Barriers to digital transformation of the Cultural and Creative MSMEs of the Basque Country

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Abstract

Cultural and Creative MSMEs, as well as the business across all sectors, are facing the complexity of the digital transition. This transition brings with it great opportunities for CCIs if they are able to manage the digital transformation of their business in an appropriate way. However, there are a number of barriers that hold back MSMEs in CCIs from undertaking this digital transformation. Therefore, this study conducted a survey to 268 MSMEs in the CCIs of the Basque Country. The findings reveal that the primary barriers hindering the digital transformation of CCIs are associated with a lack of knowledge and skills, organizational and cultural barriers and limited time availability.

Keywords

Digital transformation, barriers, Cultural and Creative Industries, MSMEs, Survey

1. Introduction

Cultural and Creative Industries (CCI), beyond their intrinsic value, have been recognized in recent decades as significant assets for fostering innovation, generating socioeconomic development, and enhancing general well-being (Boix-Domènech & Rausell-Köster, 2018; Innocenti & Lazzeretti, 2019). Therefore, the role of CCIs as a catalyst for socioeconomic transformation has become increasingly important in European regional policy (Barandiaran-Irastorza et al., 2020; Boix Domenech et al., 2022).

However, CCIs operate in a fast-changing environment that continually offers new opportunities but also poses challenges that often hinder them from fully exploiting their potential and limit the positive socioeconomic impact they could have (Dörflingler et al., 2016). In addition to the specific challenges related to the structure of the CCI sector, there are significant external and transversal challenges that demand radical, profound, and transformative changes in entire systems (Van Tonder et al., 2020). One of these challenges is that of digital transformation.

CCIs have been and will be greatly affected by the digital transformation of society, which will impact their business models and value chains, altering employment and productivity, and bring about changes in skill requirements, etc. (Aguiar & Waldfogel, 2021; De Voldere et al., 2017). Furthermore, as much research indicates, CCIs include a large share of one-person, micro, and small organizations (Dörflingler et al., 2016), and the small size of organization compounds the challenge of digital transformation.

As highlighted by the Digital Transformation Scoreboard 2018 (Probst et al., 2018), MSMEs face a wide range of barriers to the adoption of digital transformation, including limited financial and human resources, internal resistance to change, and slow adoption of wider business model change pertinent to digitalization (Holl & Rama, 2023). Nevertheless, even the adoption of low-cost digital technologies can make a positive difference for MSMEs (Gavrila & De Lucas Ancillo, 2021; Holl & Rama, 2023). The adoption of digital transformation has been found to enhance the productivity of MSMEs (Hwang & Kim, 2022) in addition to contributing to the organization of complex networks (Aaldering & Song, 2021).

Yet, despite growing interest in researching the broad topic of digital transformation in MSMEs, there is scarce discussion on how this transformation is specifically affecting MSMEs in the CCI. Therefore, drawing on theoretical frameworks that study digital transformation in other industries and specifically, the barriers that hold industries back from adequately undertaking the digital transformation of their businesses, this research applies them to the context of the CCIs MSMEs.

Hence, starting from this gap in the literature, the questions this paper aims to answer is, (1) which barriers are hindering the digital transformation of the CCI MSMEs and (2) how can public policy help CCI MSMEs to overcome these barriers? To this end, the research employs quantitative methodologies, based on a standardized online questionnaire of closed questions that was implemented among 268 CCI MSMEs in the Basque Country region (Spain), during January and February of 2023.

2. Theoretical framework

2.1. Digital transformation in Cultural and Creative industries

Over the past few years, the process of digital transition has been spreading and changing various industrial sectors as well as significant parts of society (Van Tonder et al., 2020). Furthermore, the COVID-19 has expedited this process, necessitating the adaptation of old global corporate practices to align with the changing environmental conditions. Consequently, all firms, including CCIs, have been compelled to incorporate themselves into the new business models, in which digital transformation has played and continues to play a crucial role. Mangematin et al. (2014) even claim that "no set of industries has felt this impact [of digital transformation] more than the CCIs."

