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Acronym: Cre8tv.eu
Type of Funding Scheme: Collaborative Projects
Small or Medium Scale Focused Research

Work Programme Topics Addressed:
SSH.2012.1.1-2


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<tr>
<th>Participant No.</th>
<th>Participant Organisation Name</th>
<th>Country</th>
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<tbody>
<tr>
<td>1 (Coordinator)</td>
<td>University of Manchester</td>
<td>UK</td>
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<td>2</td>
<td>Università Commerciale Luigi Bocconi</td>
<td>Italy</td>
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<td>3</td>
<td>University of Brighton</td>
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<td>4</td>
<td>Copenhagen Business School</td>
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<td>Corvinus University of Budapest</td>
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<td>6</td>
<td>Eindhoven University of Technology</td>
<td>Netherlands</td>
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<td>7</td>
<td>National Technical University of Athens (NTU Athens)</td>
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<td>9</td>
<td>Technical University of Munich</td>
<td>Germany</td>
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<td>10</td>
<td>University of Gothenburg</td>
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<tr>
<td>11</td>
<td>ZEW (Centre for European Economic Research)</td>
<td>Germany</td>
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For further details concerning the CRE8TV.EU project, please visit the project website at [http://www.cre8tv.eu/](http://www.cre8tv.eu/) or contact the project coordinator, Professor Bruce Tether, at Manchester Institute of Innovation Research / Alliance Manchester Business School, Booth Street East, Manchester, M13 9SS, UK (bruce.tether@manchester.ac.uk)
1. Executive Summary

The CRE8TV.EU project on ‘Unveiling Creativity for Innovation in Europe’ was a Small to Medium Scale Focused FP7 Research Project funded by the Seventh Framework Programme. Involving 11 institutional partners, it investigated the role of creativity for innovation and growth in Europe; it started in February 2013 and (following a three month extension) ended in April 2016.

The project was organised into six themes: 1 – Identifying, Mapping and Measuring the Creative Industries; 2 - Modes and Models of Creativity, Design and Innovation; 3 - Entrepreneurs, Entrepreneurial Firms and Industrial Dynamics in the Creative industries; 4 - Digital Platforms and Ecosystems and the Blurring of Production and Consumption; 5 - Intellectual Property (IP) Rights and IP Protection in the Creative Industries; and 6 - Policy Issues and Recommendations. Themes 2 to 5 involved multiple work-packages and specific research tasks, 24 of which were undertaken.

Our work in Theme 1 found that while significant foundations have been laid, there is a need for a harmonized understanding of what the creative (and cultural) industries are. The ‘creative intensities’ approach, which is based on the share of creative workers in an industry, offers a pragmatic first step to identifying these. There is also a need to develop measures of innovation more suitable to creative and symbolic activities; a need to understand innovation inputs other than R&D, such as design, and a need to be better understand the inter-connections between the creative industries and the wider economy.

Our studies in Theme 2 emphasise aspects of innovation that are often severely underplayed, including symbolic (rather than functional) innovations; the significance of time and the sequencing of events in generating innovations; the role of individual and collective agency, and the significance of combining efforts such as through social movements or ‘radical circles’. While these characteristics are not unique to the creative industries, they are particularly prominent in these settings.

Our studies in Theme 3 found high rates of innovation, combined with a common reluctance to pursue growth, especially in terms of employment, among creative industry firms. Also particularly notable is the importance of the social contexts within which businesses operate, and the heavy use of freelancers and networks, suggesting that very often creative industry firms are in effect substantially larger than they appear. Such practices may become more widespread in the future.

Notable from our studies in Theme 4 is that digital technologies are being incorporated by firms in a variety of ways and that digital platform technologies are breaking down the distinction between producers and consumers. Some firms are devising sophisticated strategies to enrol unpaid contributions from the public. However, while users increasingly have the potential to be active, only a small minority are, which may potentially lead to disproportionate or biased responses by firms.

In theme 5 we examined intellectual property rights and innovation behaviour, with a particular emphasis on trademarks and registered designs. We found that both trademarks and registered designs can protect and signal innovations, but there are generally weak connections between the use of these rights and innovation performance, such that considerable care needs to be taken when using these rights as indicators of innovation, and using them to understand innovation behaviours.

Theme 6 reviewed the policy issues arising from the research findings and developed policy recommendations. Overall, we urge governments to separate innovation policies from science and research policies. Innovation policies should address issues of inclusion and impact, as well as output.

This report also outlines our dissemination activities (Section 4.1), the potential impacts of our work (Section 4.2) and outlines our future plans (Section 4.3).
2. **Summary Description of the Project**

The CRE8TV.EU project on ‘Unveiling Creativity for Innovation in Europe’ (SSH.2012.1.1-2) was a Small to Medium Scale Focused FP7 Research Project funded by the European Union’s Seventh Framework Programme. It investigated the role of creativity for innovation and growth in Europe. The project was part of the broader SSH activity area (8.1) on ‘Growth, employment and competitiveness in a knowledge society: the European case’. Involving 11 institutional partners, it started in February 2013 and (following a three month extension) ended in April 2016.

### 2.1 Motivation and Background to the Project

Since the Millennium and the adoption of the Lisbon Strategy, an aim of the European Union has been to become "the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion". The EU 2020 strategy, which succeeded the Lisbon Strategy, placed further emphasis on “smart, sustainable and inclusive growth”. Smart growth is based on three things: education and skills; research and innovation (leading to products and services that generate income and jobs and which address societal challenges); and making effective use of digital technologies. Sustainable growth places an emphasis on low carbon activities, while inclusion concerns job creation and poverty reduction.

Innovation is therefore central to the EU’s stated objectives. There is, however, increasing recognition that there is much more to innovation than investing in R&D. One highly dynamic area of economic activity that has gathered considerable interest among policymakers in EU Member States and at the Commission since the late 1990s is the creative (and cultural) industries. Indeed, in this area the Commission has launched several initiatives that emphasise the significance and unrealised potential of culture and creativity for innovation and economic development in Europe. Among these was designating 2009 the European Year of Creativity and Innovation.

The creative (and cultural) industries are poorly understood however, having received relatively little research attention, especially from economists and scholars of innovation. The CRE8TV.EU project was undertaken to start addressing this gap. As such, the project was designed to cover a number of issues which are highly pertinent to understanding the creative (and cultural) industries. These include reviewing what is meant by these industries and developing a harmonised understanding of what they are; developing an understanding of how innovation happens through creativity and design, including the relationship between these activities and research and development (R&D); studying actual and latent entrepreneurs in the creative (and cultural) industries, asking whether the characteristics of entrepreneurs in these industries differ from those in ‘conventional’ industries; understanding patterns of firm growth in these industries; examining the functioning of digital platforms and ecosystems, including studying consumer behaviours in the production and consumption of digital media; analysing the use of intellectual property protection mechanisms in the creative (and cultural) industries, with a particular emphasis on trademarks and registered designs, both as means of identifying creative and design innovations and as means of protecting aesthetic innovations, and, last but not least, analysing the policy issues arising.

In this final report from the project we will provide an overview of the findings to date. We are grateful to the EU for funding this project which has enabled this work to be undertaken.
2.2 Structure of the Project

To address the issues outlined above, the project was organised into six themes. Two cross-cutting themes concerned identifying, mapping and measuring the creative industries (Theme 1), and the policy issues and recommendations arising from the project (Theme 6). The other themes concerned:

Theme 2: Modes and Models of Creativity, Design and Innovation
Theme 3: Entrepreneurs, Entrepreneurial Firms and Industrial Dynamics in the Creative industries
Theme 4: Digital Platforms and Ecosystems and the Blurring of Production and Consumption
Theme 5: Intellectual Property Rights and Protection in the Creative Industries

For our work on Theme 1 – ‘identifying, mapping and measuring the creative industries’, we reviewed the existing definitions of the creative (and cultural) industries, developed our own conceptualisation, and examined the practical aspects related to identifying these industries and their innovation activities. This was led by Manchester, with contributions from Brighton and ZEW.

Our work in themes 2 to 5 was sub-divided into two or three work packages in each theme, and two or three specific research projects in each work package. Table 1 details the work packages by theme, and the specific research projects undertaken. Because the ‘creative industries’ constitutes a large and relatively unexplored research space, our research projects were intended to be probes into this space, as depicted in Figure 1. Each work-package began with a review of existing relevant studies and ended with reflections, especially on how the findings of the research studies relate to understanding how creativity relates to innovation, the mapping and measuring of the creative (and cultural) industries, and the policy issues and recommendations arising.

Our work on Theme 6 - ‘policy issues and recommendations’ was led by Manchester and began by reviewing existing policies that support the creative (and cultural) industries, and that support innovation through creativity and design. Further work in this Theme then drew on the research undertaken elsewhere in the project to reflect on the policy issues and recommendations arising.
Table 1: The Work Packages in Themes 2 to 5 with Main Specific Research Projects

<table>
<thead>
<tr>
<th>Theme</th>
<th>Work Package</th>
<th>Main Research Projects (and Lead Partner)</th>
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<tbody>
<tr>
<td>2</td>
<td>2.1 Models of Creativity in the CCIs, and their Impact on Competitiveness</td>
<td>Examining Creativity in a Variety of Contexts (Copenhagen) Building a Taxonomy of Creativity-based Approaches to Innovation (Brighton)</td>
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<td>2.2 Design as a Driver of Innovation and Competitiveness</td>
<td>Developing a Typology of the Roles of Designer and Design Competence in Innovation (Gothenburg) Design Driven Innovation: Design as a Source of Radical Change in Product Meanings (Polytechnic of Milan)</td>
</tr>
<tr>
<td>3</td>
<td>3.1 Actual and Nascent Entrepreneurs in the CCIs, and their Characteristics</td>
<td>Identifying Actual and Nascent CCI Entrepreneurs, and their Characteristics using the GEM dataset (NTU Athens) Researching Founders and Founding Teams of Creative Entrepreneurial Ventures (Polytechnic of Milan)</td>
</tr>
<tr>
<td></td>
<td>3.2 Entrepreneurial new and young firms in cultural and creative industries</td>
<td>Examining Entrepreneurial Firms in the AEGIS Dataset and undertaking/examining the CR8TV.EU dataset (NTU Athens) Examining Entrepreneurial Firms in the KfW/ZEW Start-up Panel and a Linked-Employer-Employee data-set (ZEW)</td>
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<td></td>
<td>3.3 Industrial Dynamics and CCIs Growth through M&amp;As, &amp; New Business Models</td>
<td>Using Panel Datasets to Examine the Evolution of Creative, Knowledge Intensive Services (Manchester) Mergers and Acquisitions as a Path to Growth in Cultural and Creative Industries (Polytechnic of Milan) Business Model Innovation and Opportunities for Internationalisation of CCI Firms (Polytechnic of Milan)</td>
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<tr>
<td>4</td>
<td>4.1 Digitization and Mediation in Cultural-Creative Industries</td>
<td>Digitization, Smart Growth, and the outsourcing of software animation from Europe to India (Copenhagen) Digitization and the Reconfiguration of Architecture (Eindhoven)</td>
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<td>4.3 Consumers &amp; Digital Media: Patterns of Participation in Production &amp; Sharing</td>
<td>Consumers / Users Participation in and through Digital Media (Corvinus) The Demand for Creative Products: The Consumption and Use of MP3 Files (Bocconi)</td>
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<td>5</td>
<td>5.1 The use of IP mechanisms in the design- and copyright- intensive industries</td>
<td>Intellectual Property Protection in Design-Intensive and Copyright Intensive Industries (ZEW) The Protection of Digital Products and Designs (Munich)</td>
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<td>5.2 Trademarks as a means to explore innovation in creative &amp; cultural activities</td>
<td>Empirical Analysis of the Patterns of Trademarking, and Connections to Patenting (Bocconi) Empirical Analysis of the Propensity of CCI Firms to Use and Benefit from Trademarks (Eindhoven)</td>
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<td>5.3 Registered Designs as an Indicator of Creativity and Design-Innovation, and their (Strategic) Use by Firms</td>
<td>Building a Dataset of Registered Designs, Linked to Firm Level Data (Manchester and Munich) Anglo German Comparison Study on the Use of Registered Designs (Manchester and Munich)</td>
</tr>
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</table>
2.3 The Research Consortium

As mentioned, the CRE8TV.EU project was undertaken by a consortium of 11 European research institutes. The membership of the consortium is detailed Table 2, which also shows which partners participated in which of the various themes of the project.

Table 2: Participation in Research Themes by Partner

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<thead>
<tr>
<th>Theme 1</th>
<th>Theme 2</th>
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<td>University of Manchester (UK)</td>
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<td>Bocconi University (IT)</td>
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<td>Corvinus University (HU)</td>
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<td>Technical Univ. Eindhoven (NL)</td>
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<td>NTU Athens (GR)</td>
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<td>Politecnico di Milano (IT)</td>
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<td>Technical Univ. Munich (DE)</td>
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<td>University of Gothenburg (SE)</td>
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<td>ZEW (DE)</td>
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Key:  
✔️ = Undertook one or more of the specific research tasks within the theme  
(✔️) = Contributed to the research work in the theme  
✗ = Not involved in the theme’s research

The project was coordinated by Professor Bruce Tether of the University of Manchester. He was assisted by Katia Pina, the project manager, and by the project management board, which had 6 members: Professor Massimo Colombo (Politecnico di Milano); Dr. Dóra Horváth (Corvinus University of Budapest); Dr. Georg Licht (ZEW); Professor Franco Malerba (Bocconi University, Milan); Professor Ian Miles (University of Manchester) and Dr. Jon Sapsed (University of Brighton).

**Project Meetings**

The project was coordinated through a series of plenary and semi-plenary meetings and (especially for project management) by telephone conferencing. Six plenary and semi-plenary meetings were held. The first, the project kick off meeting, at the University of Manchester (February 2013); the second at ZEW, Mannheim (September 2013), the third at Corvinus University Budapest (June 2014), the fourth - a semi plenary - at ZEW, Mannheim (July, 2015), the fifth - a semi plenary - at the Politecnico di Milano, Milan (Sept. 2015), and the sixth at the University of Manchester in April 2016.

