



What can we learn about the innovation performance of the creative industries from the *UK Innovation Survey*?¹

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Context

The UK's creative industries are a national strength. They account for £91.8 billion of Gross Value Added (GVA) or 5.3 per cent of the whole economy. A high-growth sector, the creative industries grew by 45 per cent between 2010 and 2016, almost twice as fast as the UK as a whole.² Consistent with this, the creative industries have been prioritised by the Government in its Industrial Strategy and have negotiated a sector deal.³

Labour productivity in the creative industries tends also to be higher than in other sectors when comparing firms of equal size.⁴ However, a full account of productivity in the creative industries, and an assessment of what public policy can do to support it, requires a better understanding of how innovation happens in the creative industries, and if and how this differs from other sectors. In this analysis we use data from the Department for Business, Energy and Industrial Strategy's (BEIS) latest Innovation Survey (wave 9), which covers a wide range of indicators capturing firms' innovation processes in different sectors over the three-year period (2012-2014).^{5, 6}

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Innovation performance in creative industries

Table 1a shows that creative firms – as defined by the Department for Digital, Culture, Media and Sport (DCMS) – focus on organisation innovation broadly defined (51 per cent), and product innovation (25 per cent). This is consistent with the view that introducing product innovations disrupts internal business organisation routines, and thus also requires changes in internal organisation structure as well as in how creative firms interact with their external environment.⁷

Table 1a. Basic innovation metrics within creative industries⁸ - percentage of innovating firms

	Product innovation	Process innovation	Organisation innovation	Ongoing innovation activities
Advertising and marketing	25%	19%	51%	26%
Architecture	19%	17%	39%	19%
Crafts and design ⁹	40%	>1%	62%	>5%
Film, TV, radio and photography	28%	15%	47%	19%
IT, software and computer services	46%	28%	53%	48%
Publishing ¹⁰	21%	13%	50%	19%

Source: *UK Innovation Survey* 2015, ERC analysis. Creative industries, N=768.

Table 1b: Basic innovation metrics between creative industries and the rest of the economy - percentage of innovating firms¹¹

	Creative industries	The rest of the economy
Product innovation	33%*	22%
New to the market innovation	14%*	8%
Process innovation	21%*	16%
Organisation innovation	52%*	44%
Ongoing innovation activities	32%*	20%

Source: *UK Innovation Survey* 2015, ERC analysis. Creative industries, N=768; all firms, N=14, 323

Notes: *indicates statistically significant creative industries sample proportion from the corresponding manufacturing sample proportion at the 95 per cent confidence level.

Compared with the manufacturing sector, creative businesses are less active in introducing process innovations – perhaps because their production models depend less on traditional ‘production lines’ and more on effective organisational management (Table 1b). Suggestively, the crafts and design sub-sector almost as a whole dismisses process innovation, with less than 1 per cent reporting having introduced a process innovation (though this finding may also reflect the fact that the crafts and design sub-sector has a disproportionately large number of smaller firms in the sample). Interestingly and depending on sub-sector, a relatively high percentage of creative firms (20 per cent – 48 per cent) report ongoing innovation activities, indicating perhaps a longer and/or continuous creative and innovation process required in order to remain competitive.

Protecting intellectual property in the creative industries

In some sub-sectors, a robust regulatory framework which protects intellectual property (IP) is required to ensure a fair return on investment and provide sufficient incentives for creators (CIC, 2014).¹² The IP regime must strike the right balance between protecting firms’ intellectual and creative outputs from imitation and permitting them to adopt and draw on others’ ideas.

Consistent with this, the majority of creative businesses have more than one means of protecting their intellectual outputs. Copyrights and registered trademarks, it turns out, are the most popular formal means of protection with patents and design registration following closely behind. The publishing industry, followed by IT, software and computer services, are the most active in pursuing at least one of the formal routes of protecting their intellectual outputs.

Nonetheless, other, less formal means of protection including lead time advantages, complexity of goods and services and secrecy prove to be at least as popular appropriation strategies (Tables 2a and 2b). These practices seem to be particularly popular among the IT, software and computer services industry, where over 70 per cent of firms report to having adopted at least one of these practices to protect their assets. The complexity of goods and services provided seems to be a particularly effective means of protection and appropriation compared with other industries in the services sector – consistent with the generally high levels of product differentiation we expect to see in the creative industries.

