



COLECCIÓN CONOCIMIENTO CONTEMPORÁNEO

Economía, Derecho y Empresa ante una nueva era: digitalización, IA y competitividad en un entorno global

Coord.
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EN UN ENTORNO GLOBAL

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MEASURING THE DIGITAL COMPETENCES OF MANAGERS AND ENTREPRENEURS ON THE CREATIVE INDUSTRY SECTOR

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1. INTRODUCTION

In response to the evolving landscape of the media and creative industries, this research chapter emerges from the collaborative efforts of a diverse consortium of European organisations. Focused on empowering entrepreneurs, managers, and owners in the early stages of startup development within the expansive realm of the media and creative industries, this initiative results from the Erasmus+ Program's call to action. The project, "eXperiential Digital Hub for the Media and Creative Industries - XD Media Hub," operates from the beginning of 2022 to the end of 2023.

The primary objective of this consortium, as outlined by the European Union, is to equip startups for scaling up and fortify recently established companies across various sectors encompassing visual and performing arts, heritage, film, television, radio, video games, music, literature, design, architecture, and advertising. The consortium from five countries boasts a dynamic mix of organisational purposes, including clusters, incubators, accelerators, venture capital funds, and educational institutions. Among the instrumental contributors are CEED and CSKC from Bulgaria, F6S Network Ireland from Ireland, Fasttrack Action from Portugal, Stichting Incubator from the Netherlands, Socialenterprise4all from Spain, and the University of Deusto, also based in Spain.

The Main Objective of this collaborative endeavour is to develop a digital hub as an Open Educational Resource (OER) designed to facilitate seamless collaboration, showcase project outcomes, and serve as both an experimentation and networking space for participants. This hub is meticulously curated to offer practical tools and resources, addressing challenges and opportunities posed by the profound impact of advanced technologies on media and creative industries. Key technological drivers include augmented and virtual reality, artificial intelligence, machine learning, blockchain, cybersecurity, and the Internet of Things (IoT).

The overarching goal of the XD Media Hub is to enhance entrepreneurial digital competencies by providing an accessible suite of tools, roadmaps, modules, and materials developed comprehensively through the application of digital technologies. As the project focuses on early-stage startups, the primary target audiences are entrepreneurs and managers, with materials also designed to benefit mentors, coaches, and trainers involved in the growth process. Through targeted campaigns and collaborative efforts, the consortium aims to raise awareness of the digital impact among startups and European professional trainers, emphasising key topics such as security, disinformation, trustworthiness, artificial intelligence, generative AI, and the emerging digital reality revolution, particularly in the context of the metaverse in customer experience.

1.1. MEDIA AND CREATIVE INDUSTRY

The creative and media sector is a dynamic force within the global industry landscape, exerting profound influence on societal, economic, and cultural dimensions. This multifaceted domain encompasses film, television, radio, music, publishing, advertising, and other creative pursuits, collectively shaping our daily lives and cultural experiences. Its role extends beyond mere entertainment, as the creative and media sector is pivotal in disseminating information, enriching cultures, and influencing societal norms and values (Liu Y., 2023).

Underscoring its economic significance, the international media and entertainment industry, a cornerstone of the broader creative sector, reached a staggering \$2.3 trillion in 2023, according to the Global

Entertainment & Media Outlook (PriceWaterhouseCoopers, 2023). Employment within this sector surpassed 30 million people globally in the same year, contributing to its substantial impact on livelihoods worldwide (ILO, 2023).

Amidst these commendable figures, the creative and media sector faces challenges posed by rapid technological advancements, evolving consumer preferences, and ever-shifting global market trends (Holzmann P. and Gregori P., 2023; Ancillai C. et al., 2023). Nevertheless, the industry's growth projections remain promising, with expectations of reaching \$3.1 trillion, fueled by the escalating adoption of digital technologies, the proliferation of mobile devices, and increasing demand for content creation (Ernst & Young, 2023; McKinsey & Company, 2023).

Further emphasising its global importance, the European Commission has accorded significant attention to the creative industries sector, acknowledging its role in economic development and social cohesion (Pupek, 2016; European Commission, 2023). The Creative Europe programme, for instance, has substantially increased its budget to €2.44 billion for 2021-2027, underscoring the European Union's commitment to fostering innovation and entrepreneurship within the creative and media industries (European Commission, 2023).

In alignment with European initiatives, Eurostat statistics reveal that the cultural sector in the EU27 employed nearly 7.7 million people in 2022, contributing to approximately 4% of total employment (Eurostat, 2023a). Furthermore, the sector comprises half a million creative, arts, and entertainment enterprises, with a notable emphasis on small and medium enterprises (91%) (Eurostat, 2023b).

