Cre8tv.eu

Unveiling Creativity for Innovation in Europe
a Seventh Framework research project

Καινοτομία στους Δημιουργικούς Κλάδους Οικονομίας: μια εμπειρική προσέγγιση

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SEVENTH FRAMEWORK PROGRAMME

Aim of the project

- *The Cre8tv.eu research project aims to make a substantial step forward in the study of an important aspect of the European economy: creativity, and its role in innovation.*
- Progress will be made in terms of methodologies and fresh and integrated approaches in the study of creativity and innovation, as well as in the dynamics of the cultural and creative industries.

The project's consortium (1)

- 11 academic organizations from eight countries from across Europe.
- Well-balanced consortium partners in terms of their geographical location
  - partners from three of the large EU member states (Germany, Italy and the UK),
  - and five in smaller member states (Greece, Hungary, the Netherlands, Denmark and Sweden).

The project's consortium (2)

Participant No.	Participant Organisation Name	Country
1	University of Manchester (coordinator)	UK
2	Università Commerciale Luigi Bocconi	Italy
3	University of Brighton	UK
4	Copenhagen Business School	Denmark
5	Corvinus University of Budapest	Hungary
6	Eindhoven University of Technology	Netherlands
7	National Technical University of Athens	Greece
8	Politecnico di Milano (Polytechnic of Milan)	Italy
9	Technical University of Munich	Germany
10	University of Gothenburg	Sweden
11	ZEW (Centre for European Economic Research)	Germany

Contribution of CCIs (I)

With respect to the **economy (EU, 2010)**,

- CCIs contributed 3.3% to the total European GDP;
- represented approximately 6.7 million workers (approximately 3% of the total number of workers in Europe);
- exhibited an annual growth rate of 10% which is is expected to remain high in the next years.

Contribution of CCIs (II)

- Europe's CCIs are global leaders and competitive **exporters** in a wide range of fields.
- CCIs are significant generators of **intellectual property**, in particular copyrights.
- CCIs are the heart of creating **Europe's culture and identity**, and central to promoting Europe's identity around the world.
- Regions with high concentrations of creative and cultural industries have Europe's highest **prosperity** levels.

Two big challenges with understanding the CCIs are:

- Developing an agreed or harmonised understanding of what these activities or industries are
- Obtaining statistical data to understand their size, shape, dynamics, and inter-relations with other sectors and activities.

What are the cultural and creative industries (CCIs)?

- The UK's Department for Culture Media and Sport model (DCMS, 2011, 2013), a relatively straightforward selection of (13) industries which are based on individual creativity, skill and talent (creative workforce)
- The Symbolic Texts Model, which derives from the critical-cultural studies tradition (Hesmondhalgh, 2002) puts the serious or 'high arts' at the core, separately categorising other activities as peripheral and 'borderline'

What are the cultural and creative industries (CCIs)?

- The Concentric Circles Model, which places cultural goods and value at the core, but which also identifies wider cultural- and related-industries (Throsby, 2001);
- Copyright Model developed by WIPO, which is primarily concerned with industries directly involved with, or which support, the creation, manufacture, production, broadcast and distribution of copyrighted works.

	DCMS Model	Symbolic Texts Model	Concentric Circles Model	WIPO Copyright Model
Music	✓	✓ (Core)	✓ (Core arts)	✓ (Core Copyright Industry)
Film (and Video)	✓	✓ (Core)	✓ ('Other Core')	✓ (Core Copyright Industry)
Performing Arts	✓	✓ As 'creative arts'	✓ (Core arts)	✓ (Core Copyright Industry
Advertising	✓	✓ (Core)	✓ (Related Industry)	✓ (Core Copyright Industry)
Fashion	✓	✓ (Borderline)	✓ (Related Industry)	✓ (Partial Copyright Industry)
Architecture	✓	×	✓ (Related Industry)	✓ (Partial Copyright Industry)
Design	✓	×	✓ (Related Industry)	✓ (Partial Copyright Industry)
Publishing	✓	✓ (Core)	✓ (Wider cultural ind.) [plus sound recording]	✓ (Core Copyright Industry)
Television & Radio	✓	✓ (Core)	✓ (Wider cultural inds.)	✓ (Core Copyright Industry)
Video & Computer Games	✓	✓ (Core)	✓ (Wider cultural inds.)	(✓) as Toys = Partial Copyright Industry
Software	✓	✓ (Borderline)	×	✓ (Core Copyright Industry)
Art and antique market	✓	×	(✓) Heritage services	×
Crafts	✓	×	×	×
Internet	×	✓ (Core)	×	×
Museums / Libraries	×	×	✓ ('Other Core')	×
Visual / Graphic Art	×	×	×	✓ (Core Copyright Industry)
Collecting Societies	×	×	×	✓ (Core Copyright Industry)
Sport	×	✓ (Borderline)	×	×
Consumer Electronics	×	✓ (Borderline)	×	✓ (Interdependent Copyr. Ind.)[$]
Musical Instruments	×	×	×	✓ (Interdependent Copyr.ind