This context has highlighted the great potential of digital transformation to promote new ways of experimenting in CCIs. Having an impact on the entire productive fabric, transforming the dynamics of the sector, the industrial structure and altering the relationship between the different actors by interconnecting producers and users (Chandna & Salimath, 2020). Therefore, this new scenario has pushed many organizations to change their business models and the way they generate value to respond to new consumption models.

Although research has recognized the potential of CCIs to foster innovation and growth in the wider economy (Innocenti & Lazzeretti, 2019) it is unclear what new trajectory the digital transformation may generate. Although digital transformation has created new opportunities for growth and innovation, there are many challenges for CCIs arising from it (Taormina & Baraldi, 2022). It is crucial to consider that several obstacles hinder CCI organizations from successfully undergoing it (Truant et al., 2021). Therefore, it is imperative to identify and overcome these barriers and difficulties to ensure that CCIs can maintain their competitiveness and provide value for society.

Before analyzing those barriers or difficulties of digital transformation, it is necessary to define it. There is a wide variety of definitions of what digital transformation is, however, for this study we use the definition of Gong & Ribiere (2021), who understand digital transformation as "a major process of change, enabled by the innovative use of digital technologies, to radically improve an entity and redefine its value proposition for its stakeholders (i.e.; customers and users of its products and services, employees, society in general, suppliers, collaborators...)".

Therefore, we understand it as a multidisciplinary process, as it involves changes in strategy, organization, information technology, supply chains, and marketing (Radicic & Petković, 2023) and the paper contributes to the existing discussion on barriers to digital transformation of CCI MSMEs from this multidisciplinary perspective. Our purpose is to consider digital transformation in CCIs in the context of organic, dynamic complexity (Kane, 2019). Digital transformation is a complex challenge with no solution, set of rules, or desired outcome (Jones et al., 2021). Moreover, Kane, (2019) proposed that it is more suitable to conceptualize digital transformation as a progression that takes place along a spectrum of digital maturity, as organizations are constantly striving to enhance their level of digital maturity.

However, in the intricate process of digital transformation, it is crucial to comprehend the obstacles that impede organizations from embarking on this journey. This understanding serves as a vital initial stage in crafting more effective public policies. Given the scarcity of literature on the barriers faced by CCIs in undertaking digital transformation, our conceptual framework is based on different frameworks and lists of barriers that MSMEs in other industries face when facing such a transformation.

Table 2.1 Barriers to digital transformation in MSMEs

Group of barriers	Barriers	Authors
Economic barriers	It entails a high economic risk (B1)	(Lammers et al., 2019),(Horváth & Szabó, 2019), (Packmohr et al., 2023)

	Costs are too high (B2)	(Roecker et al., 2017), (Lammers et al., 2019), (Horváth & Szabó, 2019),(Packmohr et al., 2023)
	Insufficient availability of suitable funding sources (B3)	(Lammers et al., 2019),(Vogelsang et al., 2019),(Horváth & Szabó, 2019),(Truant et al., 2021),(Rupeika-Apoga & Petrovska, 2022),(Packmohr et al., 2023)
Barriers related to the availability of knowledge	Lack of qualified and trained staff (B5)	(Roecker et al., 2017), (Lammers et al., 2019),(Horváth & Szabó, 2019),(Truant et al., 2021),(Rupeika-Apoga & Petrovska, 2022),(Packmohr et al., 2023)
	Lack of information and knowledge about appropriate technology (B8)	(Roecker et al., 2017),(Vogelsang et al., 2019)
	Lack of information and knowledge about the market and its needs (B9)	(Roecker et al., 2017), (Truant et al., 2021),(Rupeika-Apoga & Petrovska, 2022), (Packmohr et al., 2023)
Barriers related to organizational culture	Internal rigidities and apprehension about change (B4)	(Roecker et al., 2017), (Lammers et al., 2019), (Vogelsang et al., 2019), (Horváth & Szabó, 2019),(Truant et al., 2021),(Rupeika-Apoga & Petrovska, 2022)
	It is not among our priorities (B7)	(Roecker et al., 2017), (Horváth & Szabó, 2019),(Truant et al., 2021),(Rupeika-Apoga & Petrovska, 2022)
Barriers related to time availability	Inability to allocate sufficient time (B6)	(Roecker et al., 2017), (Lammers et al., 2019), (Vogelsang et al., 2019),(Truant et al., 2021)
Barriers related to the markets in which they operate	Lack of interest of customers to new goods or services (B10)	(Vogelsang et al., 2019), (Packmohr et al., 2023)
	Factors related to intellectual property (B11)	(Roecker et al., 2017), (Lammers et al., 2019), (Vogelsang et al., 2019),(Truant et al., 2021)

