rural areas. These disparities manifest in terms of access to employment opportunities, resources, infrastructure, and education.

Remittances play a significant role in Moldova's economy, accounting for approximately 16% of its GDP.²⁴ While these financial inflows provide vital support for many families, their dependence on remittances makes the country vulnerable to external fluctuations.

Venture capital in Moldova is still limited, which restricts opportunities for startups and technology-based businesses to secure funding. This lack of investment hinders the development of a robust, diverse economy and limits the country's ability to remain competitive in the global market.

1.2.2. IT and startup ecosystem

In Moldova, the IT sectors are encountering various obstacles that impede their growth and progress. Among these challenges, the risk of brain drain – *i.e.* the departure of highly skilled professionals and talented young entrepreneurs who are attracted to better prospects, higher salaries and improved living conditions abroad – stands out prominently.

In the case of startups, recent PwC research established that local players face obstacles in a number of areas: 1) hiring qualified employees; 2) limited knowledge of the regulatory environment; 3) idea generation and validation; 4) funding; 5) training and mentorship on strategic and soft skills; 6) media and events coverage.²⁵

The gender gap in Moldova's IT sector represents another challenge. Women are underrepresented in this growing industry, which not only limits their access to high-paying jobs but also deprives the IT sector of valuable talent.²⁶

Furthermore, some interviews and survey respondents suggest that entrepreneurs very often become excessively fixated on technical aspects and tend to overlook the development of soft skills – storytelling, communication, collaboration, adaptability, among others – that can be refined through daily interactions with individuals from diverse backgrounds and realities. Such an insular approach can curtail their ability to adapt to novel environments, grasp cultural nuances and establish robust networks.

1.2.3. Small and medium-sized enterprises (SMEs)

Regarding SMEs in Moldova, digital skills development presents its own set of obstacles. In the country, most companies are SMEs, predominantly microenterprises, with few large international firms maintaining a local presence.²⁷

SMEs often face greater challenges in training their teams,²⁸ creating a vicious circle: the lack of digital skills hampers their growth and keeps their turnover low, which in turn prevents them from investing in new skills development. This cycle restricts their ability to compete and innovate in the digital age.

²³ The Guardian (2023).

²⁴ UNICEF (2021).

²⁵ PwC (2019: 7).

²⁶ UNDP (2021: 8 ff.).

²⁷ World Bank (2023: 4 ff).

²⁸ OECD (2021: 66).

Based on information from the Organisation for Entrepreneurship Development (ODA) – previously known as ODIMM –, a substantial 75% of Small and Medium Enterprises (SMEs) in Moldova do not have their own websites.²⁹ This statistic underscores the significant gap in digital capabilities among Moldovan small and medium-sized enterprises.

1.2.4. Challenges in formal and informal education: universities, secondary schools, and private courses

‘Think of Generation Z: the new generation can know more than the teacher. Students can even teach us a lot!’ (Professor, Academy of Music, Theatre and Fine Arts)

Moldovan universities encounter numerous difficulties in promoting digital skills and fostering an environment conducive to innovation and research. A key issue is the lack of a product-oriented mindset, which hinders the development of market-driven solutions and technologies.³⁰ This problem is further exacerbated by universities not promoting practical or hands-on experience and experimentation. Consequently, students’ ability to apply theoretical knowledge in real-world settings is limited.

Interviewees and survey respondents confirmed that there is insufficient contact with different and dynamic contexts outside academia, including the industry, the arts, and other professional sectors. In the Academy of Music, Theatre and Fine Arts (AMTAP), the requirement for instructors to hold a PhD means that many professionals, even with significant experience in their fields, do not apply for university positions. Another challenge arises from the lack of sufficient interaction between faculty members in digital projects, which can obstruct cross-disciplinary innovation.

The allocation of university funds primarily to teaching, rather than research and development, can limit innovation and knowledge generation. Low salaries in academia contribute to a brain drain, as many professors and experts leave for the private sector or choose to pursue opportunities abroad.³¹

Within this context, many students find themselves opting for other European universities over their national institutions for their higher education. High dropout rates are another concerning issue.

During the interviews some professors pointed out the lack of necessary resources at the university, such as computers needed for specific operations, expensive software, and the unaffordability of inviting experts to discuss digital issues. Many professors found the time of the pandemic to be extremely difficult, as they were unprepared for the shift to remote learning. They faced challenges such as not having digital tools and lacking specific funds to purchase resources like cloud storage.

A paradox identified by respondents is that many digital skills initiatives designed for university professors ended up suffering from the very problems they sought to solve, such as outdated content and pedagogical approaches poorly adapted to the digital reality.

An additional concern was raised by a lecturer who mentioned that while technological infrastructures do exist in her institution, they are not open to all, and few people know how to use them. She also noted that there are limited or no courses on digital issues for professors, and even when such courses are offered, they lack practical application. In essence, while many

²⁹ EU4Digital (2021).

³⁰ Fondul de Inovații și Dezvoltare Durabilă (2021a) and UNIDO (2020).

³¹ Fondul de Inovații și Dezvoltare Durabilă (2021b).

necessary components for digital skills development are present, universities seem to struggle with creating a cohesive strategy that integrates all elements of the ecosystem.

A further issue faced by Moldovan universities, as observed by interviewees and survey respondents, is the generational gap. One interviewee explained, 'Think of Generation Z: the new generation can know more than the teacher. Students can even teach us a lot!'

Additionally, online platforms such as Coursera and others present a challenge to traditional universities. These platforms attract students interested in flexible learning options and specialised courses, making it difficult for Moldovan institutions to remain relevant and appealing to students in the digital age.

In the context of private digital skills courses, some interviewees observed that artists and entrepreneurs, particularly those within the younger demographic, may experience a decline in motivation due to the lack of immediate, tangible applications of the concepts they learn. Despite the existence of a variety of digital training initiatives, many suffer from short-term durations and insufficient follow-up, hindering their overall effectiveness.

At the secondary school level, many of the difficulties encountered by universities concerning digital skills and new technologies are mirrored. Numerous teachers express feeling overwhelmed due to the vast number of mandatory subjects they are required to cover. This added pressure may limit their capacity to effectively address and integrate digital skills into their teaching.

1.2.5. Cultural and creative sectors

In the specific case of the cultural and creative sectors, it's important to note that official data may not accurately represent the industry's scale due to the informality of many businesses and individuals not registering as employees or self-employed. Furthermore, limited audience participation poses a constraint to the sector's growth.

In Moldova, the underrepresentation of startups from the cultural and creative sectors is a significant challenge.³² This scarcity restrains the diversity of the startup ecosystem and impedes the country's ability to leverage the advantages of innovation in these fields.

1.2.6. Skill gaps and needs

'Learning online is a great start, but at some point, you should venture out and test your ideas in the field. Create content, digital products and services, and do not shy away from failure.' (Filmmaker)

Survey respondents identified several pressing needs, including financial concerns such as securing funding (60% of respondents) and finding business partners (43%), as well as increasing visibility (42%). Prominent obstacles encompass the scarcity of funding (55%), lack of training (51%) and the absence of a comprehensive national digital culture strategy (50%). Regarding threats, the most cited concern involves the potential for digital technologies to exclude older generations (50%).

The most urgently needed digital skills include Generative AI (45%) and Digital Content Creation (45%). Other essential skills entail legal matters (43%) and business models within the digital environment (45%). Respondents perceive the most promising technologies to be Artificial Intelligence (69%) and social networks (56%).

Figure 2: Responses to the question 'Please select the options that best describe your current needs'

³² Farinha (2018).



Figure 3: Responses to the question ‘What are the main obstacles you have encountered in your work with digital technologies?’

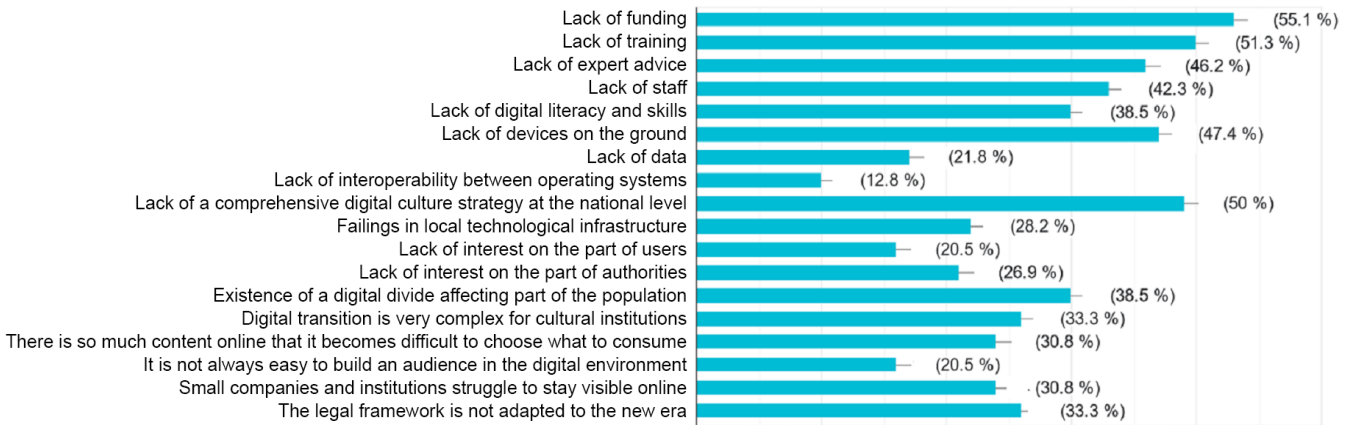
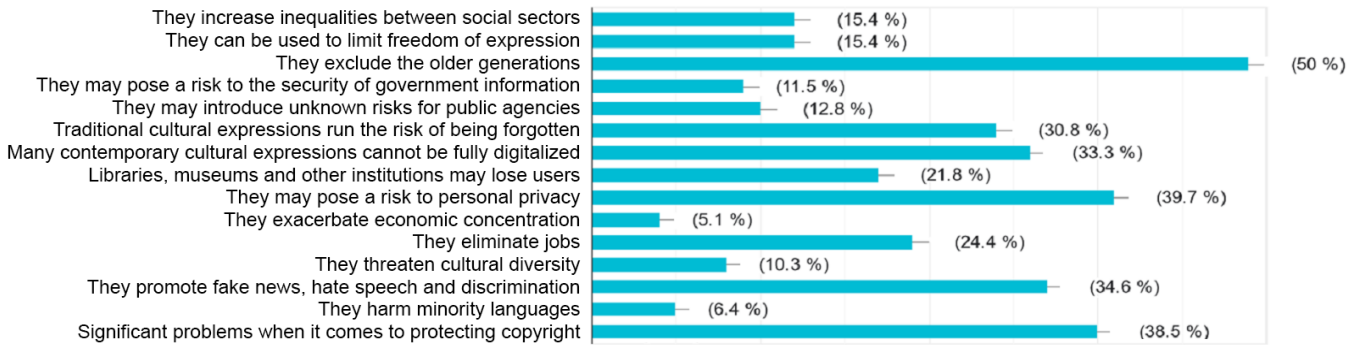


Figure 4: Responses to the question ‘To what extent might digital technologies pose a threat?’



Users predominantly express a preference for in-person activities (72%) and mentorship (64%). Feedback from respondents suggests avoiding purely theoretical webinars and adopting a more practical, product-oriented approach. They also emphasise the importance of increased travel, training abroad and continuous experimentation. One respondent remarked: ‘learning online is a great start, but at some point, you should venture out and test your ideas in the field. Create content, digital products and services, and do not shy away from failure.’