**Engagement and Dissemination Activities**

Aside from undertaking academic research, the project involved a set of engagement activities and events for policy makers, practitioners and the public. These were held in Brighton, Brussels, Budapest, Manchester, Mannheim, Milan and Rome, and included a policy seminar for European Commission officials (Brussels, April 2016), and a workshop for developing innovation indicators (Mannheim, May 2016). We report on these activities in greater detail in section 4.1 of this report.
3 Description of the Scientific Results

3.1 Theme 1: Identifying, Mapping and Measuring the Creative Industries

In this theme of the project, we reviewed the identification of the creative (and cultural) industries, and how these are ‘mapped and measured’. We also reviewed the definition of innovation, as captured by the OECD/Eurostat’s ‘Oslo Manual’, particularly with regard to aesthetic, or design-based innovations. We further examined the Oslo Manual’s consideration of innovation inputs, and especially creative inputs such as design, alongside R&D. Finally, we considered the connections between the creative industries, creative innovations, and the wider economy.

Identifying the Creative (and Cultural) Industries

The ‘creative industries’ are those that depend heavily on ‘creativity’. In Europe, these industries were first identified as a distinct set in the UK. A first challenge to any process of harmonized measurement is agreement as to what is to be included. In general, the UK and other northern European countries (including Germany, Sweden and Finland) have tended to place emphasis on ‘creativity’, rather than on ‘culture’, whereas southern European countries (including Italy and Spain) have been tended to place greater emphasis on culture, and cultural expression, rather than on creativity. This matters because it leads to differences in the activities that are included: food, sport and tourism, for example, may be considered to be cultural ‘industries’, but are not generally regarded as ‘creative industries’; IT services, by contrast, are ‘creative’ but not cultural.

Ideally, ‘creative’ and ‘cultural’ industries should be defined by first developing measures of creative and/or cultural content in the output of the industry, or creativity and/or cultural practices in their processes, or their reliance on creativity and/or cultural content as inputs. This is difficult in practice and has not been done. For practical purposes, most approaches to identifying these industries have identified a set of pre-defined industries, usually drawn from the Standard Industrial Classification.

Controversies however exist in relation to which industries to include, and which to exclude. Particularly controversial is the inclusion or exclusion of information technology services. These activities are generally creative in generating novel solutions, but they are not (in general and with obvious exceptions, such as computer games) creative in an expressive or artistic sense. This debate led to the development of the ‘creative intensities’ approach as a way to consider which industries should (and should not) be included in the ‘creative industries’. 3

The ‘creative intensities’ approach begins with the occupational classification of workers. As such, it considers that workers provide the key inputs into creative (and possibly cultural) industries. The aim is to identify ‘creative occupations’, which are defined as those with “a role within the creative process that brings cognitive skills to bear to bring about differentiation to yield either novel or significantly enhanced products whose final form is not fully specified in advance” (Bahkshi et al., 2013). Five tests are applied to identify creative occupations. The next step in the methodology is to identify ‘creative intensity’ of each industry, which is the share of workers in creative occupations as a proportion of the industry’s total employment. Most industries have low creative intensities, but in

a minority the share of creatives is substantial, at over 30%; these industries are identified as the ‘creative industries’. A similar approach could be developed to identify the ‘cultural industries’.

The ‘creative intensities’ approach has recently been extended to other European countries, and specifically France, Germany, The Netherlands, Sweden and Poland; this has demonstrated that the approach can be applied to identifying the ‘creative industries’ and the wider ‘creative economy’ on a consistent basis across the EU.

While the ‘creative intensities’ approach provides a pragmatic method to identifying the creative industries, we argue that there is a need to go beyond this and develop measures of creative (and cultural) intensity at the firm level, and to develop new ways of classifying firms by the nature of their activities and outputs. Consideration should be given to the classification of outputs by firms and industries on the basis of their creative and/or cultural content, and to the potential benefit of undertaking such an exercise to the understanding of the contemporary EU economies and their competitiveness.

**Creative Innovation Outputs and Inputs**

In our work in this theme we also reviewed the measurement of innovation, both in terms of the identification of innovation outputs and in relation to the activities that ‘drive’ innovation, especially but not only in the context of the creative industries.

The Eurostat/OECD “Oslo Manual” (3rd edition, 2005) is the internationally recognised manual for collecting and interpreting innovation data. This defines innovation as: “the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations” (para 146).

With respect to creative innovation, one problem with this is the concept of “significantly improved”, because this is essentially framed in terms of objective functional performance and efficiency. In the context of creative or aesthetic innovations, this is problematic because performances can often not be directly and objectively compared. Furthermore, the requirement that a ‘product innovation’ involves a significant change in a product’s functional characteristics and/or intended uses is problematic as it imposes a functionalist view of innovation. Also problematic is the labelling of non-functional ‘innovations’ as “marketing innovations” as, while this provides recognition, it also confers a second class status to these innovations.

More generally the centrality of products is problematic. Some creative industries routinely introduce new products – such as new books, films or music recordings, but, while new, many are not innovative. Meanwhile firms that do develop highly creative variants of their ‘product’ are not considered innovators according to the Oslo Manual. This is the case where firms produce bespoke outputs, such as advertising campaigns or architectural and other designs, which no matter how creative, inventive or innovative, are not considered to be innovations, because the ‘product’ of an advertising agency is advertising, and the product of an architecture practice is building designs. An advertising agency would have to introduce a new service – such as a market research service – to introduce a ‘product innovation’.

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5 Interestingly, the number of people employed in creative occupations within the creative industries is roughly similar to the number of people employed in creative occupations outside the creative industries.
We argue that the definition of innovation as captured by the Oslo Manual is still fundamentally framed on the basis of a product-centric model, essentially derived from manufacturing. This is increasingly inappropriate in economies with high proportions of customised outputs.

Also problematic is the consideration of the creative inputs to innovation, other than research and development (R&D). Despite the attention given to R&D in both the Oslo Manual and the Community Innovation Surveys based on this, in most European countries more than half of innovating firms do not report engaging in R&D, even on an occasional basis. Interestingly, the recent Innobarometer of 2015 finds that firms in EU countries are slightly more likely to be engaged in design activities (not included in R&D) than in R&D activities. This suggests that, as a matter of urgency, the contribution of creative activities other than R&D – and especially design – need to be better understood. Particularly notable are recent studies which have shown that as design becomes more central to the strategy of the firm, its impact on innovation performance typically increases.  

Therefore, while recognising that this will involve challenges of definition and measurement, we argue that sources of creativity or inventiveness for innovation other than R&D are increasingly significant and need to be much better understood.

**Connections between the Creative Industries and the Wider Economy**

Another important set of issues concerns the inter-connections – especially in terms of creativity and innovation – between the creative industries and the wider economy. These interconnections are undoubtedly complex and hard to fully identify and measure. Partly, this is because the creative industries – while sharing the characteristics of being highly dependent on creative work practices – are also highly heterogeneous. Some, such as the crafts sector, produce tangible products (even if heavily laden with symbolic content), while others, such as film and music, produce intangible products and experiences, and others still, such as museums and libraries, are concerned with the provision of facilities rather than the development of products. Capturing these ‘outputs’, and who uses them, directly and indirectly, is extremely challenging, especially when many uses are not paid for nor recorded (e.g., free entry into museums, and free downloading of music and TV shows).

Nonetheless, taken as a whole, and from a ‘systems of innovation’ perspective, especially interesting are: first, the ‘importation’ of innovations, technologies and techniques from the wider economy into the creative industries, and how this shapes behaviour within these industries (e.g. reducing costs of innovation, increasing the customisation of outputs, facilitating changes in organisational arrangements, etc.); second, the extent to which engagement with the creative industries (and firms therein) by agents in the wider economy enable the latter to innovate, or affect the nature of their innovation activities; third, whether the approaches to innovation engaged in, or pioneered, by the creative industries tend to later diffuse into the wider economy (examples of this would include ‘agile’ approaches to software development and ‘design thinking’).

None of these issues are easily addressed, even though it is evident that the new technologies, especially those associated with digital technologies of production and distribution, are impacting massively on at least some of the creative industries (e.g., the recorded music industry). New technologies have also had massive impact on business models (challenging the old, and facilitating

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the new), and on the flow of resources within value chains. Also evident is that the creative industries are frequently early adopters of new technologies and techniques. However, this is not universal; other creative industries – such as the performing arts – are technological laggards.

In relation to identifying and measuring general and innovation related connections between different parts of the economy, a significant problem with the current Oslo Manual/Community Innovation Survey (CIS) approach is that no information is gathered on the nature of the demand for the innovation, or on the first customers for an innovation. We consider that it would be would be beneficial to gather such information in order to gain a more complete understanding of the flows of innovations between providers and clients – including the innovation flows between the creative industries and the wider economy.

Beyond this, little is known about how ideas and innovative approaches first developed in the creative industries are diffusing elsewhere, yet anecdotally this appears to be the case. An interesting flow between the ‘creative industries’ and the wider economy is the flow of people. It is notable that roughly similar numbers of people are employed in creative occupations outside of the creative industries as are employed in creative occupations within the creative industries. This raises interesting questions as to the extent of movement of people into and out of the creative occupations, and into and out of the creative industries. It is likely that higher rates of churn, at both the occupational and industries levels, are associated with the more extensive and rapid diffusion of ideas and techniques between creatives and non-creatives.

Overall, our research in this theme has shown that while significant foundations have been laid, much remains to be done. There is a need for a harmonized understanding of what the creative (and cultural) industries are. The creative intensities approach based on occupational data offers a pragmatic first step to identifying these. There is also a need to develop an approach to measuring innovation that does not fixate on functional novelty. And there is a need to understand and appreciate inputs to innovation other than R&D. The inter-connections between the creative industries and the wider economy also need to be better understood. These interconnections are both interesting and challenging, especially in relation to the development of innovations and the early diffusion of ideas and technologies. While they are likely to be widespread, we suggest that these inter-connections may be more effectively studied on an industry-by-industry basis, or by focusing on particular activities or contexts, at least in the first instance.

3.2 Theme 2: Modes and Models of Creativity, Innovation and Design

In this theme of the project, we researched the origins and drivers of ‘creativity’ based innovation, and how this differs from the conventional understandings of innovation derived from studies of technological innovation. The role of design, and designers, was specifically examined.

Taking inspiration from the established literature on technological innovation, which has developed influential taxonomies and concepts (such as technological trajectories and regimes), Marshall and colleagues ⁸ built a taxonomy of creative industry innovation. While highlighting the significance of the production and consumption of meanings and the highly symbolic nature of the outputs generated by the creative industries, they argue that innovation in the creative industries can be

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related to a variety of ‘creative regimes’ that are constituted through the interplay of two influences: the symbolic regime and the socio-technical regime.

The former, which is shaped by the interplay between semiotic and evaluative practices, includes the ways in which meanings are produced and consumed, and the evaluative practices through which they are judged by individuals and groups. Three sets of evaluative practices are identified: the aesthetic (or ‘expert’ or ‘professional opinion’), the market-based (i.e., commercial success), and the bureaucratic (e.g., state sponsorship). The socio-technical regime meanwhile, has foundations familiar to innovation studies. It includes the types, intensity, and sources of innovation, including organisational, technological, and market characteristics, as well as the appropriability conditions within which businesses operate. Marshall et al argue that the symbolic and socio-technical regimes combine together into different configurations, resulting in different patterns of innovation.

Specifically, differing dynamics between the rate of change in semiotic codes and in the socio-technical regime are considered to result in four broad trajectories: 1) **preserve**, where both semiotic codes and the socio-technical regime are slow changing; 2) **ideate**, where semiotic codes are changing rapidly while the socio-technical regime is stable; 3) **transform**, involves slow change in semiotic codes but a fast changing socio-technical regime; and 4) **recreate**, which combines fast change in both dimensions. Four primary drivers: demand, technology, public policy, and globalisation, are considered to be central to how these trajectories evolve.

In relation to innovation activities, in the **preserve** category, to the extent that they exist, innovation activities are minor and are oriented to preservation. Semiotic practices are focused on maintaining tradition. Production is often small-scale and specialised, and there is an emphasis on established ‘craft-based’ technologies and techniques.

In the **ideate** section of the taxonomy, the symbolic regime is unstable, with waves of new symbolic products and stylistic trends. Often based on art, semiotic practices emphasize novelty, and innovation is mostly focused on ‘products’. Other aspects of the socio-technical regime, such as organisational arrangements and market characteristics, tend to be slow-changing.

The **transform** segment is characterised by slow change in the symbolic regime (and has semiotic practices emphasising familiarity), accompanied by more rapid changes in the material base and in the socio-technical regime. Commercial pressures here are typically high and producers seek to reach mass markets. Larger, more commercially oriented organisations operate here, with more complex value chains and inter-organisational networks. Commodification forms a dominant logic.

Finally, innovations in the **recreate** category are shaped by fast-moving change in both the symbolic and socio-technical regimes. Examples of this include feature-length animations using new digital technologies, fast fashion, and design-driven furniture. Organisational arrangements can be complex and frequently involve cooperation between quite diverse groups, such as between artists, user communities, creative firms and large corporations.

Illustrated through studies of animation, fashion and furniture, this research emphasises both the significance of signs and symbols in the creative industries, but also the diversity of activities that is brought together under the umbrella label of the creative (and cultural) industries.
With the aim of developing a typology, Ainamo and colleagues investigated how (professional) designers are involved in innovation and what activities they perform in different organizations. Based on their research results, they concluded that the roles for designers and designers’ capabilities can be identified at three levels: the level of (non-innovation) implementation, where the designer works primarily as a visual producer; at the level of incremental innovation, where the designer works as an aesthetic developer; and at the level of radical innovation, where the designers works as an or the artistic/aesthetic driver. Thus designers can have varied roles in projects and in companies; they can be strategic visionaries, communicators, mediators, conductors, integrators, entrepreneurs, form givers, provocateurs, trend analysts and/or knowledge brokers.

The techniques and methods designers use do not seem to vary by type of company or organization, or by type of innovation, but do vary with the degree of innovation. More radical degrees of innovation are associated with designers applying an artistic mind-set rather than just aesthetic judgements. Ainamo et al. therefore propose a typology based on the degree of innovation: radical or incremental. Relating this to the design process as described in the well-known Double Diamond model, they propose to examine designers’ contributions from a hierarchical rather than a linear perspective. In this, the discovery phase is related to the strategies of the company and to radical innovation as these have strategic implications. Incremental innovation is about defining the task and is more tactical. The latter phase of the design process is about the delivery, and here the role of the designer is essentially to produce visual documentations.