Source: Own elaboration departing from the literature review

3. Methodology

Given that the topic of digital transformation in CCI SMEs represents a novel and emerging phenomenon that shall be explored in its real-life environment, a case study approach was chosen (Yin, 2017). The case, the Cultural and Creative Industries of the region of the Basque Country in Spain, is explained in the following section.

3.1. Case description

The Basque Science, Technology & Innovation Plan 2030 (PCTI 2030), ratified in February 2021, endeavors to establish the Basque Country as a leading European region in innovation, characterized by a high standard of living and quality employment. Within this strategic framework (Gobierno Vasco, 2020a), the CCI emerge as a focal point, with *Euskadi Creativa* [Creative Basque Country] designated as a "territory of opportunity" ripe for cultivation. The plan underscores the pivotal role of CCI across three major transitions (demographic-social; energy-environmental; and technological-digital), signaling a concerted effort towards their integration into the fabric of the Basque business sector and the Basque Science, Technology & Innovation network (Gobierno Vasco, 2023). Consequently, the overarching objective is the establishment of a "Basque District of Culture and Creativity", conceived to empower and integrate CCI within the broader socio-economic landscape of the region (Gobierno Vasco, 2020a). In this regard, important efforts have been made to carry out analyses to understand the economic dimension of CCI of the Basque Country.

A quick overview of the CCI sector in 2022 shows a total of 16,924 organization based in the Basque Country, which accounted for 11% of the total number of organization across all economic sectors. In terms of employment, the CCI sector accounted for 34,213 employees, 3,75% of total jobs (Retegi et al., 2023). Comparatively, on average, CCI organization are substantially smaller in terms of number of employees than the rest of the business spectrum: the average size of the CCI organization was 2.01 persons in 2021, mainly relying on self-employment (68,29%) (Retegi et al., 2022c).

The observations made about the Basque CCI ecosystem align with Eurostat's general description of CCI in Europe. Eurostat states that the proportion of self-employed individuals in cultural employment is at least twice as high as in total employment, and in certain countries, the self-employed makeup nearly half of all cultural employment (EUROSTAT, 2022). These observations also support Pratt's (2012), characterization of the industry as having a "missing middle," which refers to the insufficient presence of medium-sized entities within the sector.

This structure of the sector deserves attention, as research indicates that vulnerability in various forms rises as the size of the firm diminishes, and notably escalates in the case of micro-organizations (Gil de San Vicente et al., 2020; Retegi et al., 2020), therefore, crises and market changes have a greater impact on this group of organization. In that vein, following Khlystova et al. (2022), CCIs have not been resilient in the face of the COVID-19 crisis, which has been even more serious for self-employed and part-time workers. This is also the case of the Basque Country, where the CCI sector was the third sector with the greatest reduction in several organization in 2021 due to the COVID-19 crisis (Retegi et al., 2022c).

Nevertheless, it is worth highlighting that the only CCI activities in the Basque Country to recover vigorously and reach higher positions than those achieved pre-pandemic are those linked to information technology and communication, that is, those belonging to the Publishing, audiovisuals, radio and television and information technology branch of activity (Retegi et al., 2023). Indeed, the data emphasises the potential benefits that may be provided by integrating CCIs into a broader digitization framework.

These features make the case suitable to answer the research question and generate knowledge about digital transformation in CCIs MSMEs and the barriers associated to it.