At the same time, in the context of fostering digital skills, interviewees from the private sector believe that it is inadvisable to establish new structures, which could introduce barriers and frictions in the market. Instead, they recommend working with existing structures to foster interaction and collaboration.

1.3. Key projects in the Moldovan digital creative skills landscape

Given the current context where opportunities and challenges coexist, many initiatives – both from the public and private sectors – have emerged in recent years aimed at enhancing digital skills. In the following sections, we present some of these projects, highlighting the main actors involved and their impact.

1.3.1. Infrastructure and IT initiatives

In 2013, the Ministry of Economy and Infrastructure developed the Digital Moldova 2020 strategy.³³ The initiative was aimed to promote sustainable growth in the IT sector and outlined plans for the systemic development of the field in all areas for the convenience and well-being of citizens. The strategy had three pillars, with the third pillar focusing on enhancing digital skills and literacy to stimulate innovation and usage.

Moldova's 2023-2027 Strategy for Digital Transformation³⁴ has undergone multiple rounds of public consultations. The strategy targets various sectors and is focused on creating a dynamic and inclusive digital society, characterised by advanced technological infrastructure and citizens who are proficient in digital skills. On the other hand, the National Development Strategy Moldova 2030 aims to guide the country towards sustainable development and increase the quality of life for citizens. One of the key objectives of this plan is to promote the reform of continuous and lifelong education implementation, in accordance with the evolving requirements of the labour market. Additionally, it aims to ensure periodic requalification of the working-age population, with the ultimate goal of enhancing their competitiveness.

The EU4Digital³⁵ initiative aims to extend the benefits of the European Union's Digital Single Market to Eastern Partnership countries, including Moldova. By promoting the harmonisation of digital markets and the development of digital skills, the initiative offers crucial support for enhancing Moldova's competitiveness in the global digital landscape.

The Moldovan Association of ICT Companies (ATIC)³⁶ unites more than 90 entities and promotes the development of the IT sector in Moldova through partnerships with companies, organisations, and government. ATIC aims to foster innovation and entrepreneurship.

Moldova IT Park³⁷ (MITP) is the first virtual park in Moldova that offers incentives for the IT sector. The park provides a competitive business environment with a single flat tax rate, reduced bureaucracy, tax exemptions, facilitated residency permits and virtual presence.

The Moldova ICT Summit³⁸ is an annual event that brings together IT professionals, academia, business representatives and international specialists. The summit discusses topics such as closing the skills gap and developing IT educational services.

The Tech Women Summit is supported by several strategic partners, including the Government of Sweden, UN Women and private IT companies. The event aims to encourage women of all ages to choose careers in the IT field by showcasing the various skills required.

1.3.2. Incubators and accelerators

The startup ecosystem in Moldova is evolving, with key players investing significant efforts in fostering entrepreneurial culture, bridging the gap between startups, potential investors, and mentors. Among the most critical components of this ecosystem are the incubators and accelerators.

³³ <https://eufordigital.eu/library/digital-moldova-2020-strategy>

³⁴ <https://eufordigital.eu/new-digital-transformation-strategy-to-guide-moldova-in-european-integration>

³⁵ <https://eufordigital.eu>

³⁶ <https://ict.md>

³⁷ <https://mitp.md/p/web/webHome>

³⁸ <https://www.moldovaictsummit.md>

Yep!Moldova³⁹ is an early-stage startup accelerator providing a variety of programmes, including startup pre-accelerators, specialised accelerators for creative industries, female founders, post-acceleration programmes, education initiatives for young entrepreneurs, and various tech events like hackathons and summer camps.

Dreamups⁴⁰ is an innovation and entrepreneurship accelerator, offering a range of programmes. These include an online Startup School for launching digital startups, as well as Upcelerator, an online acceleration programme designed for idea-stage startups, along with Upnext, a Traction Accelerator program.

XY Partners⁴¹ assists startups and companies through mentoring, operational support, and access to funds and investors. It provides a supportive environment with professional advice to develop essential skills. Key programmes run by XY Partners include the XY Accelerator, E-commerce Incubator, Wine Accelerator, Women Pre-accelerator, and Tourism Accelerator.

Startup Moldova Foundation,⁴² founded by the Association of ICT Companies, is an organisation that supports the development of startups ecosystem builders and offers resources and connections to support startups. Their initiatives include the Startup Moldova Summit, the Digital Upgrade programme for SMEs, and the Startup City Cahul project, which aims to establish Cahul as southern Moldova's first startup city, enhancing the digital economy and local IT sector.

Other programmes include those driven by the Moldova IT Park (MITP). Since July 2022, MITP has been running the UC Berkeley Executive Education Product Management Studio Course, aimed at Moldovan tech CEOs and startups, and supported by FTA.

Technovator⁴³ is another player offering various programmes covering ecosystem growth, specialised startup advancement in sectors such as AgTech, EnergyTech, FinTech, and HealthTech, and talent development initiatives.

1.3.3. Creative hubs, coworking spaces and experimentation centres

Moldova also hosts a variety of hubs and centres specifically designed for the creative and startup communities. These centres, generally located within university campuses, have been established with the backing of the government and the donor community.

Artcor,⁴⁴ located on the Academy of Music, Theatre and Fine Arts' campus, stands as a central hub for Moldova's creative industries. Its mission encompasses connecting creative communities, enhancing their capacities via targeted education, and fostering skills vital to the sector on an international scale. This facility, inaugurated in 2019, provides a multifunctional collaborative space armed with advanced technology and training opportunities for various sectors – from companies and freelancers to students involved in graphics, design, sound, animation, and more. The founders and key partners of Artcor are COR, the Ministry of Culture, the Academy of Music, Theatre and Fine Arts, and USAID.

Mediacor,⁴⁵ a production and technology centre designed specifically for the Media and Film Industries, resides on the campus of the State University. This state-of-the-art facility was officially inaugurated in 2021 with a primary aim to introduce and inspire cutting-edge innovations within the creative and digital media industries.

Nestled within the campus of the Technical University is Tekwill,⁴⁶ the first ICT Excellence Centre in Moldova. Having initiated its operations in September 2015, Tekwill aims to enhance

³⁹ www.yepmoldova.org

⁴⁰ www.dreamups.md

⁴¹ <https://xy.md>

⁴² <https://startupmoldova.digital>

⁴³ <https://technovator.world>

⁴⁴ www.artcor.md

⁴⁵ www.mediacor.md

⁴⁶ www.tekwill.md

education, particularly in the ICT domain, and plays a crucial role in fostering the growth of the startup ecosystem.

ZipHouse⁴⁷ is a Fashion Design and Technology centre, situated within the Technical University campus. This innovative platform enables activities like learning, ideation, co-working, networking, promotion, and product prototyping, all revolving around the world of fashion.

iHUB Chişinău⁴⁸ offers a co-working environment that serves as a catalyst for entrepreneurship and innovation. The space provides opportunities for affordable education, investor access, and professional orientation, particularly geared towards startups and IT specialists.

FabLab Chişinău⁴⁹ functions as a leading-edge digital fabrication platform. Equipped with top-tier technology used in industries such as electronics, robotics, furniture, and machinery, FabLab extends its role beyond a resource provider. It offers educational programmes, fosters high-tech startups, and cultivates a community of makers, along with hosting a variety of activities, competitions, and events.

Situated within the Academy of Economic Studies campus, the FinTech Hub⁵⁰ embodies a platform stimulating digital creativity, technological innovation, and growth within the ICT sector.

The Future Classroom,⁵¹ positioned on the State Pedagogical University's campus, constitutes a digital transformation initiative for Moldova's educational institutions. This project champions a new pedagogical concept that merges open learning environments with interdisciplinary approaches via digital technologies, thereby prioritising student-centred learning.

Affiliated with the Alecu Russo State University in Bălţi, the NORTEK⁵² Innovation and Technology Transfer Centre endeavours to boost regional economic competitiveness and to shepherd digital transformation. NORTEK supplies a range of resources, including training facilities and spaces for experimentation, catering to students, young professionals, entrepreneurs, and business owners in the region.

1.3.4. Digital skills programmes

The advancement of digital skills within the cultural and creative industries in Moldova is significantly supported through both formal and non-formal education channels. Formal education is predominantly imparted through public academic institutions, whereas numerous private initiatives provide a wealth of non-formal education opportunities, many of which are implemented within innovative hubs previously mentioned.

In the field of formal education, a significant milestone was reached in June 2022 as the Ministry of Education, in partnership with the COR Association and with the support from the FTA, launched new Bachelor programmes in the gaming, animation and multimedia production industries⁵³ for the first time in Moldova. Four public universities are participating in the initiative: the State University, the Technical University, the State Pedagogical University and the Academy of Music, Theatre and Fine Arts. The courses are taught by local and international specialists, including those from Crunchyroll, Sony, as well as UC Berkeley.

Artcor School is an educational platform developed by Artcor, aimed at enhancing

⁴⁷ www.ziphouse.md

⁴⁸ www.ihub.md

⁴⁹ <https://fablab.md>

⁵⁰ <https://tekwill.md/tekwill-hubs/fintech-hub>

⁵¹ www.clasaviitorului.md

⁵² <https://nortek.md>

⁵³ <https://educatie.cor.md>

traditional learning with training in technical skills including graphic design, VFX, and augmented reality. The school also facilitates residency programmes providing business support and mentorship for innovative creative projects. Since its inception, Artcor School has conducted more than 50 courses and 70 workshops across varied fields, using innovative methodologies and professional expertise to meet international and local needs. Catering to a wide audience, from teenagers to industry professionals, it strives to enhance the quality of Moldova's creative industry workforce.

The Museums of the Future programme, launched by Artcor in partnership with Ministry of Culture and FTA, aims to modernise museums in Moldova with digital installations and new-media art exhibitions. This initiative, emphasising digital skills development among museum staff and creative professionals, incorporates cutting-edge technologies such as projection mapping and augmented reality.

The Bridge programme,⁵⁴ launched by Invest Moldova and FTA, offers resources for businesses across diverse sectors, including the creative industries and digital media, enabling their participation in worldwide events such as forums, summits, trade fairs, and competitions. Focusing on technology integration and innovation, Bridge plays a pivotal role in amplifying the digital skillset of Moldovan enterprises.

Among the different initiatives developed by Tekwill, it is worth highlighting the Tekwill Academy,⁵⁵ is an IT specialist training programme that guides new professionals into the labour market. Their 'Tekwill in Every School' (TiES) programme aims to reach over 90% of high schools in the country by 2024, providing students with access to innovative digital resources and skills. Additionally, tekwill.online⁵⁶ is a comprehensive platform offering free access to IT educational materials. With Tekwill Bălți, they seek to train more IT specialists in the north of the country, offering various facilities for learning and working. Lastly, the Tekwill Ambassadors programme aids stakeholders in technological, innovative, and entrepreneurial advancements, providing resources and supporting over 30 development programmes in the IT field.

The Chişinău Academy of Media Arts (CAMA)⁵⁷ is a specialised media arts institution. With support from Swiss cooperation, CAMA provides practical, hands-on training in the film, advertising, and TV industries, adopting a unique approach focused on 20% theory and 80% practice over a six-month period.

In 2020, in order to ensure continuity of education during the COVID-19 pandemic, 20,000 teachers in Moldova – equivalent to 75% of the total number of school teachers in the country – received training on Google for Education applications through a partnership between Moldova's Ministry of Education and Google. As a result of this collaboration, 1,100 schools, representing 90% of all schools in Moldova, were covered.