In summary, the strategic level involves radical innovations and is where designers act as both artistic and aesthetic drivers. For this to happen it is necessary to give designers freedom, responsibility and resources in the early, discovery phases of development. The potential of design here is much greater than styling, creating product form or appearance. Designers can be imaginers with a future orientation, or provocateurs, challenging existing systems and prevailing knowledge, while creating space for new and fresh understandings. But also important to success is the ability to listen to the market, to users as well as producers in order to understand what trends and sociocultural tendencies are relevant.

The tactical level is associated with incremental innovations, and with designers taking part in business development, including during the early, definition phase of innovation. Here, designers’ activities are more aligned to the organisation’s ways of working, and are not necessarily provocateurs. Designers often act as intrapreneurs, connecting organizational functions and external market challenges; the ability to listen, equally to the market, to users and to producers, is important.

The operational level, meanwhile, is where the skills and methods of the designers are related to the later phases of the development process, which deliver the outputs of the innovation process. As the process is iterative, the development of the defined concept can lead to new ideas and back into the first part of the Double Diamond. Here the designer’s role is that of being a producer and refiner, using design methods and skills to progress the work through visualization and prototyping. Pedagogical and communicative skills are important here to help people understand the innovation.

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9 DEL 2.2.2(R) ‘Designers as Innovators in Organizational Contexts: The Development of a Typology of Roles and Competences’, by Antti Ainamo, Lisbeth Svengren Holm, Christina Vildinge, Dóra Horvarth and Julianna Gingerina.
Complementing the typological/taxonomic work reported above, are the studies undertaken by Strandgaard et al\textsuperscript{10} and by Altuna et al\textsuperscript{11}, respectively at Copenhagen Business School and at the Polytechnic of Milan, that researched how creativity happens in a variety of socio-technical contexts and the role of social movements or ‘radical circles’ in the development of innovations. The contexts studied included film-making, theatre management, tourism and culinary innovation.

While difficult to summaries, it is evident that creative activities tend to be highly distributed over time and across a variety of participants. In relation to time, the film industry presents a pertinent example. A set of films are developed through a series of projects, each of which relates to a specific film, but at the same time there are also connections between the past, present and future, and between temporary and permanent organisations. In the context of innovation these connections are significant, because innovations are often considered in isolation. Stjerne and Svejenova\textsuperscript{12}’s study examines how a Danish film production company has sought to balance innovation and persistence in order to realize a novel children’s film and its sequels.\textsuperscript{12} The study reveals tensions at different levels, as well as boundary work and boundary roles that address them, bringing in from the shadows the roles of past and future projects.

Meanwhile, the role of experts, and the development of expertise, is highlighted by Strandgaard and Bévort’s study into how the Danish Film Institute constructed the film-consulting scheme.\textsuperscript{13} This explores how a group of people, placed in the new role of film evaluator, have developed a new professional practice, and discusses how this evaluative practice has created value and affected the field, which is the ultimate effect of constructing experts and expertise.

In relation to culinary innovation through culinary movements, Cappelen and Strandgaard investigate the processes, practices, and mechanism that have enabled culinary movements to be created and maintained, and that have enabled them to gain legitimacy.\textsuperscript{14} Structural similarities between a range of culinary movements are explored and highlighted. The findings, based on fieldwork and archival material, and interpreted through new institutional theory and identity theory, highlight how - in order to secure legitimacy - institutional actors reproduce and adapt to established standards, rules, myths, and norms in a specific field. Moreover, they balance conformity and distinctiveness in relation to other field-members, through practices of institutional bricolage and identity work. Through both conscious and unconscious actions, members of the group relate to the movement’s purpose and boundaries, stimulate innovation and label practices, encourage democratization and contestation, diffusion and control, and engage in network and collaboration processes. The structural resemblance between various culinary movements suggests that the way in which these movements develop are highly constrained and dependent on institutional forces. However, in spite of structural similarities, differences among the movements also exist in how they attempt to innovate and adapt to local conditions, which cautions against over-generalisation.

\textsuperscript{10} DEL: 2.1.2(R): Examining the Variety of Contexts for Creativity, by Jesper Strandgaard, Frans Bevort, Trine Bille, Sophie Marie Cappelen, Ana Maria Munar, Can-Seng Ooi, Iben Stjerne & Silviya Svejenova.

\textsuperscript{11} DEL: 2.2.3(R): Research based papers based on Design Driven Innovation: Design as a Source of Radical Change in Product Meanings, by Naiara Altuna, Claudio Dell’Era, Paolo Landoni and Roberto Verganti

\textsuperscript{12} DEL 2.1.2.c(R) Connecting temporary and permanent organizing: Tensions and boundary work in sequential film projects, by Iben Sandal Stjerne and Silviya Svejenova.

\textsuperscript{13} DEL 2.1.2.d(R) Constructing Experts and Expertise: Evaluative practices in Danish Filmmaking, By Jesper Strandgaard and Frans Bévort.

\textsuperscript{14} DEL 2.1.2b(R) Culinary Innovation through Culinary Movements, by S. M. Cappelen & J. Strandgaard.
With reference to two significant cultural movements: Memphis and Slow Food, Altuna and colleagues examined ‘radical circles’, i.e., small groups of individuals, as a source of new visions. They consider radical circles to be a form of ‘open innovation’, which protects their members from too much noise, while allowing research on meaning and values to be undertaken with real people and through real discussions, as well as allowing group members to get to know each other and to go deeper into the research process. The study also highlights the importance of true innovators getting involved early in the life of ‘radical circles’. Also important is the very strong inter-personal connections between the people at the centre of these movements, especially in their early stages.

Altuna and colleagues then further analysed the development of radically-new meanings as the basis of the Slow Food movement. They argue that group validation is a core attribute of such circles, and occurs as a form of group solidarity which emboldens action among the collective and helps in refining the meaning and identify of the group, which initially at least is essentially developed in opposition to the dominant paradigm. In the case of Slow Food, three main phases in the evolution of innovative meanings can be identified: generation, institutionalization and development. The generation phase was largely focused on clarifying what the movement was opposed to, and led to the formation of the group. The institutionalization phase was associated with developing a self-conscious group identity and making a statement (in the form of a manifesto) as to who they were and what they aspired to achieve. Manifestos are used as an important instrument to galvanise the movement, especially in its early phases. Developing radically-new meanings then required specific activities to allow its implementation in concrete innovations: these included communicating, explaining, embodying, transferring, and nurturing.

In summary, the set of studies undertaken in this theme emphasise aspects of innovation that are often severely underplayed, especially in economic and innovation studies. These include: the symbolic (alongside the functional); the context, and how roles vary with context; the significance of time, and the sequencing of events; the role of individual and collective agency, and the significance of combining efforts, which may be distributed across levels. None of these characteristics are unique to the creative industries, but they are probably particularly prominent in these settings, reinforcing their significance.

### 3.3 Theme 3: Entrepreneurs, Entrepreneurial Firms, and Industrial Dynamics

In this theme of the project, we examined the characteristics of creative industry entrepreneurs, the characteristics of creative industry firms, and the wider contexts in which they operate. While there are some enormous businesses in the creative industries (such as giant advertising groups, publishing houses and broadcasting businesses), on the whole the creative industries are characterised by the participation of vast numbers of small and micro firms, each of which has been established by at least one founder. In part, this is due to low barriers to entry into most of these industries: new ventures can typically be founded with very limited resources. Barriers to growth tend to be much more considerable.

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15 DEL 2.2.3a(R) ‘Moving beyond crowdsourcing: The contribution of radical circles to the development of new visions’, by N. Altuna; C. Dell’Era, P. Landoni and R. Verganti.
16 DEL 2.2.3b(R) ‘Developing Innovative Visions Through the Collaboration with Radical Circles - Slow Food as a Platform for Envisioning New Meanings’, N. Altuna; C. Dell’Era, P. Landoni and R. Verganti.
A rich empirical body of information was gathered for this theme, including an extensive survey on new and recently established firms in the creative industries in five European countries (The Creative-eu survey). This constitutes the first survey on entrepreneurship in these industries across different sectors and different EU countries.

Using the Global Entrepreneurship Monitoring (GEM) dataset, Caloghirou and colleagues\(^\text{17}\) examined whether there are differences between actual, nascent and established entrepreneurs in the creative industries and entrepreneurs in other industries. They complemented this quantitative analysis with in-depth interviews conducted among creative industry entrepreneurs in Greece and Italy.\(^\text{18}\)

Although the differences are generally modest, the results of the GEM data analysis show that entrepreneurs in the creative industries tend to be younger and better educated than entrepreneurs in other industries. However, although better educated, our interviews revealed that creative industry entrepreneurs often found it difficult to acquire entrepreneurial skills, which they had not developed as part of their formal education. Interestingly, entrepreneurs in the creative industries tend to be less fearful of failure than entrepreneurs in other industries. This may be related to their being more likely to be motivated by a desire for freedom of expression. The interviews revealed that most of these entrepreneurs had decided to establish their own business in order to express themselves independently and to gain control over their work. Most had previously worked in larger, established businesses. Most were also not seeking to become rich but aimed to realize their own ideas, use more effectively their creative and artistic skills and even support and reinforce the creative culture in their communities or regions. It is notable that in cases where founding teams had a business background their firms were more likely to achieve greater growth in terms of both employees and sales. In addition, the entrepreneur’s export vision appears highly influential in rendering their firms resilient within the current economic crisis. The GEM data analysis also found that creative industry entrepreneurs are less likely to have started their business out of necessity (e.g., following redundancy and being unable to find employment), although the extent of this increased in the aftermath of the financial crisis.

The GEM analysis shows creative industry entrepreneurship is particularly prevalent in media, arts and photography activities, which are activities with low barriers to entry and which account for almost 40% of creative industry ventures. It is interesting that, while typically better educated and more innovative, creative industry entrepreneurs tend to be less ambitious for growth in terms of employment than entrepreneurs in other industries. This may be connected to the realisation that growth in employment is likely to reduce the entrepreneur’s own involvement in the creative work and increase his or her managerial workload, thereby reducing the intrinsic satisfaction of being engaged in creative work. Firms established by several entrepreneurs were hungrier for growth in terms of both sales and employment. One barrier to growth is accessing finance, which was frequently difficult beyond that available from friends and family.

While the rate of new firm formation in the creative industries was depressed by the financial crisis it has rebounded strongly, with around 7.5% of all new entrepreneurial ventures in Europe now being in the creative industries.

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\(^{17}\) DEL: 3.1.2b(R): Identifying Actual and Nascent CCI Entrepreneurs and their Characteristics by Yannis Caloghirou, Aggelos Tsakanikas, Aimilia Protogerou, Evaggelia Valavanioti and Nikos Kanellos.

\(^{18}\) DEL: 3.1.2a(R): Entrepreneurship in the Creative Industries: A case study approach. by Aimilia Protogerou, Yannis Caloghirou and Foteini Markou.
While illuminating, the GEM surveys disconnect entrepreneurship from the context within which it develops. To examine entrepreneurship in context, Butticè et al.\(^{19}\) investigate the accumulation of industry-specific social capital among emerging entrepreneurs based on a study of the fashion and design industries in Northern Italy. They identify four main strategies among these entrepreneurs. Whereas some re-invest initial stocks of industry-specific social capital, others, especially with low initial endowments, engage in social exposure, professional exposure, and conspicuous quality development as means of gaining attention and to gain access to resources within the industry. Butticè et al also document how event-driven attention shifts social capital investments towards the entrepreneur, as established industry actors become interested in seeking relationships with the entrepreneur. This creates a valuable window of opportunity for the entrepreneur to further enhance his or her position within the industry. The implication of these findings is that entrepreneurs interested in participating in social capital-intensive industries such as fashion should start by assessing their industry specific social capital and then selecting appropriate strategies to accumulate additional social capital. Policymakers should also be aware of the role of social capital in providing unequal access to these industries, and should consider mechanisms to address this.

In relation to creative firms as opposed to entrepreneurs, Caloghirou et al.\(^{20}\) examined the AEGIS dataset of around 4,000 young firms in 10 European countries in order to analyze innovation performance and the factors associated with this. They compared matched samples of creative and non-creative enterprises and found that the former tend to outperform the latter in terms of product innovation, R&D intensity and the use of IP protection methods, but not in terms of process or organizational innovation. The results also indicate that, in general, external knowledge sources and collaboration activities matter more for innovation among creative firms. There is however significant variation among sectors within the creative industries in both the propensity to innovation and in the ‘drivers’ of innovation.

Further insights were then gathered using a new, bespoke survey of over 1,000 creative industry firms based in five EU countries (Denmark, Greece, Italy, Sweden and the UK – the CRE8TV.EU survey), that was undertaken by NTUA and Bocconi\(^{21}\) (under the supervision of Professors Caloghirou and Malerba). Aside from gathering information about the firms, this survey sought information about the founders and founding teams, the firm foundation process, firms’ strategies and markets, their sourcing of knowledge and networking, their innovation activities, success factors and growth.

Most of the firms surveyed were very small, with over half having fewer than 4 employees; only 1% had 50 or more. Interestingly, more than half had extended their workforce through engaging freelancers, and it was not uncommon that freelancers doubled the size of the firm’s internal workforce. Firms tended to internalize the skills core to their particular business and to source less critical competences (such as market research) externally.

Most of the firms were founded by a single person or by two; only 5% were founded by more than four. Artists and photographers were most likely to be solo founders, whereas duos were most

\(^{19}\) DEL: 3.1.3 (R), The Accumulation of Industry-Specific Social Capital by Emerging Entrepreneurs by Vincenzo Butticè, Chiara Franzoni and Cristina Rossi-Lamstra

\(^{20}\) DEL. 3.2.2(R) A comparative analysis of the innovation pattern in CCIs and other industries based on an empirical study of the AEGIS data, by Yannis Caloghirou, Aimilia Protogerou and Alexandra Kontolaimou.

\(^{21}\) DEL. 3.2.4(R) Examining entrepreneurial firms in the CCIs-The cre8tv.eu survey, by Aimilia Protogerou, Yannis Caloghirou, Aggelos Tsakanikas and Anna Maria Routsi,
common in architecture; founding teams of four or more people were most common in computer and IT services. Most of the founders were men; women entrepreneurs were most common in architecture, the arts and advertising. Very few businesses were founded by women-only teams.