3.2. Questionnaire design

This questionnaire has been developed in the framework of the collaboration between Orkestra - Basque Institute of Competitiveness and the Department of Culture and Language Policy of the Basque Government. The initial version of the questionnaire script was designed by Orkestra's research team, drawing on the findings of a literature review. It was then reviewed by policymakers in the department to ensure accuracy and relevance. After reaching a consensus on the final version of the script, a pretest was conducted on a sample of 4 organization to verify the effectiveness of

the tool's design and the comprehensibility of the questions. After this phase, the instrument was restructured and expanded until the final version of the questionnaire was devised.

Although the questionnaire covered numerous aspects related to digital transformation, this study focuses on the answers to the question: 'To what extent do you believe the following barriers or obstacles are significant in hindering the digital transformation of your business?

- It entails a high economic risk
- Costs are too high
- Insufficient availability of suitable funding sources
- Internal rigidities and apprehension about change
- Lack of qualified and trained staff
- Inability to allocate sufficient time
- It is nor among our priorities
- Lack of information and knowledge about appropriate technology
- Lack of information and knowledge about the market and its needs
- Lack of interest of customers to new goods or services
- Factors related to intellectual property

The response choices for the 11 items were designed in the form of a six-point Likert scale, being 1 (irrelevant) and 6 (very relevant). The absence of a midpoint forces answers to express agreement and disagreement. Although the most used configuration is the 5-point Likert scale as the midpoint option allows respondents to express their uncertainty, the actors involved in the research process argued that it provides them with an "easy" option to choose (Neuman, 2014; Simms et al., 2019). Further, a higher number of scale items was not required for this study, as Simms (2019) states that going much beyond six response options seems to challenge humans' ability to pinpoint a response.

To enhance the analysis, the responses to the question about the perception of barriers have been cross-referenced with some descriptive variables from the questionnaire: family (cultural or creative), the branch of activity (JA, M+N or R), size (micro or rest), perception of the degree of digitalization (not digitalized or digitalized), if they have collaborated with another organization to carry out the digital transformation of their businesses (yes or no) and if they have received assistance from public administrations to carry out the digital transformation of their businesses (yes or no). For the degree of digitalization, the response options were set out as a six-point Likert scale in the questionnaire, and for the descriptive analysis (section 2.2) it has been divided into two groups: (1) less digitalized (values from 1 to 4) and more digitalized (values from 5 to 6). However, the correlation analysis (section 3.3) considered the values ranging from 1 to 6 provided by each company for this question.

3.3. Sample selection, data collection and description of the sample

To define the scope of the activities analyzed in this research, the report titled " Perimeter of Cultural and Creative Industries in the Basque Country" (Retegi et al., 2022) has been used as a reference point. This report establishes the boundaries of the CCI in the Basque Country, specifically the economic activities that fall within this sector. The perimeter encompasses a total of 70 activities based on the NACE-2009 (Statistical Classification of Economic Activities) categorization, which is further categorized into 12 distinct value chains or subsectors. Additionally, the report titled " Analysis of the Economic Dimension of Cultural and Creative Industries in the Basque Country " (Retegi et al., 2022b), examines the connection between these CCI value chains and the A38 branches of activity of the NACE-2009 categorization, which is also considered as a point of reference.

Thus, to provide valuable insights for the design of public policy of the Department of Culture, this research has chosen to focus only on the NACEs associated with the following branches of activity (A38): "JA.- Publishing, audio-visuals, radio and television and information technology", "M+N.- Professional, scientific and technological activities ", and "R.- Recreational and cultural activities". The rest of the NACEs of the perimeter have been excluded from the analysis as they belong to branches of activity that are not usually the responsibility of the Departments of Culture. The appendice includes a list of all the NACEs included in the analysis.

The questionnaire was therefore sent to the 9829 organizations which were registered on 1 January 2022 associated with the selected NACEs in the DIRAE (Directory of Economic Activities) of the Basque Institute of Statistics (EUSTAT). The questionnaires were sent electronically and self-administered, a wave of mailings was launched on 9 January 2023 and two reminder mailings were made on 17 and 24 January. The questionnaire was sent both in Spanish and Basque language.

A total of 268 valid questionnaires were received, yielding a maximum error of 5.9% at a 95% confidence level. Table 3.1 shows the ranking of the organization according to each of the variables analyzed.