1.3.5. Events, festivals, and hackathons

In Moldova, numerous events and festivals serve as avenues for artists and creative entrepreneurs to sharpen their skills and showcase their talent. One of the most significant of these is the Creative Industries Festival (FIC),⁵⁸ organised annually by Artcor since 2020. In 2023, the FIC spanned four days, featuring 30 local and international speakers and 50 professionals. Attracting more than 2000 visitors, the festival delved into the topic of artificial intelligence, with one key objective being to identify ways of integrating this tool so that it supports, rather than hinders, artists and creators.

Several other events are tailored to specific sectors within the creative industries. The Fix

⁵⁴ <https://bridge.invest.gov.md>

⁵⁵ <https://tekwill.md/tekwill-academy>

⁵⁶ <https://tekwill.online>

⁵⁷ <https://cama.md>

⁵⁸ <http://artcor.md/fic2023>

it in Post conference⁵⁹ caters to the cinema and media industry, with a specific focus on post-production. Bold Fest⁶⁰ is a vibrant gathering of new media artists, creative directors, and digital business leaders, offering an immersive digital art and music experience. Within Bold Fest, the Digital Poetry Bootcamp and Exhibition provides a unique creative platform. Furthermore, the Media Policy Forum⁶¹ serves as an important venue for dialogue and discussion dedicated to the media industry and journalism, while Book Fest is an international book fair celebrating literature and promoting reading. MiLAP, standing for 'Make it Like a Pro', is a specialised film industry educational programme that helps aspiring filmmakers hone their craft. Moreover, festivals like BiTei, dedicated to performing arts; Ethno Jazz, an international jazz festival; DescOperă, offering classical music; and Gustar, focused on folk music, further diversify the landscape of creative events.

Finally, Garage48,⁶² in partnership with YEP Moldova, has organised a number of hackathons in Chişinău to empower youth and encourage them to turn ideas into working prototypes with the help of top-notch mentors.

2. Fostering Digital Creative Skills in Moldova: A Path Forward

In light of the opportunities, challenges, and success stories analysed, there is a compelling case to outline a strategy to strengthen digital skills in the cultural and creative sectors. This strategy could have the following key objectives:

- Enhance skill development and capacity building:
 - Equip artists, creative entrepreneurs, and cultural businesses with new technical and soft skills to enhance their creativity, adaptability, and competitiveness.
 - Strengthen critical thinking skills to navigate the complexities of the digital age and make informed choices.
- Promote creativity, innovation, and market reach:
 - Enable artists to explore new forms of creative expression and reach wider audiences.
 - Encourage innovative products and services by leveraging digital tools and platforms.
 - Assist in developing national and international go-to-market strategies.
- Foster collaboration, facilitating evaluation, and increasing impact:
 - Facilitate networking and collaboration to promote knowledge exchange, new commercial partnerships, and cross-disciplinary projects.
 - Develop methods for evaluating success and growth, considering both economic performance and the impact on the diversity of cultural expressions.

In addition to the specific objectives mentioned above, a digital skill strengthening strategy should have at least three general characteristics. It would have to be:

- Comprehensive (applicable to the widest variety of cultural and creative sectors possible).
- Agile (avoiding new structures that may delay implementation).
- Sustainable over time (withstanding geopolitical tensions, budget reductions and withdrawal of donors).

⁵⁹ <https://www.facebook.com/fixitinpostconf>

⁶⁰ <https://boldfest.is>

⁶¹ <http://mpf.mediacor.md>

⁶² <https://garage48.org>

Considering all these aspects, a work agenda is proposed which is based on five key areas:

1. Development of new courses and training programmes.
2. International mobility and networking opportunities.
3. Monitoring and mapping of digital competences.
4. Integration of digital creative skills in the educational system.
5. Public policy initiatives supporting digital skills development.

2.1. Development of new courses and training programmes

A crucial element of any digital skills enhancement programme is the offering of new training courses tailored to various creative sectors and actors. Through the examination of various projects implemented in Moldova and interviews conducted with key stakeholders, a set of 12 fundamental variables have been identified. These variables are vital for evaluating the effectiveness of digital skills training programmes and for establishing a framework for upcoming initiatives, regardless of whether the courses are organised by a creative hub, a university, or any other entity. Below, we propose a list that showcases the main variables at play:

1. **Creative sector** (videogames, film, audiovisual content, publishing and writing, music, design, performing arts, etc.)
2. **Link in the value chain** (creation, production, distribution, access, and participation)
3. **Technology** (AI, social media, blockchain, etc.)
4. **Level** (beginner, advanced, innovator)
5. **Soft skills and meta skills** (collaboration, storytelling, etc.)
6. **Geographical area** (Chişinău, other cities, rural areas, diaspora)
7. **Target demographic** (artists, entrepreneurs, university students, teachers, artists, entrepreneurs, public sector, women, young people, etc.)
8. **Partners** (academia, public sector, incubators, accelerators, coworking spaces, traditional CCS, startups, individual entrepreneurs, investors, artists, IT parks, international agencies, media, events, fairs, mentors, etc.)
9. **Delivery format** (in-person, virtual, hybrid)
10. **Teaching methodology** (lecture, tutorial, seminar/webinar, workshop, problem-based, flipped classroom, peer teaching, mentoring, etc.)
11. **Duration** (short-term, medium-term, long-term, intensive, modular)
12. **Setting** (Artcor, industry event, festival, etc.)

Considering the opportunities and challenges underscored by various stakeholders, an analysis pertaining to each of the identified variables is presented in the following.

2.1.1. Creative sector

In terms of target sectors, several interviewees concur that it would be beneficial to develop activities explicitly designed for the videogame industry, which holds immense potential, as well as for online audiovisual content creators, another rapidly expanding segment. Nevertheless, it is evident that more established creative sectors, such as book publishing and performing arts, also require a reinforcement of their digital skills.

2.1.2. Link in the value chain

The range of potential courses extends beyond the *creative* and *production* aspects and encompasses the commercial and communication domains (*distribution*), as well as the phases

of *access* and *participation*. A course can deal with one of these links in a specific way or propose a cross-cutting programme for the entire value chain of a sector.

In any case, it is essential not to hasten or impose the complete digital transformation of a whole sector. The focus should instead be on addressing the unique digital needs of stakeholders in the field, as they can vary significantly.

Courses designed to reinforce the digital skills of audiences are of great importance, especially at a time when large social groups – such as older generations, for example – need tools and knowledge to access cultural expressions and participate in the creative ecosystem. The issue of accessibility must also be taken into account at this point.

2.1.3. Technology

‘Generative AI will be as transformational for game development as Photoshop has been for digital photography.’ (Emmanuel De Maistre, CEO of Scenario)

When selecting the technologies or tools to be covered in digital skills courses, the specific context of the Moldovan market should be considered. Indeed, the local creative sectors may not exhibit the same degree of specialisation and task division found in larger markets, such as the United States or the United Kingdom. Consequently, while teaching ultra-segmented or niche skills should not be neglected, it is important to recognise that the target demographic for these courses may be quite limited, at least in an initial stage.

In any case, when determining the technology to be included in the courses, it is prudent to conduct a preliminary assessment of its potential short, medium, and long-term impact. As a matter of fact, the short-term influence of certain technologies has often been overestimated. For instance, the metaverse and its associated technologies, while still highly relevant, have had a delayed impact compared to initial expectations. It is clear that there is a need to continue investing in training in areas such as virtual reality and augmented reality, but it is also necessary to begin incorporating other technologies into the courses.

Artificial intelligence (AI) stands out as a more pressing and influential technology, rapidly transforming nearly all creative sectors and warranting prompt attention. Renowned musician David Guetta has recently stated that ‘the future of music is in AI,’ while Emmanuel De Maistre, CEO of Scenario, has predicted that ‘generative AI will be as transformational for game development as Photoshop has been for digital photography.’⁶³ At the present time, there is a growing number of artists that utilise machine learning. A notable example is the French group Obvious Art,⁶⁴ which, since 2018, has not only created countless innovative and thought-provoking artworks but also developed a highly lucrative business model. On the other hand, Amazon has recently launched a generative AI accelerator⁶⁵ that is likely to inspire similar initiatives. Therefore, it seems evident that the significant impact of AI on the cultural and creative sectors justifies the implementation of cross-disciplinary courses dedicated to understanding and utilising this technology in a way that enhances and augments the potential of human creativity.

In parallel with addressing high-tech trends, it is crucial to consider the most basic needs of the cultural and creative sectors. One such need is having a functioning website, which serves as a foundation for their digital presence. Without this, it becomes difficult for artists, creative

⁶³ <https://venturebeat.com/games/scenario-plans-to-launch-its-ai-art-platform-for-20k-creators>

⁶⁴ <https://obvious-art.com>

⁶⁵ <https://aws.amazon.com/es/blogs/startups/aws-launches-global-generative-ai-accelerator-for-startups>

entrepreneurs, and cultural businesses to effectively showcase their work and connect with their audience.

Although survey respondents may not perceive cybersecurity and related technologies as a priority, experts interviewed emphasise that these issues are crucial and should not be ignored, especially in the context of the current warfare. It is thus vital for professionals in the cultural and creative sectors to acquire new skills associated with cybersecurity to better navigate this challenging environment.

Moreover, it would be advisable to address some other pressing matters inherent to the digital landscape, such as misinformation, disinformation, and fake news. All the players involved in the local cultural ecosystem must equip themselves with the necessary skills to effectively tackle these issues. Another important topic is data protection, including the EU General Data Protection Regulation (GDPR) and other similar guidelines, which is key for creative ventures: ensuring compliance with these rules is essential for businesses to protect user privacy, maintain trust, and avoid potential legal issues.

2.1.4. Level

Digital skills courses can accommodate various skill levels. Courses designed for beginners usually concentrate on presenting essential concepts and tools, allowing individuals with minimal or no prior knowledge to develop a strong base in digital skills. Intermediate courses cater to those with some experience in the field, delving into specialised subjects and offering opportunities for hands-on practice using established software. Innovator courses cater to seasoned professionals, fostering inventive problem-solving and the development of novel ideas, often encouraging participants to create their own tools and solutions.

2.1.5. Soft skills and meta skills

In all forthcoming courses, nurturing soft skills and meta skills, which differ from technical knowledge, is essential, as they are crucial for the success of any creative endeavour:

- *Effective communication* is vital for artists, creative entrepreneurs, and cultural organisations, as it allows them to express ideas, exchange information and foster understanding.
- *Collaboration* promotes shared learning and growth.
- *Storytelling* enables individuals to share complex ideas and emotions, captivate audiences and foster cultural connections.
- *Teamwork* is essential for driving the creative process, as it facilitates idea sharing and leads to innovative results.
- *Adaptability* is crucial to navigate change and embrace emerging technologies.
- *Resilience* allows creative professionals to overcome challenges and maintain motivation.
- *Critical thinking* empowers informed decision-making and innovative solutions.
- *Networking* is essential for building professional relationships that lead to opportunities, new knowledge, and support in the cultural and creative sectors.
- *Self-motivation* is crucial for creative actors to achieve goals and maintain focus.
- *Creative problem-solving* helps address challenges with innovative solutions.
- *Branding* is important for artists, creative entrepreneurs, and cultural organisations to develop a unique identity.
- *Risk-taking* involves pursuing uncertain opportunities and embracing failure as a learning experience.

- *Emotional intelligence* is critical for building strong relationships and navigating conflicts.
- *Time management* is essential for prioritising tasks and maintaining productivity.

2.1.6. Geographical area

When designing a course, organisers need to take into account the geographical location of their target participants. Chişinău, as a major hub for the national creative ecosystem, undoubtedly plays a significant role. However, smaller cities like Comrat, Bălţi, and Cahul, as well as rural areas, should not be overlooked. Furthermore, incorporating the diaspora into the activities is of paramount importance. The priorities, needs and expectations of these diverse regions may vary, necessitating a distinct and specialised approach tailored to cater to the unique demands of each locality.