The particular popularity of informal intellectual property protection mechanisms in the creative industries may be explained by the challenges that its disproportionate number of small businesses face in resourcing the use of more formal alternatives.

Table 2a. Innovation appropriation strategies by creative industries - percentage of firms

	Patents	Design registration	Copyright	Trademarks	Lead time advantages	Complexity of goods and services	Secrecy
Advertising and marketing	54%	55%	61%	55%	60%	65%	66%
Architecture	43%	48%	54%	44%	53%	58%	50%
Crafts and design	38%	43%	43%	40%	50%	57%	50%
Film, TV, radio and photography	55%	57%	60%	58%	56%	60%	59%
IT, software and computer services	59%	58%	70%	68%	74%	79%	77%
Publishing	63%	63%	70%	67%	63%	65%	62%

Source: *UK Innovation Survey* 2015, ERC analysis. Creative industries, N=768.

Table 2b. Innovation appropriation strategies by creative industries and the rest of the economy - percentage of firms¹³

	Creative industries	The rest of the economy
Patents	55%	55%
Design registration	56%	54%
Copyright	63%*	54%
Trademarks	60%*•	56%
Lead time advantages	63%*	58%
Complexity of goods and services	68%*	61%
Secrecy	65%*	59%

Source: *UK Innovation Survey* 2015, ERC analysis. Creative industries, N=768; all firms, N=14, 323

Notes: *indicates statistically significant creative industries sample proportion from the corresponding manufacturing sample proportion at the 95 per cent confidence level. •indicates statistically significant creative industries sample proportion from the corresponding services sample proportion at the 95 per cent confidence level.

Skills needs in the creative industries

The *Innovation Survey* can also be used to understand the innovation-related skills needs of the creative industries. Tables 3a and 3b show that skills needs in the graphic arts, layout, and/or advertising areas as well as multimedia and/or web design and design of objects and services are especially high.

Table 3a. Innovation skills distribution by creative industries - percentage of firms with skills (various measures)

	Graphic arts/ layout/advertising	Design of objects and services	Multimedia/ web design	Software development/data management	Science and engineering employees*
Advertising and marketing	47%	30%	46%	35%	23%
Architecture	44%	45%	49%	30%	10%
Crafts and design	57%	52%	55%	<5%	<5%
Film, TV, radio and photography	43%	23%	46%	28%	16%
IT, software and computer services	36%	27%	46%	59%	78%
Publishing	44%	22%	42%	37%	10%

*Sum of engineering/applied sciences and mathematics

Source: *UK Innovation Survey* 2015, ERC analysis. Creative industries, N=768.

Table 3b. Skill distribution for innovation by creative industries and the rest of the economy - percentage of firms¹⁴

	Creative industries	The rest of the economy
Graphic arts/ layout/advertising	43%*	22%
Design of objects and services	29%*	13%
Multimedia/ web design	46%*	23%
Software development/data management	41%*	22%
Science and engineering employees*	29%	25%

Source: *UK Innovation Survey* 2015, ERC analysis. Creative industries, N=768; all firms, N=14, 323.

Notes: *indicates statistically significant creative industries sample proportion from the corresponding manufacturing sample proportion at the 95 per cent confidence level.

Comparisons with other sectors

Tables 3a and 3b show that 78 per cent of IT, software and computer services firms report employing science and engineering employees. This finding is in accordance with a separate survey conducted in five EU countries among young firms in the creative industries, including the UK, which shows that creative businesses not only have a large share of workforce with a university degree, but also in disciplines such as science and engineering, (Protogerou et al., 2016).¹⁵

While standard innovation performance indicators drawn from the *UK Innovation Survey* do not fully capture the unique traits of innovation processes in the creative industries as described in Miles and Green (2008),¹⁶ they do provide an immediate comparison with other sectors for those traits they do capture. For example, Chapain et al., (2010),¹⁷ using Community Innovation Survey (CIS) data for the UK covering the period 2004-2006, find that creative industries are more innovative than knowledge-intensive business services and engineering-based manufacturing. On the other hand, Rodríguez-Pose (2014a;b)¹⁸ provide evidence that the creative sector is more innovative only insofar as it introduces entirely new products: a result echoed by Lee and Drever (2013)¹⁹ for creative firms operating in London.

