Team dynamics and technology impact on creative and cultural industries

Candidate
Luigi Nasta

Supervisors
Prof. Luca Pirolo
Prof. Richard Priem
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Introduction

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INTRODUCTION

The creative economy has become a powerful transformative driving force in the world. Its potential for development is vast and waiting to be totally unlocked. It represents one of the most rapidly growing sectors of the world economy, not just in terms of income generation but also for job creation and export earnings. Additionally, a much greater proportion of the world’s intellectual and creative resources is now being invested in the culture-based industries. Human creativity and innovation, at both the individual level and group level, are the key drivers of these industries, and have become fundamental for the creative economy in the 21st century.

UNESCO defines cultural and creative industries as activities “whose principal purpose is production or reproduction, promotion, distribution or commercialization of goods, services and activities of a cultural, artistic or heritage-related nature.” Specifically, UNESCO’s framework about cultural and creative industries recognizes 11 sectors: advertising, architecture, books, gaming, music, movie, newspapers and magazines, performing arts, radio, television and visual arts.

According to the study conducted by Ernst & Young in 2015, the 11 cultural and creative industries (CCI) are an integral, massive and universal “cornerstone” of the global economy. In 2013, they generated US$ 2,250b of revenues, that corresponds to the 3% of world GDP, and 29,5 million jobs.

Compared to other industries, CCI really shows the width and depth of the creative economy. Indeed, CCI sales worldwide exceed those of telecom services (US$ 1,750b globally) and surpass India’s GDP (US$ 1,900b). With 29,5 million people employed, CCI employs 1% of the world’s active population and this value is higher that workers in South Korea (26,6 million), or the combined population of Paris, New York and London.

Another aspect that is worth it to examine in depth is the relationship between CCI and digital economy. Digital cultural goods are, by far, the biggest revenue source for the digital economy, generating US$ 66b of B2C sales (eBooks, music, video, games) in 2013 and US$ 22b of advertising revenues for online media and free streaming websites such as YouTube. Cultural goods and event tickets are increasingly sold on internet platforms via e-retailers and online
classifieds, generating US$ 26b in sales and driving the growth of the online economy. Furthermore, online advertisements provided US$ 85b in revenues for advertising agencies in 2013. The online migration is driving these subjects to develop new skills in video, content production and storytelling (Ernst & Young, 2015). In summary, CCI together contributed US$ 200b to the digital economy in 2013, that represents an impressive data.

However, even if the relationship between CCI and digital economy is supported by such relevant economic data, some CCI tends to show strong resistance to digitization, such as books that in 2015 still represented the 80% of all book sales worldwide. Similarly, the appetite for physical events and venues has sharpened. The music industry is now once again driven by live events, and revenues from live shows now exceed recorded music sales in some regions. In Europe, for instance, ticket sales for live music performances, at US$ 16,5b are more than twice those of recorded music sales (US$ 6,3b).

In these scenario, creative and cultural organizations need to redefine their business models and get ready to adopt technological innovations in a way that is shared with consumers’ tastes and preferences.

The relevance of CCI from an economic perspective, and a personal curiosity towards the dynamics affecting these industries, led me to the development of a research path that took in consideration some of the sectors previously discussed. Specifically, the first part of this thesis (chapter I and chapter II) will be focused on the analysis of the music industry and the effects that diverse teams might have on the performances achieved. The second part of this thesis (chapter III) will instead shift the attention to cultural industries, specifically visual arts, to investigate the controversial effects that technology might have on the dynamics of this sector.

Even if there are elements of creativity in most human endeavour, not all industries are organized principally to take advantage of and capture the market value of human creativity. Creativity is a process of generating something new by combining elements that already exist (Boden, 2004; Pritzker & Runco, 1999; Romer, 1990; Robert J Sternberg, 1999) and depends on individuals’ and organizations’ capability and willingness to engage in non-routine, experimental, and often uncertain activities. Creativity is enacted in the individual (Candace, Mark, Jonathan, James, & Robert, 2015) but usually take place within teams (Gilson, Lim, Litchfield, & Gilson, 2015).
Organizations around the world and across all types of industries are increasingly becoming team based (Cohen & Bailey, 1997; Ilgen, 1999; Mathieu, Maynard, Rapp, & Gilson, 2008; McGrath, 1997). Although every industry contains activities that are project-based, the proportion of it in the creative industry is extreme. The project-based nature of creative productions is indeed one of the main characteristic of the creative field. Each production – such as a movie, a book or a piece of music - is unique and the making of each product is a separate project with unforeseen contingencies, for which different creative, technical, and commercial talent is assembled.

