Cultural and Creative Industries and Knowledge Production

Specificities in the Atlantic Area
and Suggestion of a Transfer Model
from Public Research to SME

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Specificities in the Atlantic Area and Suggestion of a Transfer Model from Public Research to SME

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Abbreviations

AHRC – Arts and Humanities Research Council
CCI – Cultural and Creative Industries
CCS – Cultural and Creative Sector
CSOI – Central Statistics Office Ireland
DCMS – Department of Culture, Media and Sports (UK)
DINÂMIA'CET-IUL – Centre for Socioeconomic and Territorial Studies
EPO – European Patent Office
ERDF – European Regional Development Fund
ES – Spain
ETC – European Territorial Co-operation
EU – European Union
EURHAB – European Union Average Euro per Inhabitant
FR – France
GCU – Glasgow Caledonian University
GDP – Gross Domestic Product
GVA – Gross Value Added
HEI – Higher Education Institutions
ICT – Information Communication Technologies
IECA – Instituto de Estadística y Cartografía de Andalucía
INE-ES – Instituto Nacional de Estadísticas de España
INE-PT – Instituto Nacional de Estatística de Portugal
INSEE – Institut National de Statistique et des Études Economiques
IE – Ireland
ISCTE-IUL – Instituto Universitário de Lisboa
KT – Knowledge Transfer
LIT – Limerick Institute of Technology
LMA – Lisbon Metropolitan Area
LMT – Laval Mayenne Technopole
LSAD – Limerick School of Arts and Design
NACE – Nomenclature Statistique des Activités Économiques dans la Communauté Européenne
NUTS – Nomenclature des Unités Territoriales Statistiques
PhD – Philosophiae Doctor
PT – Portugal
QCT – Quimper-Cornouaille Technopole
R&D – Research and Development
S&EI – Southern and Eastern Ireland
SADEI – Sociedad Asturiana de Estudios Económicos e Industriales
SIC – Standard Industrial Classification
SME – Small and Medium Enterprises
UK – United Kingdom
USO – University Spin-Offs

Executive Summary

Introduction and Objectives

This report was developed as part of Project 4H-CREAT – Quadruple Helix to Stimulate Innovation in the Atlantic Cultural and Creative SME's – ongoing from 2017 to 2019. The project seeks to use the quadruple helix approach, which brings together industry, academia, government, and end-users/public society, to develop new methods of increasing innovation in the Cultural and Creative Industries (CCI), namely through developing new forms of partnership, exploring new niches and audiences, and engaging actors to be more acutely aware of what goes into innovation policy and action.

In the last decades, debates on CCI have become a core part of regional and national economic policies, as regions transition into a progressively more cultural and creative-led economy.

Innovation policies, especially in relation to universities and their socioeconomic role have been focused on increasing the use and valuation of knowledge in various sectors, but have paid less attention to the CCI and what needs may come out of its subsectors.

Moreover, even when these policies exist they tend to take a very narrow understanding of the CCI, and mostly apply solutions from other sectors without a clear understanding of the socioeconomic specificities of the sector.

A Quadruple Helix approach – which focuses on the roles of Academia, Industry, Government, and End-Users/Society – can help clarify the role of CCI in knowledge transfer policies and, specifically, help to address the need for Higher Education Institutions (HEI) to adopt their actions in the face of these industries.

In this context, this report was developed to analyse the sectorial and regional specificities of CCI, in seven European regions involved in the 4H-CREAT project, and to help think of new ways of engagement in Knowledge Transfer (KT) practices of HEI regarding these sectors.

Methodologies

Analysis on the specificities of the Cultural and Creative Industries (CCI) in economic, social and cultural terms, as well as Knowledge Transfer (KT) policy was carried out through a literature review of academic work as well as some policy papers.

A survey was carried out to better understand what kinds of KT practices are undertaken by cultural and creative actors, what knowledge needs they face, and what are the main weaknesses of HEI KT they identify.

The regional profiles of the seven European regions under study – Lisbon Metropolitan Area (LMA - PT), Andalucía (ES), Asturias (ES), Pays de la Loire (FR), Bretagne (FR), Southern and Eastern Ireland (IR) and Southwestern Scotland (UK) – were obtained through analysis of secondary statistical sources (Eurostat) as well as a review of policy papers available from each of the regions, to understand what types of policies appear more developed and which lines of action appear as a priority, so that regional recommendations could be carried out.

Results

Cultural and Creative Industries and Knowledge Transfer Practices

Knowledge Transfer (KT) policies often focus on three core actions: transmitting technology and skills produced and hosted in HEI to the industry, to maximise the potential of companies; serving as a knowledge broker and translator between different kinds of economic actors, and promoting engagement of various sectors and subsectors; and promoting the development of applications to knowledge developed in HEI through collaboration and partnerships with CCI, as well as development of start-up support, incubators, spin-offs, amongst others.

These kinds of KT can be applied to the CCI sector on all fronts, but they should be prioritised and developed according to the sub sectoral specificities of CCI, and considering previous paths undertaken by KT policy.

The CCI are substantially different from other economic sectors, for various reasons:

- **Scope of subsectors** – rather than being connected by a supply chain or common location, CCI share their uses of creativity and culture, which means there are numerous subsectors, which often have little to no contact between themselves;
- Moreover, few of these subsectors have an internal **associative tissue** that helps in devising sectorial strategies;
- **Size** – over 90% of companies are very small companies, with less than 2% having more than 50 employees;

- **Vision** – many of these companies are led by charismatic leaders which have specific understandings of how to position in the market, and who are heavily driven by specific products, services, and their belief in their success;
- **Type of knowledge mobilised** – rather than using only technical, analytical or symbolic knowledge, CCI use specific combinations of all these in different ways according to subsectors and targets;
- **Type of actors** – other types of social actors exist – such as associations, institutions and collectives – that occupy the same spheres of action as CCI companies, and which often cross paths with them;
- **Motivations** – both companies and other types of actors exist with varying types of motivations – profit-driven, aesthetically-driven and socially driven – according to their orientations and goals. Different kinds of goals correspond often with **different types of innovation**, which bear specific impacts in society and should be taken in account by a quadruple helix approach;
- **Connections to HEI** – small CCI companies and actors have fewer connections and less participation in knowledge transfer projects than other kinds of actors.

The CCI are identified as a source of innovation on multiple fronts – economic/market-driven, but also social and cultural innovation, through their use of different kinds of knowledge, and as such, need to be targeted specifically by kinds of knowledge transfer which take these specificities into account.

CCI actors identified the lack of understanding of results from work produced in HEI, as well as the lack of investment in joint projects, as the sector-wide greatest issues in their relationship with Academia. Subsector specificities, in this regard, include the fine arts identifying a particular need for joint projects, and the advertising subsectors calling for more sector wide meetings. A notable fact is that across all subsectors the need for greater knowledge on business and entrepreneurship was identified as a priority, second only to technical skills and knowledge.

Regional Profiles

Analysis of statistical data and policy review revealed notable differences in the seven European regions, with a geographical proximity taking priority over other considerations: the three Iberian regions, the two French regions and the Scottish/Irish Regions (Scotland and Ireland) appeared to be closer together in statistical and policy terms compared to other regions.

The Iberian regions have a younger history of concern with the cultural and creative industries as such, although they have older lines of policy dedicated to more specific subsectors. In statistical terms these regions have more unemployment, lower GAV, whilst contributing substantially to their countries GDP. In policy terms, administration of the CCI hinges partially on local and regional autonomous organisations, with a great many functions still controlled by central government. In these regions, connections to HEI exist but are few, and a coherent policy that specifies subsectors and targets is found lacking. Moreover, the associative tissue present has a scattered presence.

The Iberian regions identified, more than others, difficulties in accessing research produced by HEI, lack of sector-wide meetings and conferences mediated by HEI, and the lack of joint projects, in greater extent than the remaining regions.

The French regions face a transition from an economy already concerned with some traditional CCI subsectors, such as fashion and the fine arts, to a sector wide engagement that includes digital, design and videogame industries. Statistically both Pays de la Loire and Bretagne find themselves close to the European average on most grounds. Whilst having a strong associative tissue that is complemented by secondary support institutions such as incubators, hubs and start-up venues, they face problems in the governance of the CCI. Specific policy undertaken in these regions can be found, but few, if any, specifies the role of HEI in the process.

These actors (only from Pays de la Loire) furthermore identified the lack of professionalization of students, as well as the need for technical knowledge, to a much greater extent than their international counterparts, whilst putting greater emphasis in the need for business knowledge for their operation.

The Scottish/Irish Regions have a longer history of engagement with the CCI as such, and partly due to that, have a stronger institutional framework for managing such contexts. Both are above the European average on multiple measures, and have well defined policies, albeit not detailing the engagement of HEI in the connections to CCI policy.

In terms of the actors' perceptions (only from Southwest Scotland), there is much lower levels of noted needs in KT than their international counterparts. However, the lack of hosting spaces and of joint project investment were noted by some actors.

Recommendations

Considering the research carried out, we recommend KT policy in the CCI be thought according to the following lines of action:

- Increasing Knowledge Transfer and Entrepreneurial Practices, through HEI assuming the role of knowledge translators and providing dedicated workshops, communication of results as well as joint endeavours to increase transfer of technical, sociocultural, aesthetic knowledge produced in the HEI, as well as provide support in the management and support structure of the companies. Actions such as collaborative curricula developed on par with the companies and actors, as well as serving as hubs for user-oriented research can complement attempts at fostering entrepreneurship on regional and local levels. Finally, this can also increase specialised research on the practices and engagements of CCI can help take a broader understanding of their impact, recognising different forms of innovation and value.
- Promoting the sharing of expertise amongst subsectors, through HEI serving as mediator to actors from different subsectors, working together with the local associative tissue, where it exists, to generate sector-wide strategic actions. Using the advantage of online collaborative platforms, which can be constructed to that effect, HEI should more so simultaneously encourage researchers to be practitioners, as well as CCI actors to engage in research on their own activities to further accelerate the production of active knowledge on their actions.
- Generating new CCI opportunities, through promotion of dedicated transfer policies in each HEI, with an understanding of the specificities of the business models of CCI, as well as the creation of spin-off programs and other support structures that can host CCI. More to that effect, promoting a higher sensitivity in students to the needs of the market, through implementing portfolio requirements, hybrid research programs that involve collaboration with companies, and other contexts where students can interact with the market can serve to increase opportunities.

We note that the Iberian regions seem to be currently mostly inclined to the first line of action, as CCI actors in those regions emphasise difficulties in accessing results, and policy papers note the lack of entrepreneurship practices in those contexts. A greater focus on professionalization of higher education learning with an emphasis on more fluid engagements with companies could also address some of the issues. To consolidate the institutional engagement of the CCI, the development of conference-wide meetings should also be thought as a way of projecting a common identity to the cultural and

creative industries that warrants greater political concern, namely in generating autonomous governing institutions.

The French regions seem particularly inclined to leveraging their mediators and existing associative tissue, bringing HEI as a player into the networks of production and dissemination, as well as having them generate tighter links with the sector with regards to professionalising students. More so, the transfer of relevant business knowledge should be faced as a priority, in ways that can be made relevant to the CCI actors.

The Scottish/Irish Regions appear in the literature to be lacking in specific feedback mechanisms that maintain the linkages between HEI and companies relevant and flowing. As such, the emphasis on co-production of knowledge, through collaborative curricula for the administration of contents to companies, collaborative research into the practice of CCI, and the implementation of pilot projects of hybrid programs and joint internships all seem apt to be applied in this context.

More research needs to be carried out in each of these regions to piece relevant specificities, and to understand what impacts these lines of action can have, considering current KT practice and policy, on the development of CCI innovation. Specifically, such actions should be developed in collaboration with the CCI, citizens and end-users, to better apply these policies in ways that are relevant to increase overall innovation in the sector.

1.

Context and Frame of Reference

1.1. Introduction

In the last decades, debates over the Cultural and Creative Industries (CCI) have become one of the central focus of economic policy. The concepts they carry – creativity as a source of growth, the creative class as its main driver, and creative cities as the locations towards which such individuals flock – have stepped out of academic and political contexts and into public discourse. Tracing their history back to the set of policies in the 1990's regarding cultural and creative sectors in the United Kingdom (UK), as well as to the work of authors such as Charles Landry (1995), Richard Florida (Florida, 2002, 2008, 2012) and Richard Caves (Caves, 2002), who helped popularise the terms and legitimise them in academic terms, the economic relevance of the CCIs continues to mark the political agendas of many countries and regions - in many cases being seen as an antidote to the negative effects of post-industrialisation and changes in production and consumption (Piore & Sabel, 1984; Scott, 2000).

In particular, Florida's account identified what has become known as the 3T's model (Florida, 2012) – identifying the most creative locations with the presence of **Talent**, **Technology** and **Tolerance**. Zooming in on the first, Florida treats the notion of talent as a broadened "human capital" – as educational capacities of individuals, as they are applied in creative occupations. Whilst this concept is quite intuitive, it does not properly specify what types of knowledge the individuals in these industries possess, and what forms of knowledge they are missing. To acquire talent can mean not only having individuals in the creative professions and sectors, but seeking to promote knowledge flows which guarantee the upskilling of these individuals, the capacity to innovate products, processes and organisations, and the sustainability of companies to grow beyond single person or micro sized entities into well-established enterprises (Mitton, Adair, McKenzie, Patten, & Perry, 2007).

In order to do so, it is necessary that knowledge *flows* from the places where it is produced to where it is needed. Traditionally higher education institutions (HEI), which includes research centres and similar types of higher education facilities, have been taken to occupy the role of producers, whilst companies have held the role of consumers of knowledge, with Knowledge Transfer (KT) policies being focused on applying knowledge produced in the HEI, as well as developing ventures from within those institutions (Pinto, 2012). In recent years, with the advent of the "triple helix approach" (Etzkowitz & Leydesdorff, 1997, 2000; Etzkowitz, Webster, Gebhardt, & Terra, 2000; Pinto, 2017), such understandings have been called into question: knowledge is a by-product of many activities, and should be treated as such, and its transfer should involve not only an application of high technological solutions, but also the dissemination of well-established results to be used in new

sectors, the development of new forms of partnership and collaboration, it should be a bilateral engagement. Lately, the inclusion of a fourth helix – end-users and civil society in general – has likewise advocated the recognition of end-users as producers of knowledge.

In the CCI sector in particular, where "symbolic" knowledge, that is, knowledge of cultural and aesthetic codes and the capacity to mobilise it, this is particularly important, as the process of *production* of some of these entities is in itself a source of knowledge – although often times those types of research are lost and not used again, due to poor conservation (Crossick, 2006). All of this means, in short, that the following interrogations are important domains of concern:

- How can knowledge stocked and produced by HEI be used by CCI actors, in order to address some needs identified by its subsectors?
- How can knowledge produced by CCI entities be used by others from the same subsector or different subsector, in specific communities of practice and how can HEI play a part in brokering these relationships?
- How can CCI entities contribute to identifying new paths for innovation, as well as engaging human capital produced by HEI to be better fitted in with the needs of the market?

In a sense, these all boil to a central query: **what role ought universities and research centres have in knowledge flows from and to the CCI sector**?

1.2. The INTERREG Atlantic Area Programme

The INTERREG programme of the European Regional Development Fund (ERDF) is part of the European Union (EU) Cohesion Policy, aiming at promoting regional development through targeting specific economic sectors. Building on previous INTERREG programmes, the present version spans from 2014 until 2020, with a focus on helping public authorities, associations, universities and similar entities to maximise regional potential and diminish the regional imbalance that persists in Europe. In 2014-2020, the overall programme sought to target four key areas: 1) Research and Innovation; 2) SME competitiveness; 3) Low-Carbon Economy; 4) Environment and Resource efficiency.

In that context, specific regional programmes were made targeting sets of regions which, due to their territorial proximity or shared economic structure, were thought to be best in cooperating towards these goals. The Atlantic Area comprises one such programme, spanning 36 regions and 5 countries. The programme was designed with four priority

areas: 1) Stimulating Innovation and competitiveness; 2) Fostering Resource Efficiency; 3) Strengthening the territory's resilience to risks of natural, climate and human origin; 4) Enhancing biodiversity and the natural and cultural assets. These areas sought then to address some key European challenges, namely ecological and social concerns over regional inequalities, as well as promote the development of intelligent growth strategies.

In particular, the first set of priorities emphasises the need for a greater cooperation between actors, in order to engage in new product development solutions, increase trade, and overall design the best environment in which innovation can flourish. In specific, the need for greater contact between different types of institutional actors, and the lack of optimised transference mechanisms – both identified in the overall programme – were areas selected for their importance in the Atlantic Area.

1.3. **The 4H-CREAT Project**

4H-CREAT – Quadruple helix to stimulate innovation in the Atlantic Cultural & Creative SMEs – is a European project of transnational cooperation approved in 2017 under priority 1 of the above mentioned Atlantic Area Programme, Objective 2 (Strengthening the transfer of innovation results to facilitate the emergence of new products, services and processes). It aims to promote cooperation and business development between SME's, public and research entities, and the main public, as well as generate contexts of innovation in cultural-creative contexts.

The project's goals are the generation of transnational knowledge transfer models, especially taking in account the growth of new audiences and niches, the impact of new media forms (e.g. Transmedia), having a special focus on the interrelationships between users and the traditional stakeholders in knowledge and business (Universities, Government and Industry). Moreover, it focuses specifically on the CCI sector, which as we noted before, stands with a high growth rate, economic, social and cultural importance, and high innovative potential.

Under these goals, the project was committed to seven working packages (WP): three managerial WP (Coordination, Communication and Capitalisation) undertaken by all partners, and four operational WP:

- WP.4 – Development of Transnational Knowledge – aimed at 1) mapping out existing cultural and creative resources, 2) identifying new niches and business opportunities in the regional contexts, 3) and a joint market strategy to align re-

search by industry and HEI with the needs and wishes of the Generation Z, with the participation of all partners;

- WP.5 – Capacity Building – focused on transferring skills to stakeholders so that they understand the importance of new forms of innovation and production (co-design, design-thinking, lead-user workshops), with the development of training modules to be taught to local trainers, who will in turn carry workshops to increase awareness of these themes;
- WP.6 – Pilot Exchange Activities between 4H – aimed at better capturing how to engage the four helices of innovation, including 1) End-users, SME's and artists' interaction workshops; 2) HEI to CCI SME's transfer model for the various Atlantic area regions; 3) Cultural and Creative internships between entrepreneurs and artists in different companies;
- WP.7 – Transnational Networking Mechanisms – seeking to promote transnational collaboration both through social media, and specific activities and products (Online Innovation Fair, Transnational Knowledge Transfer Model, stakeholder interaction activities).

This report is included in WP6 and sought, as mentioned, to investigate the role of HEI in engaging with the CCI. This is something which has remained understudied, despite its pressing importance (Zukauskaite, 2012), and its identification as an area in need of further development (CCDR-LVT, 2015; IDEPA, 2014; McKelvey & Lassen, 2018; Miles & Green, 2008).

1.4. **4H-CREAT Consortium**

The 4H-CREAT Consortium is composed of seven organisations from five countries:

GLASGOW (Scotland, United Kingdom)

Glasgow Caledonian University (GCU) is a distinctive, inclusive and forward-looking university that is committed to its social mission to promote the common good. GCU has become an international centre of excellence in higher education, promoting employability and global citizenship in our graduates. The University has won awards for support and commitment to the student experience, whilst delivering innovation through world-class research in key areas of strength. The University mission supports a tradition of widening access to higher education for talented individuals regardless of their back-

grounds to leverage intellectual and social capital for the benefit of the communities across Scotland and internationally.

GCU was formed as a University in 1993 and has around 20,000 students and 3000 staff members. Comprising three academic schools the University builds upon the core mission of being the 'University for the Common Good'. The University is active in supporting and participating in numerous research projects many of which are funded by INTERREG or other EU funded programmes. The School for Business and Society is actively involved in research projects such as 4H-CREAT and the Atlantic Social Lab among others. The University also hosts the Yunus Centre for Social Business, a world-class research centre for research into a wide range of social and welfare issues of global importance.

LIMERICK (Southern and Eastern Ireland, Ireland)

Limerick Institute of Technology (LIT), with a multi-location campus in Limerick, Tipperary and Clare, has over 6,500 learners (over 5,000 full-time learners), and provides a wide range of programmes spanning the areas of Information Technology, Art & Design, Engineering, Business, Humanities, Science, Built Environment and Rural Development.

The business of LIT is the delivery of quality education, employment training and applied research attuned to the needs of the labour market, including the needs of new entrants and the unemployed. A growing emphasis in LIT is the delivery of life-long learning and access programmes, including targeted interventions aimed at disadvantaged groups in society and the unemployed, thus contributing directly to the promotion of social inclusion. The institute has a distinctive Active Learning philosophy that prepares its graduates well for the work environment.

Since 2005 LIT's Research Enterprise and Development function has charted a course resulting in unprecedented success. Research postgraduate student registration and graduation rates are at historic highs, engagement in research supervision continues to grow and the Institute is securing competitive research funds nationally and internationally under programmes such as Horizon 2020. LIT has developed a critical mass and capability via dedicated research centres and groups that are supported through the LIT Graduate School while still remaining part of their original academic 'home'.

The Limerick School of Art and Design (LSAD) at LIT is the largest Irish school of art and design outside Dublin. It has consistently maintained its prominence as a major provid-

er of art and design education in Ireland attracting a high number of applications for its undergraduate programmes. It is composed of the Department of Design, including the Centre for Creative Media based in Clonmel, the Department of Fine Art, and the Centre for Postgraduate Studies.

As a partner in the INTERREG 4H-CREAT Project, LIT is leading the development of training modules to improve and stimulate the active cooperation and innovation processes within a quadruple helix model. The training will allow stakeholders better understand how innovation can meet societal demand, user/consumer-driven innovation concepts, co-design or co-creation, design-thinking, and lead-user workshops, concepts so important for the Cultural and Creative Industries.

SEVILLE (Andalucía, Spain)

The Cámara Oficial de Comercio, Industria e Navegación de Sevilla (Seville Official Chamber of Commerce, Industry and Navigation), created on the 13th of June 1886, is a corporation seeking to represent, promote and defend the interests of Sevillean companies in the areas of commerce, industry and navigation. Its goal is thus to increase growth in economic activity in the region, namely providing legal, institutional and communication support to companies.

The Chamber has participated in numerous international projects, serving as a regional link between international research and development ambitions and the reality of local companies. In particular, numerous projects have and continue to be underway to promote adequate access to innovation and development to small and medium sized companies, with emphasis in sectors such as small commerce, tourism and the digital sector.

As a partner of the INTERREG 4H-CREAT Project, the Chamber of Seville has been responsible for the production of studies related to the behaviour of end-users in participative contexts, and the role of young people (Generation Z) in interacting with companies. Likewise, it has also organised and promoted a transnational virtual fair including companies and stakeholders from all seven regions involved in project 4H-CREAT.

AVILÈS (Principado de Asturias, Spain)

The Fundación Municipal de Cultura del Ayuntamiento de Avilés (FMC) is a local public

foundation of the municipality, responsible for the cultural policy, management of the artistic heritage, implementation and promotion of all type of cultural activities and initiatives in the city. It manages several cultural infrastructures and educational programmes for the local community and CCI's, with the goal of increasing regional know-how and promoting the growth of these actors.

FMC has participated in multiple international and transnational projects, focused on promoting cultural innovation on a local basis. As a partner in the INTERREG 4H-CREAT project, it has been tasked with managing communication and dissemination of the results of the project, and has produced a study on new niches of audience, exploring how Generation Z conceives the market and engages with it.

QUIMPER (Bretagne, France)

The Quimper-Cornouaille Technopole (QCT) is an association founded in 1987 with the goal of promoting economic development in the region of Quimper-Cornouaille. Specifically, it has sought to promote innovation in associated companies by providing them with help in acquiring human resources, facilitating cooperation between companies and technical centres, higher education institutions and other technological structures.

Whilst having a particular focus on the key areas of development for the region of Bretagne - agro-food industry, fishing, biotechnology - it has kept a keen interest in the activity of small and medium enterprises of the cultural and creative industries active in the region: animation, communication, amongst other sectors.

QCT has participated in numerous international projects with the goal of increasing regional knowledge and promoting transnational collaboration between small and medium enterprises. As a partner in the INTERREG 4H-CREAT Project, QCT is working towards promoting business opportunities, organising the projects' final conference as well as collaborating with other partners' activities.

LAVAL (Pays de la Loire, France)

Laval Mayenne Technopole (LMT) is a non-profit organisation, member of the French association of Incubators and Science Parks, RETIS, whose aim is to promote Innovation, and also a EU BIC, member of EBN, the EU business and innovation centres Network.

On a daily basis, LMT is the key actor for innovation in Mayenne and supports economic development of the territory through innovation. To do so, LMT has implemented more than 15 tailor-made programs and tools to support startups and SMEs towards innovation: startups acceleration program Idenergie, Incubator UP (30 startups), business premises, territorial innovation Day Inovdia, SMEs innovation programmes Programme Appolo and Challenge Competences, innovative mornings, international strategy training, Softlanding program, Erasmus for Young Entrepreneurs etc.

Moreover, in the heart of local, national and international networks, LMT facilitates the cooperation between scientific and technological skills, supports companies in national and international collaborative projects and partnership.

Over the last 10 years, LMT has been involved in several EU projects under the INTERREG NWE & Atlantic Area and H2020, where new support actions for companies have been developed. (Open Innovation, Rural Alliances, TESLA, CINEW, Food Heroes, 4H-CREAT and OPENisme projects).

As a partner in the INTERREG 4H-CREAT Project, LMT is actively working in the development of training module to improve and stimulate demand-driven innovation processes. The training will allow stakeholders better understand user/consumer-driven innovation concepts, co-design or co-creation, design-thinking, etc.

LISBON (Área Metropolitana de Lisboa, Portugal)

ISCTE - Instituto Universitário de Lisboa (ISCTE-IUL) is a Portuguese public university established in 1972. Pursuing teaching, research and community service activities, it plays a major role in educating qualified specialists and personnel, whose cultural, scientific and technical skills enable them to contribute to sustainable development both at the national and the global level. With approximately 9000 students enrolled in undergraduate (46%) and postgraduate (54%) programs, 450 teachers and 220 non-teaching staff, ISCTE-IUL is one of the most dynamic and innovative universities in the country. Facing high demand, the student vacancies at the ISCTE-IUL have always been fully occupied. It offers several courses in the domains of social sciences, business, technology, and architecture (16 undergraduate, 48 masters, 24 post-grad & executive masters, and 22 PhD programmes). ISCTE-IUL is a research university, with eight units performing high-quality research, recognized in periodical assessments by the Portuguese Foundation for Science and

Technology. At community service level, the scholars and graduates of the ISCTE-IUL have contributed to establishing multiple connections with private companies and public and civil society organisations.