The ventures were generally founded by well-educated people: 73% having university degrees. The majority founded their businesses when in their 30s or 40s; few firms were established by young founders. The primary motivation for founding the business was to realize the founders’ ideas and expertise, and to obtain independence. Most of the businesses were established without external financing, and were oriented to the local, regional or national market; only 10% were oriented to international markets. The most important success factor was the ability to adapt products and services to the specific needs of particular customers or market niches, followed by the ability to constantly renew product offerings. In light of this, it is unsurprising that the extent of engaging in product/service innovation is very high, and that customers are regarded as the most important source of information, followed by in-house sources. Meanwhile, networking with scientific research organizations was rarely recognized as important to competitive advantage and these were the least widely used sources of knowledge for innovation. Copyrights were the most commonly used instruments for protecting intellectual properties, followed by confidentiality agreements. Other formal protection methods, such as trademarks, patents and registered designs were much less widely used (by 9%, 4% and 3% respectively). In relation to growth, many more firms reported growth in turnover and operating profits than in employment. Overall, the survey findings highlight the huge amount of variation within the creative industries, which on the one side is not surprising, but on the other makes drawing overarching conclusions challenging.

The issue of skill needs among creative industry firms is often highlighted, and therefore, using the Linked-Employer-Employee (LEE) dataset that matches firm level data from the KfW/ZEW German Start-up Panel with employee data from the German Federal Employment Agency, Müllern and Murmann22 analysed the relationship between specific skill combinations within the firm and the probability that young entrepreneurial firms in creative industries introduced a new to the market or new to the firm product innovation. In particular, on the basis that business skills are considered a key input to commercial success, they investigated the role of business skills and competencies and how these interplay with technical and creative skills.

While, as anticipated, creative skills were more significant for innovation in the creative industries than they are in other industries, the results in relation to business skills were more nuanced. There are some indications that business skills are beneficial to the introduction of new to the market innovations, particularly when used in combination with technical skills, but the results are much weaker for new to the firm innovations, and there is little evidence that creative industry firms benefit from having personnel that bring together creative and business skills. This suggest that, particularly in relation to their innovation performance, either employing people with business skills is not the most pressing problem facing creative industry firms, or it may be that these firms are able to access the business skills and competences that they need without employing people with these skills in-house. That is, they may be accessing these skills and competencies through markets for business advice (e.g., obtaining this externally from consultants and tax advisors) or gaining it from informal networks. This again suggests the need to understand the extent to which creative industry firms are embedded in, and dependent upon, networks.

22 DEL: 3.2.5(R) The Role of the ‘Right’ Skill Mix for the Innovation Performance of Young Firms in the Creative Industries, by Bettina Müller and Martin Murmann.
In two more specific studies Tether et al.\textsuperscript{23} and Landoni et al.\textsuperscript{24} examined forms of innovation in the creative industries. Specifically, Tether et al. examined diversification into a new market niche, while Landoni et al. examined business model innovation. In particular, Tether et al examined which firms in the design consulting industry entered into the newly emerging niche market opportunity of digital design from the mid-1990s. They found that younger firms were considerably more likely to enter, whereas long established firms kept out. Firms with a strong orientation to growth were also more likely to enter this emerging niche, as were firms already engaged in closely related design activities and firms that were already more diversified. The study also finds some evidence that the diversification behaviour of firms is influenced by the behaviour of other firms that are similar to the firm in question. The study suggests that some firms in the creative industries are strongly wedded to a sense of identity which restricts their engagement in diversification as a form of innovation. This is particularly the case for long established firms specialised in a narrow range of activities. Meanwhile, young firms that are hungry for growth and that have little to lose by participating in new opportunities are the most likely to take the risk and diversify.

Landoni et al sought to understand the role of business model innovation in the growth of creative industry firms, and how business model innovation relates to the sourcing of resources and addressing constraints. They examined a set of case studies and found that the firms adopted business model innovations as means of overcoming barriers and constraints associated with specific resources. Initially, the firms oriented their business models to the building of a strong and recognized reputation; later their models were oriented to reinforcing and leveraging their reputation, while also exploiting distribution channels (including social media platforms) and accessing new creative sources. An important finding is that the firms tended to increase their turnover substantially more than they increased their employment, suggesting an employment-lite approach to growth. The study provides valuable insights into the development of creative industry firms over time, and highlights the challenges they face at different stages of their development.

As mentioned earlier, while the vast majority of firms in the creative industries are micro businesses, there are also some giant corporations, many of which have grown substantially through mergers and acquisitions (M&As). Aghasi et al.\textsuperscript{25} therefore undertook studies of M&A behaviour in the creative industries. A first study examined the patterns of M&As for firms operating in a large number of creative industries and covered all recorded acquisitions in Europe between 2005 and 2014. This showed the patterns of M&As to be very consistent with resource dependency theory, one of the most powerful and established perspectives in organization studies. The main strategy of firms operating in the creative industries is to find, develop and maintain control over intangible, creative resources. As a result, the long-term survival of these firms depends heavily on compiling and managing these resources, but there are significant uncertainties in both detecting and using these resources. Moreover, managerial practices such as professional training that are effective in other industries are significantly less effective in the creative industries. This creates opportunities for the relatively few firms with strong managerial capabilities to acquire other creative businesses. Growth through acquisition is therefore more common than organic growth. To understand better

\textsuperscript{23} DEL: 3.3.2(R) Niche Market Emergence and the diversification choices of design consulting firms: Taking of Eschewing Opportunities in Digital Design by Bruce S. Tether, Qian Cher Li, Andrea Mina, Karl Wennberg

\textsuperscript{24} DEL: 3.3.4(R) Business Model Innovation and Opportunities for Internationalisation of CCI Firms, by Paolo Landoni, Claudio Dell’era, Roberto Verganti

\textsuperscript{25} DEL: 3.3.3(R) Mergers and Acquisitions as a Path to Growth in Cultural and Creative Industries, by Keivan Aghasi, Massimo G. Colombo, Cristina Rossi-Lamastra, Vahid Sadr
how these firms manage the acquired resources, in a second study, Aghasi et al. use case study evidence to investigate the post-acquisition implementation strategies and the challenges that arise when acquiring creative industry firms. The main finding of this study is that acquirers are aware of the centrality of the acquired firm’s employees as repositories of creative and cultural knowledge within the firms. They therefore delegate high levels of autonomy to the acquired firms to avoid losing managerial and creative talent which constitute key knowledge assets. The acquirers nonetheless face challenges in extracting knowledge from the acquired firm, which often hinders the post-acquisition performance of the newly combined entity.

In essence, the studies in this theme can be considered to have addressed the extent to which creative industry firms and entrepreneurs differ from those in other industries, and to have sought to understand variation among creative industry firms and entrepreneurs. In relation to the former, in general the overall differences are small and subtle; creative industry firms and entrepreneurs are not a breed apart. Interesting findings include higher levels of innovation, combined with a greater reluctance to pursue growth, especially in terms of employment. In relation to the second, what is perhaps most striking is the extent of variation among creative industry firms and entrepreneurs, which is challenging to explain. Particularly notable is the importance of the social contexts within which businesses operate, and also the apparently heavy reliance of businesses on freelancers and networks, suggesting that individual firms are not necessarily the ideal units of analysis.

3.4 Theme 4: Digital Ecosystems and the Blurring of Production and Consumption

Studies in this theme examined how firms are using digital technologies and how this relates to their innovation behaviours and performances. Different types of innovation behaviours and performances were examined. A second set of studies focused on digital platforms, while a third focused on consumers and their behaviours.

In relation to firms’ use of digital technologies, Bertschek and Kesler\(^26\) examined the relationship between the use of social media, and especially Facebook, and the introduction of product and process innovations among a set of nearly 3,000 located in Germany. The emergence of social media provides firms with a potentially valuable channel through which to engage with their customers, and particularly end consumers. It may also provide a faster and relatively low cost source of knowledge that can be used to facilitate product (and process) development. The results show positive and significant associations between Facebook adoption and the extent of user engagement (measured by the number of comments posted by consumers) and product innovation, but no connection with process innovation. However, when using instrumental variable estimations to deal with problems of endogeneity,\(^27\) the relationship between Facebook adoption and product innovation becomes insignificant, as is relationship between the extent of firm comments and product innovation, implying there is no causal connection. The relationship with the extent of users’ comments remains both positive and significant however, indicating that when firms are able to engage with customers’ through their Facebook presence they can utilise this information to increase the probability of introducing product innovations. Future research will examine the quality of users’

\(^{26}\) DEL: 4.2.4(R): Social Media as a Source of Creativity: Hype or a Serious Strategy?, by Irene Bertschek and Reinhold Kesler

\(^{27}\) Firms with a higher rate of product and process innovations might be more likely to use Facebook. Moreover, they are also more IT intensive and larger, invest more, have a higher fraction of young and high-skilled employees, are more often exporters and more likely to be active in the market for end consumers.
comments (alongside their quantity), and examine both how firms encourage user feedback and how they are able to capture any core messages related to innovation opportunities.

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undertook a highly focused study, examining – through qualitative research based mainly on interviews undertaken within two firms – the uptake and impact of Building Information Modelling (BIM) in Dutch architecture practices. In the first instance BIM might be considered a process innovation, and the study focused on how BIM technologies have impacted on creative work practices in architectural firms, including how individual actors have applied BIM technology, how these actors organize its use to coordinate their work with that of others, and the effects of these re-coordinated interactions on the organization of work at the level of the firm. For instance, as BIM provided new ways for actors to collaborate, they started to coordinate their work with that of others through temporary shared system usage. Through this, the different actors discovered that they were constructing the same artifact, which triggered configurational usage to enhance efficiency. Thus BIM is shown to be not only a process innovation but also at the heart of organisational innovations, and what is particularly interesting is that – due to affordances in its utilisation – the technology has been applied and used in a variety of ways. Thus the enactment of affordances in the technology is shown to relate to an ongoing process of configuring system usage, which involves ongoing discussions between actors within the firm, and reflections on how configurations coordinate work. Different micro-level interactions thereby aggregate to different firm-level effects and outcomes. The study is particularly interesting because it focuses on the user side of innovation in a business context, demonstrating that there is much more to this than simple adoption. Moving forward, different patterns of adoption have implications for the competitiveness of, and division of labour between, professional groups, firms and industries.

In the third of our studies on pervasive digital technologies, **Lorenzen and colleagues**

used five case studies focusing on digital technologies to examine the outsourcing of software animation activities from Europe (and especially Denmark) to India. An interesting feature of this outsourcing is that in India it is largely concentrated in Bangalore. The study argues that this cluster’s early connectedness to existing software clusters in the US and Europe accelerated its later ability to grow through institutional and cultural proximity. Institutional proximity arises when actors share conventions and habits, but also regulative institutions such as ownership laws and intellectual property practices. Cultural proximity, which arises when economic actors share norms, beliefs and conventions and which facilitate trust, relates strongly to embeddedness in dense social networks that facilitate the exchange of commercially valuable and other knowledge and information between individuals. High degrees of institutional and cultural proximity therefore reduce transaction and coordination costs, which enable more effective business relationships, and incentivize multinational enterprises (MNEs) active in one cluster to invest in, and possibly locate in, another. Importantly, these connections are also greatly enhanced by the movement of skilled individuals between the clusters, as such movements not only build capabilities but also cultural proximity. In the case of Bangalore this openness has seen the arrival of multinational subsidiaries and later the emergence of local contractors, and the relocation of more complex tasks into the cluster, first undertaken by multinational subsidiaries and later by local contractors. The study suggests that the diffusion of digital technologies is necessary but not sufficient for the effective development of clusters. As

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29 DEL: 4.1.2(R): Digitization, Connectivity, and Outsourcing, by Mark Lorenzen, Manya Jaura, Kristina Vaarst Andersen
important is the development of institutional and cultural proximity, which can be enhanced by international administrative connections and by permitting the flow of skilled personnel between the clusters.

In relation to digital platforms, it evident that these are creating opportunities for small players as never before and, in this context, Sapsed and Christian30 studied 20 cases in the UK, including ten app and ten game developers. The cases involved people with a variety of business experience: some inexperienced, including young enthusiasts but also some older people pursuing a career change; and some more seasoned professionals. Platforms, and accompanying development toolkits, have dramatically reduced barriers to entry, but this has also encouraged a proliferation of products, many of which are close substitutes, and oversaturated platforms. New entrants can invest considerable time, effort and money developing what they consider to be an excellent product only to see it lost in the crowds of products on the platform. In light of this, the research sought to identify the key success factors that developers can adopt to help them secure a return on their investment. The first strategy is engaging in work for hire, which involves developing – or contributing to the development of – products for specific clients, rather than for general release. Aside from generating income, this encourages learning about product qualities and innovation practices. Secondly, engaging with communities is vital and reflects the changing boundaries of production and consumption. Simply placing a product on a platform is almost always insufficient if the developer wants to attract interest. Other challenges include raising external investment, largely because the asset base of these businesses is inherently difficult to assess. Furthermore, any success may be a ‘flash in the pan’: quickly over and hard to repeat. In this environment it is hard for skilled developers to keep up with the pace of change. Ultimately, it is important that the opportunities provided to small players by digital platforms do not become over-hyped, and that participants are realistic about their likely prospects.31

Also in relation to platforms, Boudreau and Jeppesen32 examined how producers can take advantage of unpaid hobbyists who provide input without being paid. The study is based on 85 commercial game engine platforms and over 500 developers. It sought to understand whether established platform management theory is valid in the context of unpaid contributors acting as content producers. Existing studies have focused on how to incentivize firms to create content for platforms, and how to get consumers to contribute as well, but little is known about the situation in which ‘the crowd’ is in charge of content creation. Incentives are important to achieve cross-platform network effects – i.e., where supply and demand respond positively to each other in a causal fashion. The key to platform success is getting additional content and consumers to participate at a steady rate. So the first step is to understand whether such networks effects arise when you deal with ‘the crowd’, and not firms, as content providers. The point is that ‘the crowd’ is comprised of unpaid individuals, who have very different and varied motivations to join a platform. From a platform entrepreneur’s

30 DEL: 4.2.3(R): Changing Digital Engagement: Games and Apps, by Jonathan Sapsed and José Christian
31 Elsewhere, in a study of ‘Lead users and the success of music apps’ (Del 4.3.3b), Corrocher and Fontana find that the majority of app developers in this context are users (rather than software firms), including individuals or groups, but that users’ innovation activity typically follows after specialist software firms have provided a product which users take inspiration from and seek to improve upon. User innovators tend to develop more specialized and expensive products and, interestingly, often play an important role in providing feedback to peers on their innovations.
32 DEL: 4.2.2(R): Unpaid crowd complementors: The platform network effect mirage, by Kevin Boudreau and Lars Bo Jeppesen.
perspective it is valuable to know whether costly action should be taken to encourage network effects. Analysing a large data set computer games platforms where individuals from the public are able to access and modify games content, the study found that network effects did not form, and this was mainly due to the weak responses of crowd content providers to demand from consumers. These weak responses to demand probably reflects the fact that crowd individuals do not create content for a living; they are not sufficiently incentivised or motivated to act on other people’s desires. The implication of this is that, where content providers are unpaid, platform owners should be wary of the conventional wisdom that encourages them to stimulate network effects on platforms. This said, encouraging free crowd generated content can be an effective strategy for starting up a platform, because it enhances the content offer, and encourages a scaling up of the installed-base of users at little or no cost. Platform owners are advised to later start paying content providers if they wish to grow their platform through network effects.