Tables 4 and 5 below compare the creative industries and the manufacturing and services²⁰ sectors using a variety of innovation-related indicators drawn from the *UK Innovation Survey* (2012-2014). Specifically, Table 4 revisits and explores key differences among sectors in terms of innovation performance indicators, intellectual property protection strategies and skills needs. Table 5 sheds light on the differences and similarities in terms of innovation investments, barriers, collaboration partnerships and public support among the three sectors.

A broad finding in Tables 4 and 5 is that the creative industries lie somewhere between the services and manufacturing sectors in innovation performance. In the area of organisation innovation, the creative industries are significantly more likely to introduce organisation innovations (52 per cent) than even manufacturing (48 per cent) and the services sectors (43 per cent). And in the area of new to the market innovations, the creative industries (14 per cent) are almost as likely to innovate as manufacturing (17 per cent). While the creative industries introduce significantly fewer product and process innovations than manufacturing, they also report significantly fewer abandoned innovation projects. This may arguably reflect the fact that the fixed and direct costs of doing innovation are less in the creative sector compared with manufacturing.

Table 4. Sectoral comparisons²¹ among creative industries, manufacturing and other services - percentage of firms

	Creative industries	Manufacturing	Services
Basic innovation (output) metrics			
Organisational innovation	52% ^{**}	48%	43%
New to the market innovation	14% [●]	17%	6%
Product innovation	33% ^{**}	38%	18%
Process innovation	21% ^{**}	26%	14%
Abandoned innovation activities	7% ^{**}	10%	4%
Ongoing innovation activities	32% [●]	33%	18%
Appropriation (IP) strategy			
Patents	55%	59%	54%
Design registration	56%	55%	53%
Copyright	63% ^{**}	55%	54%
Trademarks	60% [●]	59%	56%
Lead time advantages	63% [●]	63%	57%
Complexity of goods and services	68% [●]	69%	60%
Secrecy	65% [●]	64%	57%
Skills distribution			
Graphic arts/layout/advertising	42% ^{**}	24%	22%
Design of objects and services	29% ^{**}	25%	10%
Multimedia/web design	46% ^{**}	24%	23%
Software development	41% ^{**}	25%	22%
Engineer/applied sciences	13% ^{**}	33%	9%
Mathematics/statistics	15% ^{**}	11%	10%
Total observations	(764)	(2,454)	(10,423)

Source: *UK Innovation Survey* 2015, ERC analysis.

Notes: ^{*}indicates statistically significant creative industries sample proportion from the corresponding manufacturing sample proportion at the 95 per cent confidence level. [●]indicates statistically significant creative industries sample proportion from the corresponding services sample proportion at the 95 per cent confidence level.

Interestingly, when it comes to IP protection, the creative industries, manufacturing and services present no significant differences in terms of patent and design registrations. However, as expected, the creative industries make significantly more intensive use of copyright (63 per cent). By comparison the use of copyright for manufacturing was 55 per cent and that for services 54 per cent. Unlike patents, where the focus is on protecting the 'idea', copyright is focused on protecting the 'expression' of the idea (Hesmondhalgh, 2007).²² This distinction is of crucial importance in that creative entrepreneurs need sufficient incentives to transform their ideas into expressive creative outputs. Another interesting finding from the comparison between sectors is that the creative industries pursue with greater intensity informal protection strategies compared with the services sector but not compared with manufacturing.

Finally, in terms of skills needs, the creative industries are almost twice as intensive in their use of creative skills as the services sector. Creative companies are also significantly more likely to deploy these skills than manufacturing companies. Interestingly, they are also more likely than even manufacturing to make use of mathematics/statistics skills. The exception to this pattern is the employment of engineering and applied sciences graduates where they are much more frequently employed in manufacturing.