2.1.7. Target demographic

'In the digital age, SMEs should master CRM software and decode the data landscape. Harnessing SEO and comprehending our metrics are essential.'
(Director, Publishing House)

In addition to addressing the geographical diversity of course participants, organisers should tailor the course content to the specific needs of various target demographics, including artists, entrepreneurs, university students, teachers, public sector employees, among others. Digital skills for the cultural and creative sectors encompass a wide range of applications and requirements, which differ across these demographic groups. It is essential to pay particular attention to the distinct needs of women when designing these courses, as they may face unique challenges, especially in the context of the existing gender gap in IT.

Moreover, it is vital to acknowledge that participants may engage in the courses as individuals – such as artists and creative entrepreneurs – or as representatives of cultural businesses or organisations. Understanding the unique perspectives and requirements of both individual participants and those representing larger entities will enable the course to provide tailored solutions that cater to their respective needs.

On the other hand, while the concept of 'createch' – the convergence of creative industries and advanced technologies – is gaining significant traction, organisers should not, however, limit their focus solely to creative startups. Instead, they should continue addressing the needs of cultural SMEs in the digital environment. Indeed, the allure of startups' potential for explosive growth and disruptive innovation can overshadow the situation of SMEs, yet it's crucial to recognise that established SMEs often possess a solid and sustainable business model and form the backbone of Moldova's cultural and creative industries. SMEs may need proficiency in CRM software, SEO, social media, finance and data analytics. Moreover, they might find it challenging to navigate the bureaucracy of applying for competitions and funding where startups participate, as the hype-driven narrative of startups does not always correspond with the reality of more established companies.

2.1.8. Partners

It is essential to devise the courses while taking into account potential partners who could contribute to the success and reach of the digital skills training. These partners may include academia, public sector entities, incubators, accelerators, coworking spaces, cultural SMEs,

cultural organisations, startups, individual entrepreneurs, investors, artists, IT parks, international agencies, media, events, fairs, and mentors, among others.

By engaging a diverse range of partners, the courses can benefit from the expertise, resources, and networks that these stakeholders bring, thereby enhancing their overall impact.

2.1.9. Delivery format

When considering the delivery formats for the digital skills courses, organisers should explore various options to accommodate the diverse needs and preferences of the participants. In-person sessions allow for direct interaction between participants and instructors, fostering networking opportunities and enabling immediate feedback. Virtual formats, on the other hand, provide increased flexibility and accessibility, allowing participants from different geographical locations to attend the courses without the need for physical presence. Hybrid formats combine the benefits of both in-person and virtual sessions, offering a more versatile approach to course delivery that caters to the varying requirements of participants. By carefully evaluating and selecting the most suitable delivery format, the courses can be made more engaging, accessible, and impactful.

2.1.10. Teaching methodology

The teaching methodology employed in the digital skills courses should encompass a diverse range of pedagogical approaches to cater to the different learning styles and preferences of participants. Lectures provide foundational knowledge, while tutorials and seminars/webinars facilitate more in-depth discussions and the exchange of ideas. Workshops and problem-based learning allow participants to apply their newly acquired skills to real-world challenges, fostering hands-on experience and practical understanding. Flipped classrooms and peer teaching encourage collaborative learning and empower participants to take ownership of their learning path. Mentoring offers personalised guidance and support from experienced professionals, helping learners navigate their unique challenges and career aspirations.

As highlighted by several interviewees, the key to acquiring digital skills lies in fostering new connections in a broad sense, which is difficult to achieve solely through traditional academic lectures or simple online tutorials. Therefore, unidirectional modes of teaching should be avoided or, at the very least, complemented by activities that involve dynamic interaction between the teacher and participants, as well as among participants themselves. This can be achieved by incorporating bootcamps, hackathons, learn-by-doing approaches, hands-on experiences, and peer-to-peer learning into the course structure. It is crucial to avoid Massive Open Online Courses (MOOCs) without proper follow-up, as they tend to become obsolete quickly and fail to build a sense of community among learners.

It would be worthwhile to design each course with the objective of culminating in the development of a concrete product or service. This approach encourages participants to apply their newly acquired digital skills in a practical context, reinforcing their learning and fostering a sense of accomplishment. Moreover, incorporating hands-on activities and opportunities for sharing within each class session, along with feedback from fellow students and the mentor/teacher, can help maintain motivation and ensure better assimilation of knowledge.

2.1.11. Duration

It is also indispensable to factor in the varying durations that cater to the diverse needs, time constraints and learning preferences of participants. Course durations can range from short-term, medium-term, to long-term programmes, with options for intensive or modular structures. Intensive courses condense the learning experience into a shorter time frame, enabling participants to quickly acquire and apply new skills, while modular courses break down

the content into smaller, self-contained units, allowing learners to progress at their own pace and build their knowledge incrementally.

It is worth noting that sector-specific courses may foster greater long-term engagement compared to cross-sectoral courses. However, cross-sectoral courses can attract a larger number of participants. Therefore, in the case of cross-sectoral courses, it may be more suitable to focus on shorter activities.

The duration and content of the courses should also be adapted according to the different variables depending on the setting and the general context. For instance, offering a digital skills course for designers during an industry event will require selecting the content so that the course can be delivered within a few hours. Conversely, if the course is offered at a design school or at Artcor, it can be provided over several weeks, featuring modules delivered by various instructors and, as a result, offering greater granularity in the learning experience.

2.1.12. Setting

The choice of setting for the digital skills courses can significantly impact the overall learning experience and the effectiveness of the training. Courses held at Artcor, for instance, can benefit from the existing infrastructure, resources, and networks of the creative community. Industry events and festivals, on the other hand, can provide participants with access to a broader audience, enabling networking opportunities and promoting the exchange of ideas and best practices among professionals in the cultural and creative sectors.

The spectrum of possible courses that emerge from the matrix presented above is extremely broad. As mentioned, many of the courses will need to be thought through in context, taking into account the available settings, specific demands of the sector and other relevant factors. When designing courses and selecting the various variables in question – sector, link, technology, etc. –, adopting an experimental approach involving testing, iteration and adaptation may be appropriate to achieve the best results. By implementing an adaptive, agile and responsive strategy, course organisers can seize specific opportunities and develop ad hoc courses tailored to emerging trends and industry demands. For example, as new platforms emerge in the Romanian market for ebooks and audiobooks, such as www.voxa.ro and www.audiotribe.ro, courses could be designed to address the unique challenges and opportunities presented by these platforms for the Moldovan publishing sector.

In Annex 1, we present some examples that could serve as templates to get started. The first eight courses target specific sectors – videogame, film, audiovisual content, publishing, music, design, GLAM, performing arts – across the entire value chain. The ninth course emphasises digital empowerment for audiences – access and participation. Courses 10 and 11 primarily address the distribution link – digital communication and business models, respectively – and are cross-sectoral. Course 12 is dedicated to AI and its impact on the CCS. These templates could be customised based on the available variables – e.g., course 12 could be divided into separate modules and offered to each sector individually, such as ‘AI for writers and editors: text classification, automatic summarisation, etc.’

In the current context, an initial set of courses could focus on:

1. Strengthening the **digital capabilities of cultural SMEs**, particularly those with business models that face greater challenges adapting to the digital age. The most urgent areas in this regard are related to the management of digital tools applied to distribution.
2. Enhancing mastery of **artificial intelligence** – particularly its generative variant – for all creative sectors. The demand for these types of courses can be high, so it would be worthwhile to customise them for each sector.
3. Improving the **digital skills of audiovisual content creators**.

2.2. International mobility and networking

'Networking has the magic power to unlock opportunities.'
(Entrepreneur, Design Industry)

International mobility and networking are key factors in strengthening the digital skills of the cultural and creative sectors. As one interviewee aptly stated, 'Networking has the magic power to unlock opportunities.' Organisations like Artcor, Mediacor and others can play a valuable role in supporting the participation of Moldovan artists and creative entrepreneurs in international events. By attending courses and interacting with their peers, these actors can gain insights into new technologies and business models. It is essential that participants return home to share their experiences with their local peers, thereby enriching the overall creative ecosystem.

Networking activities hold significant value for all creative sectors, including those where technical training is readily available, such as in the videogame industry. These activities not only help develop essential soft skills but also provide opportunities for professionals to stay consistently informed and updated within their respective fields.

In addition to international participation, the consolidation of a network of creative mentors would be vital. This network should encompass both national and international mentors who can provide courses and guidance for specific digital projects. A prime example of such a programme is the UK's Digital Culture Network, featuring a team of 'Tech Champions' dedicated to providing support and expertise.⁶⁶ By being part of such a network, local mentors can elevate their reputation on an international stage.

To nurture the local and international network, including the diaspora, Artcor and other hubs can utilise digital tools such as newsletters, podcasts, social media, Slack, Discord, and others. These channels can facilitate communication and collaboration between artists, entrepreneurs, and mentors worldwide, fostering an exchange of ideas and digital skills.

Another crucial element is the offering of creative residencies for international artists and creative entrepreneurs. By inviting these individuals to share their skills and participate in projects with representatives of the Moldovan cultural ecosystem, local players can gain invaluable insights into the global creative landscape.

A large-scale digital fellowship programme could be considered, with over 50 participants focusing on developing digital culture projects across various creative sectors in Moldova. This programme would provide participants with access to virtual mentoring opportunities, allowing them to learn from experienced professionals worldwide.

Enhancing communication between sectors could be achieved by promoting transmedia and crossmedia initiatives. Such efforts have the potential to link various industries, like publishing with film or videogames, nurturing cross-disciplinary skills and fostering a more unified creative landscape.

Encouraging new collaborations between the cultural and creative sectors and the tech world is another key aspect. As an example, a report published by UK's StoryFutures Academy in 2020 highlights the challenges in digital skills and advocates for a 'STEAM' approach rather than 'STEM', emphasising the importance of integrating arts into the traditional sciences: 'a

⁶⁶ <https://digitalculturenetwork.org.uk/ask-a-tech-champion>. For more information about the UK's Digital Culture Network, see Annex 2.

successful talent pipeline will rely on cross-fertilisation between the arts and traditional sciences: Science, Technology, Engineering, Arts and Mathematics'.⁶⁷

Another way to foster digital creative skills is by encouraging R&D projects in arts and culture that promote interdisciplinary collaboration. As creative professionals explore new technologies and techniques, they develop a deeper understanding of digital tools and applications in their respective sector.

2.3. Mapping of digital competences, monitoring and raising awareness

Apart from developing new courses and fostering international mobility and networking, another key activity is the continuous monitoring and updating of a digital skills map. Institutions such as Artcor can play a crucial role in this regard, by consistently reflecting the current industry needs and trends, thus enabling stakeholders to make informed decisions on the development of their digital capabilities. This research should encompass the identification of new creative tasks, roles and jobs that emerge as a result of technological advancements. Examples of such roles include *prompt engineers*, among others.

The importance of raising awareness about the need to enhance digital creative skills for all stakeholders involved in the cultural ecosystem cannot be overstated. Digital skills are no longer a mere advantage, but rather an urgent necessity in an era where artificial intelligence is rapidly shaking the foundations of the cultural and creative industries.

2.4. Digital creative skills in the educational system

'In discussions with students, colleagues, friends, at workshops, there is life!'
(Professor, Academy of Music, Theatre and Fine Arts)

The integration of digital creative skills in the educational system is a key step towards fostering a strong foundation for the cultural and creative sectors and promoting the inclusion of young people in culture.