DINÂMIA'CET – IUL, Centre for Socioeconomic and Territorial Studies is a research unit of ISCTE-IUL which carries out fundamental and applied research on economic, social and cultural topics. With the aim of framing a new approach to sustainable development, it seeks to contribute to the understanding of the contemporary world through the analysis of the contexts, the actors and the consequences of change, with a focus on institutional frameworks, and through extensive recourse to comparative approaches. DINÂMIA'CET–IUL was inaugurated in 1989 as a multidisciplinary and interdisciplinary research centre in the field of social sciences and humanities, and associated with ISCTE-IUL. Today, it includes 144 researchers from a wide range of academic backgrounds, namely: Sociology, Economics, Architecture, Law, Geography, Demography, quantitative methods, computer sciences.

The centre is oriented through three core lines of research: Innovation and Labour, Governance and Regulation, and Cities and Territories - the latter of which has a dedicated thematic line of Creativity, Culture and Territory. In that line of research, the centre has developed a number of scientific and policy-advisory projects within the areas of creative tourism, social entrepreneurship and territorial development. Amongst these are projects such as the strategic reflection on the cultural sector in Lisbon, studies on theatre publics in Portugal, promotion of creative tourism destinations, amongst others.

The centre is involved in the context of Project 4H-CREAT in analysing the potential for the involvement of diverse types of actors, and in targeting the institutional regulatory frameworks that ground such involvement. Using its expertise, its goal is to outline several possible policy lines to bring Higher Education Institutions and the Cultural Creative Sector closer together.

1.5. **Report Structure**

Our goal with this report was to produce a preliminary technical model in terms of knowledge transfer (KT), between CCI and HEI, that adequately captures the often jagged and complex nature of these information and knowledge flows. Understanding these criteria, the different flows of information and its inherent complexities led us to approach the concept of the University as having multiple possible roles, and assuming them with

different types of actors: producing and interpreting several forms of communication, ideas and concepts and "translating" them to other actors with specific aspirations and motives, engaging CCI in sector-wide meetings and conferences, as well as more classic forms of promotion of knowledge use through start-up support, KT offices and other similar support structures.

This study seeks in that sense to open a wider discussion about KT practices in Cultural and Creative Industries, as well as produce some policy recommendations, in the context of the changing perspectives about production and consumption – new generational perspectives on consumption and production, digitization, and transmedia formats.

In order to accomplish these goals, we sought first to have a good understanding of the CCI sector and the KT systems in place, so that descriptions, diagnosis and recommendations can be properly framed. Given the focus of the report in the project partnership regions, we sought to first analyse KT as it has been conceptualised, looking at the specific assumptions made in those forms of transfer, as well focusing the specificities of CCI as a sector in cultural, social and economic terms, and discussing research into KT in the context of CCI. Noting the relatively sparse studies and policy papers on this topic (with some notable exceptions, (including, Crossick, 2006; Miles & Green, 2008; Zukauskaite, 2012), we sought to propose a general framework for the study of these questions oriented towards specific types of knowledge transferred, specific types of transfer processes, medium and long term goals, as well as regional contexts and the case of Small and Medium Sized Enterprises (SME's), in particular micro-enterprises, which constitute the core of many of the subsectors of the CCI. We also sought to look at the perspectives of actors present in each region, to understand what their main connections to HEI are, and what they perceive to be the main forms of knowledge they lack, and what they see as main weaknesses of HEI KT. We then sought to produce general profiles of each of the seven regions under study, in statistical and political-institutional terms, drawing similarities and differences between them in order to be able to better diagnose and recommend specific policy frameworks.

2.

Methodology

Taking our goal of understanding the "question of knowledge" in CCI into account, as well as the specificities that ground it, it seems first necessary to understand what the CCI are. Our choice of methodology went in line with recent trends in terms of the study of the CCI sector (Aguiar Losada, 2014; Boix, Lazzeretti, Capone, de Propris, & Sánchez, 2012; Cruz, 2016; Mateus, 2010), as well as with the project definitions in terms of subsectors relevant for the CCI SME's. In studying the economic setup of the regions, we relied on secondary data gathered from Eurostat and from national and regional statistics offices (INE-PT, INE-ES, IECA, SADEI, CSOI, INSEE). This raised a number of delicate questions which have frequently been pointed out about the sector: the difficulty of measuring it, the multiple ways in which it can be interpreted, the faultiness of data, amongst other problems (Cruz, 2016; Peck, 2005; Scott, 2006). Namely in the comparative analysis of the regions we faced the question of what categories to use to define the CCI. This has been noted throughout as especially challenging given the wide variety of activities that fall under the categories "cultural" or "creative" (terms which are notably difficult to define in general) and the problems of fitting these activities with the various classification schemes. In the project mapping activities, the Department of Culture, Media and Sport (DCMS) classification was adopted, with special additions given the digital context of the research, and as such we followed those subsector classifications. We followed Boix *et.al* (Boix et al., 2012) in associating these categories with the corresponding NACE rev.2 classifications (cf. table 1 below). In the Eurostat description, using the NACE rev.2, we opted for the following aggregated categories, to try and roughly estimate the size and economic importance of the sector[1]:

- **J – Information and Communication:** Including publicity agencies, marketing, radio and television, as well as web agencies;
- **M-N - Professional, scientific and technical activities; administrative and support service activities:** Including architecture, painting, editing and research.
- **R-U – Arts, entertainment and recreation; other service activities; activities of household and extra-territorial organisations and bodies:** Including graphic arts, cinema, music, fashion.

In attempting to define the specific sector territorially, we used Cruz's (Cruz, 2016) synthetic table that compares the SIC and NACE systems as well as multiple others used in specific studies.

[1] This was the lowest level of disaggregation allowed by Eurostat for their data.

Table 1
Classification of Companies According to Subsector
(4H-CREAT Classification to NACE rev.2)

Icons	Classification / Subsector	Cruz (2016) (Categorical Scale)	Boix & Lazzeretti (2012) NACE Rev.2
	Advertising	Advertising and related services	731
	Architecture & Industrial Design	Architecture and engineering	711
	Designer fashion	Fashion	14; 1511; 152
	Video, audio, Film	Film and Video Industries	591
	Music	Music and Musical Studies	182; 592
	Photography	Photography	742
	Graphic design	Graphic Arts and Design	181
	Writing & Publishing	Performance Arts and Writers Publishing	581; 90
	Dance/Ballet	Performance Arts and Writers	90
	Theatre	Performance Arts and Writers	
	Orchestras/Music Conservatories	Performance Arts and Writers	
	Broadcasting (TV/radio)	Radio and Television	601; 602

Icons	Classification / Subsector	Cruz (2016) (Categorical Scale)	Boix & Lazzeretti (2012) NACE Rev.2
	Apps development	Software, videogames and digital editing	5821; 5829; 6201; 6202
	Digital Arts	Software, videogames and digital editing	
	Social Media & Influencers	Software, videogames and digital editing	
	Gaming/Animation	Software, videogames and digital editing	
	Virtual Reality	Software, videogames and digital editing Interactive Media	
	Web Design, Multimedia, Transmedia	Specialised Design Services Interactive media	741
	Fine Arts, Antiques, Sculpture	Fine arts and antiques, Other Visual Arts (Painting and Sculpture)	4779; 90
	Others	Cultural Tourism and recreation Intellectual property Agencies	93
	Museums & galleries	Heritage and Cultural Places	91
	Crafts	Crafts Jewelry	90; 321; 32Mu2; 324
	Creative Cooking	(N/I)	----
	Events/Festivals	(N/I)	----
	Tech Devices	(N/I)	----

Source: Own elaboration, based on Cruz (Cruz, 2016)

Our definition of the KT efforts followed in line with Pinto (2012), both in terms of the entities selected, as well as the general approach to the concept, as well as Zukauskite, in drawing the evolution of university-CCI links. In that sense, we lift Pinto's definition of KT for the general case which we discuss throughout this text:

> *"Knowledge transfer can be defined as the process of engagement of scientific organisations with companies, governments and community, for their mutual benefit and with the goal of generating, acquiring, applying and making accessible the knowledge needed to increase material, human, social and environmental wellbeing."* (Pinto, 2012)

In seeking the roots and developments of such a concept in the ways in which it has been used, and the implications and relationships it has with other strands of literature that deal with knowledge, we sought to do a literature review focusing mostly on conceptual aspects. Likewise, in developing the forms of KT in CCI, we likewise resorted to existing academic literature, as well as some policy papers and reports, which based the first part of our analysis.

Our characterisation of regions mobilised thus the above stated definition of CCI, whilst drawing from wider sets of secondary data. Whilst regional and national data would have been preferable, given the concern on comparability of statistics we opted to use Eurostat. Likewise, similar concerns led our selection of policy reports: we analysed the regional smart specialisation strategies of all regions under study. However, in looking at the political and institutional specificities we also sought to mobilise as much information from each region as we could find, which lead to an imbalance between regions, not the least of which concerned the language and accessibility of these reports. In the end, we collected 54 reports, analysed under a general common framework (cf. Table 2 below) and noted for their specificities both in what they mention and what they omit, coming to the general comparative frameworks found in section 5.6.

Table 2
Analytical Domains, Dimensions and Indicators of the Qualitative Analysis of Documents

Analytical Domains	Aspects Identified	Specific Indicators used
Statistical Information	Specific CCI category in Statistics Offices	Category Identified in Statistics Office
	Dedicated Statistical Reports	Statistical reports on the sector were found
	Existence of comparative data	Data from multiple timeframes and sources is available
Policy Focus	Nationally recognised as relevant focus of policy	Existence of a National plan for the CCI or equivalent
	Policy under National Tutelage	-
	Policy under Regional Tutelage	-
	Existence of autonomous governing body	Existence of an institution responsible for overseeing activities, promoting the CCI and managing industry
	Regionally recognised as relevant focus (RSS-3)	CCI identified as key sector in RSS-3 policy framework
Goals and Policies	Synergies with other sectors	Mentions of collaboration between different sectors (within and between CCI), cross-fertilisation or hybrid programs
	Promoting clusterisation	Mentions of collaboration between local actors within small areas; Mentions of proximity and informal connections
	Opening of FabLabs/Incubators/ Accelerators/Technopoles	Mentions of FabLabs, Incubators, Accelerators and Technopoles and similar KTV promotion institutions
	Increasing tourism and heritage preservation	Mentions of synergies with tourism and heritage Benchmarks of projects involving tourism and heritage
	Creation of Dedicated Funding Mechanisms	Mentions of existing or planned lines of funding for the CCI
	Implementing Creativity in Adjacent Sectors (i.e Learning, Management, etc)	Existence of plans to bring the CCI into contact with other policy sectors
Links to Universities and Sectors	Promotion of Entrepreneurship in CCI	Mentions of the need to foment entrepreneurial spirit within CCI
	Establishment of Explicit Connections between Academia with CCI SME's	Mentions of collaborations between HEI and CCI, or the existence of meetings, workshops or similar points of contact
	Creation of Dedicated KT Mechanisms for CCI	Mentions of a dedicated policy for KT between HEI and CCI
	Establishment of Inter-Subsectorial Platforms	Mentions of the need for greater connection between subsectors of the CCI Mentions of the role of HEI in mediating such contacts
	Co-Location of CCI Development Agencies and Universities	Mentions of the co-location of CCI, development agencies and HEI
	Involvement of Sectorial Partners in Policymaking	Mentions of collaborative planning, inclusion of social stakeholders and similar processes.

Source: Own elaboration

In order to provide a more solid basis for our modelling efforts, and in line with actions from WP3 of 4H-CREAT – in specific to the action dedicated to producing knowledge on trends and perspectives of companies, through administration of surveys – some questions were carried out that sought to have a transnational-regional perspective on knowledge needs, which could point us to more concrete solutions. In specific, we asked questions in the following three topics:

- What the connections between CCI actors and HEI are;
- What kinds of knowledge are most needed by the CCI actors;
- What the main weaknesses in terms of KT on the part of HEI are, according to the CCI actors;

These questions were carried out across all partner regions, collecting 136 answers. These data allowed us to understand what percentage of the total set of actors within the regions in analysis each of several possible sets of engagements with CCI, types of knowledge and weaknesses, attempting to identify whether substantial differences in response existed between sectors and between regions. Given the nature of the data – binary response data – and the number of answers collected, the analysis was solely descriptive, and sought only to abstract general tendencies, without any claim to representativeness.

Finally, the model developed was carried out uniting the previous elements and tying them to the regional contexts, paying particular regard to the way in which these apply to the CCI. The model was developed in a top-down fashion, by first focusing on more abstract lines of action and going into the specificities of their implementation and their consequences. The general considerations of the model followed from the literature and policy review, and the regional recommendations drew from the profiling of each region as well as from the regional perspective of actors.

3.

Knowledge Transfer: Concept Review

The idea of knowledge as a relevant source of concern traces a long history in economic and management thought, with the recognition of knowledge as being a catalyst of growth in companies, territories or regions. We can see this in various strands of research and theoretical tradition: from the classical works of Schumpeter that discussed "creative destruction" and the role of the entrepreneur in bringing about new productive process (Schumpeter, 1942), we get what became known as "evolutionary economics", which emphasizes the dynamic and often times complex role of economic agent interactions, with knowledge serving as a key resource for adaptation in changing economic contexts. Such ideas served as cornerstone for the modern conception of innovation, being taken up in some of its consequences by authors such as Everett Rogers who saw the comparative advantage of investing in innovations in initial moments, even if it involves high costs, to the dissemination of innovation as embedded in economic growth (Rogers, 2003) – essentially noting that *knowledge of innovations* and the associated risk were key factors in attaining a good market position. From a different standpoint, Alfred Marshall (Marshall, 1920) and some German authors noted the importance of spatial proximity for increased economic growth (Weber, 1929), with focus starting with transportation costs and later moving to the advantages of polarisation related with knowledge and trust (Lopes, 2001; Perroux, 1991). Finally, the shift in the 1960's to considering the importance of human capital – the focus on qualifications and education as the primary resource to be mobilised, as popularised and developed by Gary Becker (Becker, 1994) – meant that knowledge had become a crucial source of analysis in economic theory, as in many other disciplines.

Following on Pinto (Pinto, 2012), we can note that the concept of knowledge transfer as we mentioned before followed in part the institutional change in the role of the university, in what consists of a "third mission" – not only producing research and educating individuals, but also promoting the use of knowledge with applications to social and economic systems. Most notably, the Baye Dohl Act, in the USA, with similar laws passed in multiple other countries, allowed universities to patent and register brands and inventions resulting from federal funding (previously, all results of the research were property of the state or federation as long it had been funded by those institutions). It also lead to the idea of *knowledge valuation* (Strauss, Tetroe, & Graham, 2009), that is, maximising the impact and potential of knowledge already in existence for economic growth and scientific research, through the emergence of *spin-offs* (companies emerging out of government or university promoted research projects) as well as incubators and similar types of partnership programs which sought to foster entrepreneurship through the facilitation of resources.

In the beginning of the 80s and 90s, with the innovation systems approach, both on a national (Freeman, 1987; Lundvall, 2007), and regional (Bjorn Asheim, Smith, & Ough-

ton, 2011) levels, economic thought started to focus on the importance of these aspects, and bridging the aforementioned evolutionary concerns with the importance of increasing flows of knowledge from HEI to other social actors. Such a line of literature drew from the theoretical matrix developed in regional and territorial development studies, which throughout the late 70's, 80's and 90's solidified the importance of specific cultural, social and institutional contexts of each city and region in their development. The notions many of these authors coined – such as local production systems, clusters and innovative millieux, and generally aggregated as Territorial Innovation Models (Crevoisier & Jeannerat, 2009; Moulert & Sekia, 2003) – served as foundations for the understanding that knowledge was bound to given territories and regions.

This meant recognising that innovation requires territorial proximity and endowment of resources, the greatest of which is human capital. It was clear, then, that a strong HEI infrastructure would be required, though not necessarily sufficient, to engage innovation in a region (Trippl, Asheim, & Mierner, 2016). What seemed to be missing was the fact that though research and development brought a never before seen number of developments for the sciences and engineering, these seemed to not flow into industry as would be desirable (engaging the notion of "knowledge translation" – codifying and personalising knowledge for companies). As the problem persisted, it was noted that human resources were not the only problem, but that there was also a mismatch between what was produced in academia and what interested enterprises.

The "triple helix" (valuing the university as a source of innovation for the economy and territory as much as for fundamental research, cf. Leyesdorff & Etzkowitz, 1998), promoted a paradigm shift in these and other respects, by identifying knowledge transfer with a bringing together of different sorts of actors: public, private and university. Their crucial insight was that decision-making and knowledge acquisition involved much more than technical, managerial and entrepreneurial knowledge, and rather required all three to work as desired. This approach intersected the regional innovation systems approach, with both focusing similar goals in terms of the diversity of aspects necessary for innovation and development, and both focusing knowledge as the crucial aspect to take into account. The network revolution, that began with the Internet and social media and quickly spread to meet with globalisation and similar tendencies in turn, made these perspectives the more relevant, with several authors claiming the need for a fourth 'helix' – the end user, public society, with its own form of implicit knowledge and desires. The advent of the "fourth helix" (Carayannis & Campbell, 2009) – target users, public in general, directed to form of open innovation (Afonso, Monteiro, & Thompson, 2012; Huizingh, 2011; Kolehmainen et al., 2016) is seen as an expansion whose fruits

are starting to be seen and which have owed a lot to the dissemination of ICT, collaborative design, co-creation and new forms of public engagement in knowledge building (namely in its implementation in areas or sub-areas in which the remaining actors can have limited role, such as specialized forms of social welfare, community building, etc – cf. (Kolehmainen et al., 2016)).

The term "knowledge transfer" has for these reasons suffered many changes over the years, from a simple co-patenting of technology, or deployment of specialised personnel to collaborate with companies, to a wide, layered set of activities focused on making the most out of the knowledge resources present in academic contexts. In this, many concepts are part of what is considered knowledge transfer, and are worthy to be looked at in greater detail:

One factor that comes up in many contexts is the notion of **codification** and **personalization** of knowledge (Bathelt, Malmberg, & Maskell, 2004) – the discussion being in terms of the equilibrium between making knowledge as neutrally charged (i.e. not context specific) as possible, so it can be reused in other geographical and institutionally different contexts from those for which it was originally intended (Markus, 2001), as well as also making it as heuristic to a set of actors as possible in terms of conceptual frameworks of the actors and specialized needs (Nonaka, 1990). The idea here is that knowledge produced by HEI should take into account who the recipients are before it can be adequately brought into their action – whether such knowledge refers to well-established results, as is more often the task of science communication, or results at the edge of the field. Whilst the former could be thought of as an extension of the educational mission of HEI, its explicit focus on increasing competitiveness and innovation in companies makes it a part of knowledge transfer in a wide sense (Ozga & Jones, 2006).

Likewise, **proximity** has emerged as vital to increase companies absorptive capacity, with different strategies being required of different forms of companies and situations (Boschma, 2005). The idea is that as HEI seek to transfer knowledge, they tend to focus on companies which are closest to them, which generates numerous synergies. The logic of developing technopoles with universities close to them, and engaging in linkages, is at the basis of this, and positions HEI's to be best suited in dealing with actors within a certain area of influence. Naturally, however, proximity is not sufficient to generate KT, as we will see – nonetheless, symbolic and cognitive proximity (such as recognising legitimacy to an institutional to speak) is notably important if HEI's take on the role of mediators in economic contexts (Boschma, 2005), a role which they are often tasked with (Bielak, Campbell, Pope, Schaefer, & Shaxson, 2008).

Associated with this, are different **types of knowledge** – divided by Asheim (2009) in "analytical" (scientific), "synthetic" (engineering) and "symbolic" (with artistic or cultural value), and that knowledge is not just formal but also informal, tacit and implicit in tasks. The idea is that HEI's do not produce a single type of knowledge, but that often they engage in knowledge production that spans the strictly scientific (such as analysing the development of the jobs market in a given region) to the technical (testing relative impacts on job market expansion of different policies) to the symbolic or sociocultural (how the job market conditions have influenced the production of cultural phenomena), regardless of the epistemic status of such research. Recognising these different knowledge bases produced can also help in thinking how to produce KT for sectors as diffuse as the CCI.

Finally, knowledge and technology transfer ought to be seen not only in terms of the most cutting edge of a field, but also of **appropriate** levels of knowledge – that is, knowledge that adequately solves the specific needs at hand. This goes in line with the idea of personalising knowledge to its recipients, as it recognises that cutting-edge technology and recent developments may not be the most appropriate for certain contexts, depending on the types of question at hand.

Given the discursive relevance of KT (Mitton et al., 2007), it is not surprising that many countries sought to treat their national innovation system, and more specifically their KT system as something worthy of specific policy, with clearly outlined goals aiming to maximise the levels of knowledge use amongst different companies, research centres and government. However, as Pinto (Pinto, 2012) notes, and as we shall see in the next chapter, this goal has not always been met by a clear understanding of what types of knowledge transfer exist, as well as its implications and costs. Thus, we should look at what all that we have said means in terms of possible routes of knowledge transfer – that is, what *types* of transfer exist.

From the literature (Bathelt et al., 2004; Bielak et al., 2008; Liu, 2018; Mitton et al., 2007; Stadler & Fullagar, 2016; Strauss et al., 2009; von Malmborg, 2004; Ward, House, & Hamer, 2009), we can outline three general paths to KT cf. Table 3, below:

i. The first line of policy identified ties with technology transfer in the more classical sense of allocating technology to the market through partnerships and co-producing patents to be used commercially. This is widely recognised as the most well-accepted notion of knowledge transfer (Figueiredo, Ferreira, Marques, & Neto, n.d.; McKelvey & Lassen, 2018; Mitton et al., 2007; Pinto, 2012), and it focuses mainly in bringing industry and HEI together to generate opportunities

for knowledge. However, the way it is often framed tends to be highly directed to technologically-intensive fields such as biochemistry, nanotechnology, amongst others.

ii. Knowledge translation and brokerage, which includes not only the idea of diffusing good practices among a sector, including an educational function specifically directed to the market, but also the personalisation and codification of knowledge between and within different contexts, as well as promoting networks of knowledge which the HEI broker (such as sector-wide meetings and conferences that bring researchers and practitioners together), has been extensively considered as part of the tasks of knowledge transfer (Bielak et al., 2008; Mitton et al., 2007; Strauss et al., 2009)and to the public at large. To deliver on their public-good mandate, science-based governmental institutions must do more than broadcast the department's position. They must communicate not only broad policy directions, but also raw data, leading-edge science, general and informed layperson interpretations, and advice for action and behaviour change. Different sectors prefer to receive information and use knowledge in different ways. Science departments must engage with diverse audiences---for example, science users and decision makers, the scientific community, public organizations, and individual citizens---in ways tailored for each audience. This means paying greater attention to the changing contexts in which information is received and used, and consequently the mechanisms and relationships required to produce and transfer scientific information. For policy audiences in particular, the relevance of the science to the issues of the day, and the crucial importance of timing, underline the need for interactive knowledge brokering approaches that can deliver synergistic combinations of `science push' and `policy pull'. The authors draw on examples from Environment Canada, as well as from the UK Department for the Environment, Food and Rural Affairs, and Land & Water Australia, to show how dedicated (little c, with some work focusing on the specific ways that companies can make their knowledge needs better understood. Such practices normally hinge on a well-established associative tissue, and other types of networks that can diffuse knowledge, which may lead to HEI having to take on the task of being aggregating actors within these networks.

iii. Finally directly collaborative practices, involving exchange of human resources, collaborative engagements in the development of knowledge transfer mechanisms, which may include spin-offs, start-ups and other kinds of ventures have

also been well studied (Cooke, 2001; Heidemann Lassen, McKelvey, & Ljungberg, 2018; Liu, 2018; Stadler & Fullagar, 2016). However, the potentials of developing of research specifically aimed at understanding how specific sectors operate, have remained relatively understudied, albeit with some exceptions, which we can lift from the CCI literature (Crossick, 2006; Miles & Green, 2008).

Table 3 - Types of Knowledge Transfer

General KT Type	KT Subtype	Actions Involved
Technology Transfer	Production of Patents, Trademarks and Designs	Applied Research into products and processes with high commercial value and patenting for HEI, Governments and Enterprises
	Transfer of tools and equipment	Software, hardware, machinery and equipment produced in research centres which is sold to be used by industry, in different levels of application
Knowledge Translation/ Brokerage	Diffusion of processes, organisational practices and methods	Organisational management, finance and human resource management that is benchmarked, researched and transferred to other contexts
	Codification of informal, implicit, embodied and tacit knowledge	Knowledge imbued in certain tasks that is formalised within scientific and technical codes by HEI to be used outside of its original context
	Personalisation of formal, analytical and scientific knowledge	Formal scientific and technical knowledge that is translated into the receivers' specific codes of understanding by HEI to be applied to a given context
	Knowledge networks brokerage	Networks of individuals with intersecting forms of knowledge and common interests whose interests and communicative codes are mediated by HEI to reach higher levels of knowledge
Collaboration and Valuation	Collaborative curricula and programs	Formal knowledge provided by HEI's which is specifically tailored to the needs and interests of enterprises Mutual hiring schemes and use of mutual knowledge bases
	Research Spin-Offs	Companies and products stemming from an original research entity that detaches from the product, originating a new entity
	Professionalisation of Students	Promotion of entrepreneurial spirit amongst graduates in strict collaboration with incubation and spin-off activities as well as greater attention to market needs
	Business clusterisation	Creation of business clusters oriented towards common knowledge goals
	Hybrid Programs	Business PhD's, Joint Research aiming at both basic research and prospective commercial gains, archivism and curation, amongst others

Source: Own elaboration

These different concepts appear complimentary rather than opposing each other, and their core goals seem to go in line with the needs of virtually all economic and social sectors, but it quickly becomes clear that not all of them will be useful in all contexts: how can patents be produced within subsectors such as the fine arts or dance? What kind of costs can SME's bear to engage in the acquisition of expensive equipment or dedicated upskilling programs? Sectoral considerations should be taken into account when applying these forms of KT, and it is because of it that we turn to understanding how CCI connects with these concepts, and what specificities it bears in general.

4.