Theoretical context

- CCIs firms contribute to industrial innovation, possessing strong innovation potentials and being actively involved in the process of new value creation (Potts, 2009).
- Besides typical forms of innovation, new or different types of novelties are acknowledged in CCIs → 'hidden innovation' (Miles & Green, 2008), 'soft innovation' (Stoneman, 2009)
- There is rather limited empirical evidence that CCIs are more innovative than other sectors (Chapain et al., 2010; Müller et al. 2008)

Contribution of CCIs to innovation: an overview of empirical studies

	Study	Sample	Data source/method	Innovation measures	Type of effect examined
1	Müller et al., 2008	2,031 CCIs firms in Austria	Telephone interview survey referring to the years 2005-07	Traditional measures of product & process innovation	- Direct - Indirect
2	Chapain et al., 2010	-14,870 firms (CC & non-CCIs) in UK - local CC firms & stakeholders in UK regions	- Community Innovation Survey (CIS) for UK (2004-06) - Case studies on creative clusters (Software in Wycombe & Slough, Film post-production and visual effects in London, Media Production in Cardiff, Advertising in Manchester)	-Traditional measures of product & process innovation - Intellectual Output Index	- Direct - Indirect
3	Lee & Rodríguez-Pose, 2013	9,158 SMEs (727 CCIs) in UK	- Annual Small Business Survey (ASBS), 2007/8 - Annual Population Survey (APS)	Traditional measures of product & process innovation	- Direct - Effect of creative occupations
4	Lee & Drever, 2013	2,974 firms (355 CCIs) in London	- 2007 LABS (survey by London Development Agency) - APS	Traditional measures of product & process innovation	- Direct - Effect of creative occupations

Contribution of CCIs to innovation: an overview of empirical studies

	Study	Sample	Data source/method	Innovation measures	Type of CCI effect examined
5	Camelo-Ordaz et al., 2012	80 small CCIs firms in Iberia	-telephone interviews with the founder-director	- Traditional innovation measures	- Direct
6	Bakhshi et al., 2008	16,000 firms (CC Is & non-CCIs) in UK	- CIS for UK (2002-04) - Input-output tables published by the Office for National Statistics	-Traditional measures of innovation output and measures of innovation activity	- Indirect
7	Miles & Green, 2008	Firms and individuals from 4 CC sectors in UK (Advertising, Broadcasting, Videogame Development, Product design)	Case studies based on desk research, interviews and sector workshops	- 4 different sorts of *hidden* innovation	- Direct
8	Handke, 2004	1,013 SMEs from the record industry in Germany	German Association of Independent Labels, Publishers and Producers' (VUT) survey of 2005	- *Humdrum* innovation (similar to technological innovation) - *Content creation* (special type of innovation)	- Direct

Contribution of CCIs to innovation: An overview of empirical studies

Overall,

- Empirical research focuses on specific EU countries, with **UK** CCIs being most frequently examined.
- Data are commonly drawn from surveys (e.g. CIS) covering a variety of CCIs, or more infrequently from case-study research on specific CCIs.
- The majority of studies use standard innovation measures. Other forms of innovation are basically explored in the context of case studies.
- Most studies find that CCIs are more significant contributors to innovation than other sectors highlighting also their *indirect* effects (Chapain et al., 2010; Müller et al., 2008; Bakhshi et al., 2008). Yet, there is some opposing evidence (Lee & Rodríguez-Pose, 2013; Lee & Drever, 2013).

Aim of the paper

To explore different aspects of the performance of firms in CCIs focusing on their innovation activities as compared to enterprises active in non-creative industries.

Contribution of our study to the literature

- We use a particularly rich dataset of CCI & non-CCI *young* firms operating in *10 European countries*
- We carry out a comparative analysis of CCIs and other industries in a systematic and way, using a *combination of statistical tests and econometric models*
- The comparative analysis involves a number of *matched* samples of CCIs and non-CCIs enterprises that exhibit specific knowledge or technology characteristics
- We explore potential differentials with respect to a variety of innovation and performance measures as well as other innovation-related factors such as *sources of knowledge* and *motivations* for innovating.

Dataset and methods

- Large-scale survey conducted in 2011 → AEGIS dataset
- Information on about 4,000 young firms in 10 European countries (SE, DK, UK, DE, FR, IT, GR, PT, CZ, HR)
- Sectors spanning the categories of high-tech and low-tech manufacturing, and knowledge-intensive services.
- Use of a sector classification approach (NESTA Report, 2013) to identify and classify firms in CCIs.
- We use standard innovation measures (product, process and organizational innovation, R&D intensity) that enable comparisons between CCIs and non-CCIs firms.