Table 5 suggests that the creative industries also invest more heavily in innovation compared with the services sector, but less so than manufacturing. The main exception to the latter finding is that the creative industries are significantly more likely to report investing in training (25 per cent), emphasising again the crucial role played by talent in the creative industries.

A striking finding is that the creative industries are almost as engaged in R&D activities as manufacturing (and considerably more so than services). This is in marked contrast to what traditional statistics on R&D spend by UK companies imply (ONS estimates for business expenditure on R&D are not available at the four-digit level so we are unable to provide numbers), pointing to a disconnect between how R&D activity is perceived by creative businesses themselves and what the official statistics capture – an area of current debate (Bakhshi and Lomas, 2017).²³

Table 5. Sectoral comparisons²⁴ among creative industries, manufacturing and other services - percentage of firms

	Creative industries	Manufacturing	Services
Innovation investment			
In house R&D	35%●	38%	16%
External R&D	10%●	11%	5%
Capital acquisition	45%●	44%	34%
External knowledge acquisition	6%●	7%	4%
Training investment	25%*●	21%	14%
Design investment	21%*●	26%	10%
Market introduction of innovation	31%●	29%	20%
Barriers to innovation			
Perceived economic risk	10%●	10%	6%
Direct costs of innovation	10%●	12%	7%
Cost of finance	11%●	9%	7%
Availability of finance	12%●	10%	7%
Lack of qualified personnel	8%●	7%	4%
Lack of information on technology	1%	2%	2%
Dominant firm	4%*	8%	5%
Uncertainty of demand	5%*	7%	4%
UK regulations	4%	4%	4%
EU regulations	2%*●	5%	4%
Innovation collaboration (openness)			
Collaboration with UK partners	33%●	36%	22%
Collaboration with EU partners	13%*●	19%	7%
Collaboration with partners from other countries	14%●	15%	7%
Public support for innovation			
UK regional support	6%*●	9%	3%
UK national support	11%●	12%	4%
European support	3%●	3%	1%
Total observations	(764)	(2,454)	(10,423)

Source: *UK Innovation Survey* 2015, ERC analysis.

Notes: *indicates statistically significant creative industries sample proportion from the corresponding manufacturing sample proportion at the 95 per cent confidence level. ●indicates statistically significant creative industries sample proportion from the corresponding services sample proportion at the 95 per cent confidence level.

When it comes to innovation barriers, the creative industries are more likely to identify the risks, costs and financing of innovation as well as lack of qualified talent. However, creative businesses do not consider demand uncertainty and regulations as especially important barriers to their innovation activities. From a geographical perspective, the majority of partners with which creative businesses collaborate come from within the UK (33 per cent) followed by partners outside Europe (14 per cent). This contrasts with manufacturing, which relies proportionately more on European partners (19 per cent) for innovation than partners outside the EU. Finally, according to the *UK Innovation Survey*, proportionately fewer creative businesses receive support for innovation from the UK regional structures compared with manufacturing but not services. There is little difference across sectors in the extent to which how many businesses receive support at the national level or from the EU.

Conclusions

Analysis of the *UK Innovation Survey* emphasises the importance of innovation in the creative industries, with firms investing heavily and achieving levels of innovation above those in other services sectors and in some cases, like R&D, comparable with manufacturing. Organisational and process innovation prove to be most common. Firms in the creative industries also seek to protect their innovations using a range of both formal and strategic intellectual property protection strategies. Copyright is particularly important.

This said, it is important to recognise one significant limitation of the *UK Innovation Survey* for looking at creative industries. Many creative businesses are small with less than ten employees – micro firms – and these micro firms are, due to the survey design, excluded from the *UK Innovation Survey*. If, as the industrial strategy suggests, the development of creative industries is a policy priority we need to re-think the exclusion of micro firms from this type of government survey.