In relation to consumers and users, Camerani and colleagues examined the demand for creative products, and in particular the forced and unforced replacement of digital audio players. They find that the timing of first adoption and usage, the extent or intensity of usage, and a preference for design are all important determinants of subsequent early replacement, especially when replacement is not forced. By contrast, forced replacement, which includes the loss or failure of the product and unsatisfactory product performance in terms of reliability or durability, seems to occur by chance. Both forced and unforced replacement is associated with the availability of improved products, but product proliferation has no effect on replacement and, interestingly, more advertisement and branding reduce the probability of replacement. The brand of the product currently used also had an important influence on the rate of replacement. The study goes on to discuss the managerial implications for firms engaged in the development and marketing of high-tech products. On the one hand, firms’ innovation strategies can stimulate unforced replacement, particularly among early adopters and intensive users, as well as those customers with a keen interest in product design. On the other hand, firms should recognise that these strategies will not influence consumers more reluctant to replace functioning products. To target these, firms need to focus on diffusing information about the advantages of their new products, and to increase the functionalities of subsequent versions, although care must be taken not to generate expectations that a better version will be released soon, as this will encourage deferred replacement.

Also in relation to consumers and users, Horvarth and colleagues undertook a series of studies examining various aspects of participation in and through digital media. One study examined the use of Facebook by catering establishments in Hungary. This analysed how users perceive the information presented to them on the social media platform, and the extent of user/consumers’ own activities in relation to sites of their favourite catering establishments. On the basis of analysing 151 consumer narratives, the study found that only a small proportion of consumers actually post content (around 1%), whereas the majority only observe or ‘lurk’. Most of those who do engage provide minimal feedback, such as clicking ‘like’. Because of the significant weight attached to the small minority that are active, firms need to encourage their strongest supporters to be active. Ways of doing this include developing content that triggers consumer actions, such as games, questions, or votes. This, however, brings its own challenges, because to fully harness the opportunities given by

33 DEL: 4.3.3(R): The Demand for Creative Products: The Consumption and Use of MP3 Files, by Roberto Camerani, Nicoletta Corrocher and Roberto Fontana
34 DEL: 4.3.2(R): Consumers and User Participation in and through Digital Media (Collected studies) by Dóra Horvarth, Tamás Csordás, Éva Markos-Kujbus, Tünde Kiss and Mirkő Gáti
social media, small businesses, which often have limited resources, need time and energy to manage their own social media presence. With limited resources, it is increasingly important to choose how to maintain an online presence (e.g., own website versus Facebook presence). Businesses should also recognise the distinction between short-term and long-term social media management tools and actions. Many users are engaged only on a short-term basis, whereas the organisations should focus on the long-term, to generate ongoing user engagement.

The Corvinus team also examined electronic word of mouth behaviours, including how consumers respond to online reviews, and the posting of negative comments by other users. A study of negative comments found that most were clearly biased or prejudiced and often did not reflect an actual user experience. Committed users often countered negative reviews, showing support for the product or service provider when these faced negative and/or biased reviews. A minority of negative reviews are longer and better constructed, including useful information for the producer/service provider and for other users. Well managed firms need to develop means of responding effectively to negative reviews, which is also shown by a study of the influence of (negative) comments on TripAdvisor. Responding effectively includes managing expectations and dispelling possible myths among consumers about the services to be expected, thereby moderating potentially inflated prior expectations and the perceived quality gap between the expected and perceived service, the existence of which creates a sense of disappointment. By ‘educating’ the consumer, the quality of consumer reviews can be considerably improved, which then helps to attract more customers that fit the profile of those that the service provider is seeking to attract.

In further studies, the Corvinus team examined internet memes and how these are becoming part of everyday vocabulary, consumer culture, and reflect consumer insights. They are also becoming part of corporate advertising. One study examined how users have engaged with internet memes related to the Game of Thrones universe, frequently connecting these to real world brands.

While increasingly pervasive across the economy, digital technologies are particularly significant in many creative industries, and in several ways the creative industries are at the forefront of trends that can be expected to become more widespread. Notable from our studies is the notion of affordances, and that technologies are incorporated by firms (and end users) in a variety of ways, some more effective than others. Also important is how digital technologies are breaking down the distinction between producers and consumers, particularly where barriers to participation among users is low. Some firms are devising sophisticated strategies to enrol these unpaid contributors. A third finding is that while users increasingly have the potential to be active, only a small minority are, which has the potential to lead to disproportionate, or biased responses by firms.

3.5 Theme 5: Intellectual Property Protection and Rights: Trademarks and Designs

In this theme we examined intellectual property rights and innovation behaviour, with a particular emphasis on trademarks and registered designs. More generally however, and using data from three waves of the Community Innovation Survey in 26 European countries, Schwiebacher investigated...
whether the use of copyright and design right protection is positively associated with product innovation activities in the creative industries, with the latter defined in various ways.\textsuperscript{36}

As firms often use various means to protect innovation simultaneously, the study hypothesized that the association between introducing product innovations and the use of design rights and copyrights should be stronger for firms in the creative industries than for firms in other industries. Yet, contrary to these expectations, no robust evidence was found that the use of copyrights or design-rights is more important for the introduction of innovations in creative industries, and nor is greater use of copyright and design protection associated with a higher share of turnover being earned from product innovation among creative industry firms. A stronger association was however found between the use of intellectual property right (IPR) protection for creative works and imitative - that is new to the firm - product innovation. There is also some indication that new-to-the-market product innovation is positively associated with the use of copyrights and design rights in some service sectors, but no corresponding evidence is found for manufacturing sectors. Also notable is that there is no connection with sectoral intensity of investments in information technologies.

Schwiebacher concludes that copyright and design rights do not appear to support directly the appropriation of product innovation rents in the creative industries. Artistic and aesthetic product characteristics appear, however, to be an important means to differentiate products, and notably imitative innovators tend to make greater use of formal IPRs to protect artistic or aesthetic works, especially in some services. Although these statistical associations do not allow a structural, causal interpretation, and further research is necessary to investigate the relationship between technology diffusion and creative works at a more disaggregated level, the finding that it is imitators rather than innovators that are making greater use of IPRs should be of concern to policy makers.

Exploiting a novel and original database that combines financial and economic information, patent activity and trademarks at the level of the firm, \textit{Aiello and Breschi}\textsuperscript{37} examine at a very detailed level the relationships between owing different forms of intellectual property rights. Their paper presents an exploratory analysis of the main patterns of patent and trademark activity, with particular reference to cultural and creative industries (CCIs). They find that the CCIs represent a substantial and growing share of all trademarks registered by EU 28 firms, with the rate of growth in the number of Community Trademarks registered to CCI firms over the last 15 years greatly outstripping the rate of growth in trademarking by firms in all other industries. There is, however, also great heterogeneity within creative industries in terms of their propensities to use trademarks. Extensive trademarking is found in the Radio & TV, Publishing, Information Technology, and Video, Film and Music industries. Trademarking is low in the Visual and Performing Arts, Photography and Translation, and Architecture and Design industries. Moreover, compared with other industries, the trademarks owned by creative industry firms tend to be narrower, referring to a smaller number of product areas.\textsuperscript{38}

\textsuperscript{36} These included a copyright-related approach which identifies the creative industries as media, arts, ICT services, architecture and advertising, and a design-related approach which identifies the creative industries as including fashion, chemicals, plastics, mineral products, electric and mechanical engineering and R&D services. The empirical evidence is tested using these alternative classification schemes for the creative industries.

\textsuperscript{37} DEL: S.2.2(R): Not just Copyrights: Patents and Trademarks in the Cultural and Creative Industries, by Giovanni Aiello and Stefano Breschi

\textsuperscript{38} To examine in a very exploratory way the impact of a shock in trademarking activity in creative industries on macro quantities, such as GDP and unemployment, Aiello and Breschi estimated a regression model. The
An important aspect of the findings of this study is that, as far as the use of patents and trademarks is concerned, the creative industries are highly heterogeneous. They include sectors, such as IT, that make heavily use of patents and trademarks; sectors that make intensive use of trademarks but not patents, such as Radio & TV, Publishing, and Video, Film & Music, and sectors - Visual and Performing Arts, Photography & Translation, and Architecture & Design - that do not make much use of either of these forms of IP protection (but may use copyrights and/or design rights). This variation suggests that trademarks may be an indicator of innovation in some creative industries, but not in others. Further research is needed to understand the real economic value of trademarks in the creative industries, because unless companies are able to actively extract value from their registered trademarks they have no real value.

Filitz and Tether, meanwhile, examine the ownership of registered intellectual property rights among German and UK firms. Overall, German firms are observed to make greater use than UK firms of registered intellectual property rights, including patents, trademarks and registered designs. Filitz and Tether first discuss the reasons for this, highlighting differences in legal practices, such that the German legal system tends to be more favourable to intellectual property right owners than the UK legal system. For the EU as a whole, it is important that if a true ‘single market’ is to develop, then existing institutions which influence commercial behaviours should be harmonised, and that any new policy instruments that are introduced are “neutral”; that is, they do not favour firms based in any particular member state (or type of member state) relative to others. In this context, the UK is considered to be a primary example of a liberal market economy, whereas Germany is considered to be a primary example of a coordinated market economy. New policy instruments which should be neutral include European Community Trademarks and Registered Community Designs.

To examine the use, and extent of use, of intellectual property rights (IPRs) by German and UK firms. Filitz and Tether matched German firms to their closest UK counterpart based on observed characteristics (such as size, sector and productivity), and examined differences in the extent to which German and UK firms apply for patents, trademarks and registered designs. The analysis was also undertaken at three levels – national, European and international – for each type of IPR.

The study finds that German firms are more likely to register IPRs than are their UK “twins,” which at least partly reflects their greater incentives to do so. But most of the differences are modest, being greatest for national patenting in high-tech sectors. Particularly interesting is that the behaviour of German and UK firms is most similar in their uptake of (European) Community Trademarks and (European) Registered Community Designs, two harmonized instruments intended to encourage the development of the single European market. Significantly, this suggests that the EU has been able to introduce intellectual property rights that are neutral with respect to the two types of economy represented by Germany and the UK.

Drawing on an original survey of firms conducted as part of the CRE8TV.EU project and which yielded 486 responses from firms in six industries (film/TV/radio; public relations and communications; advertising; media agencies; entertainment and recreation) and in three countries (Germany, the
Netherlands and the UK), Castaldi
examined the use of trademarking, particularly in connection to innovation, within the creative industries. The study found significant variation in the use of trademarks. While some businesses used them, a substantial share did not, with some using alternative forms of IP protections, including copyrights, patents and registered designs. Moreover, while the use of trademarks was widespread in some industries, it was not the norm in others. This suggests that considerable care needs to be taken when using trademark data in the context of the creative industries. It is also notable that most applicants for trademarks in the creative industries protect their own name, or the name of their business, which suggests that trademark counts are likely to significantly underestimate actual innovativeness in these industries as compared to industries where companies are more likely to systematically trademark the names or identities of specific (new) products or services.

The results of the study suggest that overall companies perceive positive effects of trademarks and trademarking. They are viewed as incentivising quality and innovation; findings which support the emerging literature investigating the opportunities to measure innovation in services through trademark data. Furthermore, trademarking has been associated with exporting, especially of services by creative industry firms. Exporting companies also tend to be more productive. The empirical results gathered in this study find that only a small proportion of firms trademark outside their national jurisdiction, suggesting that creative industry firms typically have highly localised markets. Further research will examine these internationalised creative industry firms and consider how their overall market strategies relate to their IPR strategies, including their use of trademarks.

Meanwhile, Filitz, Henkel and Tether
explore the registration of designs in Europe, and especially the use of European Registered Community Designs (RCDs) by German firms, a country with one of the highest rates of design registration. Since their introduction in 2003, approximately 1 million RCDs have been filed in Europe, yet, in contrast to patenting and to a lesser extent trademarks, very little is known about the registration of designs, and the extent to which this is effective in encouraging and protecting designs, and innovations in design. The study explored the use of design registration by German firms in three industries: car making, tool making and footwear. Evidence was found for two types of users of RCDs: firms that amass large, even vast portfolios of RCDs – no matter if valid or not; and firms that selectively register only truly new and distinctive designs. The former were only found in the footwear industry; the latter among car and tool makers. Particularly in crowded product-design spaces - exemplified by footwear - some firms seem to be registering designs indiscriminately because searches for prior art are difficult and costly, which also makes the invalidation of registered designs challenging for third parties. The low cost of (multiple) registration and lack of office examination encourages these “all-you-can-file” behaviours, which further reduces transparency in already crowded design spaces. Other firms, especially the car and tool makers, were reluctant to file registered designs without being confident about their validity, and used registration for its intended purpose: that is, to protect distinctive, “novel” designs with “individual character”.

Taken together, the analysis suggests that the total volume of registered designs provides a poor indication of the extent of design innovation in any particular field. Much work remains to be done to comprehend how country-, industry-, and firm-level determinants interact to influence registration

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40 DEL: 5.2.3(R): To trademark or not: motives and implications for firms in the creative and cultural industries, by Carolina Castaldi
41 DEL: 5.3.3(R) Protecting aesthetic innovations? An exploration of the use of Registered Community Designs, by Rainer Filitz, Joachim Henkel and Bruce S. Tether
behaviours. Factors such as firm size, age and market power do however seem to be less significant than is the case with patenting. The paper ends by developing a research agenda for further studies on design protection. Separately, it also offers some recommendations as to how the registration system could be reformed to reduce arguably abusive behaviours.

