Extended abstract

EXTENDED ABSTRACT

Title: How Collaboration Influences Innovation in Museum Organizations

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Subject area: *Cultura, Creatividad e Innovación en las regiones MED*

Abstract: *(minimum1500 words)*

Museums are art and cultural organisations that can be powerful assets for local development from both social and economic perspectives (OECD 2017). In recent years innovation has become a key tool for enabling museums to adapt to the transformative changes that have taken place in the context in which these organizations operate (Vicente, Camarero, and Garrido 2012). Often, however, especially at regional and local level, a museum's capacity for innovation is severely hampered by a lack of essential resources. Generally, small and medium-sized museums do not have sufficient economic and human capital to invest in innovation. A possible solution to overcome this could imply collaborations with other local and regional actors and the pooling of resources.

Consequently, much emphasis has been placed on the relationship between innovation and collaboration in the creative sectors. A number of studies indicate that cultural and creative organisations can innovate by integrating technologies into culture and creativity through collaborations with high-tech firms, universities and research centres, and so on (Castro-Martínez and Fernández-Baca Casares 2012; Castro-Martínez, Recasens, and Jiménez-Sáez 2013; Verbano et al. 2008; Camarero and Garrido 2012). However, these studies face three main limitations: (1) the existing studies neglect non-technological innovation, such as organisational innovation, and content or meaning innovation, which is addressed particularly by creative sector studies (Handke 2004); (2) there still is a lack of evidence-based, quantitative

analysis on the topic of collaboration and innovation in the cultural and creative organizations; (3) many of the existing studies were conducted by looking at large cultural organisations, whilst small and medium size ones were neglected, particularly in the museum sector.

To overcome these limitations, this article concentrates on the impacts of collaboration on technological and cultural innovations at cultural and creative organisations, specifically small and medium-sized museums, supported by robust statistical analysis.

Collaboration and innovation

Open innovation theory and innovation system perspective can be viewed as theoretical starting points to explain the relation between collaboration and innovation. open innovation theory stresses the dependence of innovation on external knowledge and, in this context, collaboration can play a crucial role in learning and absorbing such external knowledge. (Chesbrough 2003). As far as technological innovation is concerned, the cultural and creative sectors are a typical "supplier dominated sector" (Pavitt 1984) or "technology users" (Evangelista 2000), which seldom undertake technological R&D activities within the organisation but, instead, rely on adopted technologies from other sectors. As for cultural innovation, especially in the creative industries, symbolic knowledge is mostly embodied in "tacit knowledge, craft, and practical skills and research skills", which are learnt "through interaction with border professional communities" (Asheim, Coenen, and Vang 2007). To summarise,

Similarly, the innovation system perspective regards interaction and collaboration as the exclusive environment where innovation take place because innovation is, essentially, an interactive process, wherein collaboration among different innovation agents ranging from universities, research centres and government bodies to firms and individuals takes place, under certain institutions that shape such interaction in the system of innovation (Edquist 1997). There are two types of collaboration in terms of the object of interaction. One is "supplier-producer interaction" (Fagerberg 2006; Bilton and Leary 2002), which mainly stresses the peculiar network relations of the upstream and downstream industries along the value-creation chain, particularly those who have technological advantage and can influence the co-evolution of innovation and market structure (Malerba and Orsenigo 2009), e.g. universities and research institutions. The other is "user-producer interaction" (Lundvall 1988), which focuses mainly on the co-creation relations of innovator and end-users, whose willingness and capacity to accept innovation, in turn, determine the success of "demand-pull" or "user-oriented" innovations. Both types of collaboration constitute significant external factors to facilitate innovation. In

short, open innovation theory and innovation system perspective provide the clue as to why and how collaboration contributes to innovation from two perspectives of the endogenous demand and external environment, respectively.

Museums today are witnessing more and more cross-organisation collaboration within and beyond their sector (Tien 2006). Such collaboration is beneficial for the participants that gain new ideas and strategies (Bergquist, Betwee and Meuel 1995) and access to new markets and technologies (Thompson 2001) from each other, which finally leads museums to being more innovative.

In this study, therefore, we attempt to explore the role that collaboration plays in fostering innovation in cultural and creative organisations by focusing on the potential efforts of supplier-producer interaction on technological and cultural innovation, in small and medium-sized museum. This doesn't ignore the important contribution of user-producer interactions given that the collaborative dynamics between museums and their visitors are key drivers of innovation in many museographical functions and areas, particularly those relating to visitor services, and especially now, when museums are moving towards a more visitor-centred approach (Camarero, Garrido, and Vicente 2015).

Methodology and findings

Based on an innovation survey on Spanish museums, data was collected from 59 out of 121 museums registered in the Valencia region, which suggests that our study has a small, definite population of 121 museums with a sample size of 59, signifying that the margin of error for p=q=0.5 at 95% confidence level is ± 9.2 %.