Developing digital creative skills should begin in primary and secondary schools, where the foundations of learning are formed. Integrating digital creative skills at an early stage helps students develop a deeper understanding and appreciation for technology and its applications in the creative fields.

Furthermore, incorporating digital skills in the first year of university courses, rather than waiting until students take advanced subjects, can enhance students' digital competencies, and facilitate their later success. This approach should also encompass the integration of artificial intelligence technologies in university courses designed for artists, as it is becoming an essential component of contemporary creative practices.

Universities and schools play a pivotal role in fostering critical thinking, especially in a rapidly evolving technological landscape. It is crucial to enhance their role as spaces for reflection on the implications and risks of emerging technologies, ensuring that students are well-equipped to navigate the challenges of the digital age.

A more collaborative approach to arts education should be promoted, as it can foster greater engagement and creativity among students. Encouraging discussions and interactions among students, teachers and visiting professionals, such as through workshops, can create a dynamic learning environment that inspires innovation. This sentiment is echoed by a fine arts

⁶⁷ Bennett and Murphy, 2020: 10. <https://www.storyfutures.com/uploads/images/SFICC-Report-2019-20.2.20.pdf>.

professor who shared their experience: 'In discussions with students, colleagues, friends, at workshops, there is life!'

An integrative curriculum is one effective way of fostering digital creative skills, as it merges theoretical knowledge with practical experience, equipping students with a comprehensive understanding of their chosen field. For example, in the United States, the Berklee College of Music offers a Music Production and Engineering programme that combines formal education in music theory and history with hands-on experience in recording and mixing techniques.⁶⁸ This approach ensures students have both the artistic and technical skills necessary for successful careers in music production.

Cooperation and cross-institution partnerships between art academies and technical education institutions, as well as between formal and informal educational centres, can significantly enhance digital creative skills among students. One international example is the collaboration between the Accademia Albertina and the Politecnico di Torino in Italy.⁶⁹ students from Accademia Albertina can take courses at the Politecnico in fields such as computer animation, virtual reality, and sound design.

Cross-institution partnerships can even enable the delivery of entire degree programmes by two or more partnering institutions, blending formal education with industry-focused courses. For instance, the Entertainment Technology Centre (ETC)⁷⁰ is a joint venture between Carnegie Mellon University's School of Computer Science and the College of Fine Arts. ETC offers a two-year Master of Entertainment Technology (MET) degree, focusing on educational goals, creative development, and an R&D agenda in transformational games, innovation by design, and interactive storytelling.

Universities can further motivate and recognise students and teachers' efforts in digital creative projects by organising events and offering prizes for the best initiatives. Acknowledgment of their work can inspire others to pursue excellence. For example, the University of the Arts London (UAL) runs 'Pitch It: Creative Enterprise Funding',⁷¹ a competition for current students and recent graduates. Participants pitch their enterprising creative project ideas for a chance to win seed funding, mentorship, and specialist business advice from industry experts.

On the other hand, universities can collaborate with international creative businesses and cultural organisations to offer Moldovan students internships and placements. These opportunities allow students to apply their digital creative skills in professional environments abroad, enhancing both their technical abilities and soft skills. By gaining real-world experience in diverse settings, students can develop a global perspective and expand their professional networks.

Furthermore, universities could encourage the creation of spaces functioning as 'digital sandboxes'. These dedicated spaces or labs can provide students, faculty, and creative industry professionals with an environment to explore cutting-edge technologies, engage in interdisciplinary projects and experiment with new ideas and concepts. By fostering collaboration, innovation and learning, these spaces could bridge the gap between academic institutions and the creative sectors, cultivating the next generation of creative professionals.

To foster a culture of innovation and adaptability in the cultural and creative sectors, it would be necessary to consider alternative educational approaches that cater to the diverse needs of learners. One such option is the provision of short, intensive mini-master's programmes with university accreditation. Programmes of this nature, which may last around

⁶⁸ <https://college.berklee.edu/mpe/bachelor-of-music-in-music-production-and-engineering>

⁶⁹ <https://www.albertina.academy/convenzione-accademia-albertina-e-politecnico-di-torino-iscrizioni-2021-2022>

⁷⁰ <https://www.etc.cmu.edu/learn/about-the-etc>.

⁷¹ <https://www.arts.ac.uk/students/student-careers/awards-funding-and-support/pitch-it>

two months, can offer a focused and efficient learning experience that equips participants with the required digital skills, while also accommodating their busy schedules.

Another crucial aspect of preparing individuals for success in the digital age is the encouragement of multilingualism. Having a good command of English, in particular, can facilitate access to a wealth of resources and opportunities in an increasingly interconnected world.

Lastly, promoting lifelong learning in the realm of digital skills is essential for ensuring the continued growth and sustainability of the cultural and creative sectors. As technology evolves at a rapid pace, it is crucial for individuals to continuously update and enhance their digital competencies to stay current with industry trends and maintain their competitive edge.

2.5. Public policy initiatives

The public sector, particularly the Ministry of Culture, can play a significant role in the development of digital creative skills. A fundamental step in this regard would be to prioritise digital skills in the Creative Moldova programme. Supporting training activities, international mobility, networking, and cross-sector collaboration can further enhance the digital capabilities of artists and creative entrepreneurs.

Establishing a national vision or strategy for digital skills development in the cultural and creative sectors can have a lasting impact. This strategy could be integrated with existing digital training plans implemented by other ministries that possess greater resources.

In fact, fostering an inter-ministerial approach led by the Ministry of Culture could not only prove beneficial in terms of resources, but could also encourage broader collaboration and information-sharing with key governmental agencies. These potential partners could include the Ministry of Finance, the Ministry of Education and Research, the State Agency on Intellectual Property (AGEPI), the Ministry of Economic Development and Digitalisation, the Ministry of Labour and Social Protection, and the Ministry of Infrastructure and Regional Development. Cooperation with the Ministry of Education and Research is particularly significant at a time when schools and universities urgently need relevant digital content for students.

Furthermore, the Ministry of Culture could consider the possibility of investing in training for their own internal teams, focusing on digital skills and related areas. Such internal training would not only enhance the digital proficiency of the Ministry's staff, but also enable them to better understand and support the needs of the cultural and creative sectors in the digital environment.

Moreover, the Ministry of Culture could form partnerships with institutions such as Artcor, Mediacor, and various universities to launch Digital Culture Awards in Moldova. This is reminiscent of the UK's Digital Culture Network programme, which has organised similar awards to recognise and celebrate the ingenuity and resourcefulness of local artists and entrepreneurs. By acknowledging outstanding achievements in categories such as 'Digital Arts' and 'Createch', such an initiative can further elevate Moldova's reputation as a digital culture hub.

Including information on opportunities, challenges and projects related to digital creative skills in the Quadrennial Periodic Report for the 2005 Convention will help to highlight Moldova's commitment to fostering digital skills in the cultural and creative sectors.

By positioning itself as a hub for new media art and digital innovation, Moldova can attract talent and resources, thereby enhancing the overall growth and diversity of its cultural and creative sectors. In this sense, it could be a valuable endeavour for Chişinău to seek the UNESCO Creative City designation specifically for New Media Art.

Moreover, implementing the UNESCO Recommendation on the Ethics of AI in the field of Culture can position Moldova as a pioneer country in this area.

Inviting civil society organisations to submit projects for the acquisition of digital skills to the UNESCO International Fund for Cultural Diversity can further promote the development of digital competencies.

It would be also essential to invest in more actions addressing the digital gender gap at the national level, as well as evaluate the possibility of offering tax incentives and training vouchers for creative entrepreneurs and cultural businesses investing in digital skills and digital R&D.

In advancing digital creative skills, the Ministry of Culture could monitor the digital culture strategies implemented by other countries, which also emphasise strengthening the capabilities of creative actors.⁷²

Main findings and conclusions

Moldova's digital creative skills landscape is both diverse and dynamic, presenting numerous opportunities but also many challenges. The various players in the cultural ecosystem have successfully carried out a significant number of projects that set a path to follow. These initiatives could be enhanced by focusing on key aspects such as developing new digital skills courses, promoting international mobility, and networking, updating curricula in universities and schools, monitoring progress, raising awareness, and implementing new public sector policies.

The findings of the study highlight the importance of a multi-variable matrix to the success of **digital skills courses**. The creative sector, the value chain link, technology, participant level, soft skills and meta skills, geographical area, target demographic, partners, delivery format, teaching methodology, course duration, and setting each play a significant role. Customising courses to these variables can address the growth of certain sectors like videogames and online audiovisual content, as well as the rising importance of technologies like AI, without neglecting basic digital needs and urgent digital issues such as cybersecurity and data protection.

Offering courses that can accommodate varying skill levels and cultivate a spectrum of soft skills and meta skills, from effective communication and collaboration to resilience and creative problem-solving, is key. On the other hand, geographical considerations could go beyond major creative hubs to include smaller cities, rural areas, and diaspora communities. Moreover, it is important to cater to a diverse set of target demographics, including artists, entrepreneurs, students, teachers, and public sector employees, with special attention to addressing and resolving gender disparities. Broadly applicable course content that addresses the needs of startups and cultural SMEs prove essential.

Working in partnership with entities such as academia, public sector agencies, incubators, accelerators, coworking spaces, startups, individual entrepreneurs, and investors can greatly boost course effectiveness. Flexibility in delivery format, with in-person, virtual, or hybrid models, is suggested, while varied teaching methodologies, prioritising hands-on activities, dynamic interactions, and practical skill applications, can enhance learning experiences. The setting is seen to play a crucial role, with sites like Artcor providing a vibrant creative community and infrastructure, and industry events offering a platform for networking and idea exchange. An experimental approach to course design that factors in various variables and involves testing, iteration, and adaptation could lead to optimal outcomes.

Networking is deemed crucial for strengthening digital skills. Indeed, international connections and collaborations can offer insights into new technologies and business models. The Ministry of Culture together with other partners can support local players' participation in international events, and then these participants can share their gained knowledge with their

⁷² For a detailed exploration of relevant international examples, see Annex 2.

local communities. Furthermore, establishing a network of national and international mentors who can provide courses and guidance is suggested.

Continuous monitoring and updating of digital skills maps are essential. Such maps should reflect current industry needs and trends, helping stakeholders make informed decisions regarding digital skill development. Research into emerging digital trends and new roles is vital, as is raising awareness about the importance of digital skills in the cultural and creative sectors.

Furthermore, **integration of digital creative skills at all levels of education** is recommended. This integration should start in primary and secondary schools and extend to university courses. A curriculum that combines theoretical knowledge with practical experience is proposed, as is cooperation between art academies and technical institutions. Opportunities for real-world experience, such as internships and placements, can enhance both technical abilities and soft skills.

The **public sector**, particularly the Ministry of Culture, has a significant role in the development of digital creative skills. The study suggests that inter-ministerial collaboration could lead to a more comprehensive strategy for digital skills development. The Ministry of Culture is encouraged to form partnerships with institutions to launch Digital Culture Awards in Moldova. Other suggestions include Chişinău seeking the UNESCO Creative City designation specifically for New Media Art, implementing the UNESCO Recommendation on the Ethics of AI in the field of Culture, and investing in actions addressing the digital gender gap.

The research findings highlight a clear and pressing need for increased interaction among various types of stakeholders: artists, cultural SMEs and organisations, creative technology startups, IT companies, universities, technical education spaces and public sector agencies. Currently, many of these stakeholders, metaphorically speaking, use different languages and have limited communication with each other. This situation perpetuates divisions between formal and informal education, digital and analogue environments, public and private sectors, and theoretical and practical approaches, among others.