Filitz and Henkel,42 developed a unifying framework for the role of visible product design as a driver of interfirm competition, covering aspects of both value creation and value capture. They theorize how design choices affect consumer preferences through horizontal, vertical, and what they term “relative” product differentiation. They also elaborate on the novel notion of relative differentiation. Drawing on consumer-level research, they develop a demand-side model of the perceived quality of a market offering to analyse and illustrate the conditions under which similarity or dissimilarity to competing designs is beneficial. Finally, they derive implications for capturing value from design, finding that consumer reactions to design similarity may act as a barrier to imitation. The competitive effects of relative differentiation may attenuate, but also amplify those of horizontal and vertical differentiation. The study highlights the (potential) competitive role of design, emphasising its strategic relevance and unveils additional levers for creating competitive advantage.

Lastly in this theme, Filitz Henkel and Ohnemus43 examined - through interviews with legal experts and firms and a survey of 900 firms in the German ICT industry - the protection of digital designs, especially by the registration of designs. They show that the registration of digital designs is growing very rapidly, with the largest share (36%) of registrations covering “graphical user interfaces”, followed by “icons” (27%). The businesses filing the largest number of designs tend to be non-EU based multinationals, including Microsoft, Apple and Samsung.

Among registrants, registered community designs (RCDs) are considered to have several advantages over alternative protection mechanisms such as copyright and trademarks, with informants representing heavy registrants being especially confident about the validity and scope of protection provided by digital design registrations. More hesitation was however expressed about the validity and enforceability of RCDs, and the significant legal expertise and financial resources required to establish effective protection for digital designs.

The survey evidence provided additional insights: among firms that indicated at least some development of digital designs, most made heavier use of copyright and trademarks protection than of design rights, either registered or unregistered. Furthermore, more than half the respondents considered that protection was not needed, as they did not perceive harm arising from copying. Half the respondents also agreed that digital design rights are too expensive and/or difficult to enforce. Over a quarter felt the protection available is insufficient. Two specific barriers to the registration of digital designs were highlighted. First, they are often animated, while the registration system only allows a maximum of seven static images to be submitted. Second, the enforceability of RCDs for digital designs, in particular through border seizure, is problematic since electronic devices are generally imported “offline” and therefore infringement is difficult to observe. Future revisions of legal rules and procedures should address these matters, but policy makers should also maintain a balance between design protection and design freedom. As with other intellectual property rights,

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42 DEL 5.1.3b(R) Competing in Design: Differentiation, Imitation, and Value Capture, by R. Filitz and J.Henkel.
43 DEL: 5.1.3a(R): Digital Design Protection in Europe: Law, Trends, and Emerging Issues, by Rainer Filitz, Joachim Henkel and Jörg Ohnemus
both an abuse of the system by heavy registrants, possibly resulting in “design thickets”, and the theft of design ideas through imitation must be prevented in order to promote design innovation.

Overall, our research in this theme finds weak connections between the use of intellectual property (IP) rights, and especially trademarks and registered designs, and innovation performance. In a raw state, these rights are poor indicators of innovation, and considerable care needs to be taken when using them to understand innovation behaviours, particularly but not only in the creative industries.

3.6 Theme 6: Policy Issues and Recommendations

In theme 6 we reviewed the policy issues arising from our research findings and later developed policy recommendations related to supporting innovation by creativity and design and oriented to supporting the creative industries.

A significant challenge for both innovation researchers and innovation policy makers is keeping pace with how innovation is transforming our economy and society. Part of this transformation is evident in the development and transformation of the creative industries. Our research has shown that these industries now account for a greater share of employment and value added in Europe than the ‘high-technology’ and ‘knowledge intensive’ sectors, although they do not receive a similar amount of attention from innovation scholars. Indeed, our research on industrial dynamics revealed that there are substantially more studies on the biotechnology sector than on the creative industries.

It is interesting that policymakers have been at the forefront of pushing the creative industries into prominence, starting in Europe with the ‘Creative Industries Mapping’ exercise undertaken by the UK’s then newly established Department of Media, Culture and Sport (DCMS) in 1998. Several other countries have taken similar exercises, and the European Commission has launched several initiatives, especially in the late 2000s, emphasising the significance and unrealised potential of culture and creativity for innovation and for economic development in Europe. These included designating 2009 the European Year of Creativity and Innovation.

In the wake of the financial crisis, attention has understandably been drawn elsewhere, but we would urge the Commission to revive its focus on the creative (and cultural) industries, for they are a key and growing component of Europe’s economy, and critical to achieving the Commission’s Europe 2020 strategy, which is oriented to delivering growth that is: smart, through more sustainable investments in education, research and innovation; sustainable, with an emphasis on a low carbon economy; and inclusive, with a strong emphasis on job creation and poverty reduction.

There is, however, confusion as to what the creative and cultural industries are, and how culture and creativity inter-related. We therefore urge the Commission and Eurostat to adopt a harmonised definition of the creative industries and the creative economy. To place emphasis on generative creativity rather than cultural expression, we recommend that these be defined as the creative industries and not as the cultural and creative industries. Cultural industries can be identified

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44 This section draws essentially from the “Conclusions and Summary of our Main Policy Recommendations” section (section 5) of our deliverable: DEL: 6.0.4(R): An Overview of the Policy Issues and Recommendations arising from the Research Undertaken in the CRE8TV.EU Project, by Bruce Tether and Mickael Benaim. The reader interested in policy related issue is also guided to deliverable DEL: 6.0.1(R): A Review of Policies for the Cultural and Creative Industries, in the context of Innovation and Smart Growth, by Mickael Benaim, Ian Miles and Bruce Tether (2014).
separately using a similar methodology. This would also aid understanding of how creative and cultural activities are not the same, but overlapping and inter-related.

The ‘creative intensities’ approach discussed earlier in this report provides a pragmatic approach to identifying the creative industries (and wider creative economy). While not entirely ideal, this approach has the advantage of being based on existing data structures, and enables the three fold identification of creative occupations, creative industries and the creative economy. In the longer term, there is a strong need to develop a statistical base that is oriented to better capturing creative activities, occupations and industries than is possible using existing statistical structures, such as the standard occupational and industrial classifications.

It is also important to recognise that as a category ‘the creative industries’ contains considerable variety, and we therefore recommend that disaggregated analyses be undertaken in order to better understand the variety that exists among these industries and in wide the creative economy.

In terms of innovation, we consider that both policy makers and innovation scholars continue to place too much attention on the ‘science’, ‘technology’ and ‘research’ elements of innovation and innovation systems, with inadequate attention being paid to other aspects or elements of innovation, and innovation systems. This is evident, for example, in the OECD’s reviews of innovation policy, which essentially fixate on the ‘science-research’ system. To take one example, in the 277 page report reviewing innovation policy in France (published by the OECD in 2014), the word “research” arises no fewer than 1,534 times, R&D arises over 350 times, “science” or “scientific” 300 times, significantly more frequently than “entrepreneur”, which arises 252 times. Meanwhile the word “creative” arises a paltry 7 times, and three of those in the phrase “creative destruction”. And while the report states that “Design and marketing form an integral part of innovation activities” there is almost no discussion on these activities in the report.

The Commission’s main metric for innovation performance is R&D as a share of GDP. On the positive side this is a simple target that can hold politicians’ attention, on the negative it arguably reinforces a techno-centric, ‘supply-push’ view of innovation, which is not really appropriate in many industries including most creative industries. This is especially the case given the recent clarification (encapsulated in recent revision of the Frascati Manual) as to what R&D is, and is not.

The European Commission has been at the forefront of pushing for broader understandings of innovation, and we appreciate that - among other initiatives - the Commission has developed an innovation output indicator. However, this also remains techno-centric. Especially in the context of ‘soft innovation’, which is essentially disconnected from ‘research and development activities’, much bolder efforts are needed, including more experimental approaches, to innovation measurement.

Much innovation in the creative industries is driven by entrepreneurial firms, most of which are small and micro-businesses. In this, these industries are rather different from the integrated industries (such as pharmaceuticals and car manufacturing) which are largely orchestrated by large-scale, global businesses. Entrepreneurs in the creative industries require combinations of creative, technical, business and social skills, and it is important that creative industry entrepreneurs are able to develop or access these skills, either individually or in their founding teams. Policy interventions to aid this could include establishing creative business incubators (and learning from the best of these to improve their overall effectiveness), and encouraging mentoring schemes, whereby young
entrepreneurs can learn from more experienced entrepreneurs. These schemes are particularly valuable in supporting the development of skills that are not easily taught in formal education.

Some of the creative industries are strongly related to cultural expression, and in order to achieve social inclusion it is important to ensure that people from all backgrounds are able to participate in these industries, including by founding and growing businesses within them. At least in some countries there is evidence that those participating in the creative industries, and especially those leading the most significant creative industry firms, tend to be predominantly male, from the dominant ethnic group and from relatively privileged backgrounds (e.g., UK architecture practices). If this is the case, consideration should be given to how to ensure these industries are open to all.

Another important inequality is the geographical distribution of the creative industries. There is strong evidence that at least some creative industries are strongly clustered in the major cities (including Berlin, London, Milan and Paris). This again raises questions whether this leads not only to an absence of opportunities elsewhere, but also to a sense of disconnection between these metropolitan places and the provinces of the countries in which they are embedded. Of course, these observations do not mean there are immediate and obvious solutions, but it may be that schemes, such as to assist with financing and training, or which provide forums for interactions (such as fairs, events and workshops) could be targeted on relatively disadvantaged places. Such activities could also fuel networking among practitioners in these fields; e.g., though various types of co-working “smart” spaces that help revitalizing disadvantaged areas of cities and further support “smart cities”.

Also notable is that to a significant extent innovation in the creative industries takes place through social movements, including ‘radical circles’. While these movements are often disruptive of established values, supply chains and vested interests, they can generate considerable energy and innovation. Again, the role for public policy is not immediately clear, but includes reinforcing the values of tolerance and facilitating rivalry to established interests. We consider that it is particularly important from an inclusion perspective that people from marginal social groups, and those with limited resources, have the potential to form and participate in potentially disruptive social movements. One way in which policy can aid these movements is to increase awareness of property right issues, including how properties can be placed in the public domain and made available to all, for example through the use of public domain marks or creative commons licensing.

Digital technologies and networks are pervasive in advanced economies, and nowhere more so than in (most of) the creative industries. There are important issues about how the uptake and integration of these technologies is reshaping industries. Digital platforms are particularly important, as these provide opportunities for individuals and micro-businesses to participate in ways that were previously not possible. However, due to network effects, the dominant networks become ever more powerful, while most users have little or no power. Policy makers need to find ways of ensuring the interests of the platform owners and those of users are balanced.

There are also issues of possible digital exclusion that may arise due to the lack of adequate skills. Notable here is the finding that inequalities in access to resources in the on-line and off-line worlds substantially overlap and tend to reinforce one another. This highlights that the skills required are not simply technical skills, but also social and communication skills.

In relation to policy interventions, one of the most obvious concerns the provision of intellectual property right protection. There are several issues here, including awareness. As many participants in
the creative industries are small firms and individuals (including those operating as freelancers), awareness of intellectual property protection is often lacking, or inadequate. ‘Mistakes’ in how intellectual properties such as registered designs are filed can lead them to being effectively worthless. Yet many of participants in the creative industries cannot afford bespoke legal advice. We therefore recommend that further guidance should be provided as to how to protect intellectual properties (e.g., in the form of YouTube videos), or how to put them into the public domain if the owner so desires.

Access to justice is another issue. Too often, individuals and small businesses simply cannot afford to defend their rights, particularly in the courts. Legal actions are typically expensive in time, energy and attention, as well as in money. Access to justice should be made easier and lower cost. For instance, we understand that the European Intellectual Property Office generates a substantial surplus of income from registration fees over its costs (primarily in administration). One suggestion is that this surplus be used to subsidise legal actions taken by right owners where the right owner is considered to have a strong case that his or her right has been infringed.

A genuine ‘single market’ needs to have harmonised institutions, and the EU has gone some way towards harmonising intellectual property rights in Europe, including by introducing the European trademark and the European registration of designs. We also note that the EU is in the process of establishing a Unified Patent Court. We suggest that this harmonisation could be taken further, with consideration given to the establishment of single European courts for both trademarks and designs.

In concluding this summary of our recommendations, we note that Commission Moedas, who has responsibility for research, science and innovation, has highlighted three priorities in his political agenda: "Open science, open innovation and open to the world". Of these, ‘open innovation’ is especially relevant to the creative industries and wider creative economy. Here, ‘open innovation’ is about involving far more actors in the innovation process and creating the right ecosystems for innovation. The creative industries are among the previously neglected actors. We have highlighted that they do not generally engage in research-based innovation, but do innovate, especially through creativity and design. In our view, innovation policy needs to be broadened to embrace these actors and forms of innovation, which are also highly relevant to the creation of jobs, to realising the benefits of a connected digital single market, to strengthening Europe’s industrial base, and to providing a more inclusive society.

This does not mean, however, that policies for the creative industries should be entirely directed from the centre. There is a need for balance between Europe-wide policies, those specific to Member States, and those which are sub-national, including those focused on particular cities or regions. Indeed, variation in policy implementation can be a valuable source of policy experimentation and learning, so long as there are means of evaluating and comparing the outcomes. Moreover, as the creative industries are not homogeneous, there is also a need for balance in the extent to which policies are designed to be suitable for all ‘creative industries’ and for specific creative industries.

These are difficult, complex matters, but worthy of the effort, because overall Europe’s creative industries have huge potential in relation to jobs and economic growth, and can help the Commission achieve its Europe 2020 strategy of delivering growth that is both smart and inclusive.
4. **MAIN DISSEMINATION ACTIVITIES AND POTENTIAL IMPACTS REPORT**

Here we discuss the main dissemination activities undertaken during the project (Section 4.1), before addressing the potential impacts of our work (Section 4.2), then, (in Section 4.3,) we end with a brief overview of possible future directions for research projects building on our work.

4.1 **Main Dissemination Activities**

The main dissemination activities undertaken during the project can be divided into: 1. those undertaken to present and discuss our research with academic audiences; and 2. those undertaken to discuss our research, engage with, and disseminate our findings to wider audiences, including policymakers and practitioners. We report on each of these below. We also had a project website (www.cre8tv.eu) to disseminate findings, and produced three annual project newsletters.