Table 3.1 Distribution of the sample

Group	Group breakdown	Absolute frecuency	Relative frecuency
Family and subsector of CCI	**Cultural**	**131**	48,88%
	Audio-visual and multimedia	52	19,40%
	Book and press	30	11,19%
	Visual arts	16	5,97%
	Heritage, Museums, archives and libraries	14	5,22%
	Performing arts	14	5,22%
	Music	5	1,86%
	Creative	**137**	51,11%
	Architecture	70	26,11%
	Design	28	10,44%
	Advertising	20	7,46%
	Language industries	17	6,34%
	Video games	2	0,74%
Branch of activity	JA. Publishing, audio-visuals, radio and television and information technology	87	30,96%
	M+N. Professional, scientific and technological activities	153	54,45%
	R. Recreational and cultural activities	28	9,96%
Company size	1-9 workers	220	78,29%
	10-49 workers	38	13,52%

	50-249 workers	8	2,85%
	250+ workers	2	0,71%
Perception of the degree of digitalization	Less digitalized	121	45,14%
	More Digitalized	147	54,85%
Organizations that have collaborated with another organization to carry out the digital transformation of their businesses	Yes	126	47,01%
	No	142	52,95%
Organization that have received assistance from public administrations to carry out the digital transformation of their businesses	Yes	20	7,46%
	No	248	92,53%

Source: Own elaboration based on survey results

4. Results analysis

4.1. Descriptive analysis

The values in the following table show the average importance (being the values from 1 to 6) that the organization give to each of the barriers, based on the different variables that describe the sample. As a line of future work, a test of the difference in means will be carried out to find out whether there are real differences between one group or another, but for the moment the means are analyzed as they are presented in the table.

Table 4.1 lists the different barriers to digital transformation included in the questionnaire, which can be classified into barriers of an economic nature, those related to the availability of knowledge, those related to organizational culture, related to time and those related to the markets in which organization operate.

Table 4.1 Descriptive statistics of the sample

			Family		Size		Branch of activity			Digitalization level		Collaborators		Assistance	
Type of barrier	Barriers	Total	Cultural	Creative	Micro	Rest	JA	M+N	R	Less Digitalized	More Digitalized	Yes	No	Yes	No
Economic barriers	It entails a high economic risk (B1)	**4,07**	**4,18**	3,97	**4,03**	**4,27**	**4,22**	**4,03**	3,86	**4,1**	**4,05**	**4,24**	3,92	**4,15**	**4,06**
	Costs are too high (B2)	**4,41**	**4,44**	**4,37**	**4,36**	**4,6**	**4,39**	**4,41**	**4,46**	**4,46**	**4,36**	**4,61**	**4,22**	**4,75**	**4,37**
	Insufficient availability of suitable funding sources (B3)	**4,18**	**4,24**	**4,12**	**4,2**	**4,04**	**4,34**	**4,13**	3,89	**4,36**	**4,03**	**4,25**	**4,1**	**4,2**	**4,17**
Barriers related to the availability of knowledge	Lack of qualified and trained staff (B4)	3,19	3,34	3,05	3,1	3,63	3,13	3,11	3,86	3,64	2,83	3,19	3,19	3,5	3,16
	Lack of information and knowledge about appropriate technology (B5)	3,44	3,44	3,45	3,53	3,04	3,22	3,5	3,82	**4,02**	2,97	3,23	3,63	2,5	3,52
	Lack of information and knowledge about the market and	3,16	3,19	3,12	3,19	3,02	2,97	3,2	3,54	3,65	2,75	2,99	3,3	2,7	3,19

	its needs (B6)														
Barriers related to organizational culture	Internal rigidities and apprehension about change (B7)	2,7	2,69	2,71	2,6	3,13	2,46	2,72	3,32	3	2,45	2,69	2,69	2,75	2,69
	It is not among our priorities (B8)	2,59	2,44	2,74	2,63	2,4	2,43	2,61	2,96	2,95	2,29	2,24	2,89	2,1	2,62
Barriers related to time availability	Inability to allocate sufficient time (B9)	**4,19**	**4,04**	**4,34**	**4,25**	3,94	3,93	**4,33**	**4,29**	**4,64**	3,83	**4,21**	**4,17**	3,75	**4,22**
Barriers related to the markets in which they operate	Lack of interest of customers to new goods or services (B10)	3,12	3,2	3,04	3,15	3	3,1	3,1	3,29	3,36	2,93	3,03	3,19	3,4	3,09
	Factors related to intellectual property (B11)	2,65	2,71	2,58	2,64	2,69	2,53	2,68	2,82	2,65	2,64	2,5	2,77	2,7	2,64