By bringing together different actors in activities and spaces where all parties feel at ease, the strengths of each can be leveraged to explore potential synergies. The goal should not be to develop a one-size-fits-all digital skills programme. Instead, the focus should be on contributing to the co-creation of a common language and shared strategy that encourages collaboration and understanding among diverse actors. In a certain sense, this scenario is reminiscent of the situation of Moldova – a multicultural country that, as described by many stakeholders, exists ‘between two worlds.’

At a time when technologies such as artificial intelligence could exponentially augment human creativity, investing in digital skills for the cultural and creative sectors has become more important than ever. Strengthening this area will not only enhance the competitiveness and innovation within the sectors but also ensure that Moldova’s artistic ideas and diverse cultural expressions flourish in the digital age.

Annex 1: Sample Course Templates for Digital Skills Development

Course 1: Digital Mastery for Game Development. Advancing Skills and Techniques in the Video Game Industry

1. Game Design and Concept Development
 - a. Game design principles and techniques
 - b. Storytelling and narrative design
 - c. Prototyping and iteration
2. Digital Art and Animation
 - a. 2D and 3D art creation software (Photoshop, Illustrator, Blender, etc.)
 - b. Animation techniques and tools (Unity, Maya, etc.)
 - c. Texturing, lighting and rendering
3. Game Programming and Scripting
 - a. Programming languages (C++, C#, Python, etc.)
 - b. Game engines (Unity, Unreal Engine, Godot, etc.)
 - c. Scripting, debugging and optimisation techniques
4. Audio Design and Implementation
 - a. Sound design and music composition software (Pro Tools, FL Studio, etc.)
 - b. Audio middleware (FMOD, Wwise, etc.)
 - c. Integrating audio into game engines
5. User Interface (UI) and User Experience (UX) Design
 - a. UI/UX design principles and techniques
 - b. UI design software (Adobe XD, Sketch, etc.)
 - c. Implementing UI elements in game engines
6. Game Testing and Quality Assurance
 - a. Game testing methodologies and best practices
 - b. Bug tracking and reporting tools (Jira, Mantis, etc.)
 - c. Performance optimisation and benchmarking
7. Game Monetisation and Business Models
 - a. In-game advertising, microtransactions and subscriptions
 - b. Crowdfunding and early access models
 - c. Revenue sharing and platform fees
8. Game Marketing and Community Management
 - a. Social media marketing strategies for games
 - b. Game press kits and trailers
 - c. Influencer marketing and content creator partnerships
9. Game Distribution and Publishing
 - a. Digital distribution platforms (Steam, Epic Games Store, consoles, etc.)
 - b. Self-publishing vs. working with publishers
 - c. Localisation and international markets
10. Intellectual Property and Legal Considerations
 - a. Copyright, trademarks, and patents in the game industry
 - b. Licensing agreements and contracts
 - c. Privacy and personal data protection laws
11. Emerging Technologies and Trends in the Video Game Industry
 - a. Virtual reality (VR) and augmented reality (AR) in game development
 - b. Cloud gaming and streaming platforms
 - c. Procedural generation and artificial intelligence in games

Course 2: Cinematic Futures. Mastering Digital Tools and Techniques in the Evolving Film Industry

1. Digital Pre-Production
 - a. Scriptwriting software (Final Draft, Celtx, etc.)
 - b. Storyboarding and animatics (Storyboard Pro, Adobe Animate, etc.)
 - c. Scheduling and budgeting tools (Movie Magic Scheduling, StudioBinder, etc.)
2. Digital Cinematography
 - a. Digital camera systems (RED, ARRI, Blackmagic, etc.)
 - b. Lens selection and accessories
 - c. Lighting for digital cinematography
 - d. Camera movement and stabilisation tools (gimbals, drones, etc.)
3. Digital Audio Recording and Design
 - a. Digital audio recorders and microphones
 - b. Sound design techniques and software (Pro Tools, Adobe Audition, etc.)
 - c. Foley and ADR recording
4. Visual Effects and Compositing
 - a. Introduction to visual effects (VFX) and computer-generated imagery (CGI)
 - b. Green screen and motion capture technology
 - c. Compositing software (Adobe After Effects, Nuke, etc.)
5. Digital Editing and Post-Production
 - a. Non-linear editing software (Adobe Premiere Pro, Avid Media Composer, etc.)
 - b. Colour grading and correction (DaVinci Resolve, Adobe SpeedGrade, etc.)
 - c. Music and sound editing
 - d. File formats and codecs for film distribution
6. 3D Modeling and Animation for Film
 - a. Introduction to 3D modelling and animation
 - b. 3D software (Blender, Maya, Cinema 4D, etc.)
 - c. Integrating 3D elements into live-action footage
7. Virtual Production and Real-Time Rendering
 - a. Introduction to virtual production and real-time rendering
 - b. Game engine technology for filmmaking (Unreal Engine, Unity, etc.)
 - c. LED walls and virtual sets
8. Film Distribution and Marketing
 - a. Digital distribution platforms (streaming services, video on demand, etc.)
 - b. Social media and online marketing strategies for films
 - c. Analytics and audience engagement
 - d. Wikipedia and Wikidata
9. Emerging Technologies in Filmmaking
 - a. Virtual reality (VR) and augmented reality (AR) in filmmaking
 - b. Artificial intelligence and machine learning applications in film production
 - c. Interactive and transmedia storytelling

Course 3: Essential Skills for Online Audiovisual Creators

1. Digital Video Production
 - a. Camera systems and accessories for online content creation
 - b. Lighting and audio recording techniques
 - c. Video stabilisation tools (gimbals, tripods, etc.)
2. Digital Audio Production
 - a. Digital audio recorders and microphones
 - b. Audio editing software (Audacity, Adobe Audition, etc.)

- c. Sound design and mixing techniques
- 3. Video Editing and Post-Production
 - a. Non-linear editing software (Adobe Premiere Pro, Final Cut Pro, etc.)
 - b. Colour grading and correction
 - c. Motion graphics and visual effects (Adobe After Effects, etc.)
- 4. Live Streaming and Broadcast Production
 - a. Live streaming platforms (Twitch, YouTube Live, Facebook Live, etc.)
 - b. Streaming software (OBS Studio, Streamlabs, etc.)
 - c. Real-time graphics, overlays, and transitions
- 5. Graphic Design for Online Creators
 - a. Graphic design principles and techniques
 - b. Design software (Adobe Photoshop, Illustrator, Canva, etc.)
 - c. Creating channel branding, thumbnails, and promotional materials
- 6. Animation and Motion Graphics
 - a. 2D and 3D animation software (Adobe Animate, Blender, Cinema 4D, etc.)
 - b. Kinetic typography and animated infographics
 - c. Integrating animation into live-action content
- 7. Online Content Monetisation
 - a. Advertising and sponsorships (Google AdSense, brand deals, etc.)
 - b. Subscription services and memberships (Patreon, YouTube Premium, etc.)
 - c. Merchandising and eCommerce platforms (Shopify, WooCommerce, etc.)
- 8. Social Media and Content Distribution
 - a. Social media platforms (Instagram, TikTok, Twitter, etc.)
 - b. Cross-platform content promotion strategies
 - c. Audience engagement and community building
- 9. Search Engine Optimisation (SEO) and Analytics
 - a. Video metadata and optimisation (titles, tags, descriptions, etc.)
 - b. SEO strategies for online content creators
 - c. Analytics tools (YouTube Analytics, Google Analytics, etc.)
 - d. Wikipedia and Wikidata
- 10. Intellectual Property and Legal Considerations
 - a. Copyright, fair use, Creative Commons, and content ID systems
 - b. Music licensing and royalty-free resources
 - c. Privacy and personal data protection laws
- 11. Emerging Technologies and Trends in Online Content Creation
 - a. Virtual reality (VR) and augmented reality (AR) content creation
 - b. Interactive and 360-degree video
 - c. Artificial intelligence and machine learning applications in content creation

Course 4: Digital skills for book publishers and writers

- 1. Digital Manuscript Preparation and Editing
 - a. Document formatting and styles (Microsoft Word, Google Docs, etc.)
 - b. Collaborative editing tools (Track Changes, Suggesting Mode, etc.)
 - c. Proofreading software (Grammarly, ProWritingAid, etc.)
- 2. eBook Creation and Formatting
 - a. eBook formats (EPUB, MOBI, PDF, HTML, etc.)
 - b. eBook creation software (Calibre, Sigil, etc.)
 - c. Accessibility and eBook standards
- 3. Digital Typography and Design
 - a. Introduction to typography and design principles

- b. Graphic design software (Adobe InDesign, Affinity Publisher, etc.)
 - c. Image editing and manipulation (Adobe Photoshop, GIMP, etc.)
- 4. Digital Marketing and Promotion
 - a. Social media marketing strategies for books
 - b. Email marketing (Mailchimp, Constant Contact, etc.)
 - c. Online advertising (Google Ads, Facebook Ads, Amazon Ads, etc.)
- 5. Online Sales and Distribution
 - a. Online book retailers (Amazon, Barnes & Noble, etc.)
 - b. Print-on-demand services (IngramSpark, Amazon KDP, etc.)
 - c. The self-publishing boom
 - d. Direct sales and eCommerce platforms (Shopify, WooCommerce, etc.)
- 6. Metadata and Search Engine Optimisation (SEO)
 - a. Importance of metadata in book discoverability
 - b. Metadata standards (ONIX, BISAC, etc.)
 - c. SEO strategies for book websites and online presence
 - d. Wikipedia and Wikidata
- 7. Audiobook Production and Distribution
 - a. Audiobook recording and production techniques
 - b. Audiobook editing software (Audacity, Adobe Audition, etc.)
 - c. Audiobook distribution platforms (Audible, Findaway Voices, etc.)
- 8. Digital Analytics and Performance Tracking
 - a. Web analytics tools (Google Analytics, etc.)
 - b. Social media analytics and reporting
 - c. Sales data analysis and decision-making
- 9. Copyright and Intellectual Property in the Digital Age
 - a. Digital Rights Management (DRM) and anti-piracy measures
 - b. Creative Commons and alternative licensing options
 - c. International copyright laws and regulations
- 10. Emerging Technologies and Trends in Book Publishing
 - a. Interactive eBooks and multimedia content
 - b. Virtual and augmented reality in publishing
 - c. Artificial intelligence and machine learning applications in publishing

Course 5: From Analogue to Digital. Essential Skills in the Evolving Music Industry

- 1. Digital Music Production
 - a. Digital Audio Workstations (DAWs) and music production software (Ableton Live, Logic Pro, etc.)
 - b. MIDI programming and virtual instruments
 - c. Digital audio processing and effects
- 2. Recording and Audio Engineering
 - a. Digital audio interfaces and microphones
 - b. Recording techniques for vocals and instruments
 - c. Mixing and mastering in the digital domain
- 3. Electronic Music and Sound Design
 - a. Synthesis techniques and software synthesisers
 - b. Sampling and sample manipulation
 - c. Creating custom sounds for music and multimedia projects
- 4. Music Composition and Arrangement
 - a. Digital notation software (Sibelius, Finale, Dorico, etc.)
 - b. MIDI controllers and virtual instrument performance