The Cultural and Creative Sector: Sectoral Specificities and Knowledge Transfer

As we previously noted, the CCI Sector has a peculiar relationship with knowledge (Miles & Green, 2008): it makes use of various types of knowledge, yet the specific ways in which it is mobilised often appears to be diffuse; part of it, such as design, apps development and videogaming industries, depend on technological advances in order to carry out their activities competitively, yet those areas which are most technologically "archaic" (such as handcrafts) constitute a specific and autonomous market; whilst innovation is purported to exist in them, often associated with the epithet of creativity, the two concepts appear separated and do not seem necessarily to entail each other (Miles & Green, 2008). In this line of thought, creativity is associated with the type of work generated, namely, the use of symbolic knowledge (as we will discuss below) to add value to a given work, whilst innovation is mostly concerned with the change in a given action (how to do a certain thing, to use a certain product, to organise a company or a community, etc). It is in that sense possible to be creative without being innovative (such as producing films within established formulas, which nonetheless are well received commercially and artistically), and it is possible to be innovative without being creative (such as changing a particular way of shooting a commercial for a car, or changing the structure of a record label). If we expect to find any paths to proceed with KT in the CCI sector, these aspects should be clearly outlined.

Moreover, we note that in order to understand such aspects, we must also turn to the institutional and structural aspects of the CCI, as well as how they connect to HEI. We will thus take each of those questions in turn, approaching an understanding of how KT can be thought within the CCI.

4.1. Organisational Structure of Cultural and Creative Industries

As noted before, the economic tissue of CCI sector is strongly marked by small and medium-sized companies (Hearn, Cunningham, & Ordoñez, 2004), with the majority of them being micro-companies (that is, having less than 10 employees), a panorama that can be noted at international level (AURAN, 2014; CS, 2017a; DEX, 2017; Indecon, 2011; RB, 2013; Sanchéz & Vega, 2014). Such situation can be related to the tendency for CCI to be project and product driven, rather than vast ventures, and being volatile in their emergence and disappearance.

Likewise, these actors are strongly place-bounded (Holden, 2015), having connections to other economic and social actors in their specific contexts, which tends to drive the general tendencies of production in specific directions – sometimes in line with interna-

tional interests, but often as well towards symbolic capital that is most relevant within the specific innovative millieux (Costa, Vasconcelos, & Sugahara, 2011). This often ties to the organisation of CCI actors in "project-logics", more than as stable connections to entities (Caves, 2002; Scott, 2000), as well as to the specific agglomeration logics which generate those millieux: tacit knowledge, informality, and an intense articulation between commercial, symbolic and reputational aspects that derive from the specific territorial contexts in which these actors intervene (Costa, 2007; Costa et al., 2011; Florida, 2002).

Such facts are aptly captured by the image of the charismatic leader which drives a CCI venture towards a particular ideal, regardless of its immediate profit value, and sometimes even of its long term profitability, with the intent of expressing a given idea (McKelvey & Lassen, 2018). Such an image is not universal within CCI but aptly characterises a type of actor which can be found within the economic, social and cultural system, and which is necessary to take into account given his motivations – an aspect we will discuss below – do not necessarily map neatly into business-driven knowledge transfer.

Given these three basic conditions, it seems rather natural that CCI have higher difficulties in managing their operations as economic agents, namely in managing staff, seeking markets for exploration, communicating their activities, seeking to internationalise – in general activities which are part of the business side of such ventures. It is not hard then to understand why this is precisely the first aspect which comes up often in discussing KT from HEI to CCI – the need to promote a greater entrepreneurial spirit, and to provide assistance in the development of their businesses (Crossick, 2006; Hearn et al., 2004; Heidemann Lassen et al., 2018), as well as promoting the tools that make such transmission of knowledge possible.

In this respect, we can conceive of knowledge transfer as focusing on the capacity to engage individuals with entrepreneurial, financial, and overall organisational aspects of managing companies. This makes sense to address in two ways: the creation of knowledge sharing mechanisms such as courses, workshops and similar forms which engage entrepreneurs in addressing their identified lacks in this aspect, which we would situate within the ideas of "knowledge translation"; and the promotion of meetings between individuals from CCI and non-CCI sectors to exchange experiences and know-how, where HEI would serve as brokers between the various subsectors to engage them productively.

As Comunian *et.al* (2014) note, the fact however is that higher education institutions tend to have poorer connections with SME's than bigger companies, which puts the regional role of HEI as mediators with the CCI sector in jeopardy; likewise, the same

authors note the tendency for HEI to define their mission and quality on the basis of international research, rather than regional or local applications, which again generates difficulties in engaging CCI actors collaboratively; and the tendency for arts and humanities sectors within HEI to be less funded, and less incentivised to take on entrepreneurial stances, leading to uneven levels of development within HEI.

One way that has been proposed to change this situation, is by reinforcing the local and regional ties that HEI establish with CCI actors. We can note that given the few available human resources in CCI, establishing research collaborations that sought to address issues present in their activities – such as through incentive programs for researchers and professors that are both academics and practitioners, could help create more fluid lines of engagement between such small companies and actors and the HEI. This goes in line with some analysis that point out the difficulties encountered presently by academics seeking to do exactly this (Comunian, Gilmore, & Jacobi, 2015; Comunian et al., 2014), where they often see such forms of engagement as possibly damaging their careers, rather than productive engagements.

As noted by some authors (Hearn et al., 2004), the economic conditions of CCI companies, some of which we have identified – reliance on aesthetic and symbolic appreciations, high commercial risk associated with a lack of pre-existing needs, as well as, in some sectors, the relationship between disposable income and willingness-to-pay for CCI products and services (which is noted as being highly volatile), as well as the existence of a great number of small ventures which compete with very few big companies that have extensive market shares and resources – lead to some companies having difficulties in taking in the investment risks and finding it hard to find adequate distribution channels or willing investors.

As such, asides from simply fomenting entrepreneurship by providing technical skills, constituting adequate and dedicated support systems on the basis of University Spin-Offs (USO) has been identified as one way to extend the concept of university spin-offs from the traditional industries into the CCI sectors (Hearn et al., 2004). As Hearn *et.al* note, whether by emplacing graduate students and motivating them to take a more commercial approach to creative professions, or by investing in ideas that would otherwise have difficulty finding their place in the market, given the economic, such methods can in principle, and taking into account regional and policy specifications, serve as a way of providing support for these CCI SME's.

Such incentives to entrepreneurship in the arts and culture should however be exercised with some caution. As has been noted (Crossick, 2006; Gehman & Soublière, 2017),

and drawing from a wide literature on the nature of cultural production fields and systems (Bourdieu, 1984a; DiMaggio, 1977), these forms of entrepreneurship, if they are to be successful and non-disruptive with the social tissues in which they exist, must be adapted to the realities of what it means to be an artist, a producer or an advertising creative. That means that they should recognise that for many of the actors within CCI spheres their goals do not lie in making money, and the overall value they add cannot be limited to economic outputs. We now turn to such considerations, in order to better understand what other kinds of knowledge are mobilised by CCI, and how these can be best approached by KT actions.

4.2. **Knowledge Use in the Cultural and Creative Sector**

In the previous section we mentioned that the question of knowledge brokering and translations is today more than ever a central goal of many KT systems, and that this hinges upon the processes of **codification** and **personalisation**. As Asheim (2007) notes, much of the knowledge of CCI actors is heavily contingent upon tacit forms, that is, knowledge acquired through embodied and direct experience. However, when we speak here of knowledge we are implicitly focusing on symbolic knowledge – what about technical aspects of constructing a painting, a song or a movie? And what exactly is meant by symbolic in this context?

The question is one that is posed by authors and policy-makers alike in various places (Crossick, 2006) and which finds very different answers according to what we choose to focus on. Starting from the synthetic definition of Augusto Mateus (Mateus, 2010) or the project "Cross-Innovation" (Oliveira, Laranja, Lahorgue, & Born, 2016), we see the cultural and creative sector in a hierarchical way, with various forms of centrality and different interests (from activities related to heritage, artistic production and content creation to relatively marginal areas such as tourism and food, passing by video, audio, film, advertising, amongst others). The complexity of this question can easily be stated: how can we put in the same category the knowledge of film producers, painters and a tourist guide company?

Much of this difficulty (Miles & Green, 2008; Zukauskaite, 2012) possibly arises out of a misinterpretation of Asheim's definition of "symbolic" knowledge, placing it directly on par with analytical and synthetic knowledge. As noted by the author (Asheim, 2007) an easy analysis would show the inherence of differences: one can know, for instance, that water ionises both acids and bases under our current theories; but can one really know

that putting a green cross as a logo for a toothpaste brand will increase sales? It is possible that one can know this, through a dedicated study that crosses psychology, sociology and economics – but such a thing would again be analytical, scientific knowledge.

What a designer, a game developer or a film maker "knows" is not something propositional, in the sense of being reducible to a state of affairs, but rather a qualitative association closer to a metaphor or a mental mapping (Lakoff & Johnson, 1980). There is no doubt that such knowledge can through great effort be brought to become scientific and predictive, but so far this has been done to only some areas: pop music, ergonomics, visual design, store design and advertising are some of the ones most successful (Deng, Hui, & Hutchinson, 2010). This knowledge-of-association, borne out of quality not fact, is a fundamental reason why CCI do not practice research in the same way as other sectors: because many of their research projects are not to set out to prove something which can then be stated clearly and replicated, but rather to contextually explore a given association and bring it to light often times through metaphorical speech. A **symbolic code is thus the knowledge of these associations and metaphors which one can mobilise to generate further codes**. It is in this sense that we can best understand "symbolic knowledge".

One immediate consequence of this type of knowledge, and its economic interpretation, is that creative products tend to have an inherent risk, owing to their focus more on the providence of the semiotic product than in satisfying any strict economic necessity (Hearn et al., 2004). Moreover, it provides a justification for why actors in the CCI are driven by projects and products: they are attempting to show a given association in a given context and time, which may prove to not have commercial recognition for various reasons, but which might, given time and dissemination, find such recognition.

From this two consequences can be derived. On the one hand, the kind of research carried out in the social sciences, humanities and arts, within HEI, can be thought to have some bearing on this symbolic knowledge, given it seeks to analyse precisely those associations and connections which are present within society and which individuals make. Such sociocultural knowledge – which stem from history, critical literary theory, geography or economics – can in that sense amplify the relevance of products by giving them a social grounding, and can be further complemented by recognising the importance of user-driven research (such as that enabled by Big Data Analytics) in accessing the general perceptions of consumers.

Moreover, whilst symbolic knowledge constitutes the matter with which CCI work, they still require technical skills, technology and other such practical settings to be able to

bring symbolic codes into practice. Providing technical and theoretical digital and technological skills could thus amplify the creative capacity potential of CCI actors, granting them with a deeper understanding of the contexts in which they produce work. As such, fields as natural sciences and engineering can provide knowledge to these actors, in many respects: 1) tools, 2) equipment and 3) data as three main axes which these areas can transmit intensively. Collaborations between such areas of research and the arts can furthermore be productive for both parts, providing scientists with a fresh understanding of their subject matter and artists with access to new concepts as well as materials to work with (Crossick, 2006).

In short, the process of knowledge use by CCI actors hinges on the capacity to recombine codes into new products, and is contingent upon a capacity to identify social and cultural contexts, translate scientific and literary forms into artistic practice, and works as a process of skill acquisition and dissemination (Wijngaarden, Hitters, & Bhansing, 2016). This amount once more to talk about specific forms of knowledge translation, brokerage and providing of incentives for collaboration. However, recognising the variety of topics which may interest practitioners in the CCI, as well as the difficulties which underlie their knowledge use, this opens the way for more bilateral and dedicated knowledge forms – such as tailored courses, workshops, conferences, etc. based on the needs of companies, and which can address specific lacks in these skills as well as in the ones we will mention right away.

4.3. **Company Motivations**

As we alluded before, it would be quite reductive to imagine that all CCI actors bear the same understanding of their action – not only the sales of products but the production, distribution and mediation of social and economic practices – and that it is entirely driven by profit. In fact, looking at the broad categorisation we have of CCI, we recognise that a vast majority of orchestras, conservatories, fine artists and musicians have a focus that substantially differs from sectors such as advertising, graphic design, or apps developments. As we noted, a great part of the CCI actors are driven by a desire to express some symbolic code and to try to communicate it, whilst focusing on acquiring economic recognition through it. However, even such a characterisation may be too strict. Indeed, as Frey (1997) noted, very much in the same spirit as Bourdieu (1984c), some economic agents will at times produce in order to attain status, to be recognised, or for emotional or personal reasons. This leads to the need to consider different types of companies depending on their overall goals – that is, on the primary form of output

with which those companies are concerned. It is important to understand, in that respect, that economic outputs consist of only one of the motivations of companies in the CCI sector (Frey, 1997), and that other forms can be equally good sources.

Even more so, whilst we have spoken up until here of a unified CCI sector, it should be noted that these motivational cleavages are very much aligned with different subsectors (Comunian et al., 2015): whilst it is possible to have advertising companies or web designers who take on a more personalised perspective towards production, and some painters who take a more profit-oriented approach, it seems likely that these would not be the majority. That is not to say that such actors would not benefit from the kinds of transfer we have discussed up until here, but rather that they are all the more specific in the type of value they produce: actors with a social or cultural motivation as their main goal will, if they are successful, produce greater cultural sensitivity to a given topic, promote social inclusion between marginalised individuals, or promote intergenerational mobility through providing opportunities to engage with cultural dynamics.

Such forms of value, and how to measure it, are beyond the scope of this report, although they have been the subject of extensive debates (Holden, 2015; Knox & Mayer, 2009; Paulus & Dzindolet, 2008; Throsby, 1994). What is important is to note that given these actors strive to achieve different outputs which fall under the broad scope of the third mission of the university, and which motivate the inclusion of the fourth helix – public society and end consumers – they should be taken into account by knowledge transfer mechanisms.

Given the difficulties of speaking in long detail about possible combinations of companies according to their primary outputs and their subsector, we will present after the initial discussion a summary graph (Figure 1 below) which presents an indicative typology crossing subsectors and general motivations.

Let us then look at a plausible typology of motivations and their overall effects:

Profit-Motives

The more well accepted motivations within economic literature is profit as the main motivation for the action of these actors. Companies are thus thought to be motivated to deliver products, services and experiences that satisfy the client in whatever respect, with higher profit margins motivating entrepreneurial activities. Employees are thought

to try and maximise their benefit in monetary or experience terms, with the ultimate goal to maximise monetary gain. Given this, it makes sense that forms of KT that include entrepreneurial indications would be preferable, with social and cultural responsibility bearing less interest; more so, given these companies seek to grow and expand, their investment in technology will tend to be bigger, as will their tendency to seek new processes, organisational schemes, and opportunities for financial support and reduced costs of variable capital (such as business incubators and clusters). More technologically inclined enterprises, as well as many of the medium sized cultural companies will be dominantly profit-oriented, which is not to say that they may not pursue social and aesthetically oriented projects. Nonetheless, the kind of symbolic codes which these companies will attempt to communicate through their products would in any case benefit from sociocultural and aesthetic orientations, in order to be maximally efficient.

Aesthetic Motives

The classical work of Bruno Frey (Frey, 1997) as well as David Throsby (2006), brought into economic theory what had for a long time been noted in sociology and anthropology: many times, individuals produce goods, services and experiences based on a desire to experiment artistically, develop cultural innovations (by recombining, according to some specific function related to their creativity, already existing codes), and try to explore new ideas, themes and forms. Following in line with the classical descriptions of the literary field (Bourdieu, 1984b), as well as of galleries and fine arts (Becker, 1976), and even music (Guerra, 2013), these often depend upon networks of individuals connected by shared taste, and at times reproduce the group ideals, go against them, and operate in complicated networks of approval and disapproval.

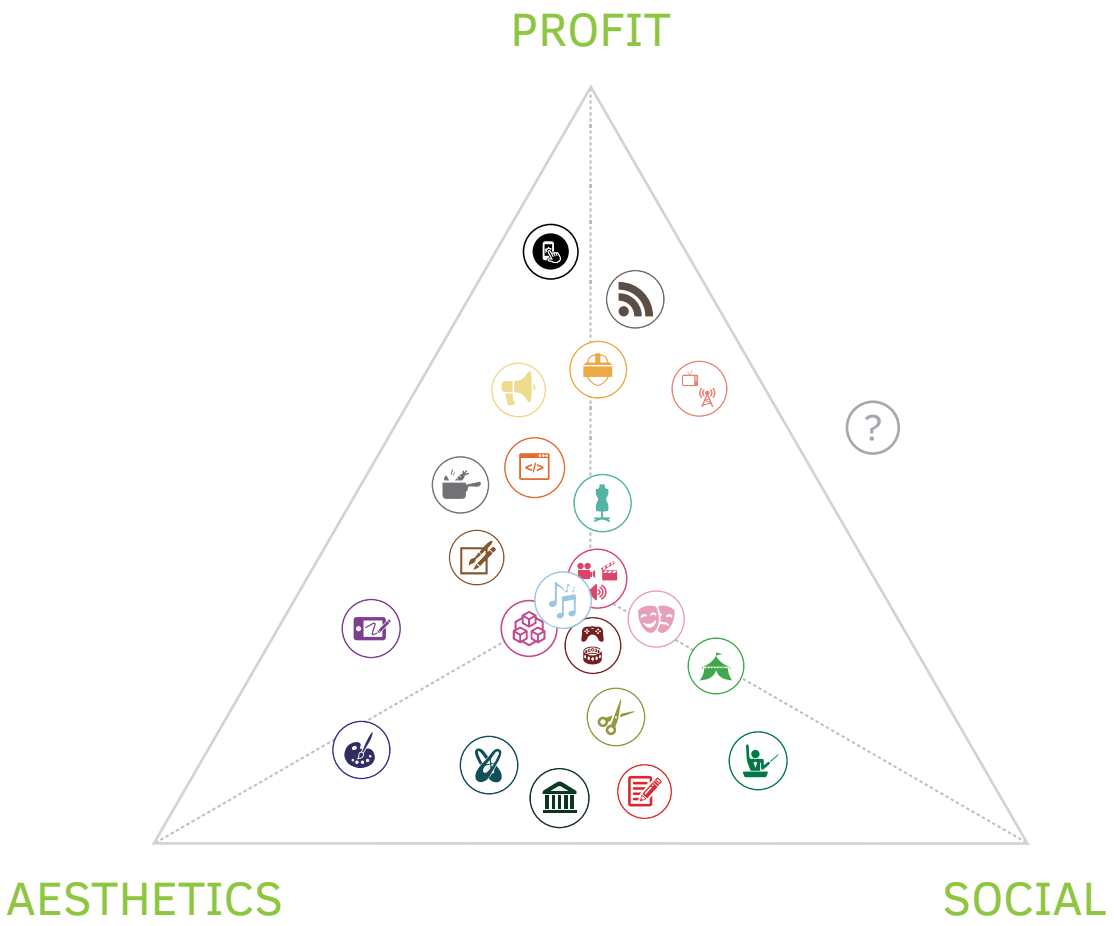
This aesthetic motivation is very much alive in many of the cultural and creative industries – especially the ones that fall under the term "the arts", such as fine arts, dance/ballet, music, writing, theatre and architecture. These reputational and symbolic aspects are sensitive to management attempts, and they require from political engagements a particularly well-informed understanding of the specific codes and stakes. Actors which are mostly driven by desire to innovate culturally and aesthetically often stem from individuals who either work partially to support these ventures (as mentioned by Throsby, 2006), or by individuals who work in other jobs to support these practices, and they work as forms of basic research – bringing forth new ideas and codes to a public, and generating potential cultural and artistic codes that can later be incorporated by companies on a wider basis. For that reason, knowledge brokering related to philosophical, so-

cial and cultural topics can widen their semiotic fields and generate greater potential to innovation; likewise, tailored technology transfer, collaborative projects, amongst other forms can have positive impacts on these companies (as noted by (Crossick, 2006)). Moreover, an explicit recognition of the value of such endeavours in their cross-fertilisation with other areas would make such experiences as hybrid programs – involving research, production of work and collaboration with companies – could engage these actors and bring them to collaborate with other profit and socially driven enterprises.

Social/Territorial Concerns

A final motivation that may drive companies is related to the social, and often times territorial impact that these can have amongst populations: whether in introducing them to cultural and creative activities, providing forms of occupation for young children and the elderly, serving as sources of entertainment, but also many times disseminating key messages which the population may not be aware of – such as reinforcing the fight against gender discrimination, racial issues, importance of educational achievement, etc. This social motivation is today seen as something that all CCI are somewhat engaged in, given its relevance (Comunian et al., 2015); however, public enterprises and associations have held the traditional role of engaging populations like this. Museums, galleries, local theatre companies, orchestras, events and festivals, and film producers to some greater or lesser extent have in many cases been motivated by these social issues – especially outside of metropolitan areas, or even just outside the central rings of these areas. Knowledge transfer here, like aesthetic motivations, can find great use amongst social and cultural brokering, namely personalisation of knowledge to their uses, but also in collaborative processes, especially when it comes to hybrid programs, namely in archiving their own productions (given the importance of the productions for the individuals involved), and it can find its goals maximising these social and cultural aspects for the individuals towards whom this is most relevant.

Figure 1 - Disposition of Subsectors According to Aesthetics, Social and Profit Motives



Source: Own elaboration based on theoretical assumptions (Becker, 1976; Bennett, Taylor, & Woodward, 2014; Bourdieu, 1984a; Frey, 1997; Throsby, 2006) as well as policy data detailed in section 5.

4.4. **Subsector Analysis**

These motivations can in that sense essentially guide us to keep alert that different actors will have different uses for knowledge, and should not be treated monolithically. However, this is not enough as far as understanding the perceptions of actors from different subsectors in terms of their engagement with HEI.

Tying in to another Working Package of the 4H-CREAT project, where inquiries were made to CCI actors about their relationship with other triple helix actors, we sought to assess these patterns of interrelation between actors and HEI by applying a specific set of questions to that purpose. This was carried out in the months of June to September

2018, to companies from each of the partner regions, targeting around 25 companies in each region – the survey did not try to be extensive, but rather to project a general idea of what the concerns in each of the regions and sectors under study would be[1].

In specific the survey focused three key topics regarding the questions we have been discussing, with the options given to respondents:

- What are the main forms of collaboration carried out between CCI actors and HEI;
    - Shared Human Resources
    - Participation in Workshops
    - Joint Projects
    - Hosted in HEI or Adjoint Institution
    - Actor has contributed to Training Courses in HEI
    - Shared Patents/TM/Design
    - Participation in sector meetings hosted in HEI

- What types of knowledge CCI actors most wish they could receive from HEI;
    - Technical Knowledge
    - Sociocultural Knowledge
    - Business Knowledge
    - Aesthetic Knowledge

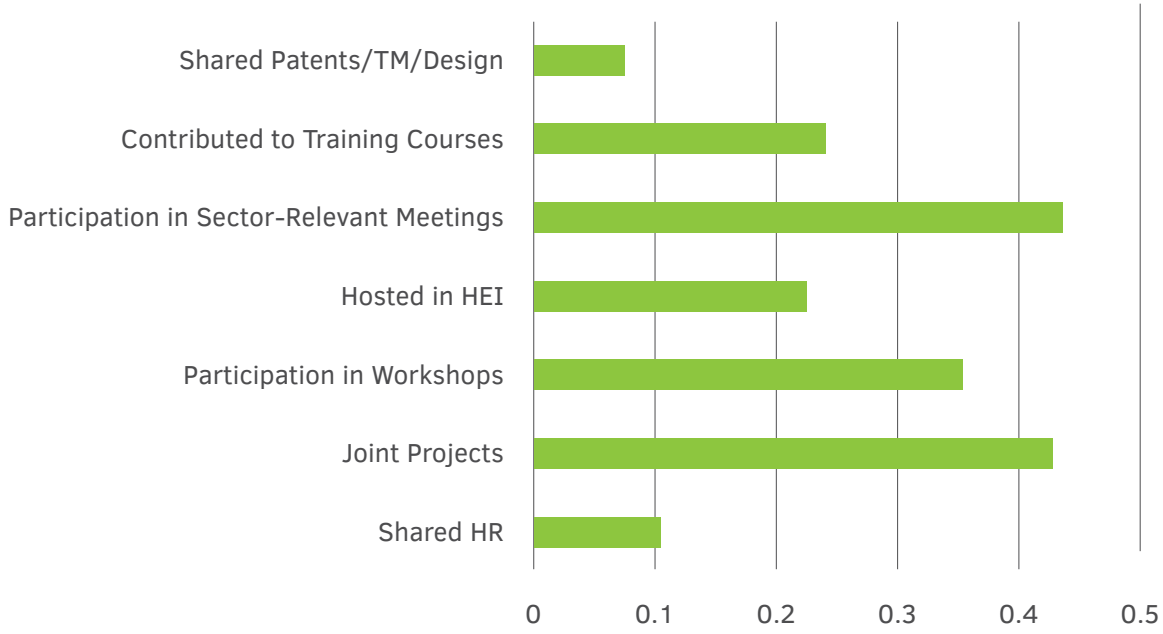
- What are the main weaknesses CCI actors identify in the current action of HEI:
    - Difficulty in Understanding Research Results
    - Lack of Professionalisation of Students
    - Lack of Meetings and Associations
    - Lack of Investment in Joint Projects
    - Lack of Hosting Spaces;

A total of 130 companies answered the survey, that was administered online. These were distributed between the AML, Pays de la Loire, Andalucía, Asturias and South Western Scotland[2], with nearly 20 answers per each region. Of these, more than 72% had less than 5 employees, and 17,6% had between 6 and 10 employees – meaning nearly 89% of companies were micro companies.

[1] In here we will focus on the sector-wide analysis of the data; in section 6 we will return to it to discuss regional concerns.
[2] Data for Southern and Eastern Ireland and Bretagne, as well as other regions, was not analysed for this report purpose due to small sample sizes.

Turning to these specific questions posed to the actors, we see that the general framework, across regions and sectors in terms of connections to HEI (Figure 2) seems to place great emphasis in the participation in sector-wide meetings – which actors across regions and sectors seem to recognise as being carried out to positive effect – and the development of joint projects as well as the participation in workshops. A smaller amount seems to have engaged on a more direct basis with HEI, either through contribution to their contents (24%) or through being hosted in one associated institution (22%). Finally, human resources sharing and patent and co-ownership of patents and designs seem to be the area where less collaboration exists – in line with what we have discussed up to now, and which we will see in the next section stands as a recognised issue within statistical indicators.