This paper explores the dynamic and evolving nature of the creative and media industries, acknowledging their societal impact, economic significance, and the challenges and opportunities they present. Moreover, it highlights the need for comprehensive support mechanisms, including educational programs, market insights, networking opportunities, financial support, and accelerator programs, to empower entrepreneurs and managers in navigating the complexities of the media and creative landscape (Fonseca, 2022; Drydakis, 2022; Pupek, 2016). The

subsequent sections delve into specific aspects of these industries, examining their growth trajectories, challenges, and the essential role of training programs in fostering innovation and sustainability.

1.2. TO A COMPETENCES FRAMEWORK TO STRENGTHEN DIGITAL COMPETENCES IN THE CREATIVE AND MEDIA SECTOR

The contemporary landscape of creative and cultural industries, including media, is witnessing a transformative wave propelled by the digital revolution. The digitalisation of these sectors necessitates a workforce equipped with digital, managerial, and entrepreneurial competencies to navigate the dynamic challenges and opportunities inherent in this era (Kea, 2019; Marti et al., 2023).

In response to this imperative, the Annual Single Market Report 2021 emphasises the continuous upskilling of creative, administrative, technical workers, and entrepreneurs in digital, entrepreneurial, and managerial skills to ensure innovative content and business models (European Commission, 2021). Acknowledging these recommendations, projects such as XD Media Hub have emerged, leveraging frameworks established by the European Commission to enhance workforce competencies (XD Media Hub; European Commission, 2021).

One such foundational framework is EntreComp, the Entrepreneurship Competence Framework, recognised as a bridge between European education and work.

EntreComp is structured around three main areas—Ideas and Opportunities, Resources, and Into Action—comprising 15 key competencies organised in three main areas (See Figure 1):

Ideas and opportunities (Creativity)

- Identifying and evaluating opportunities
- Recognising and understanding market trends
- Generating and developing new ideas
- Transforming ideas into business concepts

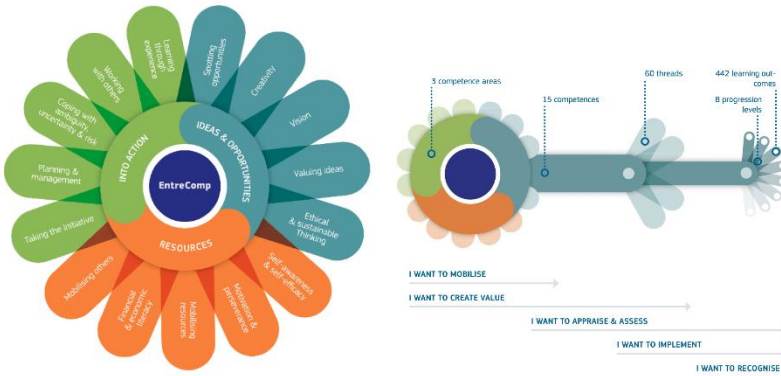
Resources (Managing)

- Assembling and managing resources
- Managing financial resources effectively
- Utilizing networks and partnerships
- Building a team and managing human capital
- Accessing and leveraging knowledge and information

Into action (Developing)

- Communicating and presenting ideas and projects
- Building and maintaining relationships
- Navigating legal and regulatory frameworks
- Developing marketing and sales strategies
- Managing risk and uncertainty

FIGURE 1. *EntreComp framework*



For the creative and media industries, these competencies span from spotting opportunities and creativity to planning, management, and coping with uncertainty. EntreComp provides a comprehensive model with descriptors, proficiency levels, and outcomes, offering a nuanced

understanding of the diverse skills required in entrepreneurial endeavours (Bacigalupo et al., 2016).

Complementing EntreComp is the Digital Competence Framework for Citizens, known as DigComp 2.2, which shares a similar approach and relevance to the contemporary organisational landscape (Vuroikari et al., 2022). This framework encompasses five dimensions covering 21 competencies crucial for navigating the digital landscape effectively.

According to the DIGICOMP framework (See Figure 2) a “digital competence” is the ability to use digital technologies in a critical, collaborative and creative way; indeed, according to this framework, it means a comprehensive understanding of digital competence, including issues such as information storage, digital identity, developing digital content and behaviour online are needed for employees’ job development.