There are three main findings acquired from the survey. Firstly, according to statistical description, although museums in Valencia show a diversity of profiles in terms of museums' location, type, ownership, size and proximity to their respective provincial capitals, the study sample is characterised by small and medium size, public, and arts and humanities-predominated museums.

Secondly, the collaboration of museums shows a notable polarisation. The collaboration is a frequent phenomenon in the museum sector, but the vast majority of museums are engaged in intensive collaboration within the museum and education sectors whilst the cross-sectorial collaboration with the technology and service sectors are very limited.

Thirdly, different collaborative partners make different contributions to museum innovation in terms of the typology of innovation. Based on the results of the ANOVA analysis, it is revealed that collaboration with universities and high-tech firms, as well as inter-museum collaboration, can significantly help museums to engage themselves in technological innovation; joining museology and museography-related associations is good for cultural innovation; but neither technological nor cultural innovation benefits from collaboration with museography-oriented firms or individual specialists.

Results and conclusion

Given the scarcity of literature on this topic, and its practical value for the implications of innovation policy, the findings of this study could still have important implications for the design and development of regional innovation policies. Size and ownership are two important factors that influence the outputs of innovation in museum organisations whilst collection type doesn't affect museum innovation (Camarero, Garrido, and Vicente 2011). Considering that public museums are less likely to engage in technological innovation than private museums because they lack a profit motive (Castañer and Campos 2002; Vicente, Camarero, and Garrido 2012), the very high proportion of small and medium-sized and public museums in the sample implies at least two things: one is that Valencian museums may be not actively engaged in innovation as a whole and, the other, the effects of ownership and size factors on museum innovation is largely mitigated in this study.

Speaking of museum collaboration, inter-museum collaboration is the most frequent form of collaboration, which is to be expected given that public museums are usually ascribed to the cultural departments of regional and municipal governments, which, in turn, facilitates collaboration, as they fall under the same bureaucratic structure. By further examining the museum-university connection, we found that most connections occurred within provincial boundaries, i.e. museums tended to collaborate with local universities that were located in the administrative area, which, we suggest, is due to two main reasons: (1) many museums have agreements with local universities to provide their graduates with periodic internship opportunities, and (2) geographic proximity is a vital factor for "direct collaboration in knowledge exchange" (Zukauskaite 2012). In contrast, museums' collaboration with high-tech firms, museography-oriented firms and individual specialists often involve the purchase and contracting of techniques and services, thus making such collaboration more market-oriented; this might be the main cause hindering local museums from cross-sectoral collaboration with technology and business sectors owing to the shortage of financial resources.

As for the impact of collaboration on innovation, the findings support the arguments that universities and high-tech firms, as important R&D institutions and technology suppliers involved in supplier-producer interaction within the system of innovation, play a vital role in technology and knowledge transfer, facilitating the adoption of external technology and innovation by cultural organisations, including museums (Verbano et al. 2008; Zukauskaite 2012). Meanwhile, they do not support our hypothesis about the indirect impact of technology on creativity and cultural outputs, namely, that the influence of technology on creative processes seems to have a much more nuanced impact on the development of new cultural products and services than expected. It is clearly implied that inter-museum interaction is an important channel for the diffusion of technological innovation in the museum sector, and most of small and medium-sized museums are prone to learning and adopting new knowledge and technology from their peers, rather than through direct interaction with technology suppliers from other sectors; most of them, therefore, have the character of “adopters” or “majority” rather than “innovator” (Rogers 2003) in the diffusion of innovation.

On the other hand, museology and museography-oriented associations are not technological suppliers to museums and, instead, they can serve as intermediary institutions to build so-called “professional communities” for informal and interpersonal (face-to-face) interaction among museum professionals (Asheim and Hansen 2009), wherein symbolic knowledge is shared and transferred, which finally helps to strengthen the capacity building of cultural innovation through wider and easier access to external knowledge. In contrast, other partners like museography-oriented firms and individual specialists are mostly implicated in specific services relating to logistics, insurance, installation and restoration etc., which only play an auxiliary or ancillary role in the cultural production of museum organisations and thus, are not a contributing factor in the innovation outcome.

Implication

Firstly, the collaboration among museums, in particular between large and small museums, should be encouraged and facilitated so as to empower small museums’ innovation capabilities by means of the spillover of knowledge and technologies from large museums.

Secondly, necessary cultural policies be developed to favour and support cross-sectoral collaboration in arts and cultural organisations, particularly with universities, research centres and high-tech firms, in order to strengthen their capabilities for technological innovation by leveraging external technologies and innovation.

Thirdly, particular efforts should be made to support and foster new and/or existing museum associations so as to activate their potential as facilitator and enablers of knowledge-exchange and experience-sharing within professional networks and communities.

Keywords:*the cultural and creative sectors, museum, collaboration, technological innovation, cultural innovation*

JEL codes: 039, Z19

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