- c. Collaborative online composition tools
- 5. Live Performance and Technology
 - a. Digital live performance tools and software (Ableton Live, MainStage, etc.)
 - b. MIDI controllers and performance hardware
 - c. Audio routing and processing for live shows
- 6. Music Distribution and Streaming Platforms
 - a. Digital music formats and metadata
 - b. Online distribution services (DistroKid, TuneCore, etc.)
 - c. Streaming platforms (Spotify, Apple Music, SoundCloud, etc.)
- 7. Music Promotion and Social Media
 - a. Social media platforms and strategies for musicians
 - b. Email marketing and fan communication
 - c. Music video production and promotion
 - d. Wikipedia and Wikidata
- 8. Music Licensing and Intellectual Property
 - a. Copyright and royalties in the digital age
 - b. Music licensing for synchronisation and other uses
 - c. Creative Commons and alternative licensing options
- 9. Music Analytics and Revenue Optimisation
 - a. Streaming data and analytics tools (Spotify for Artists, Apple Music for Artists, etc.)
 - b. Fan engagement and growth strategies
 - c. Maximising revenue from digital music sales and streaming
- 10. Emerging Technologies and Trends in Music
 - a. Artificial Intelligence and machine learning in music creation and analysis
 - b. Virtual and augmented reality experiences in music

Course 6: Designing the Digital Future. Essential Skills and Innovations for Designers

- 1. Graphic Design and Illustration
 - a. Design principles and techniques
 - b. Graphic design software (Adobe Illustrator, Photoshop, InDesign, etc.)
 - c. Vector and raster graphics, typography and layout
- 2. User Interface (UI) and User Experience (UX) Design
 - a. UI/UX design principles and techniques
 - b. Design software (Adobe XD, Sketch, Figma, etc.)
 - c. Prototyping and testing
- 3. Motion Graphics and Animation
 - a. 2D and 3D animation software (Adobe After Effects, Blender, Cinema 4D, etc.)
 - b. Kinetic typography and animated infographics
 - c. Motion graphics for video and interactive content
- 4. Web Design and Development
 - a. HTML, CSS and JavaScript for web design
 - b. Responsive design and mobile-first principles
 - c. Content management systems (WordPress, etc.)
- 5. Digital Photography and Image Editing
 - a. Digital camera systems and photography techniques
 - b. Image editing and manipulation software (Adobe Photoshop, Lightroom, etc.)
 - c. Retouching, colour correction and compositing
- 6. 3D Modelling and Visualisation
 - a. 3D modelling software (Blender, 3ds Max, SketchUp, etc.)

- b. Texturing, lighting and rendering techniques
 - c. Architectural and product visualisation
- 7. Digital Printing and Production
 - a. Print design and layout software (Adobe InDesign, Illustrator, etc.)
 - b. Preparing designs for digital and offset printing
 - c. Packaging design and prototyping
- 8. Design Presentation and Portfolio Development
 - a. Creating digital and print portfolios
 - b. Online presentation tools (Behance, Dribbble, etc.)
 - c. Pitching and presenting design concepts
- 9. Design Marketing and Social Media
 - a. Social media platforms and strategies for designers
 - b. Online advertising and promotion
 - c. Networking and building a professional presence
 - d. Wikipedia and Wikidata
- 10. Emerging Technologies and Trends in Design
 - a. Augmented reality (AR) and virtual reality (VR) in design
 - b. Generative design and artificial intelligence (AI) tools
 - c. Sustainable design and materials innovation

Course 7: Digital Gateways. Innovations and Skills for the 21st Century's Museums, Galleries, Libraries and Archives

- 1. Digital Collection Management and Cataloguing
 - a. Collection management software and databases
 - b. Digitisation techniques and best practices
 - c. Metadata standards and controlled vocabularies
- 2. Digital Preservation and Conservation
 - a. Digital preservation strategies and file formats
 - b. Risk assessment and disaster planning for digital collections
 - c. Digital restoration and conservation techniques
- 3. Digital Exhibitions, Virtual Tours, and Online Collections
 - a. Planning and designing digital exhibitions
 - b. Virtual tour platforms and 3D visualisation technologies
 - c. Interactive elements and multimedia integration
 - d. Online library catalogues and digital repositories
- 4. Online Learning and Educational Resources
 - a. Digital tools for creating educational content
 - b. Online learning platforms and content management systems
 - c. Webinars, video lectures and virtual workshops
- 5. Social Media and Digital Outreach
 - a. Social media platforms and strategies for cultural institutions
 - b. Online advertising and email marketing
 - c. Creating promotional materials and digital content
- 6. Digital Accessibility and Inclusivity
 - a. Web accessibility guidelines and best practices
 - b. Multilingual content and translation tools
 - c. Inclusive design principles for digital experiences
- 7. Crowdsourcing and Community Engagement
 - a. Platforms and tools for crowdsourcing projects
 - b. User-generated content and participatory experiences

- c. Collaborative curation and digital storytelling
- 8. Digital Copyright and Intellectual Property
 - a. Understanding copyright and licensing for digital collections
 - b. Creative Commons and alternative licensing models
 - c. Rights management and open access policies
- 9. Data Analysis and Audience Insights
 - a. Analytics tools and strategies for digital collections
 - b. User research and audience segmentation
 - c. Evaluating the impact of digital initiatives
 - d. Wikipedia and Wikidata
- 10. Emerging Technologies and Trends in Cultural Heritage and Information
 - a. Augmented reality (AR) and virtual reality (VR) in museums, galleries, libraries and archives
 - b. Artificial intelligence (AI) and machine learning applications in cultural heritage and information

Course 8: Performing the Digital Stage. Innovations and Skills for the Modern Performing Arts Practitioner

- 1. Digital Audio and Music Production
 - a. Digital Audio Workstations (DAWs) and music production software (Ableton Live, Logic Pro, etc.)
 - b. MIDI programming, virtual instruments, and sound design
 - c. Recording and editing live performance audio
- 2. Lighting and Projection Design
 - a. Digital lighting control systems and software
 - b. Projection mapping and video design software (MadMapper, Resolume, etc.)
 - c. LED walls and digital display technologies
- 3. Digital Set and Scenic Design
 - a. 3D modelling and visualisation software (SketchUp, Blender, etc.)
 - b. Digital fabrication techniques (CNC routing, 3D printing, etc.)
 - c. Virtual and augmented reality for set design and pre-visualisation
- 4. Choreography and Movement Analysis
 - a. Digital tools for choreography and notation (LabanWriter, DanceForms, etc.)
 - b. Motion capture and analysis techniques
 - c. Interactive and generative technology in dance and movement
- 5. Costume and Makeup Design
 - a. Digital design software for costume and makeup (Adobe Illustrator, Photoshop, etc.)
 - b. 3D printing and digital fabrication techniques for costume elements
 - c. Smart textiles and wearables in performance
- 6. Live Streaming and Video Production
 - a. Video production software and hardware for live streaming
 - b. Multi-camera setups and live switching
 - c. Post-production and editing for recorded performances
- 7. Digital Marketing and Promotion
 - a. Social media platforms and strategies for performing arts organisations
 - b. Online advertising and email marketing
 - c. Creating promotional videos and digital materials
 - d. Wikipedia and Wikidata
- 8. Virtual and Augmented Reality in Performing Arts

- a. Virtual reality (VR) and augmented reality (AR) for immersive experiences
- b. 360-degree video capture and playback
- c. Interactive installations and mixed reality performances
- 9. Online Collaboration and Remote Performance
 - a. Digital tools for remote collaboration and rehearsal
 - b. Live performance platforms and virtual events
 - c. Participatory and interactive digital performances
- 10. Emerging Technologies and Trends in Performing Arts
 - a. Artificial intelligence (AI) and machine learning in performing arts creation and analysis
 - b. Real-time tracking and interactive technology in performance

Course 9: Navigating and Engaging with the Digital Landscape of Art, Music and Literature

- 1. Exploring Digital Art and Design
 - a. Understanding digital art forms and styles
 - b. Online galleries, museums, and virtual exhibitions
 - c. Engaging with digital artists and designers
- 2. Discovering Digital Music and Performing Arts
 - a. Streaming platforms and online music discovery
 - b. Virtual concerts and live performances
 - c. Podcasts and audio storytelling
- 3. Navigating Digital Film and Video
 - a. Online film festivals and streaming platforms
 - b. Video sharing websites and content creators
 - c. Virtual reality (VR) and 360-degree video experiences
- 4. Delving into Digital Literature and Writing
 - a. E-books, online magazines, and literary journals
 - b. Digital storytelling and interactive fiction
 - c. Engaging with authors and writers in the digital age
- 5. Participating in Online Cultural Communities
 - a. Social media platforms for cultural exchange
 - b. Online discussion forums and communities
 - c. Collaborative creation and crowd-sourced projects
- 6. Digital Curation and Collection Management
 - a. Organising and managing personal digital collections
 - b. Bookmarking and content management tools
 - c. Understanding metadata and digital archiving
- 7. Supporting and Promoting Cultural Creators
 - a. Crowdfunding platforms and patronage models
 - b. Social media marketing and content sharing
 - c. Engaging with cultural creators and institutions
- 8. Creative Expression and Contribution in the Digital Age
 - a. Digital creation tools for art, music, writing and more
 - b. Sharing and publishing personal creative works
 - c. Participating in online challenges and events
- 9. Ethical Considerations and Digital Citizenship
 - a. Intellectual property, copyright, and fair use in the digital realm
 - b. Responsible consumption and sharing of cultural content
 - c. Privacy, personal data, security, and digital citizenship in online cultural spaces

10. Emerging Technologies and Trends in Digital Culture
 - a. Augmented reality (AR) and virtual reality (VR) in cultural experiences
 - b. Artificial intelligence (AI) and machine learning in creative fields
 - c. The future of digital culture and its implications for audiences

Course 10: Creative Connections. Social Media and Digital Marketing Strategies for the Cultural Sectors

1. Building an Online Presence
 - a. Creating and optimising websites, blogs and online portfolios
 - b. Developing a consistent brand identity across platforms
 - c. Search engine optimisation (SEO) for creative websites
 - d. Wikipedia and Wikidata
2. Social Media Platforms and Strategies
 - a. Overview of major social media platforms and their features
 - b. Choosing the right platforms
 - c. Creating engaging and shareable content
 - d. Hashtags, keywords and audience targeting
3. Email Marketing and Newsletters
 - a. Building and maintaining an email list
 - b. Designing and sending effective newsletters and campaigns
 - c. Analysing open rates, click-through rates and other metrics
4. Content Marketing and Storytelling
 - a. Crafting compelling stories around our work and brand
 - b. Blogging and guest posting to reach a wider audience
 - c. Using multimedia content (photos, videos, podcasts) for promotion
5. Online Advertising and Promotions
 - a. Introduction to paid advertising on social media platforms
 - b. Google Ads and other online advertising opportunities
 - c. Creating and managing ad campaigns, budgets and bidding strategies
6. Analytics and Performance Measurement
 - a. Setting measurable goals
 - b. Using platform-specific analytics tools to track performance
 - c. Identifying areas for improvement and optimising strategies
7. Emerging Trends and Best Practices
 - a. Staying current with digital marketing trends and new platform features
 - b. Leveraging influencer marketing and collaborations
 - c. Implementing best practices for privacy, security, and ethics

Course 11: Innovative Ventures. Exploring Business Models for the Digital Age in the Creative and Cultural Sectors

1. Digital Revenue Streams and Monetisation Strategies
 - a. Online sales and e-commerce
 - b. Subscription models and membership platforms
 - c. Digital advertising and sponsored content
 - d. Crowdfunding and patronage
2. Intellectual Property and Digital Rights Management
 - a. Copyright, trademarks, and patents in the digital context
 - b. Licensing and royalties for digital content
 - c. Protecting and enforcing intellectual property rights online
3. Leveraging Social Media and Digital Marketing