Source: Own elaboration based on survey results

Looking at the average value given to the different barriers by the total number of organization, those considered most relevant are the three barriers associated with economic factors and the lack of time to dedicate to digital transformation. Although to a lesser extent, they also give medium importance to the three barriers related to the availability of knowledge. However, both barriers related to organizational culture and barriers associated with the market in which they operate are given moderate or low importance.

In addition, the perception of the different barriers has also been analyzed, crossing them with the descriptive variables. Concerning the difference between the two industry families, it is observed that, although the difference is not very high, in the case of barriers associated with economic factors, those related to the availability of time and those associated with the market in which they operate, the cultural industries perceive greater barriers to digital transformation than the creative ones. However, the creative industries consider the barriers related to organizational culture and lack of time, greater than de cultural ones.

There is no clear pattern in terms of micro versus other organizations. In general, it is the other organizations, i.e. SMEs, that attach greater importance to barriers associated with internal economic factors, lack of qualified personnel or internal rigidities, and fear of change in the organization itself. However, micro organizations give greater importance than the rest, to barriers such as insufficient availability of suitable funding sources, lack of information and knowledge about appropriate technology and about the market and its needs, not being among their priorities, inability to allocate sufficient time and the lack of interest of customers to new goods or services.

About the difference in the branches of activity, in general, it is the recreational and cultural activities (R) that give the highest scores to most of the barriers, except for those related to economic risk and the availability of adequate sources of financing for the digital transformation. However, the activities belonging to the publishing, audio-visuals, radio and television and information technology (JA) are the ones that give less importance to most of the barriers, except for those related to economic risk and the availability of suitable sources of funding for the digital transformation, which are the ones that give the greatest importance.

It is interesting to see that those organizations that consider themselves to be less digitized have a higher perception of all barriers, which could explain why they are less digitized. For both the least digitized and the most digitized organizations, the barriers that are most important to them are economic ones and not having enough time to dedicate to digital transformation.

Regarding the difference in the perception of barriers for organizations that have collaborated with some kind of organization to tackle the digital transformation of their business versus those that have not, although the differences are not substantially large, it is interesting to see, and could have interesting policy implications, that those that have collaborated with some kind of organization perceive knowledge-related barriers to a lesser extent. However, they attach greater importance to economic barriers than organizations that have not collaborated with other organizations.

Finally, counterintuitively, those organizations that have received assistance from a public administration to carry out the digital transformation of their business perceive greater economic barriers than those that have not received assistance.

4.2. Correlation analysis

This section examines the interrelationships among the indicators that have been previously analyzed in isolation. In order to achieve this objective, an analysis is conducted to investigate the relationship between the level of digitalization and the perceived barriers to digitalization depending on each descriptive variable, using correlation analysis.

RStudio statistics software has been used to generate correlation matrices. As we are analyzing the correlation between two ordinal categorical variables with non-normal distribution, Kendall's Tau b correlation coefficient coefficient has been calculated. While -1 indicates a negative correlation, 0 indicates no correlation and 1 resembles the maximum positive correlation. Table 4.2 shows the significant results ($p < 0.05$) obtained in the correlation analysis.