4.1.1 **Main Dissemination Activities oriented to the Academic Community**

Dissemination activities and channels in academia are well established, and include seminar and workshop presentations of work in progress, participation in (and the hosting of) conferences, the writing of working papers; the submission of completed articles to academic journals and to edited books, and the authoring and editing of scholarly books and journals. We have engaged in all of these activities, and will continue to be engaged in these activities to further exploit our research.

To date, academic articles related to the research undertaken in the CRE8TV.EU project has been published in several international academic journals, including the European Management Review; the Journal of Culinary Science & Technology; the Journal of Cultural Economics; the Journal of Economic Geography; Organization Studies; Research Policy; the Scandinavian Journal of Hospitality and Tourism; and Tourism Management. Notably, three of our papers have appeared in two of the Financial Times’ Top 50 business and management research journals (i.e., Organization Studies and Research Policy (x2)). Articles have also been published in national journals, including Marketing & Menedzsment (The Hungarian Journal of Marketing and Management) and JEL-KÉP, the journal of the Hungarian Communications Society. Further papers based on our research have been submitted to and are under review at academic journals, including the Academy of Management Review, Industrial and Corporate Change, Industry and Innovation and Research Policy.

CRE8TV.EU research also contributed to *The Oxford Handbook of Creative Industries*, 46 two of the three editors of which (Sapsed and Lorenzen) were part of our consortium. It also contributed to Roberto Verganti’s book, *Overcrowded - Designing Meaningful Products in a World Awash with Ideas* which will soon be published by the MIT Press. Other CRE8TV.EU research has been published in edited books, including a chapter in *The Routledge Handbook of Cultural Tourism*.

We stress that these are the first fruits of the CRE8TV.EU project. It is normal in social sciences and business and management research that outputs continue to be produced for several years after the underlying research has been completed.

Our work has been presented at leading international conferences, including (among others): the Academy of Management Conferences of 2014, 2015 and 2016; 46 The DRUID society annual

45 Published in 2015 by Oxford University Press.
46 Held respectively in Philadelphia (USA); Vancouver (Canada) and Anaheim, California (USA). The Academy of Management Conference is the premier meeting for the international business and management community of scholars, and involves more than 10,000 people.
conferences of 2014, 2015 and 2016; the European Association for Evolutionary Political Economy (EAEPE) Conference of 2015; The European Group for Organizational Studies Colloquium (EGOS) of 2016; the 2014 Conference of the International Joseph A. Schumpeter Society (ISS); The 2016 International Industrial Organization Conference; and the 2016 Annual Conference of the European Association for Research in Industrial Economics (EARIE).

We have also participated in and presented and discussed CRE8TV.EU research at many other more specialised and focused conferences, some of which we also hosted. These included the ZEW/MACCI Conference on the Economics of Innovation and Patenting, held in Mannheim, Germany; the NORTHORS 23 (Nordic Symposium for Tourism and Hospitality Research) on Value(s) of Tourism which was held at Copenhagen Business School (CBS), and organized in collaboration with Aalborg University’s Tourism Research Unit; the 6th Nordic Conference on Cultural Policy Research organised by CBS in collaboration with the Centre for Cultural Policy Studies at the Royal School of Library and Information Science (IVA). Other specialist conferences at which our research was presented included the 13th International Conference on Arts & Cultural Management (2015) held at Aix-en-Provence/Marseilles; the 7th Nordic Conference on Cultural Policy Research (2015), Telemark, Norway; the International Conferences on Economics and Business Management (ICEBM), Babeş-Bolyai University, Cluj-Napoca, Romania (2013 and 2015); the 13th International Conference on Research in Advertising, organised by the European Advertising Academy (2014), Amsterdam, and the 6th European Marketing Academy Conference (EMAC) (2015), Vienna. Our research team also presented research and participated in various national conferences, including the 20th (2014) and 21st (2015) National Conference of the Hungarian Marketing Association’s Marketing Teachers’ Club (EMOK), Budapest, Hungary, and the 26th (2015) annual scientific meeting of the Associazione Italiana Ingegneria Gestionale (Italian Association of Management Engineering), Vicenza, Italy.

As well as disseminating our research findings through conferences, workshops and seminars, within the academic community, we sought to encourage further scholarly research interest in the creative industries and in innovation by creativity and design. We did this by: (1) Organising a two-day PhD and Early Careers Researchers’ Conference held in September 2015 at the University of Manchester. This aimed at supporting the participating junior scholars in developing their research projects with a view to publication in (innovation) journals and fostering knowledge exchange and networking among fellow researchers. Twelve invited PhD students and early career researchers presented their papers; each was then commented on by two discussants. And (2) hosting a paper development workshop (PDW) at the DRUID summer conference held in Rome in June 2015. To stimulate and deepen interest among innovation scholars in creativity and the creative industries, we started with the observation that innovation studies research is becoming increasingly conservative. The aim of this PDW was to bring together innovation scholars who are interested in promoting more

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47 The DRUID society conference is recognised as the premier international conference for innovation studies and studies on industrial dynamics.
48 EGOS is recognised as a leading scholarly association which aims to further the theoretical and/or empirical advancement of knowledge about organizations, organizing and the contexts in which organizations operate.
49 See CRE8TV.EU Deliverable 7.2.4 for fuller details. Senior discussants included Beatrice D’Ippolito (University of York); Silvia Massini (University of Manchester); Andrea Mina (University of Cambridge); Ammon Salter (University of Bath); Jonathan Sapsed (University of Brighton) and Bruce Tether (University of Manchester).
creative approaches to research, including but not confined to the creative industries. Around 20 people participated in the workshop.\textsuperscript{50}

4.1.2 Main Dissemination Activities oriented to Policy-makers, Practitioners and the Public

Alongside our activities aimed at disseminating our research to academic audiences, we undertook activities aimed at engaging with and disseminating our research findings to non-academics, including policymakers, managers in firms, and the general public. Significant activities in this stream included: a high level policy seminar held in Brussels for EU policymakers; a workshop held at ZEW in Mannheim to discuss possible changes to the ‘Oslo Manual’ (the OECD/Eurostat document that provides internationally recognised guidelines for gathering and interpreting innovation statistics), plus further engagement with innovation measurement experts and statistical agencies at a US Committee on National Statistics workshop held in Washington D.C.; involving policy community experts in our final conference; and a set of engagement events, held in Budapest, Brighton, Milan and Manchester. We summarise these activities below.\textsuperscript{51}

To share our findings with policy makers especially at the European Commission, we held a High Level Policy Seminar at the Leibniz Association EU Office in Brussels, on 20\textsuperscript{th} April 2016. The seminar focused on: 1. the creative economy and creative industries – what are they, where are they, and (why) do they matter for European jobs, growth and innovation? Included here was the presentation of findings from the CRE8TV.EU survey; 2. a discussion of innovation by creativity and design, and the extent to which this is different from technological product and process (TPP) innovation, and how this depends on different skills and investments, and could require different policy measures. 3. a discussion about modernising understanding of innovation, innovation policies and measures. We contended that innovation policies are still excessively focused on “science and technology” and “research and development” and argued that a broader conceptualisation, including policies favourable to creativity and design-based innovation systems, would enhance the ability of governments to support value creation, innovation and jobs in Europe. The CRE8TV.EU project was represented by Yannis Caloghirou (NTU Athens, Greece); Georg Licht and Bettina Muller (ZEW, Germany); Jon Sapsed (Brighton, UK) and Bruce Tether (Manchester, UK). Among the audience were representatives from different DG’s, including a senior advisor to Commissioner Moedas.

To share our findings with those closely engaged with the policy community, we invited two special guests to the CRE8TV.EU final conference, held in Manchester in April 2016. These were Hasan Bakhshi and Fernando Galindo-Rueda. Hasan Bakhshi is based at NESTA (UK National Endowment for Science Technology and the Arts), where he directs the programme of research on the creative economy. He was a key member of the team that developed the ‘creative intensity’ approach to identifying the creative industries, which has since been adopted by the UK Government. Hasan

\textsuperscript{50} Aside from developing papers through their presentation at project conferences, the project helped develop the dissemination skills of the team of researchers by holding skill development workshops, including workshops on publishing in academic journals and technical skills in qualitative and quantitative methods.

\textsuperscript{51} To assist the CRE8TV.EU research team with developing our skills with dissemination beyond academic audiences, we organised two internal workshops, both held during the CRE8TV.EU plenary conference hosted at the Politecnico di Milano (Sept 2015). The first was a workshop for publishing in practitioner journals, at which Roberto Verganti discussed his experiences in publishing in practitioner oriented journals, including the Harvard Business Review, and in practitioner oriented books, especially with the Harvard Business School press. The second workshop concerned Best Practice for Policy Engagement. This included a presentation by a Renato Galliano, the Director of the Economic Development and of the Smart City Department for the City of Milan and involved contributions from a panel of industry practitioners from creative and cultural businesses. The workshop discussed how academics and practitioners can more effectively engage with policy makers.
Bakshi shared his experiences related to developing policy-oriented research on the creative economy. Fernando Galindo-Rueda, meanwhile, is based at the OECD, where he led the revision of the Frascati Manual (on R&D), and is a key member of the team revising the OECD/Eurostat’s Oslo Manual. He takes a keen interest in the significance of intangible investments and innovation, and has undertaken pioneering work on the role of design in innovation. Fernando Galindo-Rueda discussed the processes by which documents influential with policy makers, such as the Frascati and Oslo Manual, are revised through a consensual approach.

To share our findings with regard to measuring innovation, particularly through creativity and design, Bruce Tether participated in the ZEW / EUROSTAT workshop on ‘innovation in firms: proposals for a better measurement framework.’ This workshop, held on 30th May, 2016, was organised by Dr Christian Rammer of ZEW with the aim of discussing with experts and senior members of Eurostat and the OECD possible changes to the above mentioned Oslo Manual (which is due to be revised by 2017). Discussions included how to define and measure innovation, including new forms of innovation. Bruce Tether led a discussion on the significance of creativity and design as drivers of innovation, and highlighted how these are not well recognised in the Oslo Manual. Also notable is that business model innovation (BMI) was also discussed, a topic studied within the CRE8TV.EU project. The meeting recognised that design and BMI are significant innovation activities that have yet to be effectively captured by the Oslo Manual.

By invitation, Bruce Tether also participated in the National Center for Science and Engineering Statistics (NCSES) / Committee on National Statistics workshop on Advancing Concepts and Models of Innovative Activity and STI Indicator Systems held in Washington D.C. (April 2016). At this National Science Foundation sponsored workshop, Bruce Tether presented evidence on the significance of design as a driver of innovation alongside, or as an alternative to, research and development. The workshop was chaired by leading innovation scholars Scott Stern and Bronwyn Hall and involved innovation experts from academia, US and Canadian statistical agencies, and policy users of innovation statistics. The principal objective of the workshop was to inform the US delegation to the OECD of important issues arising in innovation measurement, including the need to move beyond conventional measures, such as R&D expenditures and patent counts.

During the CRE8TV.EU project we also undertook a series of engagement activities, principally connecting the research team to practitioners active in creative industry firms. The first of these was held in Budapest (June, 2014) before the second Plenary Project meeting. This included presentations by two creative companies: Co&Co (design and communications) and Brandlift (digital creative) regarding their main activities and challenges. The CRE8TV.EU team discussed with the founders of these firms their creative processes and other subjects related to their growth and challenges. Later in the day, the team had guided tour of Váci utca, the famous street in central Budapest, including visits to three fashion designers. The second of our engagement events with practitioners was held in Milan (September, 2015). This involved a visit to the Instituto Marangoni Campus of Design, in downtown Milan, during which we were given a tour of the facilities and held a discussion with two directors about the nature of the institute, their students and challenges. The event also involved visits to two small jewelry businesses in downtown Milan, with an opportunity discuss the nature of the businesses (which still depend heavily of craft skills) with the owners and directors. Our third engagement events were undertaken in Manchester in the autumn of 2015. The first was a mini-conference held at the BBC in Salford Quays, and focused on creative-digital business
opportunities. Bruce Tether, Mickael Benaim and Katia Pina presented the CRE8TV.EU project. The second was a Manchester Chamber of Commerce Innovation Forum held at the Greater Manchester Chamber of Commerce at which Bruce Tether provided an overview of the creative/digital sector in Manchester and how this compares with that in the UK as a whole. Following this and a discussion of the challenges of running a creative business by a design consultancy owner, there was a lively discussion about the state of the sector in Manchester and the UK. Around 100 people from various backgrounds attended the first of these events, with around 40 attending the second.

To further engage beyond academia, we hosted two events as part of the 2015 ESRC ‘Festival of Social Science’. The first of these, titled ‘Creativity Matters!’ was held at the University of Manchester (10th November), and involved a series of talks pertaining to aspects of the creative and cultural economy. The event attracted an audience of about 40 people and stimulated interesting discussions and networking. The second, titled “Capitalizing on Creativity: Brighton Fuse Two Years On”, was held at the University of Brighton (11th November). Chaired by Phil Jones of Wired Sussex, an industry association, this event explored recent developments in creative economy research and presented new results on Brighton’s local creative-digital economy. The event attracted an audience of 60 people from both industry and academia, and stimulated a lively discussion.

Other dissemination activities beyond academia have included an international workshop on luxury retail operations and supply chain management hosted by Politecnico di Milano in May 2015. This brought together 30 practitioners and scholars.

Also in May 2015 the LIEE of the National Technical University of Athens (NTU Athens) hosted a workshop for policymakers (attended by 70 people) which mapped the cultural and creative sectors in Greece, identified especially sector skill shortages and discussed the European credit system for education and training (ECVET). In June 2016 NTU Athens drew on their CRE8TV.EU research to contribute to the consultation of Ministry of Education and Research in Greece focusing on the entrepreneurial discovery in the creative and cultural industries

Meanwhile, throughout 2014 and 2015 and in association with BNA (the association of Dutch architects) TU Eindhoven (TU/e) hosted several workshops discussing ‘Building Information Modelling’ (BIM) and its impacts on architecture practices; 30 industry practitioners participated. TU/e also contributed to a guest blog on the BNA’s website on the impact of BIM.

Most recently, in Hungary, the team at Corvinus University of Budapest have utilised their findings from the CRE8TV.EU project to contribute to a research project sponsored by the Hungarian Design Council. The study, to be completed in September 2016, is being conducted in collaboration with Budapest Technical University and concerns the creative industries, innovation and design careers. Its findings will be disseminated at a major event during the 2016 Budapest Design Week, an international festival for design attended by practitioners and interested members of the public.