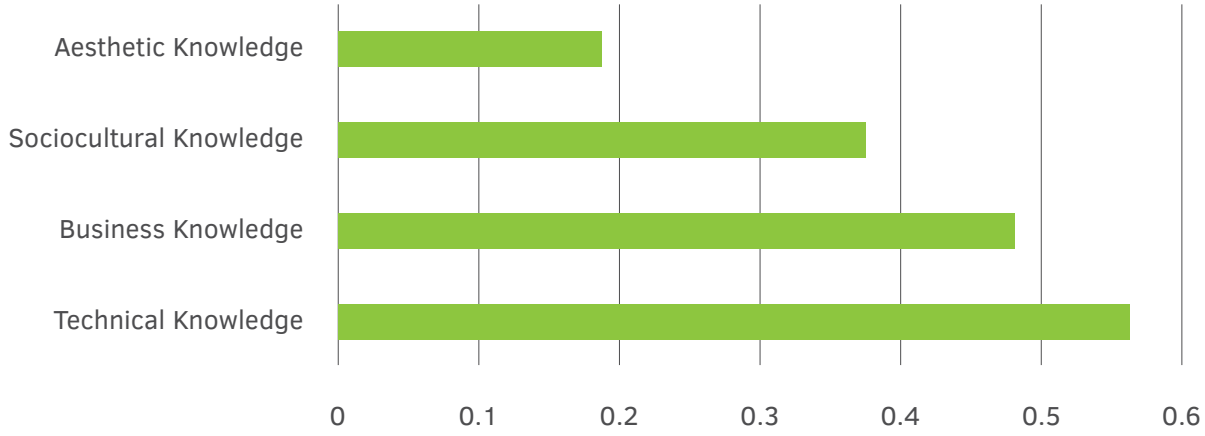
Figure 2 - Connections to HEI Described by CCI Sector Actors



Source: Own elaboration, based on results from Survey applied in WP4 of 4H-CREAT Project

In terms of knowledge needs identified (Figure 3), business and technical knowledge appear as the most relevant domains, with the former being identified by more than 55% of respondents, and the second nearly 50. Nonetheless, the high percentage which also noted sociocultural knowledge indicates that a perceived need of considering the social context may at least be partially present within actors of the CCI.

Figure 3 - Knowledge Needs Described by CCI Sector Actors



Source: Own elaboration, based on results from Survey applied in WP4 of 4H-CREAT Project

Finally, in terms of main weaknesses identified, we see that the major flaw identified hinges on the accessibility – in term of the sheer understanding – of research results that might be relevant for the practice of the companies. This goes in line with the perceived lack of investment in joint projects and joint ventures between research centres and universities and the CCI actors. Lack of professionalisation – overall a generalised concern in the actions undertaken – appears here as the element of least proportional concern, figuring in little above 20% of respondents.

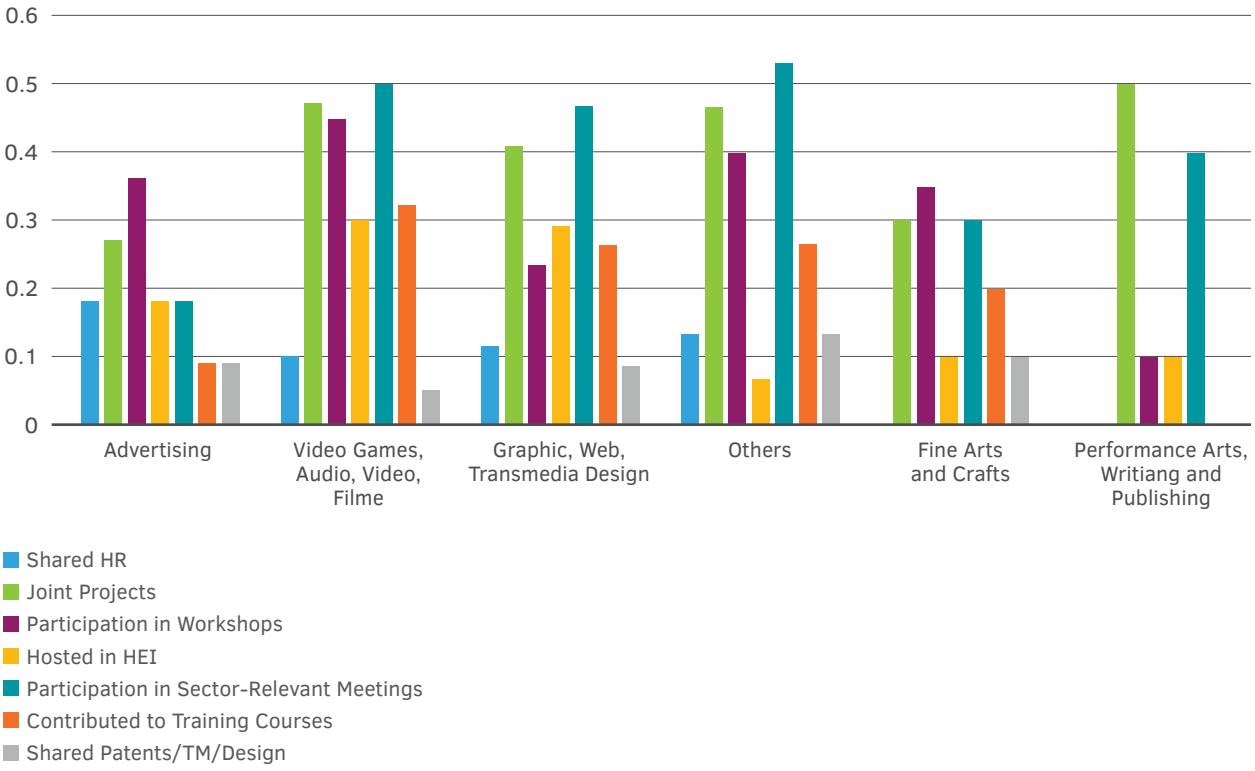
Breaking this down by sector (Figure 4), we get a finer understanding of the knowledge concerns of actors according to their subsectors, with very distinct results between those subsectors[1].

Taking each of the forms of connection in turn, we can see that both Fine Arts and Performance Arts have no shared Human resources with HEI – something which goes in line with what we noted in terms of artistic practice and university links before, with generally low levels across the remaining sectors. In line with the general perspective, joint projects are in general highly recognised, alongside participation in sector-wide meetings – with the exception in the latter form of connection of Advertising, where less than 20% of the respondents identified it. In terms of hosting and being spun-off of HEI, a distinction seems to be drawn between more technologically intensive areas – such

[1] We partitioned the previously identified sectors in six major categories, in order to have minimal results (with over 15 responses per category).

as video, design and to a lesser extent, advertising – and the more traditionally cultural areas, such as performance arts, crafts and others (which include museums, galleries, events, etc.). In terms of the contribution to training courses, advertising and performance arts and writing appear as the ones with least actions in that sense, whilst the latter has disproportionately low levels of workshop participation.

Figure 4 - Connections to HEI (Sector Specific)



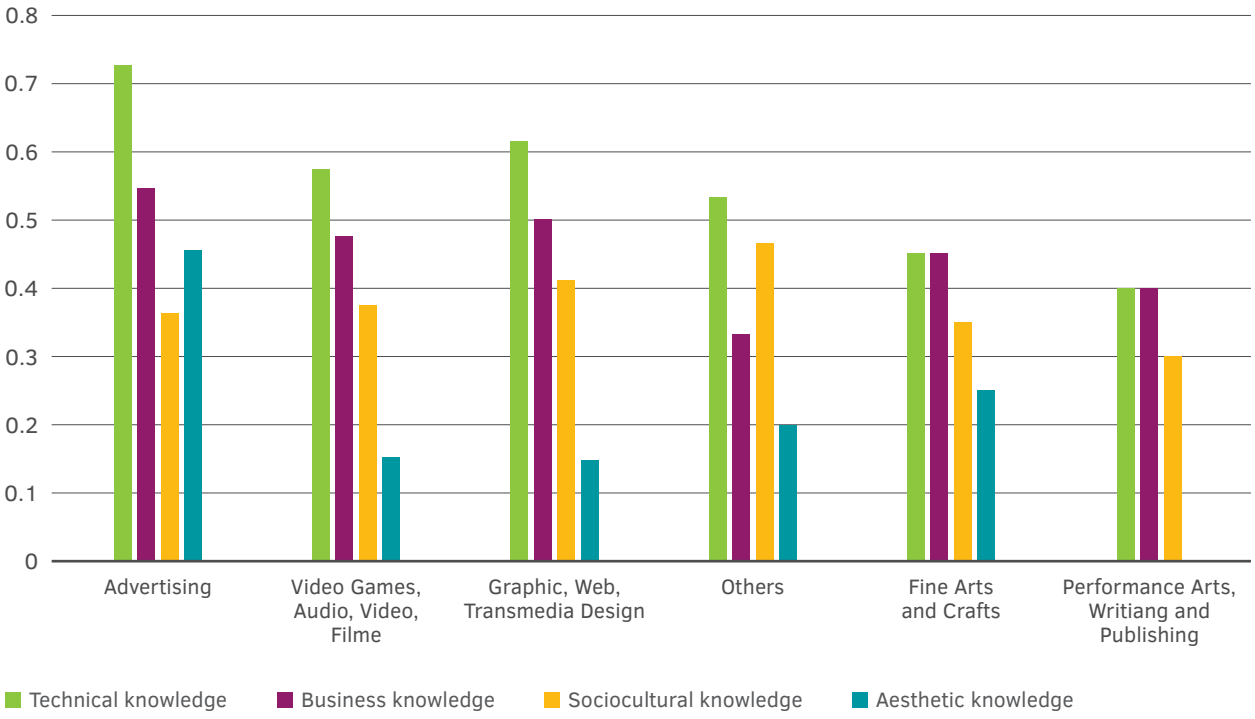
Source: Own elaboration, based on results from Survey applied in WP4 of 4H-CREAT Project

What appears from this graph is that performance arts, writing and publishing are tightly connected to HEI in limited ways, something which might lead us to think whether such actions will have a greater impact in those regions which take these sectors as their main source of income. In a different sense, advertising appears somewhat isolated, with fewer stated connections than other areas.

In terms of knowledge needs (Figure 5), we see somewhat the converse: Advertising appears as having overall higher needs of technical knowledge (where 70% of actors identified the desire to benefit from KT in this domain from HEI), but also very high levels of

sociocultural, business and aesthetic knowledge. The latter is particular in that other sectors have negligible numbers of mentions noting the desire to receive aesthetically inclined knowledge – that is, symbolic codes identified by HEI as part of scientific and humanistic research. Also notable is the generally high number of actors noting the need for business knowledge across all sectors – in that sense contradicting what would be a strict simplification of wat we previously noted in Figure 1: even if we assume that most actors have cultural and social interests, that neither denies that some actors may have a profit motivation, nor that these interests imply they will have no interest in business skills whatsoever.

Figure 5 - Knowledge Needs (Sector Specific)



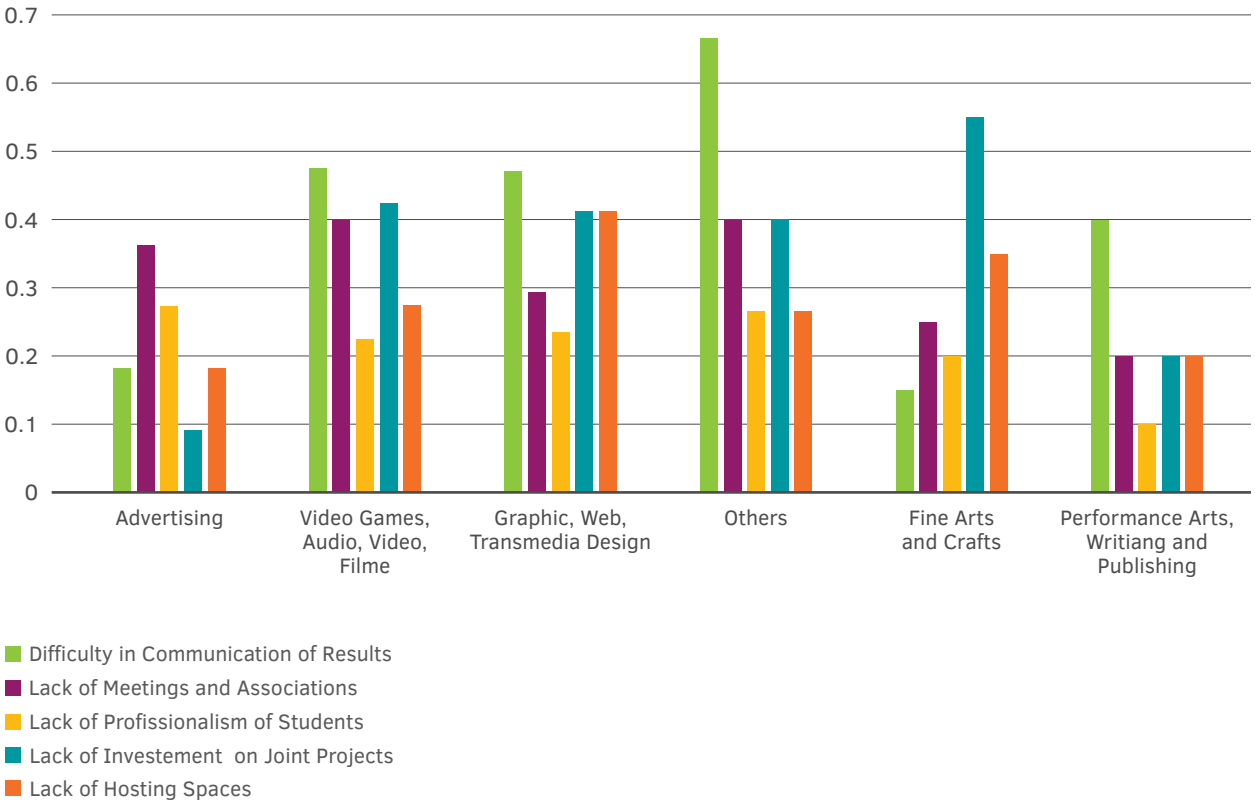
Source: Own elaboration, based on results from Survey applied in WP4 of 4H-CREAT Project

Finally, discussing the weaknesses identified we see that these vary widely in terms of the specific sectors. Whilst actors such as museums, galleries, creative cooking or tattoo artists note the difficulty in understanding results to a high extent (with over 60% identifying it), advertising and fine arts have less than 20% of agents noting it; whilst the fine arts emphasise the lack of investment in joint ventures and projects as a notable weakness in HEI, in advertising less than 10% see the same. In turn, whilst almost 30% of actors in the advertising subsector see the lack of student professionalisation

as a weakness on the part of HEI, the performance arts, writing and publishing have less than 10% of their actors stating the same. Also worthy of note is the more than 40% of Graphic, Transmedia and other forms of design that note the lack of dedicated spaces for hosting and development, as well as the generally identified lack of sector meetings (with the exception of more cultural areas – fine arts and performance arts).

What this seems to note is that the previously outlined causes are present within the sector, albeit in very different ways according to each subsector. In defining more concrete cases of policymaking than the ones we will present, one should take in account how the policies target each of these sectors, and ideally, why these statements occur. For our purposes, we will return to these subsector considerations in the last section, tying them to the regional analysis of the responses, in order to construct more adequate paths of policy for each of the regions under study.

Figure 6 - Weaknesses Identified in HEI KT (Sector Specific)



Source: Own elaboration, based on results from Survey applied in WP4 of 4H-CREAT Project

5.

The Atlantic Area and the Cultural and Creative Industries

The diversity of regional and national contexts in the Atlantic Area is an easily recognizable factor: countries such as Spain and Portugal could presumably have more to do with each other than with countries such as the United Kingdom or Ireland, and these in turn could have aspects in which they are closer to Spain or Portugal than to each other. Those regional disparities are at the core of the European Territorial Co-operation (ETC) and INTERREG initiatives, and are something which has motivated many regional cohesion programmes aimed at stimulating the cooperation between the regions in the European Union, since 1989.

Whilst there persists an overwhelming optimism as to the fate of the cultural and creative industries, as exposed in the Green Paper on the Cultural and Creative Industries in 2011 (European Commission, 2010), the way in which the CCI sector has evolved is naturally subject to many factors: for starters, the technological and social evolution of the last 7 years have increased the pace of digital media's hold on individuals, and has shifted the priorities of individuals, which could potentially mean a greater rate of growth; the presence of the financial crisis, hitting at different times and with varying intensities the countries under study, could account in part for some of the negative trends one could identify; other regional factors – such as relative territorial importance, strategic specialisation foci, or endowment of educational and public infrastructure and private enterprise – can likewise seek to explain relative performance.

All these considerations led us to opt both for a statistical analysis of the results and a political-institutional assessment of the priorities outlined by each region in managing the CC sector. This stems not only from a need to properly situate how regions fare in terms of CCI policy, but also from a wider understanding that territoriality and place anchoring play an important role in understanding how processes of production, consumption and mediation occur in the highly globalised and information-led fields of cultural and symbolic production. More so, this option derives from the need to understand regulatory mechanisms and governance in sustaining these dynamics (Camagni, Maillat, & Matteaccioli, 2004; Costa, 2013; Kebir, Crevoisier, Costa, & Peyrache-Gadeau, 2017).

This dispersion of political discourse on the matter could make us presume that these areas would have a very well developed information system, standardised amongst different regions, so as to frame the specific needs of the sector on a transnational basis and promote interrelations between countries. Unfortunately, that is not the case; whilst indeed some countries do have statistical information, others have not developed explicit mechanisms, and their classifications, chosen areas and primary goals have remained at odds with each other: whilst the Lisbon Metropolitan Area and the Dublin area have

focused in creative industries such as advertising and graphic design, Andalucía and Spain as a whole has taken the cultural industries as the more relevant element, promoting specific plans aiming at these. Whilst the overall discursive trends are apparently similar amongst countries – with a vague defence of the potential of Creative Cultural Industries – different areas seem to play different roles amongst countries and regions.

In that sense, in this section we will go through each of the seven regions which constitute the 4H-CREAT consortium area of intervention – Lisbon Metropolitan Area(PT), Andalucía, Principado de Asturias (ES), Bretagne, Pays de la Loire (FR), Southern and Eastern Ireland (IR) and South Western Scotland (UK) – first looking at data provided by Eurostat and then looking at internal data sets and legislative aspects. This will focus on a set of general indicators – GVA, GDP, employment, higher education in percentage, definition of priority sector in the CCI, presence of explicit policy towards CCI, amongst others – as well as some more specific remarks regarding each of the regions. We will go through them one by one, attempting to piece out a specific framework for each region which allows us to see, depending on the sector concerns, what type of subsectors to target, what changes to promote to legislative contexts, and what kind of KT suggestions to elaborate upon. In the final subsection, we will attempt to compare the different economic settings and legislative aspects, to draw some general aspects in which policy on CCI, and specifically KT related to CCI, seems to be lacking.

5.1. **Lisbon Metropolitan Area in Portugal**

5.1.1. Socioeconomic Context

The Lisbon Metropolitan Area (LMA), centred on the Portuguese capital of Lisbon, is a NUTSII area encompassing 18 municipalities spanning over 3,000 km^2 and constituting the most densely populated region in the country, having, as of 2016, around 2,8 million inhabitants[1]. Whilst the country as a whole lost around 33 thousand individuals from 2015 to 2016, the region had a net growth of 3 thousand individuals in 2016, after more than five years of population loss. It is home to roughly 27% of the Portuguese population, something which has experienced marginal growth in the last few decades (1.4% since 2000), representing 36% of the country's GDP. Whilst Portugal stands at 60% of the EU average in terms of euro per inhabitant (EURHAB) of its GDP, the region is placed

[1] All data from this chapter obtained from Eurostat unless otherwise stated. Population data: demo_r_gind3; Population Density: demo_r_d3dens; Region Areas: urt_d3area; GDP and EURHAB: nama_10r_2gdp; GVA by sector: nama_10r_3gva; Education: edat_lfse_04; Unemployment: lfst_r_lfu3rt; Employment by Sector: lfst_r_lfe2en2; R&D expenditure: rd_e_gerdreg; Patent File Requests: pat_ep_rtot.

a bit higher, with 81% in 2016, something which can be seen in generally in terms of the region's standing on the European Cohesion Policy as a "more developed region", with higher than 90% of the European average GDP per capita. In terms of sectors, the LMA has 3.2% of its Gross Added Value coming from the arts, entertainment and recreation ("the Arts"), more than 6% from Information and Communication Activities ("IT"), and more than 10% from Professional Scientific and Technical activities ("Science"). As previously noted, these are crude approximations, but they show the importance of the sectors for the national accounts, especially when compared to other Portuguese regions: it has 3 times the percentage of IT regional General Added Value (GVA) compared to the next region (Norte), almost twice as much Science professionals, and almost as much Arts and entertainment employment as the next region.

Socio-economically, the region can be summarily described in Table 4:

Table 4 - Socioeconomic Summary of Portugal and Lisbon Metropolitan Area

	Indicator	Europe	Portugal	LMA
Education (% per level)	None, Primary and Low Secondary (levels 0-2)	23.1	28.0	17.5
	Upper secondary and post-secondary (levels 3 and 4)	46.2	46.7	49.0
	Tertiary education (levels 5-8)	30.7	25.2	33.5
Unemployment (% Unemployed/ Total Population)	15-24 Years	18.7	28.0	27.8
	25+	7.5	9.8	10.8
Employment per Sector (% of Total)	IT	3.0	2.5	5.1
	Science	9.7	7.9	12.2
	Arts	5.2	6.2	8.0

Source: Own elaboration with data from Eurostat

Despite the country's lower percentage of individuals with higher education compared to Europe, the LMA is above these thresholds, and has a smaller number of individuals with lower levels of education. In terms of unemployment, the region fares much like the country, with high levels of unemployment which reach as high as 28% in terms of youth employment. In sectoral terms, however, we can again note the relevance of the CCI sector for the region when we look at the higher number of IT, Science and Arts jobs in the region compared to the European average (25% against the European average of 17%).

Looking at more specific trends of Innovation, we can note that R&D expenditure in the country suffered a decline from 2012 to 2016 on all sectors (1.46% of GDP to 1.24%), a trend which the region followed (1.97% to 1.51%), with specific emphasis on the business and non-profit sector and with the exception of the Higher Education Sector which in 2014 saw a rise in expenditure. This decline, which matches the years of economic recession in the country, can be seen in the evolution of the Regional Innovation Score (relative to Europe in 2011) of the region, which has seen a decline (the only amongst regions under study). This was felt particularly in 2017 – where it reached 90% of the EU 2011 average results, despite the efforts and policy orientations to the contrary. Looking at the specific indicators, the main faults of the region (indicators with values <0.3) seem to be its low levels of Non-R&D innovation expenditure (at 0.19 being the lowest score, from 0.24 in 2015); EPO patent applications, trademark applications, and design applications; sales of new-to-market and new-to-firm innovations (down to 0.28 from 0.45 the previous year). Finally, in terms of patents, the region follows the country in having a very reduced number of patents: between 2011 and 2012 only 59 patent applications were made, which constituted 30% of the country's patent applications, in contrast with countries such as Scotland, where more than twice those were made.

5.1.2. Political and Legislative Context

In Portugal, Culture is under the tutelage of a dedicated ministry, which oversees certain specific sectors within it – film, theatre, museums, orchestral and classical music, opera – in short, those sectors tend to be called "cultural equipment". This responsibility is shared between the central government, regional and local authorities and community representatives – which has been noted as one of its specific strengths (ICS-UL, 2014). Like other cases here, this fact does not mean that the cultural sector is particularly vibrant or a priority focus in economic policy, with public expenditure and public participation in culture and creative sectors having relatively low levels compared to the EU (Eurostat, 2016).

National policy on CCI was developed with an orientation towards international guidelines in the development of a "Culture 2020" plan, in the context of Europe 2020 and Portugal 2020 strategies, which emphasized not only the localisation and guidelines framing cultural and creative actors, but also promoting synergies between CCI, heritage, tourism and ICT sectors, the latter with a focus on internationalisation and the promotion of digital transition phases, as well as industrial spill-overs and clusterisation (GANEC, 2014; ICS-UL, 2014; Mateus, 2010; Mateus & Associados, 2013; MEGALOCI, 2014). However, this emphasis does not seem to have met with corresponding dedication by policy-makers: despite the nearly 5 years of political activity in line with Culture 2020, one of the central needs identified, that of statistical information, has not been made properly available; no dedicated office or secretariat has been made to oversee its activities, nor have specialised credit lines, promotion of business angels and joint venture services, or specific financial instruments been instituted (all policy recommendations of the strategic documents identified), with the central government leaning on European, private and local initiative.

On a NUTSII basis the same can be said of the CCI sector. Whilst the role of the cultural and creative sector in the LMA is identified has having gained relative prominence in the last 10 years (Costa et al., 2017), overall policy is ambiguous as far as the CCI sector comes: some investment and development efforts have been made, although these seem to be aimed more at fintech and digital sectors than cultural and creative actors – something which can be noted in the promotion of WebSummit in Lisbon from 2016 onwards. Notable exceptions in terms of municipal development have been the opening of various public incubators and FabLabs, alongside a number of co-work spaces financed by public initiative in certain target areas of the city of Lisbon. These are usually framed as both promoting CCI as well as urban regenerative processes: in the Strategic Development Plan for the City of Lisbon (CML, 2014; Oliveira et al., 2016), some of these measures were indicated specifically as regeneration plans aiming at instituting business hubs and incubators, such as FabLab Lisboa, StartUp Lisboa Tech, StartUp Lisboa Commerce, in many cases attempting to promote the areas for housing markets. This plan also outlined the many opportunities stemming from the high number of graduates especially in the technological sector – although no specific mention is made as to how such goals ought to be achieved.

In specific terms, the metropolitan region of Lisbon sought a strategy to promote the development of the industries by targeting specifically those industries which were seen as less developed and with a lower productive capacity, although the effective results of policy have been somewhat underwhelming (André & Vale, 2012). The regional smart

specialisation strategy includes a specific rubric on cultural and creative sector industries, noting some of the identified challenges: a high dependence on public support, lack of an adequate legal framework, lack of geographical knowledge and a tendency for an individualised vision of projects and companies, mostly lead by a "visionary creative" type (CCDR-LVT, 2015). The same documents identified a set of key challenges regarding professionalisation of the sector and its financing, noting that in order for national products to be internationalised, there would be the need for universities and knowledge production centres to take an active role in serving as intermediaries, as well as for these to promote knowledge transference. In their words:

> "*Knowledge transference mechanisms directed to people and companies should be promoted, empowering and upskilling agents with a market-orientation in which knowledge centres should serve as facilitators for internationalisation processes. (…) Despite the creative areas themselves, knowledge of areas such as management, entrepreneurship and innovation are quite relevant, with the training of managerial staff taking on a crucial role in order to promote excellency*." (CCDR-LVT, 2015)

Overall, the need for a more active cultural and creative sector policy has been noted in academic literature and policy reports (Costa, 2015; Costa et al., 2011; Cruz, 2016; Mateus, 2010; Mateus & Associados, 2013). In the Lisbon Cultural Strategy 2017 (Costa et al., 2017), produced for the Culture Committee of the Municipal Chambers, the need to "bear in mind" the creative economy, that is, the potential to increase economic value through symbolic knowledge (Asheim & Hansen, 2009), and the need for a more dedicated cultural planning strategy were identified; the same document also noted the need for a dedicated increase in promoting creativity to attain growth, increase the settlement of creative agents, as well as invest in the development of entrepreneurial skills. Nonetheless, the report identifies that compared to the 2009 strategy (the previous period) very little was carried out, showing the need for an active policy orientation by the public sector. The specific lacks of the sector – lack of funding mechanisms, support for middle-range creative enterprises and a clearly defined entrepreneurial tissue for the companies, leaves the creative economy at risk, hinging in great respect on the city branding efforts and the high touristic flows which were directed towards it in recent years (Freire, 2011). The specific focus on apps, software and high technology development – widely noted as the most volatile markets – make them the key sectors which policy has identified for the region, albeit not necessarily that in which it is stronger, or the most synergetic bet to generate healthy growth throughout and beyond the sector. Concentrating many of the country's creators, the arts and similar sectors – such as graphic design,

film, video and audio – can be put to use to further the regions goals both in their intrinsic growth and in tandem with tourism, heritage and the more traditional sectors.