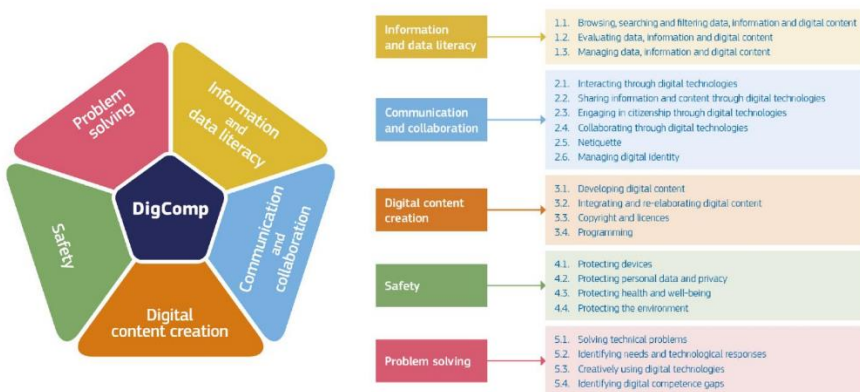
DigCom competencies are divided into four main areas: Digital literacy, Media literacy, Information and communication technology (ICT) skills, and Digital citizenship.

1. **Digital literacy:** Digital literacy is the bedrock for meaningful participation in the digital world. It entails seamlessly utilising digital devices, software, and applications to access, create, and share information. This includes using search engines effectively and collaborating on digital platforms. Critical evaluation of digital information is paramount, ensuring users can discern credible sources from misinformation and disinformation. Effective communication in digital environments, such as online discussion forums and social media platforms, is equally crucial for fostering meaningful interactions and exchanging ideas.
2. **Media literacy:** Media literacy empowers individuals to comprehend the power of media in shaping their perceptions and understanding of the world. It involves critically analysing media messages, recognising bias, and distinguishing between fact and opinion. By understanding the influence of media, individuals can make informed decisions about the information they consume and critically evaluate the content

they encounter. Moreover, media literacy fosters the ability to produce media content that is accurate, responsible, and ethical, promoting responsible media consumption and creation.

3. Information and communication technology (ICT) skills encompass utilising ICT tools to solve problems, work collaboratively, and generate new knowledge. This involves applying ICT applications for research, data analysis, and creative endeavours. Adapting to evolving technologies and staying abreast of the latest developments is crucial for individuals to remain engaged and productive in the ever-changing digital environment.
4. Digital citizenship: Digital citizenship emphasises responsible and ethical behaviour in the digital world. It involves safeguarding personal privacy, respecting intellectual property, and adhering to ethical principles when using digital technologies. This includes protecting personal information, avoiding online harassment or cyberbullying, and acknowledging the copyrights of others. Digital citizenship fosters a respectful and responsible digital environment for all individuals.

FIGURE 2. DigComp framework



The significance of these frameworks extends beyond their theoretical underpinnings; they serve as practical tools for understanding and developing digital and entrepreneurial competencies within the creative and media industries. As organisations grapple with the digital revolution's repercussions, these frameworks become indispensable guides in fostering innovation, autonomy, learning, and knowledge-sharing activities among employees (Marti et al., 2023; Zahra S. et al., 2023).

This paper delves into the intelligent integration of EntreComp and DigComp frameworks in the XD Media Hub project. It explores their applicability in developing learning-teaching materials for entrepreneurs and managers in the creative and media industries. We aim to contribute to the ongoing discourse on enhancing workforce competencies in the digital age by examining these frameworks' dimensions, competencies, and outcomes.

A meticulously crafted questionnaire was developed using both frameworks to gather valuable insights and perspectives. This questionnaire was a valuable tool for consortium members, enabling them to assess and evaluate the competencies outlined within these frameworks.

The evaluation process focused on two critical dimensions: relevance and proficiency. Participants were invited to assess the degree of relevance and applicability of various competencies to the managerial and entrepreneurial profiles prevalent in the creative industries. Additionally, the assessment also involved determining the level of proficiency associated with each competence, providing a comprehensive understanding of the skills required for success in the dynamic landscape of the creative industries.

The survey yielded insightful findings, highlighting competencies that received the highest relevance and were deemed most crucial for developing managerial and entrepreneurial profiles within the creative industries. Combined with rigorous data analysis, these results formulated conclusive and actionable insights, culminating in the proposed competency framework adapted to the creative and media sector.

2 OBJECTIVES

The main objective of this research study is to analyse the relevance of DIGICOMP competencies for managers and entrepreneurs in the creative industry to identify the most important and, at the same time, analyse the level of expertise needed to achieve each of these competencies, assuming that not all competencies require same level.

- (O1) Analyse the relevance of DIGICOMP competencies for managers and entrepreneurs in the creative industry.
- (O2) Analyse the level of expertise needed to achieve each competency.
- (O1): Analyse the Significance of DIGICOMP Competences. We focused on identifying the most pertinent entrepreneurial competencies crucial for entrepreneurs and managers within the creative industry.
- O2: Proficiency Evaluation of Identified Competencies. We aim to assess the proficiency levels required for managers and entrepreneurs in these industries concerning the identified DIGICOMP competencies. Therefore, our focus extends beyond identification to a nuanced evaluation of the expertise levels necessary for practical application within the entrepreneurial domain of the creative industry

3. METHODOLOGY, PARTICIPANTS AND SURVEY

3.1. METHODOLOGY

A meticulously tailored questionnaire emerged for a comprehensive understanding of competencies within the creative and media sectors, drawing inspiration from established frameworks such as EntreComp and DigComp. This survey proved indispensable for consortium members and professionals in navigating and evaluating competencies defined within these frameworks.