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Endnotes

1. The statistical data used here is from the Office for National Statistics (ONS) and is Crown copyright and reproduced with the permission of the controller of HMSO and Queen's Printer for Scotland. The use of the ONS statistical data in this work does not imply the endorsement of the ONS in relation to the interpretation or analysis of the statistical data. The analysis upon which this paper is based uses research datasets which may not exactly reproduce National Statistics aggregates.
2. DCMS Sectors Economic Estimates, November 2017 <https://www.gov.uk/government/statistics/dcms-sectors-economic-estimates-2016-gva>
3. HM Government (2017) 'Building our Industrial Strategy.' Green Paper. London: Stationery Office. https://beis.gov.uk/citizenspace.com/strategy/industrial-strategy/supporting_documents/buildingourindustrialstrategygreenpaper.pdf
4. However, the disproportionate number of small businesses in the creative industries brings down average productivity in relative terms: as in other sectors, small firms are less productive than larger firms. Mateos-Garcia, J., Klinger, J. and Stathoulopoulos, K. (2018) 'Creative Nation: How the Creative Industries are Powering the UK's Nations and Regions.' London: Nesta.
5. The survey covers only businesses with at least ten employees.
6. Creative industries have been identified following the DCMS (2013) proposed list of Creative Industries.
7. Polder et al., (2010) using a sample of Dutch manufacturing and services firms, suggested that the combinations of innovations that contribute significantly to a higher productivity all involve organisational innovation.
8. The museums, galleries and libraries' sub-sector is not covered in the UKIS wave 9.
9. The crafts and design: product, graphic and fashion design have been merged to one class due to lack of observations in the UKIS wave 9.
10. This classification includes the 4-digit industry 59.20: Sound recording and music publishing activities. The rest of 4-digit industries of the 'music, performing and visual arts' industries were absent from the UKIS wave 9.
11. Notes: *indicates statistically significant creative industries sample proportion from the corresponding manufacturing sample proportion at the 95 per cent confidence level.
12. Creative Industries Council (2014) 'Creative Industries Strategy.' London.
13. Notes: *indicates statistically significant creative industries sample proportion from the corresponding manufacturing sample proportion at the 95 per cent confidence level. •indicates statistically significant creative industries sample proportion from the corresponding services sample proportion at the 95 per cent confidence level.
14. Notes: *indicates statistically significant creative industries sample proportion from the corresponding manufacturing sample proportion at the 95 per cent confidence level.
15. Protogerou, A., Kontolaimou, A. and Caloghirou, Y. (2016) 'Innovation in the European creative industries: A firm-level empirical approach.' *Industry and Innovation*. 24:6, 587-612, DOI: 10.1080/13662716.2016.1263551.
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18. Lee, N., and Rodriguez-Pose, A. (2014) 'Innovation in Creative Cities: Evidence from British Small Firms.' *Industry and Innovation*, 21(6), 494-512. doi:10.1080/13662716.2014.983748; Lee, N., and Rodriguez-Pose, A. (2014). 'Creativity, cities, and innovation. *Environment and Planning A*.' 46(5), 1139-1159. doi:10.1068/a46202.
19. Lee, N., and E. Drever. (2013) 'The Creative Industries, Creative Occupations and Innovation in London.' *European Planning Studies*. 21 (12): 1977-1997.10.1080/09654313.2012.722969.
20. Manufacturing and Services sectors respectively have been identified following UK SIC2007 codes: <https://www.ons.gov.uk/methodology/classificationsandstandards/ukstandardindustrialclassificationofeconomicactivities/uksic2007>. Strictly following the SIC2007 codes all creative industries may be identified as manufacturing or services. In the terminology of the analysis however, creative industries are not overlapping with either manufacturing or services sectors.
21. Notes: *indicates statistically significant creative industries sample proportion from the corresponding manufacturing sample proportion at the 95 per cent confidence level. •indicates statistically significant creative industries sample proportion from the corresponding services sample proportion at the 95 per cent confidence level.
22. Hesmondhalgh, D. (2007) 'The Cultural Industries.' Sage: London.
23. Bakhshi, H. and Lomas, E. (2017) 'Defining R&D for the creative industries.' AHRC/Nesta/UCL Policy Briefing.
24. Notes: *indicates statistically significant creative industries sample proportion from the corresponding manufacturing sample proportion at the 95 per cent confidence level. •indicates statistically significant creative industries sample proportion from the corresponding services sample proportion at the 95 per cent confidence level.

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