CCIs firms in our sample

Domain/Sector	Number of firms	Knowledge intensity classification
Computer programming & consultancy	445	HTKIS
Advertising, Market Research & Public Relations	186	KIMS
Publishing	166	OKIS
Media, Arts & Photography	87	mainly HTKIS
Architectural activities	61	KIMS
Specialised design & Translation activities	74	KIMS
Creative Industries (narrow definition)	**1019**	
Engineering activities	212	KIMS
R&D activities	67	HTKIS
Creative Industries (broad definition)	**1298**	

HTKIS: High-Tech Knowledge Intensive Services; KIMS: Knowledge-Intensive Market Services; OKIS: Other Knowledge-Intensive Services

Empirical Results – Innovation measures I

- **CCIs firms vs. non-CCIs firms in the total sample**

	CIs (n=1298)	Non-CIs (n=2701)	Chi-Square statistic
Product innovation (yes/no)	**67.1[a]**	61.9[a]	10.097*** (0.001)
Process innovation (yes/no)	62.0 [a]	**68.3 [a]**	15.514*** (0.000)
Organizational innovation (yes/no)	55.6[a]	**60.3[a]**	7.949*** (0.005)
Formal IP protection (yes/no)	**41.5[a]**	31.5[a]	28.046*** (0.000)
Informal IP protection (yes/no)	**58.7[a]**	49.2[a]	25.346*** (0.000)
			t-statistic
R&D intensity (%)	**16.2 [b]**	10.6 [b]	7.983*** (0.000)

[a] Shares of firms (%) in the total number of firms in each group. [b] average values for each group of firms. P-values are reported in parentheses. ***There is a statistically significant difference between the two groups of firms at 1% level of significance.

Empirical Results – Innovation measures II

- **CCIs firms vs. non-CCIs firms in services and KIMS**
  - Main finding: As we move from the broad category of business services firms to the more specialized one of KIMS, the differences between CCIs and non-CCIs become smaller or even disappear.
- **HTKIS CCIs firms vs. HMT manufacturing firms**
  - Main finding: No significant differences are found with respect to main innovation measures except R&D intensity.
- **HTKIS CCIs firms vs. LT manufacturing firms**
  - Main finding: HTKIS firms in CCIs appear to perform better with respect to most innovation indicators.
- **Intra-CCIs comparisons**
  - Main finding: *Computer programming* is generally found to be the most innovative sector followed by the *Publishing*, and *Advertising* sectors. *Architecture*, appears to lag behind in terms of most innovation indicators.

Probit regression results – Other innovation-related factors

	CCIs vs. non CCIs (avg. marginal effects)
Knowledge_industry	-0.055***
Knowledge_science	-0.011
knowledge_inhouse	0.009*
knowledge_open	0.036***
knowledge_participation	-0.032***
networking	-0.054***
collaborations	0.092***
motive_tech	0.060***
motive_market	-0.012
motive_opportunity	-0.006
Log likelihood	-2371.432
LR test (X^2)	282.790***
Number of obs	3987

Empirical Results – Other innovation-related factors and performance measures

- **Sources of Knowledge and motivations**
  - Main finding: In general, knowledge stemming from open sources, in-house R&D, and collaboration activities, as well as the founding motivation related to technical knowledge are positively associated with the probability of being creative.
- **Performance measures**
  - Main finding: Non-CCIs firms are likely to exhibit higher percentages of international sales and higher profit/turnover compared to CCIs firms, while the latter seem to display somewhat better growth prospects.

Conclusions I

- Exploring potential differentials between CCIs and non-CCIs, and within CCIs in a more systematic way, we found that:
  - CCIs firms outperform non-CCIs firms in terms of product innovation and R&D intensity, but not in terms of process and organizational innovation.
  - HTKI CCIs exhibit similar performance to high-tech manufacturing with regard to most innovation measures.
  - The creative sector is characterized by a high degree of heterogeneity (e.g. Henry & DeBruin, 2011).
    In general, *computer programming* seems to be the most innovative sector followed by the *publishing*, and *advertising* sectors, while *architecture* appears to lag behind.

Conclusions II

- Knowledge coming from open sources and in-house R&D, and collaboration activities, and also the founders' technical knowledge as a motivation for establishing an enterprise matter more for CCIs firms than non-CCIs firms.
- With respect to typical performance indicators there is some weak evidence of outperformance of CCIs only in terms of common growth measures.

- Some results should be handled with caution, since they are not either clear-cut or strong and may be affected by the specific sectoral structure of our sample, where some sectors are under-represented while some others are over-represented.

Issues to address in future research

- The identification of the CCIs firms is based on a sector classification approach
  → Considering creativity-based dimensions of the firm, founders or workforce may allow a more consistent analysis of CCIs.
- The current study was not intended to assess and quantify the indirect contribution of CCIs to innovation which is considered to be significant (Bakhshi et al., 2008; Müller et al., 2008).
- Other forms of innovation (e.g. *soft* or *hidden* innovation) particularly relevant for CCIs but not captured by standard measures are not considered in this study.

➢ These issues could be addressed (at least to some extent) in the new survey focusing on young CCIs firms carried out in a subsequent stage of the project.

Thank you for your attention!