The data collection process unfolded through a custom-designed questionnaire featuring a 5-level Likert scale strategically implemented on the Qualtrics platform. Key focal points of the questionnaire included

EntreComp competencies: Ideas and opportunities, Resources Management, and Mobilization into Action, as well as DigComp competencies, spanning Problem-Solving, Communication and collaboration, Safety, Information and data Literacy, and Digital Content Creation.

Ensuring a standardised approach, each competence area within the survey incorporated corresponding descriptions from EntreComp and DigComp frameworks. Significantly, the survey took a nuanced approach by distinguishing between competence assessments for company managers and entrepreneurs. This intentional differentiation aimed to discern evaluation variations regarding the most critical competencies tailored to each role. The objective was to unravel insights that could pinpoint competencies most relevant to the distinct contexts of managers and entrepreneurs within the creative and media industries.

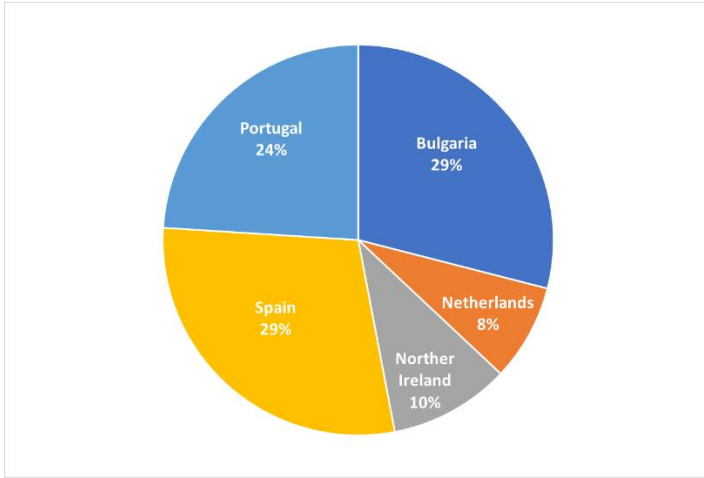
3.2. PARTICIPANTS

Exploring competencies within the creative and media industries necessitates a holistic and diverse approach that encompasses varied perspectives and experiences. In this pursuit, a comprehensive survey was strategically deployed, engaging a robust sample of 76 participants across multiple countries and professional domains, including Spain (Basque et al. and León), Portugal (Porto and Lisbon), Netherlands (Friesland), Northern Ireland, and Bulgaria.

This meticulously chosen sample is characterised by its diversity in occupational areas and backgrounds, encompassing individuals actively engaged in the research project, managers, entrepreneurs from the creative and media sectors, and professionals collaborating with sector agents. The deliberate inclusion of such a varied cohort was driven by the aspiration to attain a comprehensive outlook, capturing valuable insights from practitioners deeply immersed in the field.

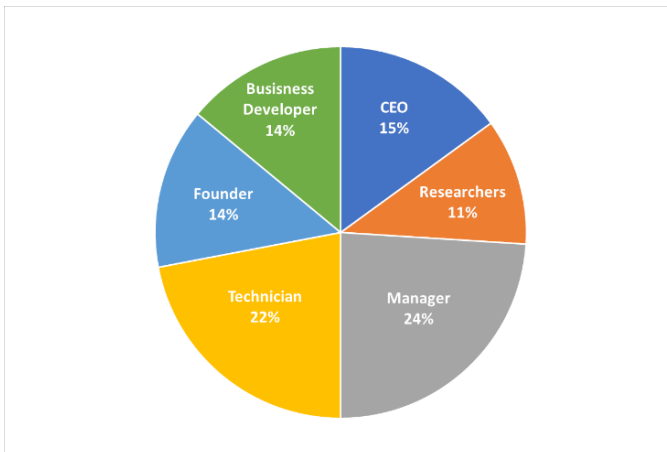
Incorporating participants from different geographical regions, as depicted in Figure 3, ensures a nuanced understanding of competencies within varied cultural and industry contexts. This diversity bolsters the credibility of the findings and facilitates a more comprehensive analysis and interpretation of the collected data.

FIGURE 3. Geographical distribution of participants



The survey design, crafted with flexibility, allowed participants to offer detailed and individualised responses, resulting in a rich tapestry of diverse answers. This methodological approach, illustrated in Figure 4, highlights the varied professional activity sectors represented, with marketing emerging as a prominent domain. This adaptability in question design enhanced the data's richness and provided unique insights tailored to participants' specific roles and experiences.