5.2. **Bretagne and Pays de La Loire in France**

5.2.1. Socioeconomic Context

Bretagne, located near the English Channel, is one of the currently 14 NUTSII regions of France, encompassing 4 departments, with an area of 27,000 km^2. It has a relatively low population density (120/km^2), and more than 3 million people, with a yearly change of 15 thousand individuals, constituting 5% of the overall country net population growth – little under 5% of all French population, something which has seen no change in the last few years – and contributing with around 4% of the country's GDP. Running a bit behind the country, Bretagne hit 95% of the EU average in terms of Euro per inhabitant of the EU average in 2015, and is considered a More Developed Region by European regional policy. Economic sector-wise, it is very close to the French Average: almost the same percentage of GVA contribution in terms of IT (4.63%), a lower level of Science (8.89%), and a marginally higher Arts contribution (3.14%).

The region of Pays de la Loire is located near Brittany, with Nantes as its capital. It also borders the Atlantic Ocean, being created in 1950 in an attempt to promote greater regional balance in France. It includes 5 departments, spanning an area of more than 32,000 km^2. It also has a relatively low population density (110/km^2), more than 3.7 million individuals as of 2016, with a net growth of almost 16 thousand individuals, a little over 5.5% of the population, and nearly 5% of the country's GDP. It is closer to France in terms of Euro per inhabitant of the EU average, with 102 *viz* France's 114. Economic sector-wise, however, it has a substantially lower proportion of GVA produced by IT professions (3.4% against the country's 5%), and Science and Technical Professions (10.7% vs the country's 12.9%), with the Arts remaining similar (around 3%).

In Socioeconomic terms, the two regions can be summarized in the next table (Table 5):

Table 5 - Socioeconomic Summary of France, Bretagne and Pays de la Loire

Indicator		Europe	France	Bretagne	Pays de la Loire
Education (% per level)	None, Primary and Low Secondary (levels 0-2)	23.1	21.9	16.2	18.1
	Upper secondary and post-secondary (levels 3 and 4)	46.2	43.5	50.0	49.7
	Tertiary education (levels 5-8)	30.7	34.6	33.8	32.2
Unemployment (% Unemployed/ Total Population)	15-24 Years	18.7	24.7	20.3	21.8
	25+	7.5	8.6	7.3	7.3
Employment per Sector (% of Total)	IT	3.0	2.8	1.5	1.8
	Science	9.7	9.6	7.3	8.6
	Arts	5.2	5.2	4.5	5.1

Source: Own elaboration with data from Eurostat

As can be seen, educationally, the two regions stand marginally below the national average and well above the European average, with tertiary education above 32% throughout. They likewise have unemployment levels above the European Average but below the national average, signalling good employment opportunities. As for the sectorial distribution of employment, whilst none of the regions has a high number of IT related employees when compared with France or the EU, they both have relatively high proportions of workers in Science and Arts, despite staying below average.

In terms of Regional Innovation, whilst specific data for Pays de la Loire and Bretagne could not be found, the more disaggregate region of Ouest states the general trends present in the territory: it are very much in line with the European logics of regional development, noting an increase in its status from 2009 to 2017, where it became considered Strong Innovators, the region performing well in terms of Medium and High-Tech Manufacturing exports, and with its lowest indicator (<0.3) being in Trademark Applications as well as Public and Private co-publications. Finally, in terms of patents, the regions – in a country which had, between 2011 and 2012, almost 15,000 patent applications – represent respectively 4.88% and 2.42% of the country's total, with Bretagne totalling 775 and Pays de la Loire 218.

In looking at this data, one should bear in mind that, contrary to countries like Portugal, these regions constitute peripheral regions which exclude the capital regions, and thus their results constitute an example of a peripheral medium-growth region.

5.2.2. Political and Legislative Context

In France - owing in many respects, as is mentioned often, to the importance of French cultural products in many areas such as high-end designer fashion, music, film and literature (EY, 2013), France's management of culture and the CCI seems to have been twofold: on a national basis, there was a generalised focus on capitalising on the new "immaterial economy", very akin to Scott's (Scott, 2000) description of cognitive-cultural capitalism, which focuses on the importance of strengthening (but above all, mobilising), human capital, talent and infrastructures to maximise the growth, internationalisation and innovation in the "immaterial" economy agents (Levy & Louyet, 2006). In this line, the need to produce deep changes to the educational system was explicitly identified (namely in the relationship between academia and industry, and in the administration of digital contents). The lack of engagement with the conceptual framework which underlies the creative industries does not mean France lacks a policy for these industries, but it is noted that this lack of unity amongst sectors is still reflected in the way in which creativity as a whole is perceived amongst French economic policy:

> *"Furthermore, creativity is not truly integrated in the actions of industrial politics, which for now have privileged a highly technological conception of innovation"* [1] (Levy & Louyet, 2006)

Notwithstanding, and despite the lack of availability of centralised data on these industries, this appears to be counterbalanced by the existence of regional observatories (namely, in one of the regions of our interest, in Nantes) which oversee and produce accurate descriptions of the state of the CCI, such as the reports cited below. From these reports we can gather that the more relevant areas are indeed fashion, audio-visual media, design, publishing, performing arts, architecture amongst others, with the broad digital sector taking a lead role in the development of the region, and being the focus of many of the private and private-public endeavours.

The second route which France seems to have taken is that of a more regionalised policy - delegating the administration of economic policy about cultural and crea-

[1] Free Translation from the original French.

tive industries to the local administration of the NUTS II. In this respect, in Pays du la Loire, we can see the relevance of the CCI in the RIS3 (RPL, 2014), as well as on its general strategic cultural policy (RPL, 2008, 2017) as one of the industries with a greater potential for growth. Looking at the document, some areas take primacy (namely fashion, gaming and design), having a particular focus on digital and technological aspects (having specific mention of digital arts).

The orientations for the sector appear to see the CCI sector as having a focus on the potential for urban regeneration and city embellishment associated with these practices. This goes in line with the French strategic policy of mobilising creativity not only within the CCI subsectors, but also of using creative methods and practices in traditional, high-technology and ICT-intensive industries (RPL, 2014). Overall, the recognition of these different typologies of companies with specific skills within the CCI sector appears as having tight relationships to the French focus on the use of technopoles and clusters to foment development (the "Quartier de la Création" functioning as an example). In that respect, Pays de la Loire seems to benefit from the concentration of HEI institutions as well as infrastructures which underlie its CCI tissue, despite the connections between being noted to sometimes be lacking. These assets stand to be complemented, however, both on a transnational basis, and in terms of promoting sustainability of companies on the long run: financial support plays no doubt a crucial role in providing sustainability for the companies, but maintaining contacts between different sectors of the CCI, establishing connections and providing translation efforts between them can work as a strategy to maximise the impact of cluster- and territorial policies (Greffe & Simonnet, 2010).

In Bretagne the situation is somewhat different, owing perhaps to the historical delimitation of Bretagne as a region and the associated added cultural value of the Breton language. The focus is laid clearly in the RIS3, with the stimulus to cultural and creative industries, especially in the digital and ICT subsectors, being paired with a concern with heritage and tourism (RB, 2013). Moreover, the specific organisational structure of Bretagne has the administration of most cultural activities passing through the Bretagne Cultural Council, overseeing many of the emphasis on key areas in the region and incorporating many sectorial associations with specific responsibilities. We can note for instance the audiovisual, and performance arts, which bear a heavy impact on the regions CCI economic contribution (RB, 2017, 2018).

In these documents, as in others, a specific emphasis which we did not note explicitly in other regions is made in terms of the co-design of many of policy, as well as to the question of specific governance of these industries. We can see this in many ways as posing

a sort of transitional phase between the centralised and localised approach in the Iberian countries and Pays de la Loire and the autonomous administration efforts of the Scottish/Irish Regions (RB, 2011) with the institution in 2014 of a specific organism aimed at surveying the field of cultural production, mediation and promotion (RB, 2014). Moreover, Bretagne's relationship with HEI falls very much in line with Scotland and Ireland's strategies, albeit also focusing the crucial role of technological poles and central associations that can provide support in this respect.

5.3. **Andalucia and Principado de Asturias in Spain**

5.3.1 Socioeconomic Context

Andalucia, in the south of Spain, is a NUTSII and autonomous region of Spain, with 87,000 km^2, harbouring more than 8 million citizens (almost 20% of the country's population), with a low population density (96/km^2), encompassing almost 20% of Spain and having 8 districts, with a marginally growing population that reverses the country's overall trend (a -43% decrease in population in comparison to Spain – that is, 4 thousand *viz* a country which lost almost 10 thousand individuals). Nonetheless, Andalucía represents only 13% of the country's GDP, running behind Spain in terms of euro per inhabitant percentage of EU average GDP – only 59% compared to the latter's 80%. In terms of cohesion policy, it is considered a transition region, with the associated priorities in terms of providing baseline economic structures whilst also beginning to foster regional competitiveness. In sectoral terms, it has a somewhat lower proportion of its GVA in IT (2.46% vs 4.29%) and Science Professional areas (5.81% vs 7.82%) than Spain, whilst keeping in par with the country in terms of Arts and Entertainment (4.40% vs 4.15%). Despite being the least economically prosperous of all of the regions in the Atlantic Area, it is thus the one with the highest proportion of its economy hinging on the CCI sector[2].

Principado de Asturias, on the other hand, is a much smaller (10,000 km^2) NUTSII region with little over a million individuals, a similar population density and a decreasing population in the last years (15% of the country's decrease in 2015). It is responsible for almost 2% of the country's GDP, having a below national average EURHAB (71%) despite being classified as a more developed region. Its sectorial structure in terms of GVA is very close to Andalucia (2.96% - IT, SP – 6.08%, 3.96% - Arts) although it has an overall higher proportion in each sector except for the arts.

[2] To verify whether this relationship hinted at a wider trend in European regions, a Pearson's R was run for NUTS II data on Euro per inhabitant of each region by the % of Arts in its GVA. No significant association was verified (p>0,05).

Its socio-economic distribution can be noted in the following table:

Table 6 - Socioeconomic Context of Spain, Principado de Asturias and Andalucia

	Indicator	Europe	Spain	Principado de Asturias	Andalucia
Education (% per level)	None, Primary and Low Secondary (levels 0-2)	23.1	41.7	35.7	50.8
	Upper secondary and post-secondary (levels 3 and 4)	46.2	22.6	23.6	20.0
	Tertiary education (levels 5-8)	30.7	35.7	40.7	29.1
Unemployment (% Unemployed/ Total Population)	15-24 Years	18.7	44.4	47.9	57.9
	25+	7.5	17.9	16.2	26.7
Employment per Sector (% of Total)	IT	3.0	3.0	2.6	1.8
	Science	9.7	10.2	10.0	9.6
	Arts	5.2	13.4	23.7	4.2

Source: Own elaboration with data from Eurostat

Certain features clearly distinguish these regions from the others we have been looking at in the Atlantic Area: Asturias has a very high percentage of individuals with higher education compared to both the national and EU averages, whilst Andalucia falls just marginally short of the EU average, and both have high numbers of individuals with very low educational qualification (in Andalucia reaching over 50%). Both regions follow the Spanish trend of very high youth unemployment, surpassing it, with Andalucia coming to 57% of individuals between 15 and 24 years being unemployed, a number that falls back to 26% when one includes the remaining population contingents, well above the national 17%. As for sectorial employment, both regions differ from the national average in different ways: Andalucia has a much lower population employed in the Science and Arts sector (despite having much of its GVA coming from the latter), whilst Asturias has 10% more people employed in the Arts sector than the country's average (23%)[1].

[1] It should be noted that this number is implausible in light of the data we can see in the Asturian Statistics and Industrial Studies Society; the number is kept here for consistency of the dataset, given it is obtained from Eurostat. For local statistics cf. http://www.sadei.es/es/portal.do;jsessionid=E7EED4B208B0243246950277DE2C67EA

In terms of regional innovation, the two regions have a relatively low score, with little change in the 8-year period from 2009 to 2017, keeping at 68 and 66% of the EU average of 2011. Its indicators point to a lack of R&D and Non-R&D expenditure in the business sector, lack of product and process innovation as well as marketing, lack of in-house innovation in SME's and SME collaborations, lack of public-private co-publications, and the lack of patent and trademark applications: all of these indicators scored below 0.3 in the Innovation Scoreboard. Both regions saw a sharp decline in business and higher education sector R&D investment, following the country's trend, in the 4 year period between 2011 and 2015. In terms of patents, Asturias, with 27 applications in 2011 and 2012, constitutes less than 1% of Spain's total patents (2750), whilst Andalucia constitutes 5%.

These two regions, being the only two under study that are considered transition regions, they should be taken under special consideration, since their policy guidelines framed in the EU context will be strategically different.

5.3.2. Political and Legislative Context

In Spain, the cultural and creative industries are managed by the Ministry of Education, Culture and Sports, as well as a specific secretariat: the General directory of Cultural industries and Publishing. This organism is endowed with a pretty wide range of actions, from promoting cultural tourism, to promoting finance in the cultural industries, ensuring the defence of intellectual property, but also taking on a much more nationally oriented, culture-protection approach which focuses less on the development of the industries than on the development of the national culture. Having a separate office (from heritage and fine arts), ensures in a way that these industries get specific attention, as well as being properly identified in statistical treatment, albeit with some distinctions (between intellectual property intensive activities and others) which seem to fall out of pace with international standards; and this indeed has resulted in a "Plan de Fomento" (2016) (Incentive Programme), endowing creators and cultural industries with specific funds. This plan, issued in 2016, sought to minimise the pronounced effects of lack of public investment, which was there noted to be correlated with the downwards trend of the importance of Cultural and Creative Industries in the national accounts, which overall signalled a smaller and smaller role of the sector contributions for GAV and GDP especially in areas such as fine arts and performance arts. It should in particular be noted that the internal cultural and economic path of Spain also leads to certain sectors such as Publishing, with lower proportional gains, to be at the heart of the CCI sector in the country.

The Incentive Programme identified many problems and limitations which follow in line with Boix & Lazzeretti's (Boix & Lazzeretti, 2012) diagnosis: lack of professionalisation, lack of adaptation of human resources towards entrepreneurial needs, shifts in consumer behaviour, amongst others, which lead the two authors to proclaim in 2011 that:

> *"In Spain there is no integrated policy for the creative industries, as exists in other countries. The national policies and strategies focus around the concept of "culture", and complement some sector-oriented strategies. There are also some incipient regional and local strategies."*[1] (Boix & Lazzeretti, 2012)

Moreover, it should be noted that the effects of digitalisation, integration of ICT and the changing intellectual property environment is seen through its more negative potential implications: lack of adequacy of the sector, production of disincentives to innovate, and the tendency for them to become obsolete of many of these areas. Whilst this is so, it also points out that adequate incentives - especially focused on knowledge transfer programmes with content deemed relevant by the companies, as well as proper financial mechanisms, ought to counteract this trend.

In terms of the region of Andalucia, some striking statistical mismatches can be seen: whilst our Eurostat analysis would point to the employment in Andalucia in the arts and science rounding almost 13%, this is reflected in national statistics at a quite modest 2.7% (with Asturias scoring an even wider gap, dropping to 2.6%). Moreover, as noted in the OECD report (OECD, 2010) on the area, the lack of patrimonialisation efforts in terms of local heritage (such as Flamenco) has led to some doubts over the effective exploitation of local cultural resources. In further contrast, an econometric analysis of 2014 (Sanchéz & Vega, 2014), identified that up until 2008, the rate of growth placed the CCI sector as producing more jobs in relation to its financing than most other sectors, and that the sector made important contributions in reducing regional disparities – although the authors note the contingency of this data on the time period to which it refers. As we shall see, however, this says less about faulty data than it does about comparability and the use of different classifications (for instance, with Sanchèz using the European definition of CCI, with multiple clusters and core and external regions, whilst OECD uses Richard Florida's holistic and technology emphasizing classification. Nonetheless, much like in the case of Spain, statistical information, mostly related to the cultural sector could be found in the Andalucian Statistical Office (IECA, 2016).

[1] Free Translation from the original in Spanish

Taking a look at the field study produced in 2010 (FAMP, 2010) one can see clearly the many faces of the cultural politics outlined by Andalucia. Keeping with the Spanish logic, the focus tends to be on "culture" as a domain of discourse, including the cultural and creative industries alongside cultural equipment. Again, like Spain, culture appears in this document with a clearly social component, something which can be seen in the way in which cultural policy is discussed: more than economic growth, social stability appears as the dominant theme in that document. In this, the CCI appear more as an instrument amongst a cultural policy aiming at touristic growth, branding of a national culture (with some local overtones), than a marked focus on the specific subsectors.

Nonetheless, in the Andalucian context a specific subprogram was indeed identified that related to what is here understood as "cultural industries" (FAMP, 2010). These however seem to be placed at an ambiguous position, given they receive substantially less than other areas with which they seem to overlap. This seems at least in part to be the result of the fact that only photography, graphic design, broadcasting, performances and cinema are considered cultural industries – a classification which excludes in that way theatre, museums, flamenco, heritage and writing and publishing activities. The same document – glancing at a local level – also emphasized the importance of the municipal cultural policies in tracing the overall trends of a region, noting, in the various localities, that the major challenges identified tended to refer to the lack of entrepreneurial tendencies amongst private enterprise, more focused on a social and cultural mission, as well as at times the lack of public engagement. Moreover, the lack of communication between different municipalities appears as one of the major impediments to the development of the sector in Andalucia. This points to us the need for greater sensitivity to business, as we will refer below, but also an explicit admission of the multiple other forms of value present in these domains.

In the Asturias Principality, the engagement with the CCI subsector is substantially lower than in Andalucia; whilst the data we have previously shown would indicate the sector to have a potentially higher number of companies in percentage, which should at least in principle translate into a more active and aware policy, the situation seems quite distinct looking at the policy context (Muñoz, 2012). As far as statistical information, the existence of autonomous data is scarce, and in many respects ill-suited for the task of identifying and targeting specific elements of the CCI industries, by not making a proper distinction between subsectors, not having sufficient care for the demand side, and not having dedicated reports on managing the sector (Muñoz, 2012). One can in particular note that the RIS3 specialisation strategy (IDEPA, 2014) showcases this overall lack of specific concern with the CCI, given it does not figure in any of the main objectives, and

is only mentioned in the context of a wider cultural policy (as noted for the Spanish case in general). An exception on this apparent rule is the "White Book on the Cultural Industries of the Asturian Principality" (CCT, 2009), which outlined the industry, but which can now be seen as a quite dated document – almost 10 years old, and done before the economic and financial crisis.

Nonetheless, reading it can give us a sense of the overall priorities outlined for the region as far as this sector is concerned. A first element we can gather from it is the emphasis on the audio-visual sector, which is mentioned in great detail both in the above stated document, and which appears to have some relevance overall on the region (DEX, 2017); similar remarks are made especially in the relationship between the audio-visual and ICT sectors, which is seen indeed as a source of development in the RIS3, and made a focus. Notwithstanding the growth of its human resources and capital, the continued lack of highly qualified individuals in this sector, as well as the lack of HEI courses available, makes this sector particularly vulnerable to external influences. Other sectors named in the white book include the videogame industry, publishing, performance arts and the visual arts, and these are seen as plausible avenues of development, despite with some key challenges: difficulties in inter-regional expansion, lack of associative tissue that represents professionals from these areas (except for the visual arts), excessive dependency on public funding and lack of sustainability.

Most importantly, the White Book identified specific lacks in terms of innovation, entrepreneurship and ordinary, day-to-day managing tasks to be developed, as well as the need to connect ICT companies with "traditional" CCI companies. If we are to take these indicative notes – as we could identify few policy papers and documents that can give us an idea of the sector – Asturias is potentially the region which stands to gain more from the developments outlined in this technical model, as well as, in general, the 4H-CREAT project.

5.4. **South Western Scotland in Scotland**

5.4.1. Socioeconomic Context

The NUTSII region South Western Scotland – which includes Glasgow, Galloway, Ayrshire, amongst other municipalities, with roughly 13,000 km^2, being home to more than 2,3 million (179/km^2) individuals – almost half of the Scottish population – with a positive yearly increase in population of 2,5 thousand inhabitants in 2015. Being an admin-

istrative, rather than culturally recognized region, it has less external visibility in terms of autonomous identity. It represents 40% of the Scottish GDP, being slightly below the 127 EURHAB level of the country, with 117%, and is considered a more developed region of the EU cohesion policy. In sectorial terms, it follows very much the country's trends: 4.2% of the GVA is produced in IT, 9.58% in Science Professional and Technical Enterprises, and 3.93% in Arts and Entertainment.

Socio-economically one can characterise it as such:

Table 7 - Socioeconomic Summary from Scotland and South Western Scotland

	Indicator	Europe	Scotland	South Western Scotland
Education (% per level)	None, Primary and Low Secondary (levels 0-2)	23.1	20.0	22.5
	Upper secondary and post-secondary levels 3 and 4)	46.2	32.2	31.4
	Tertiary education (levels 5-8)	30.7	47.8	46.1
Unemployment (% Unemployed/ Total Population)	15-24 Years	18.7	12.3	12.7
	25+	7.5	3.9	4.3
Employment per Sector (% of Total)	IT	3.0	3.1	2.8
	Science	9.7	10.5	9.9
	Arts	5.2	5.3	4.6

Source: Own elaboration with data from Eurostat

As one can see, the region stands well above the educational average of the EU as pertains to higher education. Its unemployment rates, following in line with the rest of the UK, are quite small, both in terms of youth unemployment and in general. Finally, in terms of the sectorial distribution of employment, the sectors seem to follow, roughly, the EU average, except for the Arts and Entertainment sectors which are below the average value.

Once again, due to the structure of the NUTS divisions, the regions under study in terms of regional development did not encompass South Western Scotland, rather including the whole Scottish territory. The country scored the highest index score of all regions under study throughout the 8 year period, going from 112% of the EU 2011 average to 129%, and being seen in that sense as a "Leader" innovator. It is notable however that its lowest scored indicators seem, however, to be consistent with other regions: these were Non-R&D innovation expenditure, patent and trademark applications. This falls somewhat in line with what we can see from the sharp decline in funding in R&D: from 1.5% of the GDP to 1.1% in 2014, something which affected primarily the Higher Education Sector.

5.4.2 Political and Legislative Context

Given Scotland's status as a devolved administrative region, its cultural policy operates in a constant flux between autonomous decision making, union-level discussions with the relevant bodies on reserved matters and those that require union funding – namely the Department of Media, Communication and Sports (DMCS). CCI policy in Scotland follows the overall logic of the UK in terms of a strong political commitment to the sector: there exists a dedicated, non-departmental development body that oversees and manages the sector (Creative Scotland), which is in charge of identifying opportunities, working to promote the position of the sector in economic and financial discussions in Scotland and in the UK, and to promote the role of the sector in its cultural, economic and social dimensions (CS, 2014c). In that respect, contrary to the southern European countries, the emphasis on the extra-economic aspects of the CCI stands out from the 10 year "vision" (CS, 2014c), and embodies in many ways a more detailed understanding of the overarching impact of these industries, most likely due to previous experience (since Creative Scotland was preceded by two other governing bodies on screen and visual arts respectively).

In its action there appears a finer detail in treating the internal sectors: there are three dedicated programs, one for the visual arts, one for the screen and filmographic productive sectors, and one specific to "creative industries", each with autonomous financing, specific goals and outlines, with all three being cast under the same general ambitions – of which one emphasizes a triple/quadruple helix-like involvement of multiple actors within the specific actions of the sector, in particular in promoting alternative business models and operational setups. Its subsectorial concerns also extend to the existence of specific sector assessments and reports, such as Animation (CS, 2017b), Literature (CS, 2015), Music (CS, 2014a), Visual Arts (CS, 2016), Dance (CS, 2012) and Film (CS, 2014b). Creative Scotland's action extends also to disseminating creative solutions and

processes to other areas – such as learning (CS, 2013) – with dedicated plans aiming at precisely these questions, where they emphasize the importance of adapting current teaching and learning strategies to more creative contexts where lateral and critical thinking is encouraged. Likewise, an emphasis on producing talent which is better suited to the needs of companies is identified in many of these reports (namely in Animation and Film). This is in addition to the recognition of a well developed HEI system, where training courses are well established and have a recognised track-record of producing award-winning graduates (CS, 2017b). Nonetheless, as the animation sector report tells us, articulation with the Creative Skillset "Tick" Program – which aims at orienting programmes for market needs, and to promote relevant areas within courses – has been slow on the uptake, with very few university courses in Scotland being accredited (something which is, furthermore, a generalised fact about the Skillset Program across the UK).

In that respect, the growing importance of lifelong learning, dedicated HEI programs adapted to the needs of companies and practitioners, as well as collaborative programs that involve placement in universities, entrepreneurial training, providence of skills in key areas such as intellectual property (which is identified throughout as a key area, due to the growing importance of the digital aspects), have all been noted as key aspects of the development of CCI policy. A Universities of Scotland 2011 paper identifies crucial aspects in which KT processes have been undertaken between Universities and Industry, namely in the institution of research pools that bring together individuals from both contexts, the role of universities as promoting multidisciplinary research, as well as the transfer of design models to other industries, the co-location of facilities in incubation, and mutual hiring practices. There are some important aspects noted in these documents:

> *"There needs to be recognition from policy-makers that in the creative industries, as with other sectors, not all knowledge exchange activity will generate immediate significant economic returns in the wider economy but that slow-burners may deliver in the long-term if given support and patience"* (US, 2011, p. 19)

Further recommendations include some notable factors: the need to provide adequate funding not only for creative solutions, but also to the study of the creative economy; the need to involve industry groups and trade associations in promoting the importance of university-links. Overall, these marks indicate an explicit concern with University's role in the CCI unlike most other regions under study – and noting the existence of already active stakeholders who can help mediate KT in practical contexts.