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52 See CRE8TV.EU Deliverable 7.2.7 for fuller details
53 Stephanie Donald (University of Liverpool); Andrew Crompton (University of Liverpool); Jonathan Sapsed (University of Brighton); Jedrzej Czarnota, (Alliance Manchester Business School); David Walter (of Cube Creativity Assessment & Training); Emmanuel Tsekleves, (Lancaster University) See CRE8TV.EU Deliverable 7.2.8 for fuller details.
54 Speakers and panellist included: Jonathan Sapsed (CENTRIM, University of Brighton); Roberto Camerani (SPRU, University of Sussex); Graham MacAllister (Player Research), Bruce Tether (University of Manchester) and Gillian Youngs (University of Brighton). See CRE8TV.EU Deliverable 7.2.9 for fuller details.
4.2 Potential impacts

The CRE8TV.EU project has potential impacts within and beyond academic research. We consider these in the two sub-sections that follow.

4.2.1 Potential Impacts within Academic Research

Academic research can be conservative and surprisingly reluctant to tackle issues of substantial societal and economic significance. Arguably one victim of this conservatism, especially within innovation studies and economics, has been studies of creativity, the creative industries and wider creative economy. Indeed, in 2000, when Harvard economist Richard Caves published his pioneering book on these industries he observed in the preface that they had received surprisingly little attention from economists, and went on to speculated that this neglect arose because creative activities are often considered ‘frivolous’, and not worthy of the same attention as “serious industries such as steel, pharmaceuticals, and computer chips”. Since this work, and perhaps more significantly Richard Florida’s hugely influential if controversial study on The Rise of the Creative Class (published in 2002), creative activities, industries and the wider creative economy have attracted much more attention. Also notable is that the Oxford University Press recently published a handbook on the creative industries, two of the three editors of which were researchers in the CRE8TV.EU project.

To some extent the CRE8TV.EU project has studied the creative industries as a phenomenon, or set of phenomena. Our main concern has been relating innovation to creativity, and creativity driven approaches to innovation, such as design, particularly but not entirely within the creative industries. To this end the CRE8TV.EU project has entailed a significant investment in research on creativity driven innovation especially within the creative industries. As reported above, the research in the project has already produced several journal articles, including articles in Organisation Studies and Research Policy, which are among the 50 most prestigious journals in the field of business and management studies. We expect that over the next few years the project will give rise to a substantial number of research based articles, many published in prestigious journals. We are also committed to delivering an edited book based on the findings of the project. Through producing these documents we will be able to take stock of what we have learnt, built on our findings and inspire others to take forward research on the topics investigated in the project.

Aside from producing research articles, progressing knowledge and inspiring others, a very important contribution of the CRE8TV.EU project has been to provide opportunities for PhD students and early career researchers. Indeed 21 PhD students have contributed to the project, gaining experience working alongside established researchers. Several students have been involved throughout the life of the project. These include Eva Markos-Kujbus and Tamas Csordás both at Corvinus University, Budapest. Tamas Csordás has been awarded a Phd (with summa cum laude) for his dissertation which drew on research undertaken for the project, and Eva Markos-Kujbus has completed her PhD based on the project and awaits its evaluation. Meanwhile, Rainer Filitz was awarded a PhD with distinction by the Technical University of Munich for his work on design which was undertaken in the project. At the Politecnico di Milano Naia Altuna completed her PhD, and Vincenzo Butticé and Vahid Sadr are undertaking their PhDs while engaged in CRE8TV.EU research; meanwhile Keivan Aghasi has been undertaking post-doctoral studies within the project. At TU Eindhoven Luuk Verstegen’s work on the project was central to his MSc dissertation, and is now a significant part of his on-going PhD research. At the University of Manchester Mickael Benaim benefited from a three year post-doctoral position in the project, while Katia Pina completed her PhD (with distinction)
while working as the project manager. In combination, this represents a significant generation of human capital which is a direct result of the project. Furthermore, sixteen people were recruited specifically to work on the project.

We recognise that there is a need to maintain and build further the community of scholars interested in the intersection of creativity, innovation and economic development. This will only be possible if research funders are willing to support this area of research. In the next section on future plans we outline some of the ways in which we intend to build on the CRE8TV.EU project to study further the creative industries and creativity driven innovation.

4.2.2 Potential Impacts beyond Academic Research

Beyond academic research, we perceive that our research has potential impacts in three arenas: 1. public policy, particularly with regard to innovation policy; 2. contributing to teaching at undergraduate and post-graduate levels at universities; and 3. aiding practicing managers and entrepreneurs, particularly those active in the creative industries.

In relation to public policy, creativity, the creative industries and the creative economy matter: socially, culturally and economically. These activities are an increasing source of employment, especially of younger people. Indeed recent efforts to map and measure the creative industries have estimated that they accounting for over 10 million jobs across the EU. Significantly, this is a substantially larger total than the number of people employed in ‘high technology’ and ‘knowledge intensive sectors’, which partially overlap with the creative industries, as Table 3 shows.

| Table 3: EU Jobs in Creative Industries, High Technology Sectors and Knowledge Intensive Services |
|---------------------------------------------------------------|-------------------------------------------------|
| Creative industries (not HT Manufacturing or HT KI Services) | EU 28 Employment: 7.7m | % of all EU 28 Employment: 3.6% |
| Creative industries AND High Tech. Knowledge Intensive Services | EU 28 Employment: 3.5m | % of all EU 28 Employment: 1.6% |
| HT Manufacturing or HT KI Services (not Creative Industries) | EU 28 Employment: 5.0m | % of all EU 28 Employment: 2.3% |
| Creative Industries and High Technology Industries | EU 28 Employment: 16.2m | % of all EU 28 Employment: 7.5% |

In some countries, policy-makers have recognised the significance of the creative (and cultural) industries, and indeed in some (such as the UK, Finland and Germany) policy-makers’ interest ran ahead of the attention given to these activities by academics.

The connection to innovation, and innovation policy, remains weak, however. And in our view innovation policy remains too closely tied to and focused upon supply-side policies, especially those oriented to science and research, and the production of new, essentially technological knowledge. Few creative industry firms engage in R&D (as defined by the OECD’s Frascati Manual), yet they are adept at innovation. Policy makers need to better understand how innovation happens, and how to facilitate innovation where recognised inputs, such as R&D are unimportant. Thus a major potential impact of our research is to contribute to designing innovation policy which is not fundamentally science-research policy. In our view the creative industries are particularly insightful for innovation policy because they are in the vanguard of new forms of organising, and many of their innovations involve developments in symbols and meaning, which can highly influential but which are essentially ignored in conventional innovation policy. Related to this is the observation that creative industry innovations also highlight the growing significance of the demand side (and increasingly active consumers), features which are also very largely overlooked in conventional innovation policy.
Our research has also given rise to some more specific policy related suggestions, such as reforming the system for registering designs and for obtaining design protection in Europe, which we consider has some important flaws, especially for design owners that are individuals or small businesses who can rarely afford specialised legal advice. Attending to these issues could have significant impacts for design creativity in Europe.

Aside from potentially influencing innovation policy, our research is likely to impact on two other domains beyond academic research. The first is in teaching university students, particularly but not only in business schools.

Business school education is very largely focused on firms as product producers, yet there is a need to understand other contexts, including the creative industries, which are typically organised on the basis of projects rather than products, and which therefore operate in significantly different ways from conventional, product based firms. The new insights generated by our research will feed into our teaching at various universities. Students particularly value fresh case studies and recent empirical evidence, such as that provided by the CRE8TV.EU survey and our surveys of trademarks and the use of design protection for digital designs. These insights and evidence will contribute to updating existing courses but also to informing new specialist courses, focused on the management of creativity, creative people and processes.

Last but not least, our research is likely to have impact on the management and strategies of creative firms, and on entrepreneurs active in, or considering entering into, the creative industries. There are two principal channels for achieving this impact. The first is through direct consultation with businesses. For example, what we have learnt about effective business model innovation strategies and merger and acquisition strategies is likely to be of interest to practicing managers, while insights into what factors are associated with firm survival and growth is likely to be of interest to entrepreneurs. The second channel for impacting on managers and entrepreneurs is through producing practitioner oriented articles (such as in the Harvard Business Review, California Management Review and Sloan Management Review), and practitioner oriented books (such as those published by Harvard Business Press). In reflecting upon and consolidating what we have learnt though the project, we will consider publishing our findings in these practitioner oriented outlets.

4.3 Future Directions

Our immediate objective is to consolidate what we have learned through the research undertaken in the project, particularly in terms of producing academic and practitioner oriented articles in peer reviewed journals and the edited book which is the project’s final deliverable. Beyond these, we now give consideration to possible future directions for research linking creativity (and design) with innovation and economic growth and development.

Among the key topics brought to the fore by our research are: the increasing importance of temporary organising and project-based working, with transient connections and networked structures; connections between creative, technological (especially digital) and organisational innovation; design and innovation; and new research methods. These constitute possible future lines of study for members of the CRE8TV.EU research team and for others.

The Increasing Importance of Temporary Organizations and Project Based Working
One of the interesting features of the creative industries is that many of them undertake their work primarily through projects (rather than products), which are a temporal, and often involve networks,
which extend beyond firms as these are conventionally defined. This, for example, has long been the primary organisational arrangement of the film industry. Importantly, this project based working allows businesses to expand and contract, incorporating freelancers and/or specialists as and when they are required for project tasks. This raises interesting questions such as what capabilities to maintain in-house and what to outsource. One of the reasons why the project based creative industries are particularly interesting is that they may be in the vanguard of wider organisational change. That is, current practice in these creative industries may be diffusing into the wider economy. Clearly an important element of this is digitization, which we discuss further below, as this enables the breaking down of traditional industry structures and facilitates networked structures within and between organizations. But more generally key questions include how value is created, and how value is captured, both within and across these networks. In other words, who does what and who gets what?

Studying this network structure requires new methods and instruments, as traditional constructs - like the firm and industry - and traditional measures - such as industry codes - are called into question.

Also interesting is how creative firms are adopting technologies and how this leads to innovation; for example, using drones in the architecture and films. Such initiatives typically begin on a small scale, often through experimenting in a playful rather than in a planned fashion, with several people and/or firms coming together on a temporary basis. Through these forms of creative, playful experimentation, creative industry firms are often at the forefront of innovation, particularly in the use of technologies, which has hitherto received inadequate attention relative to the systematic generation of new technologies. Also relevant here is how technology adoption relates to organisational innovation, and to changing forms of organisation. We consider this a very interesting.

Connections between Creative, Technological (especially Digital) and Organisational Innovation

More generally, it is evident that the digital transformation of the economy is a pervasive current phenomenon, which the EU Commission and national governments have sought to support. This transformation is, however, complex and presents both opportunities and challenges, including changes in production and innovation processes, in markets and working environments; it also has societal implications. In order to reap the potential of digitization, especially in relation to creativity, it is important to understand how digitization is changing the creative processes and practices within firms, industries and networks, and how it can enhance creativity, both within and beyond the creative (and cultural) industries.

Among creative (and cultural) firms and industries, digitization is reconfiguring activities, including facilitating access to international labour, capital, and products/services markets. This may weaken the conventionally strong ties that these firms have with places of production. For example, crowd-working platforms may facilitate increased use of remote working. However, increasing interactions taking place on digital platforms raise concern for trust-building measures which can align individuals’ contributions and/or regulatory frameworks to ensure trust and security on these platforms. Both within and beyond the CCIs, digital tools such as specific software programs are also being incorporated into development and production process, which may alter existing occupational roles and established divisions of labour. Furthermore, the availability of and access to huge datasets increases available information, but creates challenges of interpretation and ‘intelligence’.

Particularly significant is that digital technologies are facilitating greater interaction with users, including embracing users as co-producers of content, and as sources of crowd intelligence, such that
users are no longer passive adopters or consumers of products and services provided by organizations. This raises questions about how pecuniary and nonpecuniary incentives can influence consumers’ contributions and how to value, recognize and reward their contributions. It also raises issues about the interactions between the online and offline worlds, and how these influence behaviours. Clearly some companies are investing heavily in user engagement. These trends require detailed investigation to understand many aspects of this, including how it creates value for different stakeholders in our society.

**Design and Innovation**

Several members of the CRE8TV.EU consortium have been and remain highly interested in design, considering this to have still untapped and not fully appreciated potential for innovation. Furthermore, design’s potential may be greatest beyond the realm of physical products. Potential directions here include examining the role and potential of design in services, including public services and education.

The public sector is clearly faced with many challenges, including migration, an ageing population, and slow or stagnant economic growth. We consider that design, and ‘design thinking’, has significant potential to facilitate new thinking through which to address these challenges.

Consideration could also be given to design in business education. This includes business schools, but also extends beyond them. Increasingly companies are looking for ideas beyond those conventionally provided by businesses schools (e.g., TED talks). This raises the question, how should business schools respond, and can design education play a role in encouraging more creative thinking in business schools? Can business and design education be effectively combined, and what would be the implications for engineering, R&D, and social innovation?

We should however be wary of seeing design as a panacea (or cure-all). While increasingly advocated, we also need to understand the limits of design (and design thinking), and how design can best contribute as a part of several inputs to innovation, rather than as the solution. Knowing more about this is likely to be particularly valuable in situations of high complexity where no single discipline has all the answers.

**New and Innovative Research Methods**

Lastly, we consider there is a strong need for new and innovative research methods, especially to study innovation by creativity and design and the creative industries. It is evident that the existing constructs such as measures of R&D (as outlined in the Frascati Manual) and of innovation (as outlined in the Oslo Manual) do not capture well the dynamics of creative firms and industries. For example, innovations in symbols, meaning and experiences are essentially overlooked, as is the participation of consumers/users in the co-development of innovations. As our economy changes it is important to keep abreast of and to study these dynamics. Traditional variance-based methods and functionalist viewpoints need to be complemented by new methods, measures and perspectives. Examples include process methods which can help to understand change, but also action based methods, design-based methods, and art-based methods that can support the development of usable principles and tools for practice. Research might also be oriented not only to understanding change, but to helping to shape the future, including addressing real and pressing societal problems. Importantly, some creative industries are very experienced with these methods, which creates the potential for very interesting interactions between creative practitioners and researchers.