FIGURE 4. Professional Role of Participants



3.3. SURVEY

A questionnaire was designed to tackle the objectives of the research. The questions were distributed in three broad sections:

- a) Assess the level of relevance of each of the competencies outlined in the EntreComp framework.
- b) Assess the relevance level of each competence in the DigComp framework.
- c) Assess the level of expertise required for each competence among the entrepreneurs and managers.

The survey provided corresponding descriptions from each model to ensure consistent interpretation of the competence areas. This approach enabled participants to provide responses aligned with a shared understanding of the concepts.

The survey distinguished between the assessment of competencies for company managers and entrepreneurs, allowing for a comparison of perceived relevance based on professional roles. The aim was to identify the most relevant competencies for each group. Participants rated each competence area on a five-point Likert scale: not relevant, somewhat relevant, relevant, very relevant, and highly relevant.

Participation was voluntary, and participants could exit the survey at any time. Anonymity and confidentiality were maintained throughout the study.

4. RESULTS

The study findings reveal that the most critical skills for managers and entrepreneurs within the EntreComp framework are "Ideas and opportunities" and "Resource Management." In contrast, the most esteemed skills in the DigComp framework are "Communication and Collaboration" and "Problem-Solving."

No compelling evidence suggests that managers and entrepreneurs perceive significant distinctions in the skills required for success. The most valued competencies for both roles are "Ideas and opportunities"

(EntreComp) and, in a close second, "Communication and Collaboration" (DigComp).

Unsurprisingly, the EntreComp framework's competency domains all garnered high scores, surpassing 80% in all instances. Area "Ideas & Opportunities" (See Table 1) was rated as "extremely" or "very relevant" in 100% of the cases, making it the most valued skill by a considerable margin. Close behind is "Communication and Collaboration" from the DigComp framework. These two competency areas consistently demonstrate high value for both managers and entrepreneurs.

TABLE 1. *Competences relevance assessment for managers*

	Extremely relevant	Very relevant	Relevant	Somewhat Relevant	Not Relevant
Ideas & Opportunities	78.9%	21.1%	0%	0%	0%
Resources management	26.3%	57.9%	15.8%	0%	0%
Mobilisation into action	31.6%	47.4%	21.1%	0%	0%
Problem-solving	42.1%	52,6%	5.3%	0%	0%
Communication and Collaboration	63.2%	31.5%	5.3%	0%	0%
Safety	21.1%	21.1%	42.1%	15.8%	0%
Information and Data Literacy	11.0%	53.0%	37.0%	4.0%	0%
Digital Content Creation	10.5%	5.6%	36.8%	0%	0%

Comparing the DigComp Framework competencies (see Table 2), we find that "Ideas & Opportunities" and "Communication and Collaboration" are rated highly, while the remaining competencies are rated lower.

TABLE 2. *Competences relevance assessment for entrepreneurs*

	Extremely relevant	Very relevant	Relevant	Somewhat Relevant	Not Relevant
Ideas & Opportunities	72.2%	22.2%	5.6%	0%	0%
Resources management	44.4%	55.6%	0%	0%	0%
Mobilisation into action	64.7%	11.8%	23.5%	0%	0%
Problem-solving	50.0%	39,8%	11,1%	0%	0%
Communication and Collaboration	66.2%	28.2%	5.6%	0%	0%
Safety	13.3%	46.7%	40.0%	12%	0%
Information and Data Literacy	17.6%	35.3%	47.1%	0%	0%
Digital Content Creation	17.6%	58.8%	23.5%	0%	0%

The survey results indicate that "Ideas & Opportunities" from the Entrecomp framework emerged as the most highly valued competence area, closely followed by "Communication and Collaboration" from the DigComp framework. These two competence domains consistently demonstrated high esteem among both managers and entrepreneurs.

One of the key findings from the survey is that there is no significant discrepancy in the assessment of competencies between managers and entrepreneurs. Although there were some notable variations in the ratings, the relevance ranking for the identified competencies remained consistent across both roles.

In light of the survey findings, a decision was made to calculate a combined average of competence assessments obtained from managers and entrepreneurs. This approach was deemed efficient, as no substantial differences were observed in categorising competencies between the two groups.

In contrast, the competencies within the DigComp framework exhibited notable variability in their evaluations. While Problem-Solving skills and, notably, Communication and Collaboration received favourable ratings, the remaining competencies garnered relatively lower relevance scores.

Based on the survey outcomes, the working group made informed decisions regarding the competencies to be included in further analysis. Specifically, the chosen competencies from the Entrecomp framework were Ideas and opportunities, Resources management, and possibly Mobilization into Action if any particular skill within it proved particularly valuable. From the DigComp framework, the selected competencies were Communication, Collaboration, and Problem Solving.