- a. Building and maintaining an online presence
 - b. Engaging with audiences and promoting work through social media
 - c. Content marketing, storytelling, and branding
- 4. Ecosystems and Collaborative Models
 - a. Online marketplaces and platforms for creative work
 - b. Collaborative networks and communities
 - c. Partnering with other artists, entrepreneurs, or organisations
- 5. Big Data and Analytics in the Creative and Cultural Sectors
 - a. Collecting and analysing data to inform decision-making
 - b. Understanding audience preferences and behaviours
 - c. Tracking and measuring the success of digital initiatives
- 6. Emerging Technologies and their Impact on Business Models
 - a. Artificial intelligence and machine learning
 - b. Virtual reality, augmented reality, and mixed reality
 - c. Blockchain and decentralised platforms
- 7. Sustainable and Ethical Business Practices in the Digital Age
 - a. Balancing profit, social impact, and environmental responsibility
 - b. Navigating privacy, security, and ethical concerns
 - c. Fostering diversity, inclusion, and accessibility in the creative and cultural sectors

Course 12: Augmented Creativity. Harnessing Artificial Intelligence for the Arts and the Creative Sectors

- 1. Introduction
 - a. The role of AI in art, design, and creative industries
 - b. Basic concepts of artificial intelligence and machine learning
- 2. AI for Visual Arts and Design
 - a. AI-generated art and style transfer techniques
 - b. Generative Adversarial Networks (GANs) for image synthesis
 - c. Image generation applications (Midjourney, Dall-E, Stable Diffusion, etc.)
 - d. AI-assisted design tools and automation
- 3. AI for Music and Sound Design
 - a. AI-generated music and composition tools
 - b. Algorithmic music recommendation and curation
 - c. AI-assisted audio editing and sound synthesis
- 4. AI for Creative Writing and Storytelling
 - a. Natural Language Processing (NLP) and text generation
 - b. AI-assisted writing and editing tools (ChatGPT, Bard, etc.)
 - c. Interactive and procedural storytelling using AI
- 5. AI for Film and Animation
 - a. AI-driven video synthesis and manipulation
 - b. Facial recognition and emotion detection in film
 - c. AI-assisted 3D modelling and animation
- 6. AI for Marketing and Audience Engagement
 - a. AI-driven content recommendation and personalisation
 - b. Sentiment analysis and social listening
 - c. AI-powered chatbots and virtual assistants
- 7. AI for Game Development
 - a. Procedural content generation and level design
 - b. AI-driven character behaviour and decision making

- c. AI-assisted game testing and optimisation
- 8. AI Ethics and Responsible Creativity
 - a. Ethical considerations in AI-generated art and content
 - b. Bias and fairness in AI-driven creative tools
 - c. Intellectual property and copyright in AI-generated works
 - d. Risk of AI 'hallucinating' (false content)
 - e. Environmental impact of AI systems
- 9. Building and Deploying AI Tools
 - a. Introduction to AI frameworks (TensorFlow, PyTorch, etc.)
 - b. Cloud-based AI services (Google Cloud AI, AWS AI, etc.)
 - c. AI integration and deployment in creative workflows

Annex 2: Selection of National Digital Culture Programmes with a Strong Digital Skills Component

Australia

The Digital Culture Strategy,⁷³ developed in 2021 by the Australia Council for the Arts, envisions a digitally enabled and thriving arts and cultural industry. Among its activities, it offers a series of workshops, seminars and intensives aimed at developing digital skills and creative practice for artists and cultural organisations. It also provides opportunities such as participating in the Melbourne International Games Week. Other programmes include the Digital Fellowship Programme, which offers mentoring and funding for artists, and the CEO Digital Mentoring Programme, targeting senior arts executives for mentoring by digital strategists.

Canada

In 2017, the Canada Council for the Arts created the Digital Strategy Fund⁷⁴ to help build digital capacity within the arts sector. The Digital Literacy and Intelligence component supports Canadian artists and organisations by helping them better understand and respond to the challenges and opportunities of the digital era. The fund offers a range of activities such as group learning, workshops, webinars, hackathons, collaborative digital needs assessments and digital strategic planning. Additionally, it encourages connections within and beyond the arts sector through symposia, conferences, and communities of practice. The fund also fosters research, experimentation, and collaboration in problem-solving to develop strategic digital knowledge and capacity.

Chile

Chile's Digital Culture Agenda,⁷⁵ launched in 2021, focuses on adapting to the digital era by addressing four main areas: digital cultural network, access, and participation, connecting heritage with citizens, and capacities and skills. It emphasises the importance of developing capacities and skills within the cultural sector, fostering intellectual reflection on digital culture topics and implementing training plans to support professionalisation and skill-building for cultural agents.

UK

Launched in 2019 by Arts Council England, the Digital Culture Network⁷⁶ is a pioneering initiative that supports the arts and cultural sector in embracing digital technology to drive innovation, increase audience engagement and generate revenue. A key aspect of the network is the Tech Champions, who – as mentioned above – provide expertise and guidance to organisations in various digital areas. The Digital Culture Awards celebrate excellence in various aspects of digital innovation.

⁷³ <https://australiacouncil.gov.au/investment-and-development/digital-culture-strategy>

⁷⁴ <https://canadacouncil.ca/funding/strategic-funds/digital-strategy-fund>

⁷⁵ <https://www.cultura.gob.cl/culturadigital/wp-content/uploads/sites/59/2021/05/agendaculturaldigital.pdf>

⁷⁶ <https://digitalculturenetwork.org.uk>

Annex 3: Summary of the Main Results from the Survey

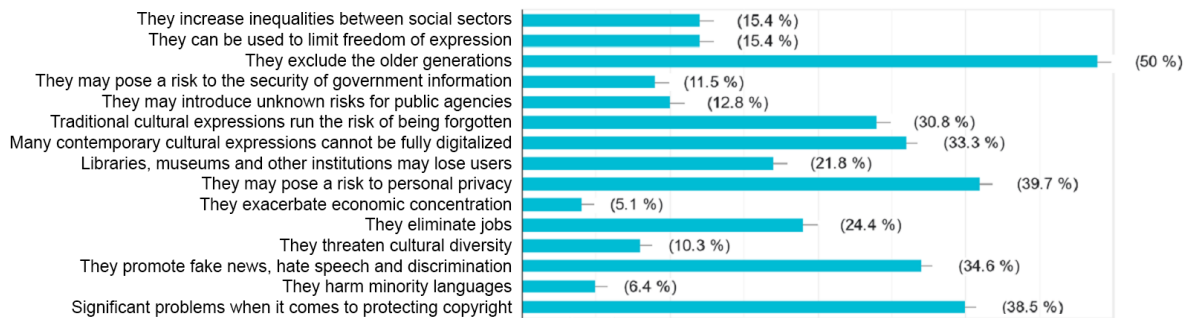
Please select the options that best describe your current needs / your current organization's needs |
 Selectează opțiunile care descriu cel mai bine necesitățile voastre la moment.



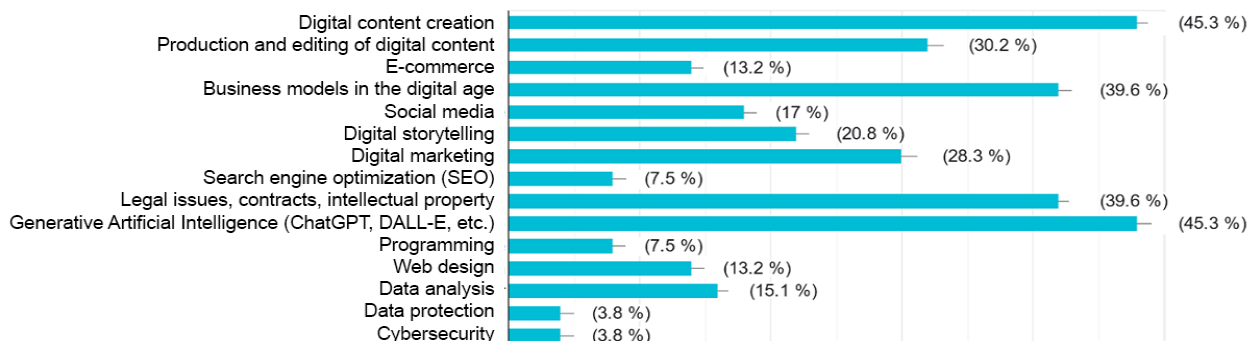
What are the main obstacles you have encountered in your work with digital technologies? | Care
 sunt obstacolele principale care le-ați întâmpinat în procesul de lucru cu tehnologiile digitale?



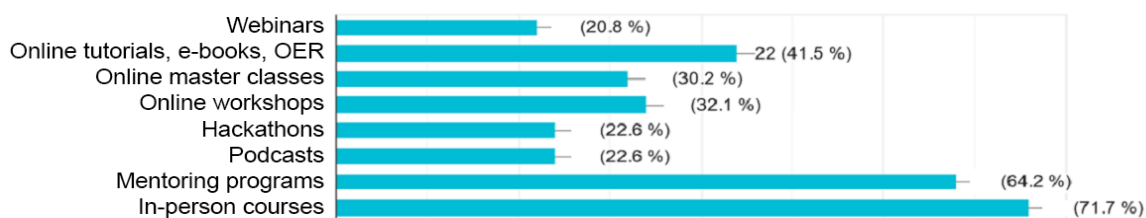
To what extent might digital technologies pose a threat? | În ce măsură tehnologiile digitale ar putea
 reprezenta o amenințare?



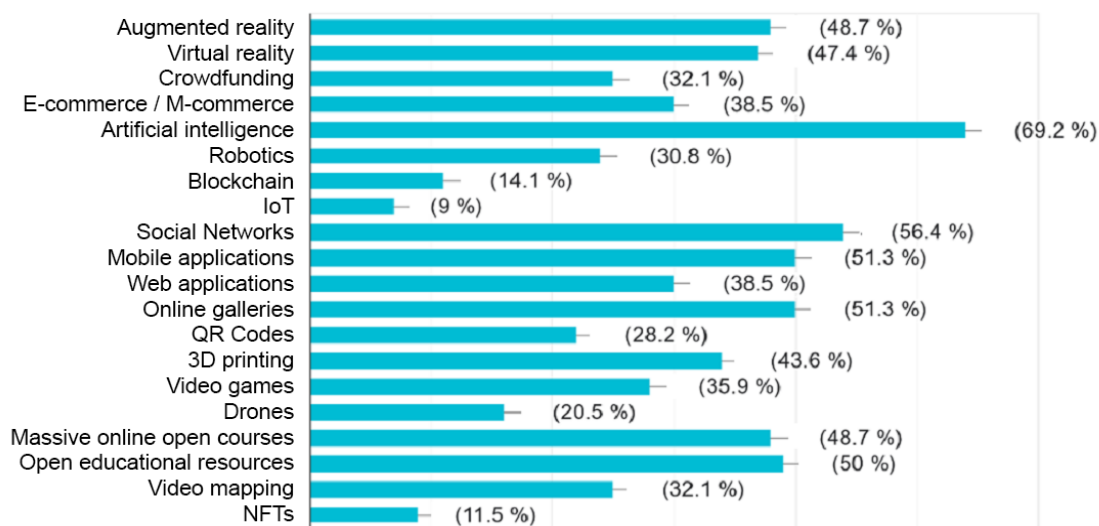
Which of the following skills do you think you need most urgently? | De care dintre următoarele competențe crezi că ai nevoie cel mai urgent?



What do you consider to be the most effective formats for acquiring new skills and knowledge in those areas? | Care considerați că sunt cele mai ef... de noi competențe și cunoștințe în acele domenii?



Which technologies do you think are most promising for those working in the arts and culture sectors? | Ce tehnologii credeți că sunt cele mai pro...u cei care lucrează în sectoarele artei și culturii?



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