5.5. **Southern and Eastern Ireland**

5.5.1. Socioeconomic Context

The Southern and Eastern (S&EI) NUTSII administrative region of the Republic of Ireland includes an area of approximately 36,000 km² (94/km²), a population of almost 3,5 million inhabitants (constituting 73% of the total population), with a positive demographic balance of 35 thousand people (almost all of the country's increase) in 2015. In 2015, it was responsible for 84% of the country's GDP, and, alongside Ireland's notable 191% EURHAB statistic, it possessed in 2015 a EURHAB value of more than 200% - placing it comfortably amongst the more developed regions of the EU **cohesion** policy, and amongst the regions with a smaller budget. In terms of the sectorial GVA, the Irish case also stands out due to the prominence of IT and Science (10.54% for both in Ireland; 12.20% for IT and 11.50% for Science in Southern and Eastern Ireland), whilst having arts contribute relatively little (less than 2%) – making it the region with the lowest arts contribution.

Its socioeconomic portrait is as follows:

Table 8 - Socioeconomic Summary of Ireland and Southern Ireland

	Indicator	Europe	Ireland	Southern and Eastern
Education (% per level)	None, Primary and Low Secondary (levels 0-2)	23.1	19.9	18.4
	Upper secondary and post-secondary (levels 3 and 4)	46.2	37.0	36.4
	Tertiary education (levels 5-8)	30.7	43.1	45.2
Unemployment (% Unemployed/ Total Population)	15-24 Years	18.7	17.2	15.6
	25+	7.5	6.9	6.6
Employment per Sector (% of Total)	IT	3.0	4.4	5.0
	Science	9.7	9.3	10.2
	Arts	5.2	5.2	5.3

Source: Own elaboration with data from Eurostat

With almost 45% of its population having higher education, alongside a low level of population with low education, the region stands substantially apart from the EU average and from the national average, indicating a strong human resource pool. Its unemployment levels are likewise comfortably below the EU levels, reaching less than 7% total unemployment in people over 25 years. In terms of sectorial employment, the country as well as the region fall in line with the EU average except in terms of IT – where 5%, in contrast to the EU average of 3% and the national average of 4% are employed. Curiously, this means that despite being a sector with a substantial level of employment the Arts and Entertainment produce a very meagre proportion of the wealth of the region.

As far as R&D expenditure goes, Ireland – despite the scarcity of data – saw a slight decrease in GDP expenditure over all sectors, affecting Higher Education in particular, as well as Government sector investment. It is classified in the Regional Innovation Scoreboard as having 118% of the EU average of 2011 in 2017, a sharp increase from the 103% in 2009, constituting a strong innovator. Its two worst indicators are again non-R&D innovation expenditure and patent applications. Despite this, the region is responsible for 71% of the patents of the country, harbouring 445 applications between 2011 and 2012.

5.5.2. Political and Legislative Context

In Ireland, management of the CCI sector is divided among different institutional branches of the government according to specific functions they are supposed to carry out – the Department of Arts, Heritage and Gaeltacht, with roles in maintaining, funding and promoting the arts, film, music and heritage, alongside the Irish language; the Department of Communications, Energy and Natural Resources, responsible for policy on broadcasting; The Department of Jobs, Enterprise and Innovation, with responsibilities in administering the growth of SME's in the sector; The Department of Environment, Community and Local Government, which has tutelage of questions involving local government on heritage and cultural aspects (Cunningham, Dolan, Kelly, & Young, 2015). These various departments have in part delegated some of their power to three councils which oversee the development of some subsectors of the CCI: the Irish Film Board, the Crafts Council and the Arts Council. However, in similar vein to the UK, in 2016 the government opted to create a united plan that could bring these areas together: a Creative Ireland Programme for a five year term (CI, 2017). Whilst similar in many ways to the UK, the specificities of the Irish economy have led it to follow a different trail – and in some ways, its setup is closer to the Southern European policies (lack of statistics, late adoption of a clear CCI sector policy, namely), albeit with key differences.

Some of the policies in Ireland appear to be quite unique. The local proliferation, and subsequent lack of excessive centralisation (Indecon, 2011) around Dublin, can be seen for instance in the numerous local plans and strategic frameworks specifically tailored for counties, which in turn report to the wider "Creative Ireland" programme. This local specification gives the country a distinctively community-based approach which seems to be less present in other regions under study. Other notable differences include Creative Ireland's focus on enabling children to participate in their educational process through creative tools such as participation, engagement in initiatives such as CoderDojo (CI, 2017); and the specific focus on heritage and tourism as being included amongst the concerns of the CCI (something hinted for instance in Portugal and Spain, although with a less pronounced focus than in Ireland).

Looking at the specific sectors under study, different reports seem to place different emphasis on different aspects of the Irish CCI (Cunningham et al., 2015; DKM, 2009; Indecon, 2011), whilst overall taking a very wide approach to culture and creativity, which encompasses not only the arts, but also often times cultural tourism, heritage, crafts, software development, writing and publishing. Software development in particular appears in policy as an important goal for the country, emphasizing the need for higher levels of digital literacy). This can likewise be seen from an economic point of view: software appears as the industry with the highest percentual contribution to GVA, followed by writing and publishing (Indecon, 2011). Whilst it is hard to make general statements about the present priorities of policy, Ireland appears in many ways the region with a greater focus on the "creative" sectors, considering advertising, design, software and similar areas which mobilise creativity and culture as assets, whilst also hosting a strong focus on heritage and traditional cultural aspects (something which is notable in the RIS3 specialisation, as regards CCI, cf. (DJEI, 2014) .

5.6. **Regional Comparison**

The regions under study, for these reasons, do not seem to fall into easy categories. However, it seems necessary to organise our work by taking the seven regions and grouping them – which we might, tentatively, opt to do based on geographical proximity, which as we noticed bears some correlates in terms of organisational and statistical tendencies. Taking the above stated, we can summarily define these regions as follows.

Table 9 - Summary Statistics; CCS and Sectorial Employment statistics calculated on average of NUTS II Regions; remaining comparative statistics on EU average

	LMA	Bretagne	Pays de la Loire	Andalúcia	P. de Asturias	South Western Scotland	S&EI
Population of region (% of country)	27.0	4.96	5.5	18.09	2.2	43.55	73.54
Regional % of Country's GDP	36.0	4.00	4.97	13.0	2.0	40.0	84.0
CCS % of Total GVA	19.4 Above Average	16.6 Average	17.18 Above Average	12.67 Below Average	13.0 Below Average	17.71 Above Average	25.6 Very High
Sectorial Employment	25.0 Very High	13.3 Below Average	15.5 Average	15.6 Average	36.3 Very High	17.3 Average	20.5 Above Average
Higher Education Levels	33.5 Average	33.8 Average	32.2 Average	29.1 Average	40.7 High	46.1 High	45.2 High
Unemployment	10.8 High	7.3 Average	7.3 Average	26.7 Very High	16.2 Very High	4.3 Low	6.6 Below Average
Innovation	90.6 Average	104.5 Average		68.49 Low	66.76 Low	129.2 Above Average	118.6 Above Average
Patent Score	0.29	0.36		0.11	0.15	0.29	0.27
Design Score	0.32	0.38		0.32	0.31	0.32	0.37
Trademark Score	0.31	0.25		0.35	0.19	0.29	0.41
Medium and High Tech Manufacturing	0.53	0.40		0.31	0.34	0.42	0.63

Source: Own elaboration with data from Eurostat

Notable points include that overall, despite having 36.3% of the population allocated to the three Cultural and Creative Sectors, Asturias has less than 13% of its GDP coming from that sector; that Lisbon balances high levels of unemployment, a high percentage of employed population in the CCS sectors, and an overall economic performance; that the Anglophone countries seem to perform well above average on most indicators, and the francophone regions seem the ones closest to the European average, all the whilst having a high patent score.

Focusing on the mentions and relative importance that we could ascertain from the brief policy incursions we made in this section, we can attempt a brief sketch of what appear to be sectorial priorities amongst regions (table 8).

Table 10 - CCI Subsectors Outlined in the Policy and Academic Literature by Region

	LMA	P. de Asturias	Andalucia	Bretagne	Pays de la Loire	S&E Ireland	Scotland
Advertising	●					●	●
Architecture & Industrial Design				●	●	●	
Designer fashion				● ●	● ●	●	●
Video, audio, Film	● ●	● ●	●	● ● ●	● ●	● ●	● ● ●
Music	● ●		● ●	●	● ●		● ●
Photography	●	●	●	●	●		
Graphic design	●		●	● ●	● ●	● ●	
Writing & Publishing	●	●	● ● ●	● ●	● ●		● ●
Dance/Ballet	●			● ●	●		● ●
Theatre	●	●	●	● ●		●	● ●
Orchestras/ Music Conservatories	●			● ●			
Broadcasting (TV/radio)	●	●	●	●			●
Apps development	● ●				● ●	● ●	●
Digital Arts	●	●	●	●	● ● ●	● ●	
Social Media & Influencers							
Gaming/Animation	● ●	●	●	●	● ●	● ● ●	● ●
Virtual Reality					● ●	● ●	
Web Design, Multimedia, Transmedia	● ●				● ●	● ●	
Fine Arts, Antiques, Sculpture	● ●	● ●	● ●	●	●	● ●	● ●
Others (Tourism/ Heritage)	● ●		● ●	● ● ●		● ● ●	● ●
Museums & galleries	● ●	● ●	● ●	●	●	● ●	●
Crafts	●			●	● ●	● ●	●
Creative Cooking							
Events/Festivals	●	●	● ●	● ●	●	● ●	● ●
Tech Devices	● ●		●		● ●	● ●	

Legend: ● Focused in the Report; ●● Important Socioeconomic Impact; ●●● Crucial Sector
Source: Own elaboration, based on policy review

The legal and policy aspects seem in many ways to agree with this general outline: cultural and creative policies are both more explicitly made a priority, have a longer history and are allocated more funds and institutional management powers in Scotland and in Ireland, with dedicated bodies and programmes aiming to make culture and creativity a priority on a regional, national and local basis. These regions possess monitorisation programmes and strategic planning carried out by Creative Scotland and Creative Ireland respectively. Despite their similarities, they have some different goals (as comes for instance to the wider scope of intervention of Creative Ireland in terms of cultural heritage and tourism, and to Creative Scotland's higher number of sectors with dedicated plans and reviews).

The Iberian regions, albeit highly different from each other, share a slower acceptance of the importance of the sector, as well as more tentative policy, something made worse by the crisis years. The LMA and Asturias also have incipient statistical information available. More so, in the LMA the focus seems to be less on the active potential of creativity and more on the spillover effects coming from targeting these areas, and efforts have been relatively limited to some areas deemed priorities (apps development and software, advertising and design). Likewise, in Andalucía, with a very diverse and rich heritage, policy seems more aimed at capitalising on these industries to both combat de-industrialisation and increase cultural tourism to the region. The focus on the more "traditional" arts is something shared with Asturias, and drives much of CCI sector policy. Nonetheless, the IECA in Andalucía provides detailed information, something not easily available in the other regions. Even more so than the Portuguese case, these Spanish regions seem to lack organisational and managerial support for their activities, and all three identify the lack of communication between different types of institutional agents.

When it comes to France, the focus and concerns on CCI policy tend to be heavily targeted at two fronts: maximising the nationally recognised (fashion, music, film) and locally known (audio-visual, heritage, crafts, digital arts) sectors, hinging on a mix between HEI and technological poles, clusters and other forms of knowledge concentration. In terms of autonomy of administration, especially Bretagne appears as facing a sort of transition towards greater self-administration, and more explicit admission of the importance of CCI as a sector itself.

Indeed, looking at Table 10, we can see that the overall picture gives us a glimpse that in the "Iberian Regions", despite some buzz being generated that has, of yet, translated into little policy and administrative reforms, there exist a lack of statistical data and autonomous regional policymaking, which in turn leads to a lack of explicit considerations of CCI KT policy. Likewise, there appears to be a heavy toll in terms of lack of University

links in these areas, despite the recognition of the importance of these connections. The French Regions have a mixed institutional framework, combining some of the regional development strategies with well-established sectors and depending heavily on the associative and business cluster tissue present in the territories. And the Scottish/Irish Regions have a more explicit basis for policy derived from their long history, although throughout they lack specific KT mechanisms for knowledge transfer – whilst they may exist, they are spread out amongst other political concerns, and neither see a recognition of CCI innovation as legitimate, nor its social and cultural value as meriting efforts of transfer, nor the promotion of education in ways that are well informed and relevant for the market.

Overall, then, the specific foci that different KT strategies can have will have to be well thought out in light of these regional specificities. In regions like Pays de la Loire or Ireland, focusing on HEI as taking on the task of translating and mediating between small, medium and large companies, and providing these industries with highly qualified talent that is adequate to the needs of the market, will play a much larger role than it might in regions like Scotland, although this in turn might need greater concern in explicit collaborations between CCI and HEI with alternative programmes such as internships, hybrid programs and adapted solutions to lifelong learning. Southern countries appear to need to a greater extent the professionalisation of their sectors, increase in the recognition of CCI as being led by entrepreneurs and risk-takers, greater connection between sub-regional entities (as lack of communication within the LMA and Andalucía was identified), alongside the other mentioned questions. We should then turn to these specific questions in order to see in what ways we can think such patterns of KT towards CCI, and also how to relate them to the regional profiles we have identified here.

Table 11 - Regional Policy Towards the CCI and KT in CCI, Compared between Regions

		LMA	Andalucía	Asturias	Pays de la Loire	Bretagne	South-Western Scotland	Southern and Eastern Ireland
Statistical Information	Specific CCI category in Statistics Offices	x	Yes	x	Yes	Yes	Yes	Yes
	Dedicated Statistical Reports	x	x	x	x	Yes	Yes	
	Existence of comparative data	Yes	x	x	x	Yes	x	
Policy Focus	Nationally recognised as relevant focus of policy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Policy under National Tutelage	Yes	Yes	x	x	Yes	Yes	
	Policy under Regional Tutelage	x	x	Yes	Yes	x	x	
	Existence of autonomous governing body	x	x	x	Yes	Yes	Yes	
	Regionally recognised as relevant focus (RIS-3)	Yes	Yes	Yes	Yes	Yes	Yes	
Goals and Policies	Synergies with other sectors	Yes	Yes	x	Yes	Yes	Yes	Yes
	Promoting clusterisation	x	x	Yes	x	Yes	Yes	
	Opening of FabLabs/ Incubators/Accelerators/ Technopoles	x	x	Yes	x	Yes	Yes	
	Increasing tourism and heritage preservation	Yes	x	x	Yes	Yes	Yes	
	Creation of Dedicated Funding Mechanisms	x	x	Yes	x	Yes	x	
	Implementing Creativity in Adjacent Sectors	x	x	x	x	Yes	x	
Links to Universities and Sectors	Promotion of Entrepreneurship in CCI	x	x	x	Yes	Yes	Yes	x
	Establishment of Explicit Connections between Academia with CCI	x	x	Yes	Yes	Yes	Yes	
	Creation of Dedicated KT Mechanisms for CCI	x	x	x	x	x	x	
	Establishment of Inter-Subsectorial Platforms	x	x	x	Yes	Yes	Yes	
	Co-Location of CCI Development Agencies and Universities	Yes	x	Yes	Yes	Yes	Yes	
	Involvement of Sectorial Partners in Policymaking	x	x	x	x	x	x	

Source: Own elaboration, based on policy review

6.

Technical Model Proposal for Knowledge Transfer from Research Centres to Cultural and Creative Industries

Arriving here, it is time to piece the various elements we have discussed together, in order to be able to produce a relatively lean model of knowledge transfer, which takes into account the diversity of needs within specific regions, addressing their primary foci, the specificities of cultural and creative industries as an economic subsector, as well as the specific values and motivations which underpin those actors. From the discussion of KT we have been able to note three main lines of transfer across sectors – and it is within such a general framework that we propose three lines of intervention, which we will comment to make them as adequate to the context of CCI as possible. These are:

- **Increase knowledge transfer and entrepreneurship practices**: the need for greater transfer of specialised skills identified by the CCI sectors, in terms of entrepreneurial and managerial practices, as well as mobilising knowledge with economic, social and cultural relevance from HEI to the CCI;
- **Promote sharing of expertise amongst CCI**: a general need for greater knowledge collaboration between companies with HEI serving as translator-mediator;
- **Generate new CCI opportunities**: the need for knowledge to be mobilised in development of new ventures, taking into account the specificities of the market, and promoting professionalisation of students and projects through collaborative engagements.

The latter appears in particular in policy reports from Ireland and Scotland, where questions of KT have become part of the institutional policymaking (CI, 2017; CS, 2017a), but have also gained relevance in countries like Portugal or Spain in the last years, as it focuses on HEI taking an active, rather than passive, role in constructing opportunities to maximise and disseminate knowledge across the CCI sectors. These questions also have an element of scale to them: they must be tailored to the specificities which we previously surveyed, and which we could note were marked by institutional frameworks, sizes and *ethos* that are substantially different from the remaining sectors. We will thus take each of these goals in turn, seeing how they can play out in terms of the various company subsectors, before turning to a finer discussion on how such activities could fit into the institutional framework on CCI in each of the partner regions[1].

[1] An important aspect we refrained from exploring here is how these activities would in turn fit with the KT policy of each of the regions; whilst we make some brief discussion of these aspects, they would merit a finer assessment.

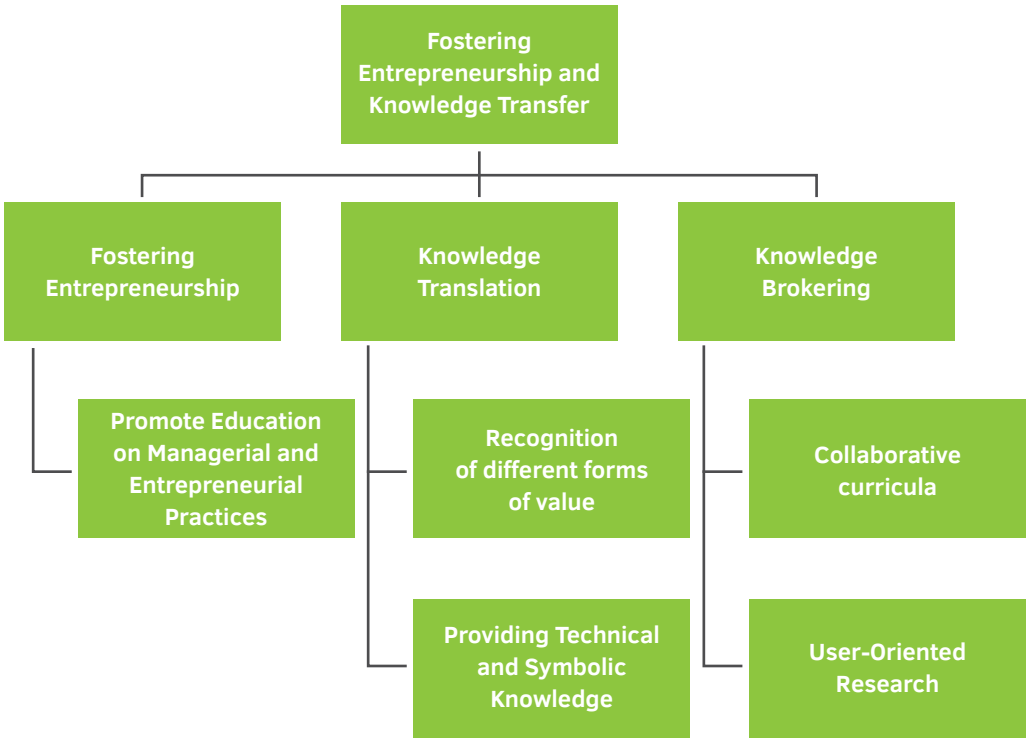
6.1. Increase Knowledge Transfer and Entrepreneurship Practices

As we could note throughout the analysis, many CCIs, especially given their generally small size, have substantial issues in terms of affirming themselves and engaging with economic markets. This is particularly true in certain subsectors which lie at the border between symbolic and technical-entrepreneurial knowledge, with a partial aesthetic motivation, with some individualised practices of work (such as designers of all kinds – web, graphic and game designers). Due to their profit motivations, their greater focus on innovation in technological and technical terms and restraints on market knowledge, these sectors could amply benefit from multiple ties established with Research Centres and Universities, towards receiving knowledge on business aspects.

The first and perhaps more obvious would be to **provide entrepreneurial and managerial skills to CCI workers and entrepreneurs**. Making use of already existing knowledge from the disciplines of economics, management and finance, the provision of these skills could be facilitated by the HEI in a dedicated manner – that is, by **providing such contents in a way relevant to the specificities of the companies**. As we noted before, despite infrastructures being present in the regions, and often them being underutilised, these do not seem to be fine-tuned to the needs, the know-how and the informal workings of CCI companies. This compounds on the problems of achieving growth and success within SME's that already benefit from these programs in general. There is hardly any point in talking of managing product sales in terms of sales-tracking, financial operations and web analytics when the human resources available would not allow the implementation of such practices, and very little use in giving examples of commercialising products to service-focused companies. The specific ways and relevant aspects are moreover place-bound, in the sense that whilst some themes may be transversal, these would not make sense across subsectors and across regions. We can then expect that the companies closest to the Social and Aesthetic orientations in Figure 1, should in most cases be left out of such activities, as they will probably find them unsuited for some of their purposes[1], although as we previously noted, a great part of these same agents noted in our survey a desire to receive knowledge and help in managerial and entrepreneurial activities. Their major benefit would thus probably lie in understanding the operation of commercial activities in case they opt to focus on investing in generating economic activity.

[1] We noted this in the course of the works, as contacts established with companies of subsectors such as visual arts, some graphic designers, sculptors, alternative musicians and labels, orchestras, and local schools led often to non-response, debates on the applicability of their classification as CCI, and demarcations from more entrepreneurially minded businesses.

Figure 7 - Policy Lines Focused on Increasing Knowledge Transfer and Entrepreneurship



Source: Own elaboration

Focusing more specifically on knowledge translation, and in the providence of scientifically encoded knowledge to actors that require it as input for their work, we noted that business knowledge in no way exhausts the kinds of knowledge required by CCI actors to engage in their activity. To use Asheim's distinction between knowledge bases, translating and providing **analytical knowledge** amounts in many ways to an expedient and efficient science communication into these sectors, which would in any case be required of a properly working KT system, and was noted by our subsector analysis to be lacking; **synthetic knowledge**, with its specific applications in the subsectors, amounts in many cases to the transferring of relevant digital skills within a best-fit approach (not the most advanced, but the most adequate technology, cf. (Schumacher, 1973)), as well as making companies aware of the inherent importance of taking into consideration the opinions and thoughts of end-users, and what means are available to acquire these. For companies of sufficient size such notions might not be as relevant, but for sufficiently small companies – as is the large majority of companies – such a thing can prove daunting; the creation of collaborative observatories that monitor user data for companies would in that sense work as a further tool of empowering small and micro companies to compete within the current market. Moreover, since many of those actors have some degree of focus on "traditional" sources of innovation, providing such knowledge in an

adequate framework could promote bilateral links that expands the technological frontiers available for their practice.

Symbolic knowledge can prove particularly relevant in drawing companies of subsectors such as advertising, film production, or apps development, into social and cultural concerns which mobilise society. Mobilising knowledge produced by the social sciences, humanities and cultural studies, and providing some reflexive tools into the way that their actions are carried out and what impact they have, such efforts of translation would essentially be aimed at noting the relevance of these other values which are crucial for social sustainability, and which have intrinsic ties to economic growth, innovation and social innovation. This amounts to taking the quadruple helix perspective seriously, that is, mobilising knowledge in ways that are accurately relevant for the end-users, be they customers or citizens.

These practices are, as one can notice, mostly one-directional, in that they take existing knowledge, or knowledge to be developed within, the HEI, and transfers it to be used in the CCI industries. However, as we noted in the answers we got, in order for this to be productive there has to be a constant interchange between CCI and HEI: CCI SME's have to identify what areas and topics in which they are most interested, in what respects, for instance, technical knowledge of music production. We speak of an interchange because naturally such collaborations would be most fruitful when both experts from HEI become acquainted with the practices of CCI, and entrepreneurs and workers from CCI learn what kinds of knowledge are available from HEI. The development of **collaborative curricula** is a particularly ambitious step which would serve in this, as it allows for companies to piece out specific needs out of the skills provided by HEI, and develop them into specific needs their workers, or their future workforce, should have. Moreover, such a practice could minimise costs imposed on these actors in providing training, which is relevant due to size.

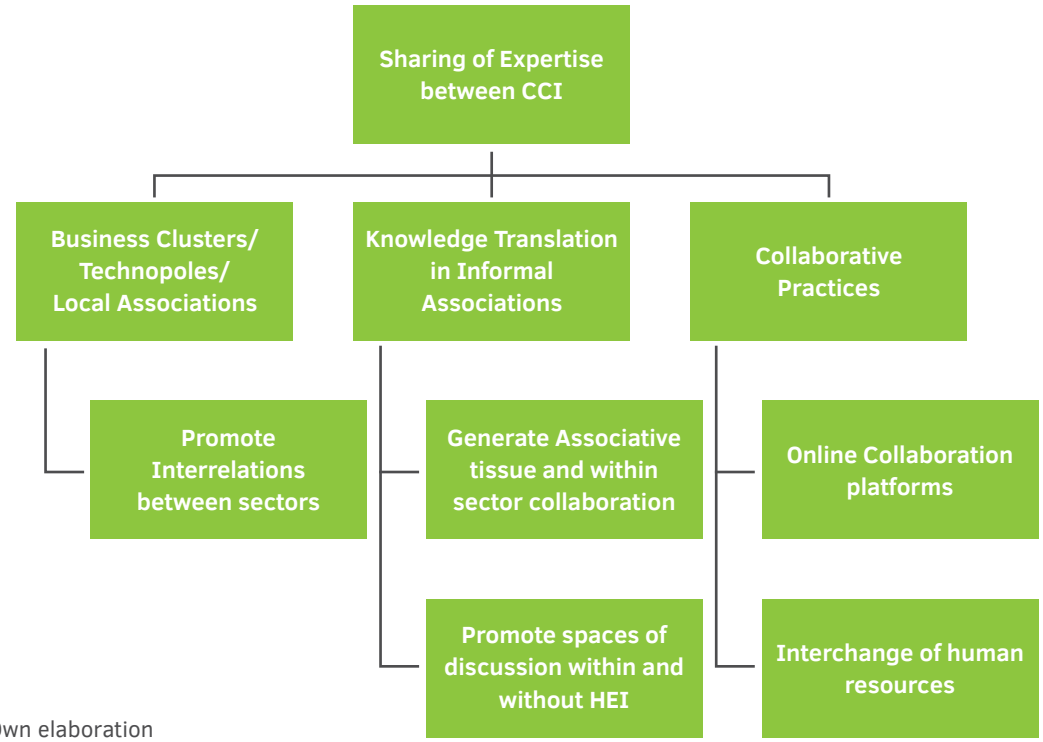
The case of small companies, and individuals, who are more oriented to cultural and social practices would in particular be quite adequately unframed within such collaborative practices, in light of the way in which most of their activities tend to be developed, and some of the ethos which tends to motivate their practices: DIY and DIT practices, typically with improvised and absolute minimum-cost solutions. The core focus is thus to realise that not only the knowledge has to be translated, but the specific methods in which knowledge is transferred must be taken into account. In this respect, such transfer ties in with our next point – sharing expertise – by mobilising actors within existing networks of contacts, **both with formal and informal gatekeeping roles**, and using their own specific codes and practices to generate engagement with the entities. This also implies that HEI recognise that

part of their transfer processes include multiple forms of end-value, with commercial output being one possible metric, which in no way exhausts the impacts of transfer actions.