The survey delved into the digital competencies from the DigiCmp Framework identified as more relevant: communication, collaboration, and problem-solving. These competencies were deemed more pertinent for establishing a comprehensive framework.

TABLE 3. Relevance and level assessment of “Communication and Collaboration”

	Interacting through digital technologies	Sharing through digital technologies	Engaging in citizenship through digital technologies	Collaborating through digital technologies	Netiquette
Extremely Relevant	20%	24%	28%	34%	24%
Very relevant	56%	48%	20%	40%	40%
Relevant	20%	24%	36%	16%	20%
Somewhat relevant	4%	4%	16%	10%	16%
Not relevant	0%	0%	0%	0%	0%
Advanced	40%	50%	24%	54%	26%
Intermediate	52%	44%	44%	38%	56%
Basic	8%	6%	32%	8%	18%

TABLE 4. Relevance and level assessment of “Information Data Literacy”

	Browsing, searching and filtering data, information and digital content	Evaluating data, information and digital content	Managing data, information and digital content	Communication and Collaboration
Extremely Relevant	8%	16%	12%	48%
Very relevant	36%	56%	60%	28%
Relevant	44%	20%	24%	16%
Somewhat relevant	8%	4%	0%	4%
Not relevant	0%	0%	0%	0%
Advanced	42%	50%	46%	62%
Intermediate	52%	44%	46%	30%
Basic	2%	2%	4%	4%

TABLE 5. Relevance and level assessment of “Problem Solving” competencies”

	Solving technical problems	Identifying needs and technological responses	Creatively using digital technologies	Identifying digital competence gaps
Extremely Relevant	12%	20%	28%	14%
Very relevant	20%	32%	34%	38%
Relevant	48%	40%	34%	32%
Somewhat relevant	20%	8%	4%	16%
Not relevant	0%	0%	0%	0%
Advanced	20%	26%	44%	33%
Intermediate	54%	64%	48%	50%
Basic	26%	10%	8%	17%

TABLE 6. Relevance and level assessment of “Digital Content Creation”

	Developing digital content	Integrating and re-elaborating digital content	Copyright and licences	Programming
Extremely Relevant	8%	16%	12%	8%
Very relevant	36%	24%	32%	12%
Relevant	36%	44%	32%	32%
Somewhat relevant	12%	8%	16%	20%
Not relevant	0%	0%	0%	0%
Advanced	34%	30%	22%	16%
Intermediate	54%	50%	50%	30%
Basic	8%	16%	24%	50%

TABLE 7. Relevance and level assessment of “Safety”

	Protecting devices	Protecting personal data and privacy	Protecting health and well-being	Protecting the environment
Extremely Relevant	12%	24%	16%	24%
Very relevant	28%	28%	28%	28%
Relevant	40%	40%	36%	32%
Somewhat relevant	16%	4%	16%	4%
Not relevant	0%	0%	0%	0%
Advanced	26%	30%	36%	42%
Intermediate	40%	54%	50%	38%
Basic	30%	12%	10%	16%

FIGURE 5. Relevance relative assessment of “Digicomp” competencies

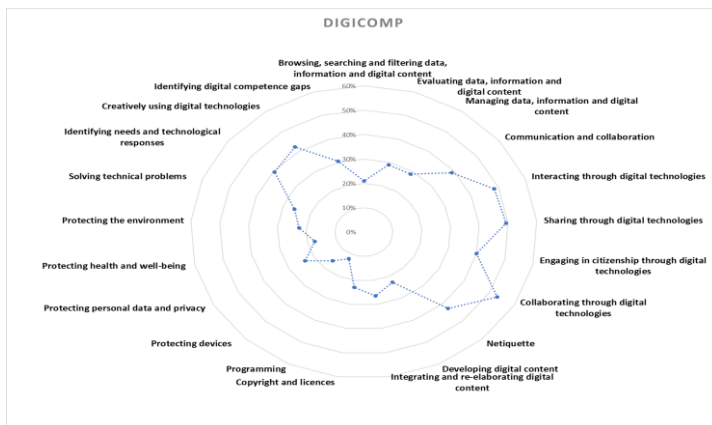
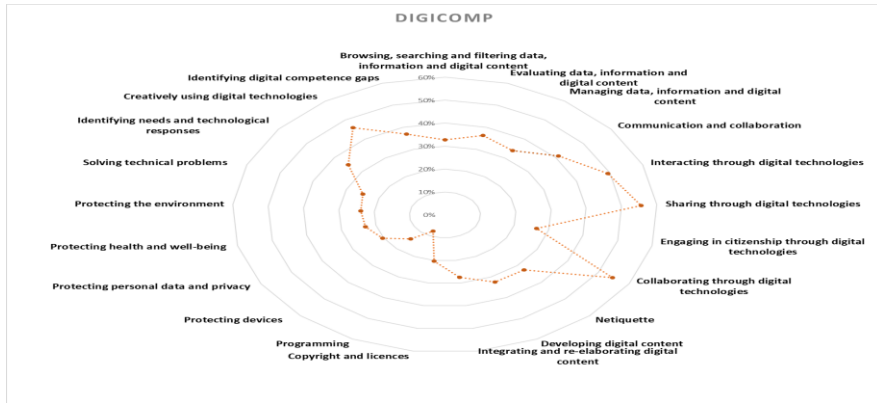