Table 4.2 Results of correlation with significance when crossing the perception of digital transformation depending on each descriptive variable and perception of barriers

		Economic barriers			Barriers related to the availability of knowledge			Barriers related to organizational culture		Barriers related to time availability	Barriers related to the markets in which they operate	
		B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11
Total					-0,189	**-0,307**	**-0,257**	-0,132	-0,189	-0,176	-0,117	
Family	Cultural				**-0,274**	**-0,324**	**-0,252**	**-0,275**	-0,232	**-0,27**	-0,148	
	Creative					**-0,292**	**-0,252**		-0,162			
Size	Micro				-0,203	**-0,325**	**-0,283**	-0,136	-0,214	-0,162		

Branch of activity								
	Rest							
Branch of activity	JA	**-0,274**	**-0,395**	**-0,365**	**-0,319**		**-0,255**	
	M+N		**-0,2744**	-0,2052		-0,1881		
	R	**-0,322**				**-0,336**	**-0,286**	
Collaborated with other organizations	Yes	-0,15	**-0,28**	**-0,3**		-0,19	-0,16	
	No	-0,22	**-0,31**	-0,21	-0,13	-0,17	-0,19	-0,14
Public Administration's assistance	Yes				**-0,37**			
	No	-0,21	**-0,3**	**-0,26**	-0,12	-0,18	-0,19	-0,13

Source: Own elaboration based on survey results

An exhaustive analysis of this section will be carried out in the coming months, but the main conclusions derived from the correlations are summarized below. In general, it is clear that for those cases where the correlation is significant, the correlation is negative, i.e. the lower the perception of digital transformation of their organizations, the higher the perception of the different barriers.

Looking at the total of organizations, this correlation is stronger for barriers related to knowledge. Looking exclusively at cultural organization, there is a negative correlation, especially for barriers related to knowledge, organizational culture, and time, and this negative correlation is stronger than in the case of creative organization.

Analyzing the data based on company size, it is observed that there are no significant correlations for SMEs, however, in the case of micro organizations, there is a negative correlation for barriers associated with knowledge, organizational culture, and time available. This correlation is stronger for knowledge barriers.

For the case of organizations belonging to Publishing, audio-visuals, radio and television and information technology (JA), the negative correlation is relatively intense for the barriers related to lack of information and knowledge about appropriate technology, lack of information and knowledge about the market and its needs and internal rigidities and apprehension about change. For the case of recreational activities (R), the negative correlation is substantially intense for the barriers related to the lack of qualified and trained staff and that it is not among their priorities.

Analyzing organizations that have collaborated with another organization to carry out the digital transformation of their business, the negative correlation is strongest for knowledge-related barriers. In the case of organizations that have not collaborated with other organizations, the negative correlation is stronger for a larger number of barriers; those related to knowledge, organizational culture, time, and barriers associated with the market in which they operate.

Finally, for those organizations that have not received help from public administrations to cope with digital transformation, there is a negative correlation between the perceived level of digitalization and the perceived barriers related to knowledge, organizational culture, time, and barriers associated with the markets in which they operate.

5. Conclusions and future research

Extensive scientific research proves that digital transformation does not start by itself; in different sectors of the economy, various triggers launch this process. Despite the positive trend towards digitalization in general, a significant number of CCIS MSMEs still are far away from the idea of digital transformation; hence, triggering is essential. This research identifies the main barriers to CCIs digital transformation, that may be acting as brakes on this triggering. Therefore, the practical implications of this research could be directed mainly at policymakers and managers of CCIs MSMEs.

This research will be further developed in the coming months and the next step will be to carry out a regression analysis to find out which barriers and business characteristics most affect the digital transformation of MSMEs in CCIs. To this end, all the barriers detected in the literature will be included in the model and the variables referred to as descriptive variables throughout the article will be the control variables of the model.

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Appendices

NACE - 2009	Subsectors	Branch of activity (A38)
7111	Architecture	M+N
7990	Performing arts	M+N
9001		
9002		R
9004		
9329		
7420	Visual arts	M+N
9003		R
7722	Audiovisual and multimedia	M+N
5829		
5912		
5914		
5915		
5916		JA
5917		
5918		
6010		
6020		
7410	Design	M+N
7430	Language industries	M+N
7312	Book and press	M+N
5811		
5813		JA
5814		
5819		
5920	Music	JA
7219	Heritage, museums, archives and libraries	M+N
7220		
9102		
9103		R
9105		
9106		
7311	Advertising	M+N
5821	Videogames	JA