6.2. **Promote Sharing of Expertise amongst CCI**

In our previous discussion we noted that one of the key aspects of promoting development within CCI subsectors was to engage these sectors within strong networks, not only with entities of the same subsector, but also between such subsectors. This is something often mentioned in the literature, as the non-existence of these networks often leads to unproductive isolation of certain members, owing merely to lack of knowledge of the existence of partners or competitors, which can in some cases stifle creativity. Such statements are not generalisable to the whole of the CCI sector, with some subsectors benefitting from more structured networks, and others having more to gain from some nodes being isolated as axis of avant-garde and development. However, in most cases, the existence of networks of collaboration is noted as an important aspect in the promotion of knowledge flows and innovation, and one where the involvement of different types of actors is both particularly needed and lacking.

Figure 8 - Policy Lines Focused on the Sharing of Expertise between CCI with HEI Serving as Mediators



Source: Own elaboration

In order for that to be possible, initiatives such as those developed by project 4H-CREAT of mapping the existing resources, and a more fine-grained **understanding of the inter-relations between different agents** (University, Academia, End-Users and Industry) can potentially enlighten the relationships present in the quadruple helix, and detail how each entity contributes to all others. Having such knowledge can help HEI place itself adequately within the existent networks and to know how to mobilise actors towards common goals. In particular, knowing the relative weight and power of the agents within such networks can serve to create compensatory mechanisms, allowing for smaller companies to have more representation within partnerships and associations.

As we could note earlier, in most institutional frameworks there exist small formal or informal associations that relate to specific subsectors and which congregate individuals from similar areas; contexts, such as co-working spaces, incubators, Fab Labs, and others also play a role in bringing together individuals with similar tastes and interests. However, the potential for transdisciplinarity and transectorial work to be developed could better benefit from policies designed by HEI to bring together individuals from diverse areas and promote their specific skills. The creation of such **spaces of discussion** (where trained HEI personnel can serve as brokers of different perspectives, such as those held by profit and socially oriented actors) would thus imply wagering connections with multiple of those central actors of the networks, and translating the specific communicative codes between the agents – not only relying on their capacity to make efficient communications by themselves, but also providing them with specific ideation and communicative tools to make them able to see each other's stakes and points of view, in order to mobilise them productively.

Identifying what the specific goals, communicative codes and stakes of each subsector serves thus as a key objective of any good KT program within the CCI. With that in mind, more specific policy objectives can be outlined – such as creating **online collaborative platforms** specifically dedicated to bring together sectors of the CCI which are normally disjoint, to share expertise and knowledge, in a way that bridges local connections and territorial adjacency with the ease and simplicity of online tools.

Finally, actively promoting the **interchange of human resources** – by placing greater emphasis on the know-how of CCI's as knowledge producers, and in turn encouraging academics and professors to take a more active role within the CCI subsectors as workers, collaborators and consultants, can help foster an innovative atmosphere that maximises the use of knowledge resources. This can be particularly helpful in companies that have a small number of employees, given these can benefit from the common pool of resources

developed; in contexts where financially possible, financial support from HEI to individuals partaking in such activities, with specific conditions put on CCI could serve as a way of mobilising these resources adequately. Moreover, such patterns of interchange could help in generating new forms of technological, social and cultural innovation, by giving HEI the opportunity for greater experimentation and flexibility in developing projects that have an end-user oriented goal – whether social or economic in nature.

6.3. **Generating New CCI Opportunities**

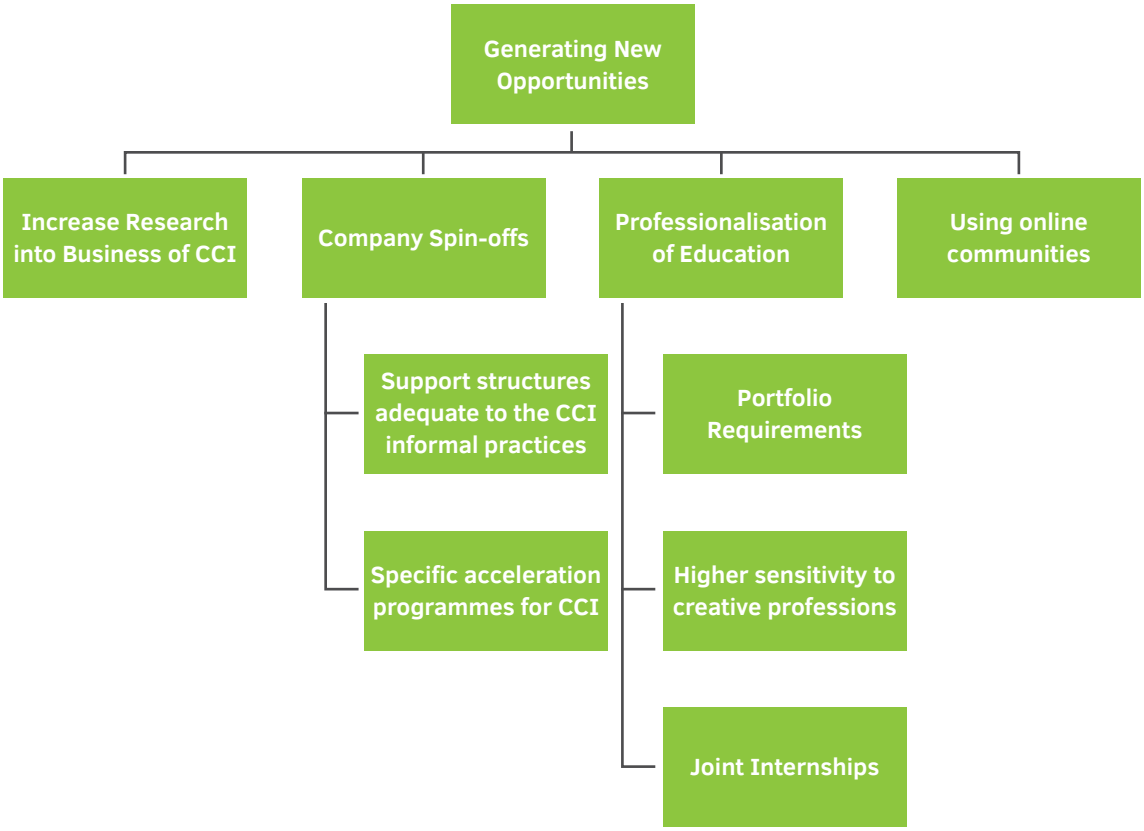
The third goal, which follows from the above, stems from the fact that as we noticed, a lot of creative and cultural potential originates and is stimulated by HEI's, something which could be hosted in a more active and authoritative way by these institutions. This also draws from the discussion of actors recognising the need for hosting spaces which tailor to their needs and provide effective contexts in which to develop work. Taking the previous actions into account, being able to foster these activities within HEI can serve to better position small and micro companies within the economic tissue, granting them with better knowledge of the entrepreneurial realities and the communicative codes of agents from other realities. However, if properly framed within contexts of **professionalising students** and making them more acutely aware of the needs of the market, through a series of activities, it could also trigger the development of **spin-offs** by way of fostering within students and collaborators the desire to produce their own **designs**, **products** and **services**, and mobilising students to make use of their work produced during studies for these purposes. Generating incentives for these productions, and dedicated offices that have the know-how and capabilities to work within the CCI subsectors in identifying the needs and strengths of their market, could in that way serve as an important gateway in generating new ventures, as well as helping with the other objectives: increasing knowledge valuation and fostering entrepreneurship.

In designing such policies, the above stated notes can in that sense guide us in how to think of the relationship between support structures and the actors that seek to be hosted there. In particular, topics such as the diversification of product and service portfolios versus the specialisation in a key product, such as in classic BCG matrices, should be relativized. This can be done first by recognising the role that market demand creation plays when agents mobilise new symbolic codes. Moreover, leadership styles and collaborative practices mobilised in the CCI should be taken into account, so as to provide flexible and informal arrangements that allow collaboration between different actors without those needing to be tied to institutional and bureaucratic logics. Final-

ly, once again the recognition of different kinds of output-value of these actors could engage other types of subsectors, and maximise their reach as well as collaborative potential with other actors.

Moreover, as a complement, an **increase in research into business practices of CCI, and how to optimise things such as work culture, and maximising absorptive capacity**, developed in partnership with CCI and sending students from these areas into them to develop **joint internships** can generate greater interest and recognition on the part of the CCI as to the importance of managerial and business practices. Such joint practices could be developed within more complex practices, such as joint ventures, in order to minimise costs.

Figure 9 - Policy Lines Focused on Generating New Social and Economic Opportunities



Source: Own elaboration

This context requires actors of HEI to take an active role in constructing ways to create new business ventures. More than simply emulating the forms of KT of traditional industries, however, these efforts should include the public as a valuable source of input, ideas and productive elements, in such a way that makes use of the online communities developed around certain subsectors (such as gaming, music, digital arts, apps development or social media) or more mediated patterns of accessing public opinion (polls, research, and the aforementioned social media data), with the goal of making design as collaborative as possible and as adequate to market demands as desirable. Naturally, once again one must take into account subsector specificities: market demands would be impractical in the field of arts where distinction runs most of the valuation of objects, or the domain of social action, where social welfare is the key measure. In that sense, **hybrid research programs** that include part CCI end-user research and part academic research, attempting to solve through analytical, symbolic or technical means some problems faced by CCI, could work to create extremely high educated practitioner-academics that oversee the development of the CCI sector as a whole.

Within such a field, traditional infrastructures such as hubs, incubators, accelerators and KT offices could thus invest in specific programmes aimed at generating new business ideas, creative designs and paths of exploration: programmes such as artistic residences within HEI, or dedicated internships, where companies would be temporarily hosted in order to work under pressure to produce new ideas, could serve as financial incentives for more intense collaborations and a larger number of successful ventures. This could in turn be most efficient if companies of economic, aesthetic and social motivations were brought together, with the mediation of HEI, as it could allow for each of them to generate positive feedback in their own specific values.

6.4. **Regional Opportunities**

Whilst the model here presented serves as a general framework, our analysis of the different types of CCI policy in the various regions can serve to further specify what kind of development opportunities can be expected in each area.

The issue that arises is for instance that whilst entrepreneurial knowledge could be promoted in Scotland and Ireland through their respective offices, by mobilising the network of producers and engaging the relevant subsectors into recognising the importance of developing entrepreneurial practices, establishing liasons with non-CCI companies, amongst other practices, such a thing would not be as easy to implement in

Portugal or France; likewise, whilst digital co-design practices might come off easy in contexts such as Pays de la Loire, with its strong emphasis on digital literacy, and the high number of technopoles and institutional sensitivity to such questions, in contexts like Andalucía, with a higher emphasis on more classical cultural activities and heritage tourism this could prove daunting.

As we noted earlier, moreover, there appear to exist three typological areas in terms of the institutional framework, presence of human resources, existence of network structures, amongst other such indicators: the Iberian Regions, which in our study comprise Lisbon, Andalucía and Asturias; the French Regions, here represented by Bretagne and Pays de la Loire; and the Scottish/Irish Regions, composed of Scotland and Ireland. We can take each of these in turn, connecting them to all of our previous notes, and showcasing the regional analysis of the results we previously discussed.

Iberian Regions

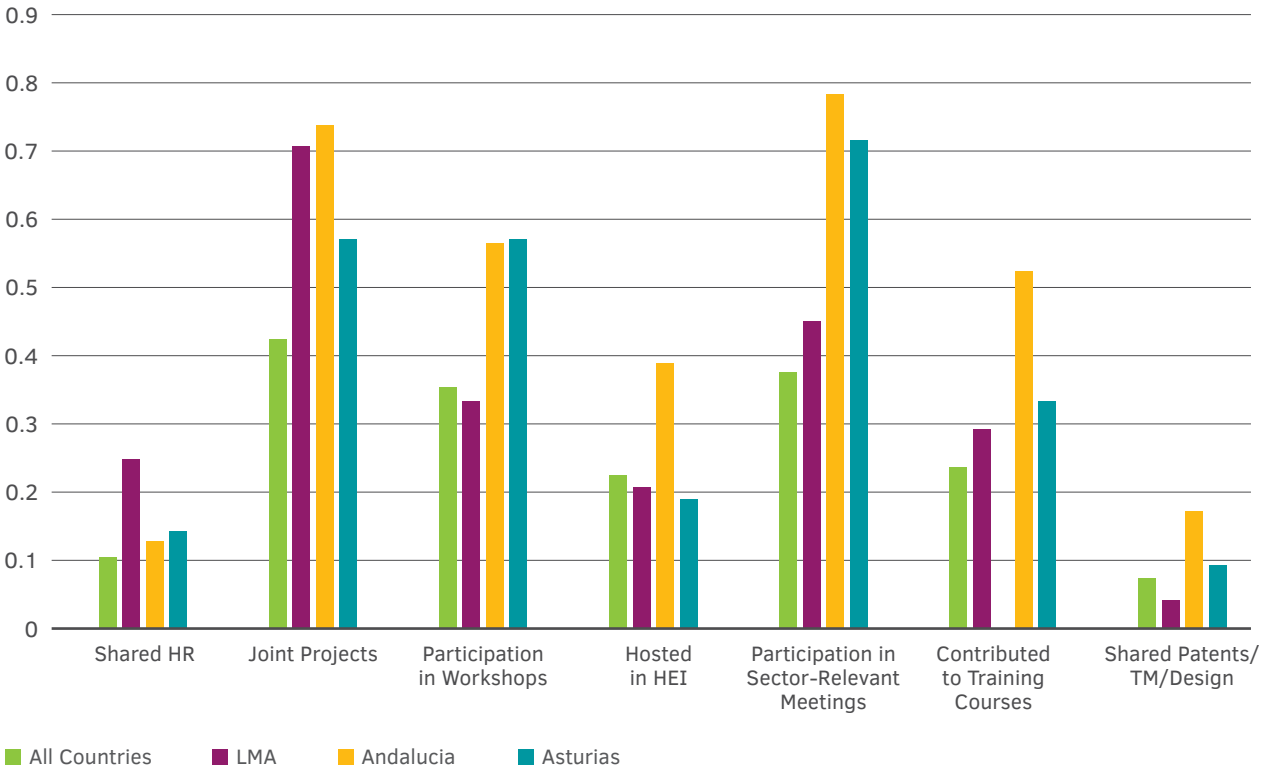
As we noted in our review of the situations in the LMA, Andalucía and Asturias, these areas have in common both a heavy investment in the cultural industries, relatively high levels of unemployment, the lack of organisms for the management and promotion of CCI companies, and a lack of professionalisation. Moreover, as a result, these areas have relatively sparse networks of collaboration, mostly hinging on underground logics of collaboration, some CCI clusters, especially in the centre of Lisbon, and little more. All these issues are compounded in Lisbon and Asturias by the lack of effective statistics that provide an assessment of the situation.

From our analysis, we could not extrapolate specific subsectors which might be interesting to target – something which only other forms of economic analysis would be able to assess – but would rather want to focus on the specific questions of knowledge associated with these issues. Whilst as we will see the question of entrepreneurship comes up in all areas, the Iberian regions seem to be the ones where this appears most strikingly: subsectors with a strong inclination towards economic values such as digital arts, gaming, animation, advertising, and various forms of design appear in relatively small companies, with small staff, and often driven by individuals with a specific goal for the company but often with little or no management-business training. This would appear to fall in line with the general sectorial assessment we made earlier (Figure 3), as these sectors – design and forms of video and audio production – are some of the ones that most manifested the need for business knowledge, as well as specific forms of technical knowledge.

In Lisbon these subsectors are complemented by the broad production, of video, music and audio, subsector which is disseminated and exposes many of these issues; in Andalucía, the writing and heritage sectors appear to have similar queries, as the lack of professional management can hurt the development of these two areas, which provide not only a high revenue but are also the focus of a lot of investment; finally in Asturias the ICT and digital sectors could be the primary focus of such activities aiming at implementing strategies of entrepreneurship production.

Turning to the regional perception of actors, we see that compared to the general case, the Iberian regions all have higher levels of shared human resources, joint projects and higher levels of individuals who contribute to training courses organised by HEI. We can see that both Andalucía and Asturias claim higher levels of participation in workshops, participation in sector relevant meetings, whilst Andalucía has more than double the percentage of actors who share patents, trademarks and design. More so, whilst in Asturias and the LMA actors line up with the general case in terms of being hosted in HEI, Andalucía has almost double the general figure.

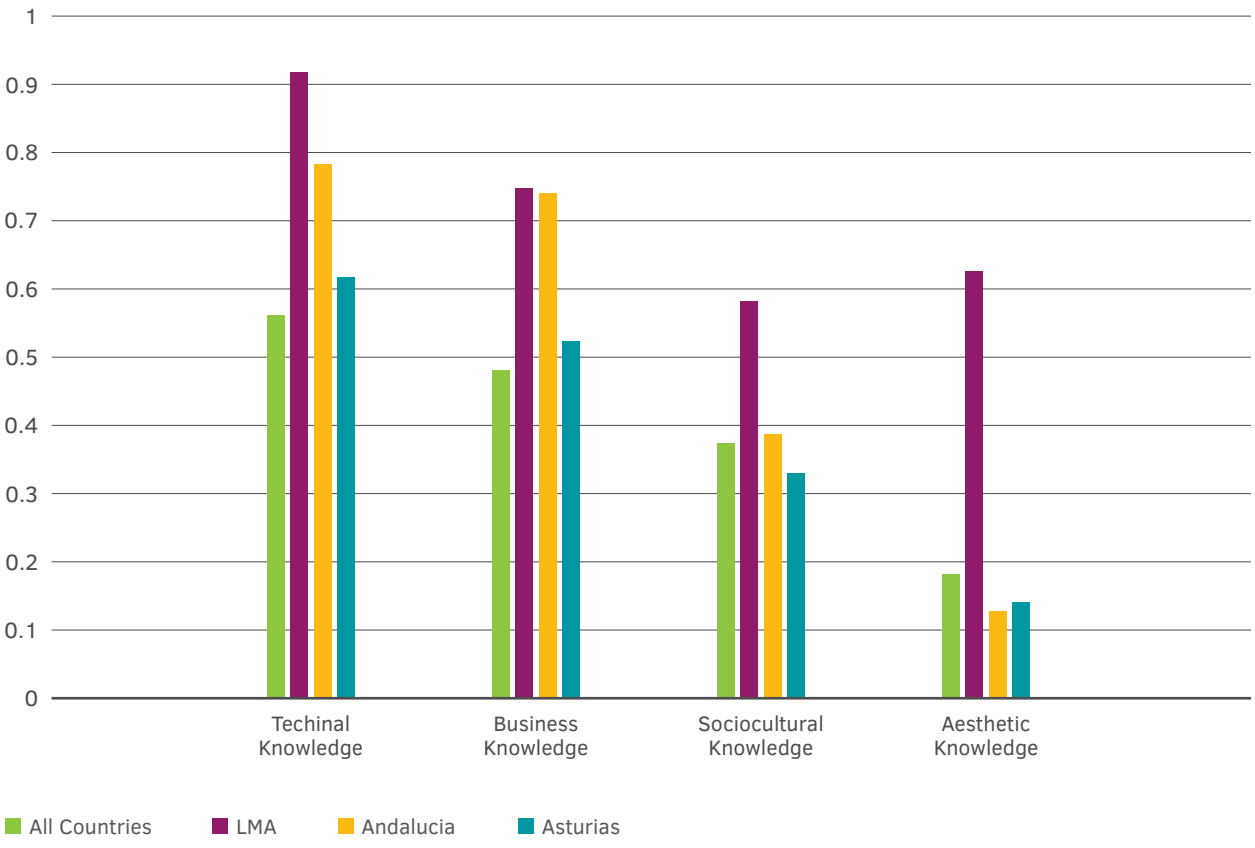
Figure 10 - Connections to HEI (Iberian)



Source: Own elaboration, based on results from Survey applied in WP4 of 4H-CREAT Project

In terms of knowledge needs, both the LMA and Andalucía have a much higher percentage of individuals claiming the need for technical and business knowledge compared to Asturias and the general case. Notably, a substantial number of actors in the LMA also point out the need for sociocultural and aesthetic knowledge, however – nearly 60% of all respondents point this out for both kinds of knowledge. This seems to indicate that these actors see aesthetic, cultural and social engagements as necessary for their activity and for their action, and thus might require not only managerial inputs but also more diverse forms of engagement from the part of HEI.

Figure 11 - Knowledge Needs (Iberian)

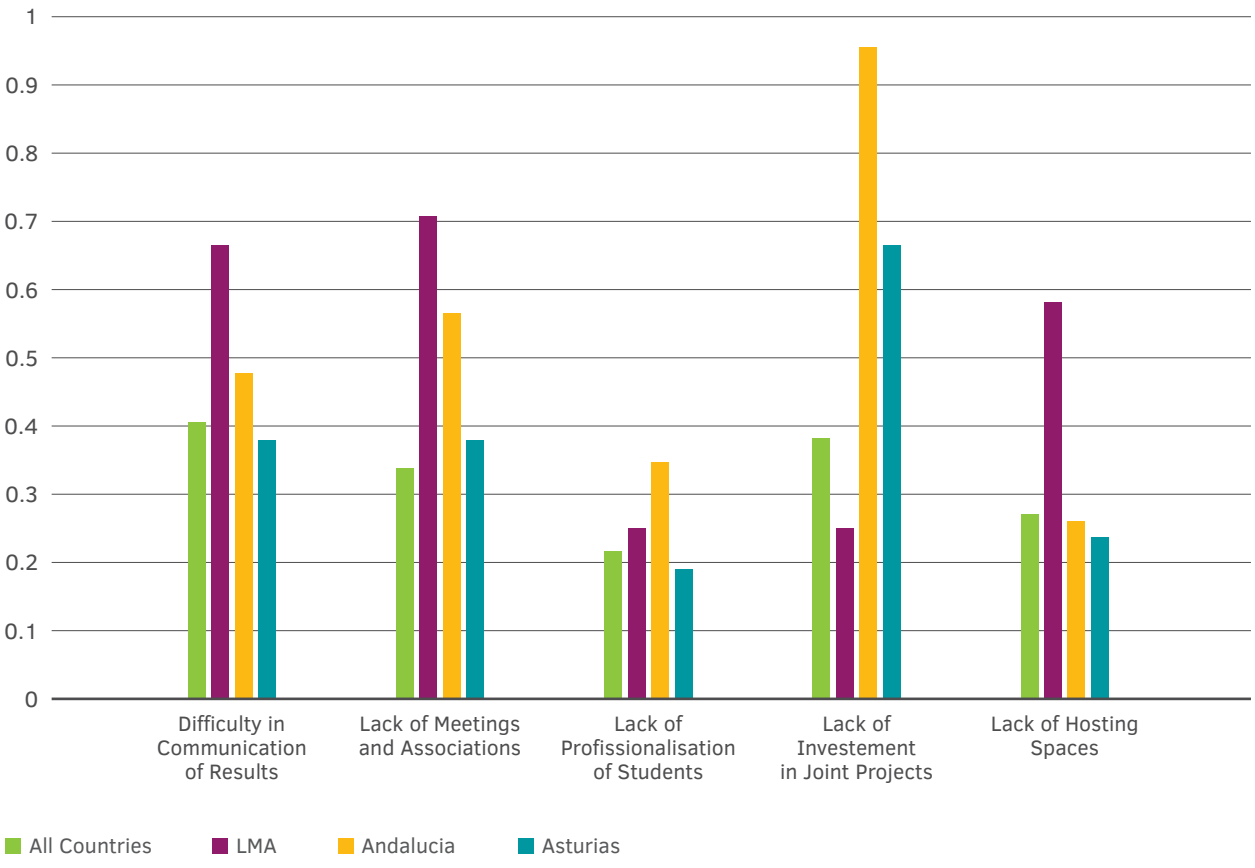


Source: Own elaboration, based on results from Survey applied in WP4 of 4H-CREAT Project

Finally, in terms of weaknesses, the major differences we view is that in general these regions identify some more difficulties than in general in understanding and accessing research results, and see a greater need for sector wide meetings. This is particularly true for the LMA, where in addition to this the lack of hosting spaces is identified by more than 60% of actors, in comparison to the 20% in other regions. In turn, nearly

all (95%) of the actors in Andalucía see the lack of joint projects between CCI and HEI as one of the major flaws in the KT policy, as do around 70% of the actors in Asturias. From this we can see that the three regions have very distinct profiles, and that, despite the limits of this survey, the actions towards them have to be clearly focused on these identified needs.

Figure 12 - Weaknesses of HEI KT (Iberian)



Source: Own elaboration, based on results from Survey applied in WP4 of 4H-CREAT Project

Regarding policy routes undertaken, whilst some network mediators can be used in all three situations, and seem particularly necessary for the LMA and Andalucia where lack of meetings and understanding of results are most emphasised, putting greater emphasis on the role of HEI as translators and mediators between and within CCI seems the more productive route. This can be done within current frameworks for KT, but should bear in mind the challenges of dealing with those companies that come from less economically oriented fields, and which may bear very different communicative codes. Such relationships should thus be made more familiar, with small and individual-sized com-

panies being supported in relationships with the HEI. Medium-sized companies – which both in Lisbon and in Andalucía appear as particularly problematic, as they face some major challenges in establishing themselves in the market, internationalising and communicating with different markets and trends – should also be given support, albeit less focused on the transmission of knowledge than in the development of toolkits to equip these companies with helpful tools for their growth. In fields such as advertising, digital arts, apps development, and others which have high market volatility and tend to be more likely to grow into medium-sized companies, having dedicated packets that relate their subsector to the area in which they operate, and what kind of economic policies to take, could prove crucial to engage companies in solidifying their business.