FIGURE 6. Level relative assessment of “Digicomp” competencies



Delving more deeply into the results regarding the relevance of the competencies, we can obtain some general conclusions:

- a) Those competencies included in the competence area “Communication and Collaboration” obtain the highest values, three of which are more than 70% extremely-very relevant.
- b) Those related to “Problem-Solving” also obtain relevant values, over 50% Extremely Relevant or Very Relevant.
- c) Surprisingly, the competencies “Engaging in citizenship” and “Solving Technical Problems” are considered Extremely or Very relevant by only 48% or 32 % of the participants.

Moreover, if we refer to the level of expertise that entrepreneurs and managers should have, we can conclude that:

- a) Competences “Sharing and collaborating through digital technologies” exceed 50% extremely-very relevant.
- b) In the case of “Problem-Solving competencies”, the advanced level is not mainly considered except for “Creatively using digital technologies” (44% extremely-very relevant).
- c) All the rest of the competencies are considered mainly for the intermediate level except “Engaging in citizenship”, which is considered mainly for the primary level.

With these results, the consortium identified the most pertinent competencies, elaborating a simplified and more relevant framework for the creative and media sector and optimising training and coaching efforts in those competencies determined to be crucial or prioritised.

This approach allows them to concentrate training efforts and achieve success in their initiatives to seek success.

5. DISCUSSION

The Media and Creative Industry sector is undergoing an accelerated transformation process (Li F., 2020) that requires equipping its professionals (Hepu D. et al., 2023). Moreover, particularly entrepreneurs and managers with appropriate skills (Labanauskaitė D. et al., 2021 and Bolzani D. et al., 2021) order to harness the enormous potential of digital technologies and, at the same time, be aware of the adverse effects that can threaten their traditional businesses.

It is essential, then, in order to effectively develop these competencies, to identify which are the most relevant, particularly the competencies directly related to digital disruption in business models (Darmanto S. et al., 2023).

The initial conclusion that can be drawn from the analysis of the results is that the fact that DIGICOMP is a general competence framework designed to define the skills of European citizens in a digital world (Vuroikari et al., 2022) assesses the relevance of competence areas within the framework very different for the average citizen compared to an entrepreneur or manager in the media and creative industry.

The results indicate that the most valued competencies are those associated with the "Communication and Collaboration" and "Problem Solving" areas.

The significance of communication and collaboration in entrepreneurial activities and business model development has been extensively discussed (Odewale GT et al., 2019 and Kokkonen L. et al., 2020). Mastering communication and collaboration is paramount for managers and entrepreneurs alike, as these skills underpin successful teamwork,

effective problem-solving, and long-term business growth (Odewale et al., 2019). Effective communication, as underscored by (Kelley, 2011) and (Chole et al., 2015), allows managers to forge strong connections with clients, partners, and stakeholders, laying the foundation for enduring business partnerships and collaborations.

In this regard, the analysis results demonstrate that this area is considered crucial for the activities of entrepreneurs and managers (with over 94% considering it very relevant). Within this area, competencies such as Interacting through digital technologies (76%), Collaborating through digital technologies (74%), aligning with research emphasising the importance of networking and collaboration in entrepreneurial activities (Veldhove V. et al., 2020 and Yadav, M.S. et al. 2020) and the digital world.

Sharing through digital technologies (72%) is also highly valued, as reflected in the relevance of sharing in new business economies (Gupta R. et al., 2019 and Rese A. et al., 2020)).

Many references exist about how digital technologies can enable and foster collaboration (Elia G. et al., 2020 and Reim W. et al., 2022). They were instrumental in the consortium in stating a route map and set of tools related to developing these competencies.

Conversely, the competence "Engaging in citizenship through digital technologies" is poorly valued (48% rate it as extremely or very relevant) despite its importance for digital citizenship (Saiz-Alvarez J.M., 2023), as it does not constitute a valuable asset for entrepreneurs.

The business world, particularly entrepreneurship, is known for facing challenges (Ratten V., 2023) and turning problems into opportunities (Kiradoo, G., 2023). The ability to identify, analyse, and solve problems is critical for managers and entrepreneurs (León, 2017). Unsurprisingly, the "Problem Solving" area is highly valued (89.7% and 94%, respectively, rate it as very or highly relevant). However, the relatively lower valuation of individual competencies within this area may indicate an unaddressed need among entrepreneurs and managers not explicitly covered by the Digicomp Framework (Samara G. et al., 2021).

Among the competencies, "Creatively using digital technologies" is the most valued (62%), aligning with evidence of the importance of creativity for generating new digital business models (Hisrich R.D et al., 2021). Competences such as Identifying needs and technological responses (52%) and Identifying digital competence gaps (52%) also receive high ratings, consistent with literature emphasising the importance of identifying digital training needs and understanding opportunities offered by disruptive technologies for business development (Li F., 2020). The ability to identify and evaluate opportunities is essential for entrepreneurs and managers. Entrepreneurs are more likely to succeed (Cutolo, 2021) if they understand the market, the competition, and target customers. Managers also need to be able to identify and evaluate opportunities for innovation and growth (Bogers et al., 2019) within their organisations. They must see beyond the business's current state and imagine new possibilities in the digital era.

The competence of "Solving technical problems" is poorly valued (32%), potentially explained by the expectation that entrepreneurs and managers, in their roles as founders, focus more on understanding technological opportunities and risks than possessing expert technological skills.

The "Information Data Literacy" area also receives relatively lower ratings (53% and 64%). Notably, the competence "Communication and collaboration" within this area is highly valued (76%). This discrepancy may be attributed to potential confusion among participants despite the explicit definitions in the DIGICOMP Framework.

The "Digital Content Creation" area is highly valued (63.2% and 77%), reflecting the focus on the Media and Creative Industry. However, this contrasts with the lower ratings of individual competencies within this area, such as Developing digital content (44%), Integrating and re-elaborating digital content (40%), Copyright and licences (44%), and Programming (20%). This discrepancy may arise from the universal nature of the framework versus the specific needs of entrepreneurs and managers.

There is a notably low valuation of the competence of "Copyright and licences" (Rusakova E.P.et al., 2020 and Buzova N. et al., 2021). is surprising, given its importance for digital business models. This may

signal a lack of awareness among participants, prompting the consortium to consider awareness-raising actions on the relevance of this aspect in digital businesses.

Despite the great importance given to security as a challenge within digital transformation (Saqib S. et al., 2023), the "Safety" area yields moderate results (58% and 60%), with similar ratings for individual competencies. The interpretation here might be akin to previous cases, where the specific competencies described in this area align more with individual skills for ensuring personal security in the digital and social media realm or with professional skills in the security field, potentially not perceived as relevant to the roles of entrepreneurs or managers.

Finally, a clear correlation is observed between highly relevant competencies and the required expertise. Sharing and Collaborating through digital technologies receive over 50% of participants as an expert-level competence for entrepreneurs and managers. However, there is no apparent relationship between relevance and expertise level in competencies with less marked relevance. In this sense, it is relevant that the third competence considered to be developed with the highest level of expertise is Identifying needs and technological responses. However, its assessment as relevant was rather average.

6. CONCLUSIONS

The Media and Creativity industry is undergoing a dizzying transformation due to the emergence of digital technologies. As in many other sectors, this transformation has one of its main challenges in reskilling professionals and providing managers with a deep understanding of new trends and opportunities.

Competencies are the key to professional performance, and new scenarios require providing people with new competencies. A process like this requires knowledge of the relevant competencies for each role within the organisation, especially when faced with changing and uncertain environments such as innovation, entrepreneurship and technological disruption.

Entrepreneurs and CEOs of companies in the media and creative industry will have to surf the waves of a digital tsunami in an environment of great uncertainty, but at the same time full of new opportunities for growth.

This research study has made it possible to analyse which of the competencies of two frameworks (EntreComp and DigComp) are widely accepted in Europe about entrepreneurship, and digitalisation is the most relevant for managers and entrepreneurs of creative industries.

There was particular interest in analysing digital competencies, Digi-comp, since the framework had not been designed for an entrepreneurship or business innovation environment.

The results have shown that "Communication and collaboration" and "Problem-solving" are managers' most relevant competency areas.

The assessment was particularly relevant for the research, in addition to the relevance of the competencies and the level of expertise to be achieved according to the roles. The relevance of this information lies in the need to prepare in the Hub and the target tools of the research project a self-assessment tool that allows each person to identify their level of expertise in competence and a roadmap to follow to move from the current level to the most appropriate according to their role.

Helping to identify relevant competencies correctly can be a crucial element in ensuring the sustainability and growth of a sector as relevant as the Media and Creativity industry.

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