In particular, given the data we have analysed, in areas such as Asturias and Andalucia this could be done through sector meetings and associations with HEI as mediator, transmitting business and technical knowledge, whilst in the LMA there seems to exist the need to develop dedicated incubators, hubs and accelerators that transmit not only managerial and technical expertise but also sociocultural and aesthetic knowledge produced in the HEI. This also seems particularly adequate noting the importance in Asturias of the audio-visual sector, which overall sees the need for greater number of meetings.

This also ties nicely with the mobilisation of new forms of expertise, as placing HEI in the role of network mediator could ease out communication difficulties between the more distant subsectors. In this respect, we can note that in all three cases the establishment of connections between the subsectors would imply working in many cases with very small associations, in order to work towards the lacks identified in Andalucía and LMA. Forming tighter bonds between these small associations, whilst providing efforts of knowledge translation, in order to provide them with the three kinds of knowledge identified, should be the second priority of the Iberian Regions.

French Regions

As we were able to note, the French regions in turn have a lot of specificity in that, whilst Pays de la Loire does not have a clear institutional organization that oversees and manages all of the CCI subsectors, and Bretagne has a translocal organisation akin on regional terms to the Scottish/Irish Regions, the numerous incubators, technopoles and similar institutions seem to do this task for specific subsectors in which they work. Perhaps as a product of this, the more relevant subsectors include fashion, gaming, design, and the digital. These regions are marked by a relatively standard development,

with most indicators appearing near the EU average, and possess some explicitly noted connections between HEI and industry.

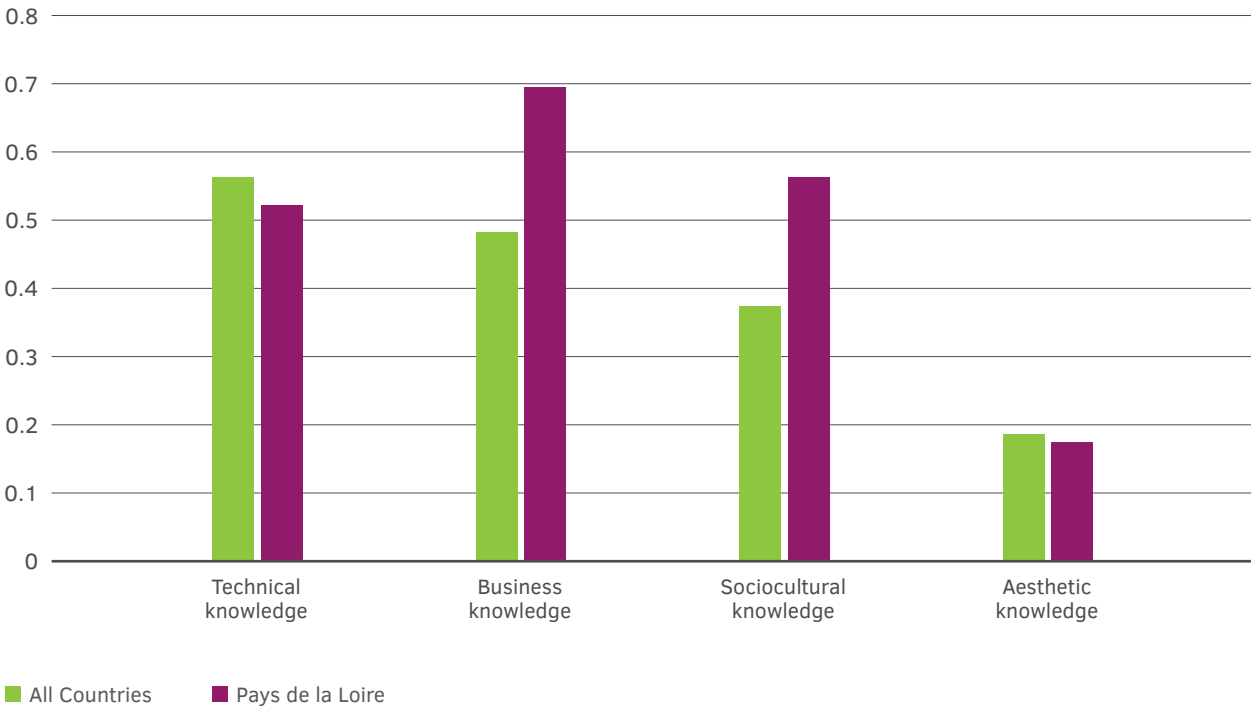
Looking at the regional data available – only for Pays de la Loire – we see that the region falls very much in line with the average of the other regions under study, with two important exceptions: a greater number of workshop participations as well as a much higher number of companies hosted in HEI. This seems to fall in line with the policy review, as it would make sense that the professional organisations existing would to a certain extent be tied to universities, and thus that many actors would be hosted in them.

In terms of knowledge needs, two things strike us as relevant: on the one hand, compared to the general value of 50% of actors claiming the need for business knowledge, the region has more than 70% of actors with a similar opinion; and there is a higher number of actors claiming needs in terms of sociocultural knowledge, access to user and citizen opinions, etc.

Figure 13 - Connections to HEI (French)

Source: Own elaboration, based on results from Survey applied in WP4 of 4H-CREAT Project

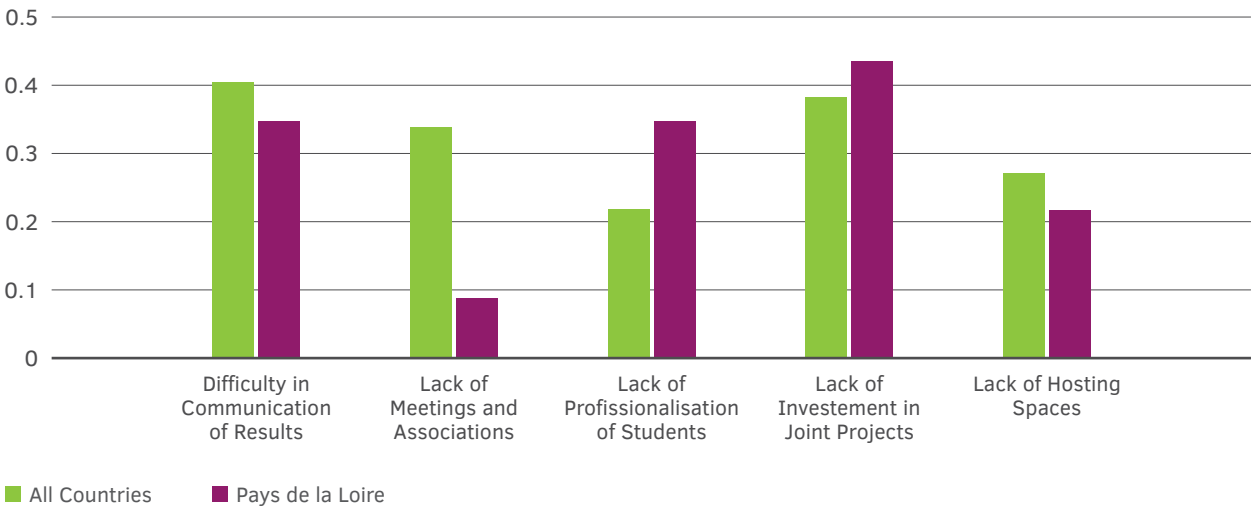
Figure 14 - Knowledge Needs (French)



Source: Own elaboration, based on results from Survey applied in WP4 of 4H-CREAT Project

Finally, looking at the identified weaknesses, we see that compared to the average of the regions, the actors in Pays de la Loire do not seem to have difficulties in accessing and understanding research results and do not see the lack of meetings and associations as very relevant, whilst in turn they identify the need to professionalise students overall. They also see the lack of investment in joint projects as a higher priority than other regions.

Figure 15 - Weaknesses in HEI KT (French)



Source: Own elaboration, based on results from Survey applied in WP4 of 4H-CREAT Project

Given this data, we see that our policy review seems to have favourably captured the overall perceptions of the region. The need to professionalise the CCI entrepreneurs, and to imbue them with a clearer understanding of the meaning of these practices, appears both in Pays de la Loire and Bretagne to have much to do with the specific sub-sectors under question. It should be noted that as far as size goes, the wide diversity in size classes, with a predominance of small and micro-sized companies, leads to a more nuanced situation than before, as transmission of entrepreneurial ideas must be made appropriate for the receptors. In specific, using the technopoles already in existence, and with a longer history of working within specific subsectors, can work as a middle-ground strategy, in turn asking these institutions to generate workshops, conferences, or informal talks (depending on the specific type of sector we are talking about), where the relevant actors can be provided with tools for the development of business plans, managing a company, etc. Using these intermediary institutions and their connections can thus assure a more robust and more decentralised flow of knowledge, by making use of already-present networks. Namely, recognising that some sectors might have their own specific logics of differentiation and specialisation – such as through notions of symbolic capital – should be addressed, by researching what these forms of particular recognition are, and thus, what the key players in the field are. Moreover, actors with motivations beyond the profit-orientation should similarly be brought into these discussions, in line with the Iberian case, to facilitate partnerships, as well as raise awareness of the diverse forms of impact of the cultural and creative sectors.

The same can indeed be said of the idea of sharing expertise: promoting accompanied exchanges between agents from different associations, technopoles and other similar institutions, can serve as a solution to the problems of knowledge translation, as these would in turn serve as translators in establishing bridges between very different areas. Such productive alliances between the digital, fashion and gaming sectors, as well as less represented CCI subsectors can boost the performance of the regions. The role of HEI could also be strengthened by placing greater emphasis on the various kinds of innovation inherent in organisational changes, human resource engagement, and the generation of mutual hiring pools, as well as by providing incentives to academics to participate in the CCI and in intermediary institutions, and vice-versa. These solutions seem particularly tailored to the reality we could derive from our previous discussion, as it could in turn lead to higher levels of co-design, co-publication, and joint research ventures, which were noted as being needed by the regional actors.

The core challenge in the French Regions appears thus to be how to bring together the already substantial number of stakeholders who provide entrepreneurial and managing support services and increase their stakes by using HEI as a source of knowledge as well as a key mediator in interactions between industry and knowledge producers. This should have higher relevance in Pays de la Loire, which compared to Bretagne has less explicit connections between HEI and industry, whilst being true of both.

Scottish/Irish Regions

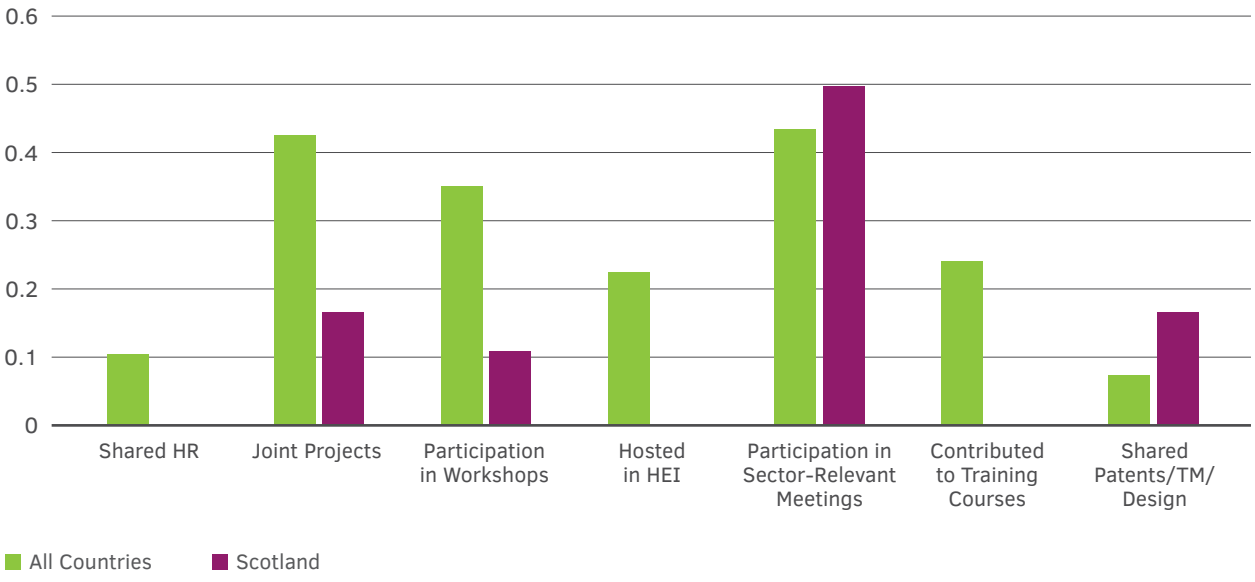
The Scottish/Irish Regions – Southern and Eastern Ireland, and South-West Scotland – have the highest comparative scores of the regions under study, with strong institutional foundations that regulate how CCI sectors should develop, how they should be mobilised and put into use towards specific social and economic values, and how they each perform. They also have in many cases tight connections to HEI, with programmes such as Creative Skillset providing some of the solutions we previously outlined: bringing academic realities closer to the needs of the market, professionalising the workforce, etc. These areas seem to face issues that are qualitatively different, and which pose other opportunities when compared to the former.

Looking at the regional data – for which we only analysed the Scottish case due to insufficient cases in Ireland – two things should be noted. A quick look comparing this to other regions shows that these questions had a substantially higher non-response rate in Scotland, which leads to very few responses, and thus, to extreme values. Whilst we

may offer the possibility that the non-response by itself shows that KT is a much lower priority for this region than it is for the others we have been studying, such an interpretation would be abusive. We will thus proceed to analyse the data, despite noticing that even in the domain of purely indicative descriptive statistics this case should be seen as less reliable than the others.

Taking the values as they are, in terms of connections to HEI that actors claim a much lower percentage of engagement with the institutions, with no actors claiming shared HR, contributions to training or hosting in an organisation. There is also a much lower percentage of actors undertaking joint projects or participating in workshops. However, participation in sector-wide meetings seems to be higher than the average of the other countries, as is the percentage of shared patents and trademarks.

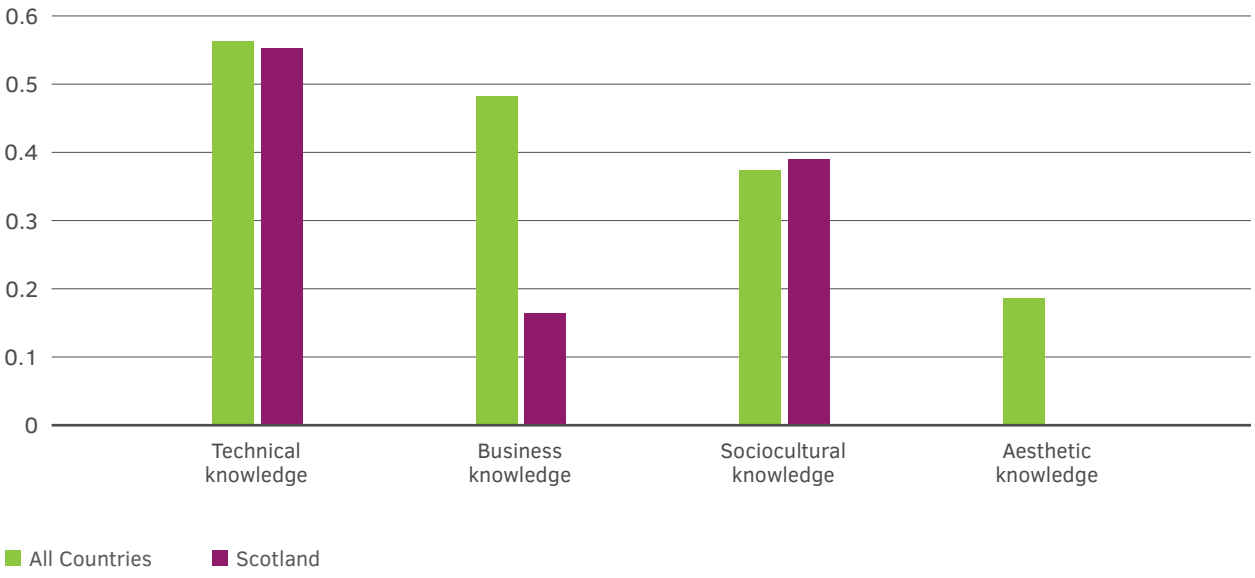
Figure 16 - Connections to HEI (Scottish/Irish Regions)



Source: Own elaboration, based on results from Survey applied in WP4 of 4H-CREAT Project

In terms of knowledge needs, the Scottish case is very much atypical in that their actors identify the lack of technical knowledge as well as sociocultural, in levels on par with the regional average, but see no need in aesthetic or business knowledge. Whilst the latter could be interpreted as a success on the part of regional entrepreneurship policy, the former could imply that actors take a clear separation of HEI from the creative activities themselves, or that they maintain highly individualised views on creators – the data is insufficient to come to such conclusions.

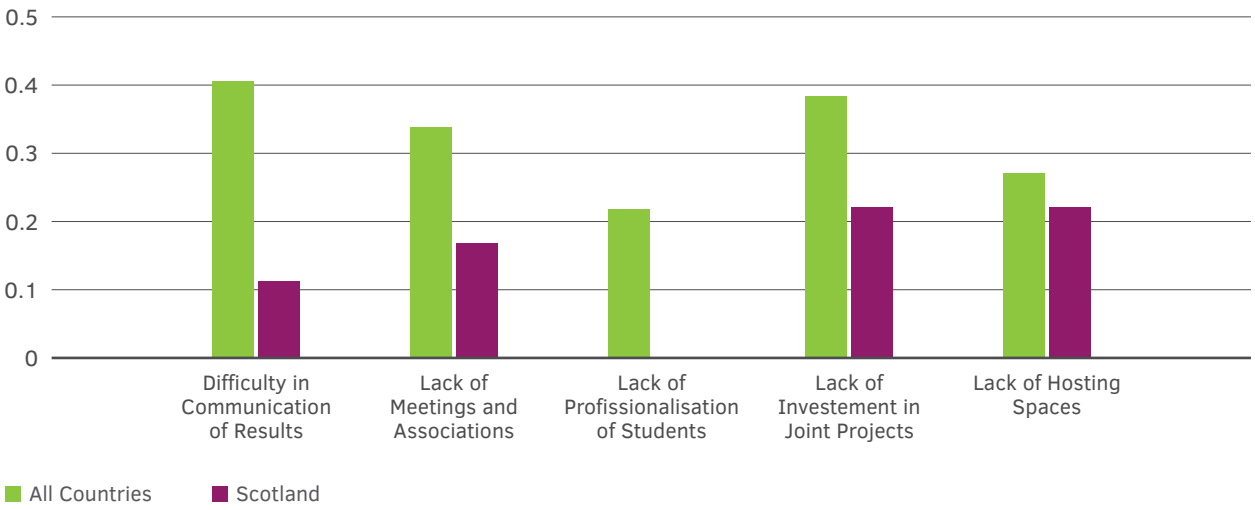
Figure 17 - Knowledge Needs (Scottish/Irish Regions)



Source: Own elaboration, based on results from Survey applied in WP4 of 4H-CREAT Project

Finally, in terms of weaknesses identified, Scotland is once more atypical, in that actors do not see most of the topics noted by the other regions as serious issues – with professionalisation of students entirely missing, difficulties in communication, lack of investment in projects and of meetings and associations well below the average. The only aspect in which they seem to be closer to the average of the regions is the lack of hosting spaces, to which more than 20% of actors allude. Despite the insufficiency of the data, this result would go in line with our expectations: it would make sense that having a longer experience in managing policy the needs identified would be substantially different from those experienced in countries which have only recently begun their CCI policies and which have very different institutional, political and economic backgrounds.

Figure 18 - Weaknesses Identified in HEI KT in Scottish/Irish Regions



Source: Own elaboration, based on results from Survey applied in WP4 of 4H-CREAT Project

Turning this towards policy, we can derive from the policy literature most of the recommendations. In terms of entrepreneurship, despite the efforts of many organisations and programmes the lack of sustainability of small and medium sized companies over periods of time can still be attributed to the lack of skills in these fields, something which HEI could provide by making use of co-working spaces, collaborative laboratories and other spaces which bring together not only individuals from a single subsector, but actors across the CCI, and which could ideally be hosted in HEI in order to benefit from the technical knowledge it produces. Mobilising these spaces towards courses and other immediate forms of knowledge transfer has the added advantage of mobilising network resources from the available associations, despite the need lying precisely in stretching the net in terms of what companies fall under the consideration of Creative Scotland and Creative Ireland – by paying attention to those underground artists with social and aesthetic outputs, and seeking to exchange their expertise with actors from other contexts. This seems to be particularly well addressed if we notice the vast number of sectors which Scotland addresses which fall under the more profit and socially driven sectors, with expertise in having maximum social impact which could be brought into the remaining sectors.

Given the history of connections with HEI, and the number of experiences in designing hybrid programs – such as project-research PhD's focused on investigating CCI's, and collaborations between natural sciences and the arts (Crossick, 2006) – as well as the

maturity of the institutional frameworks and academic research into Ireland and Scotland, these regions seem particularly suited to the task of generating feedback mechanisms whereby actors help in understanding specific business and social needs and mechanisms of the CCI, whilst simultaneously generating input data for those same actors. This constitutes one of the major advantages of the regions, which could, through further transnational collaborations, build up knowledge and experiment in innovative ways of organising CCI.

Finally, these regions also appear to be the most suited to use intense HEI-CCI relations to produce more ventures and ideas: noting the way in which HEI have shifted away from traditional models of education in areas such as arts and cultural areas, from a curriculum-focused to a portfolio-focused model, these regions would need only to further such processes, and promote further collaboration, from very early in the students' activities, with CCI. Using the core institutions of Creative Scotland and Creative Ireland as axis of communication, as well as the existent KT system in both regions, HEI could thus seek to improve especially design and trademark applications produced in-house. The rationale of this seems thus to be that the overall spillover effects – in increasing knowledge of internationalisation, managerial practices and general entrepreneurship – would follow from engaging staff and students very early on to produce their own work and to treat it as such.

7.

Final Notes

This report focused heavily on the question of knowledge transfer and Cultural and Creative Industries (CCI) actors, looking in depth into the question of how CCI can benefit from a more robust knowledge transfer policy on the part of institutional frameworks, and in specific in how HEI can participate towards such a process.

Some of the major issues touched in this analysis, that warrant further discussion include:

- The recognition and understanding of the CCI sector as including wide-ranging types of companies with vastly different interests as far as their goals and objectives go, with different impacts in society, that mobilise different forms of innovation towards that end. This is particularly relevant in discussions that focus on our second line of analysis, which focuses on Higher Education Institutions (HEI) taking a role in mediating the various subsectors present in the CCI, given that more cultural-aesthetically oriented actors may benefit from recognising the economic potential of their work, as well as profit-oriented actors noting the social and cultural impact of their work in society as a whole.
- The need for bilateral engagements between CCI and HEI – which are noted to be sparse and scarcely existing, despite the importance of bringing to the latter actors insight into the actual needs of CCI, and to the former the needed technical, business, sociocultural and aesthetic skills and insights produced in the latter.
- The role of end users and of public society in the development of policy and products for the CCI, whilst recognised here as important and noted before in the policy actions that see the HEI as serving as a hub for end-user research and gauging of public perceptions, was not explored in too great a depth, given our focus on the relations between industry and academia. In order to have a truly quadruple helix approach, however, work should be developed in this direction, so as to better understand the potential of such actors to promote innovation;
- Regional, national and local contexts of policymaking have a tremendous importance in enframing these kinds of actions. Whilst an international comparison such as the one we sought to develop in this work may work to elucidate the various types of actions possible to undertake, actual policy would benefit from a much more fine-grained analysis into Knowledge Transfer and Valuation (KT) in each set of regions.

Our analysis and modelling efforts led us to propose a series of possible paths to the question of knowledge in the CCI, directed at engaging HEI to promote and disseminate their knowledge in ways which are both accessible and relevant to the CCI, and conversely, for CCI to transmit knowledge in a bilateral exchange, to use their institu-

tional roles to mediate sectors and subsectors, to help exchange knowledge which can generate sector-wide strategic thinking, and to generate new opportunities through an increased focus on professionalisation of students and overall promote new contexts of policy experimentations. These lines of action were furthermore seen through a regional lens, where we noted the specific relevance of some of these actions to each of the seven regions, grouped as Iberian, French and Scottish/Irish Regions according to the similarity of their regional policy.

Whilst there are numerous differences between KT policies between partner countries, we can note, with Pinto (2012), that these systems share a common institutional ideal that ties to the concepts we just mentioned; given we could not address all such frameworks within the scope of this report, we note that the application of this model hinges heavily on the mobilisation both of HEI resources, including already existing technology transfer offices, and of other forms of mediators: FabLabs, Incubators, Spin-off and Start-Up Factories. As such, despite the generality we searched for in the transfer model, extreme care should be carried out in minimising duplicating efforts in terms of KT programmes.

All of these notes remain naturally too broad to be considered explicit policy recommendations, and insufficiently deep in terms of the regional contexts in which we discuss them, given they do not deal with each country's specific KT system. We cannot therefore stress enough that these policy guidelines should not be taken *verbatim*, but rather as indications which have to be appropriately measured in accordance to the institutional frameworks at hand.

More so, the effectiveness of the actions proposed, whilst backed up by the literature and the companies, cannot be ascertained from this report, and will require further applied research in order for it to bear results. It seems necessary in that sense to conduct further inquiries through pilot-projects which hinged on these measures, namely in what respects conducting sector-wide meetings, hybrid research programs, incentivising researchers and CCI practitioners to engage in bilateral exchanges and dual role admission; such efforts are left for later developments, whilst we may note that some actions have indeed been taken in the context of Project 4H-CREAT that go in line with this sort of practice:

- The implementation of workshops directed at CCI SME's, targeting entrepreneurial practices aimed at user-interactions, as well as the current paradigms of demand-driven innovation;
- The development of transnational internships between traditional and cultural and creative industries, which aim at exchanging best-practices;

- The creation of an international fair that attempts to bring together CCI's from all the partner regions, in order to promote inter-sectorial practices.

It should be emphasised that these policies necessarily go hand in hand with science communication policies, and should be thought in direct relation to them, noting the growing importance of such policies within HEI. Likewise, in attempting to implement the general lines of action presented in this report, care should be taken to include actors from existing contexts of KT policy, in order to benefit from their insider knowledge into the operation of policies within each institution, in a much finer grained analysis than we could hope to develop in a report such as this.

The creation of more specific pilot-projects which aimed at regional-specific measure implementation must indeed take into account the two-other axis on which we based this reflection: the small size of the companies and the intrinsic motivations which guide them, both having a specifically relevant role in the way in which policy is designed.

All in all, however, the analysis we carried out revealed the presence of three apparent typological distinctions – which should not surprise us – between the French, the Iberian and the Scottish/Irish Regions, with each type being characterised by different institutional, statistic and informational practices.

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