It is generally believed that teams or groups of individuals working together will be better able to generate novel ideas quickly, appropriately adapt to changing customer and market conditions, and produce multidisciplinary solutions (Uhl-Bien & Graen, 1998) to solve complex problems (Taggar, 2002; Tesluk, Farr, & Klein, 1997). Additionally, working in teams has been argued to be advantageous over working individually on creative tasks. Previous studies suggest that teams have access to multiple different contacts and outside resources, as well as member past experiences and different perspectives, that all serve to increase their ability to build on diverse information that helps in defining and solving problems, as well as making decisions and reaching creative solutions (Hargadon, 2002; Perry-Smith, 2006).

A great deal of historical and current creativity research has been conducted on the premise that creative work is dependent upon an individual. For example, the investment theory of creativity (R. J. Sternberg & Lubart, 1991; Robert J. Sternberg & Lubart, 1992) argues that creative thinker are like good investors: they buy low and sell high. Whereas investors do so in the financial environment, creative people do the same in the world of ideas. Creative people generate ideas that are like undervalued stocks and both the stocks and the ideas are generally rejected by the public. When creative ideas are proposed, they are often viewed as useless and are rejected because the crowd is not able to realize that the proposed idea represents a valid and advanced way of thinking.

From the investment view, then, the creative person buys low by presenting a unique idea and then attempting to convince other people of its value. After convincing others that the idea is valuable, which increases the perceived value of the investment, the creative person sells high by leaving the idea to others and moving on to another idea.
Another theory that puts the individual in the centre of the creative process is the Amabile’s componential model (T. Amabile, 1996; T. M. Amabile, 1983). She argued that three variables are needed for creativity to occur: domain-relevant skills, creativity-relevant skills, and task motivation. The first component includes knowledge, technical skills, and specialized talent. Creativity-relevant skills are personal factors, such as tolerance for ambiguity, sensible risk-taking, being open to new experiences, that are linked to creativity. The last element is motivation towards the task to complete. Without any motivation, creativity does not take place.

Following these approaches about creativity and the individual, the label of creative genius has been applied to the artist who comes up with a new style of painting, the composer who writes a new melody, the game designer who develops a new interface to play in the virtual world, or the director who create a new way to record scenes in a movie. Because of the value placed on the individual, researchers have tried to better understand how creative people differ from others regarding to a number of characteristics such as personality (Gough, 1979) and cognitive style (Jabri, 1991; Kirton, Bailey, & Glendinning, 1991). Conflicting and inconclusive findings have resulted in the addition of context (Woodman, Sawyer, & Griffin, 1993), social networks (Cattani & Ferriani, 2008; Perry-Smith & Shalley, 2003), communities (Rullani & Haefliger, 2013) into the creativity equation. Similarly, work by Csikszentmihalyi (1999) has argued that creativity is not “the product of single individual” but social systems making judgements about individual’s products”. These perspectives along with work by Becker (1982) on creativity in the cultural economy, DeFillippi, Grabher, and Jones (2007) on temporary organizations in the production of movies, and Simonton (2004) on creative clusters in the feature film industry, all suggest that creativity is not pureley an individualist construct. As a matter of fact, this stream of the literature suggests that creativity can be collective in nature and may require the diverse contributions of a number of individuals working together as a team.

In the first chapter of this thesis I will discuss how characteristics of the group can serve to either enhance or constrain engagement in creative processes, the development of creative outcomes, and ultimately project performance. Specifically, the paper aims at proposing a theoretical framework and a research methodology to analyse how diversity in creative teams affects team performance. The article has been developed during the second and the third year of the PhD program and published in Creative Industries Journal in April, 2016.
The valuation of creativity is often questioned since creative processes and outcomes are generally characterized by high variance: while some of them are able to impress industry experts and delight customers, others fall short and are soon forgotten. Due to their symbolic content, success and failure in the creative industries are often multifaceted, and hard to define and assess. These difficulties have let a large stream of research to develop around the statement that “nobody knows anything” (Goldman, 1983) when it comes to predicting performance, most notably in the film industry (Collins, Chris, & Snell, 2002; De Vany & Walls, 2004). However, other studies proposed a taxonomy of performance dimensions in the creative industries. The three core dimensions of performance in the creative field are usually identified with commercial performance, artistic merit, and societal impact. They are assessed in the literature across a variety of levels of analysis, and both in the short and longer term. The first two core dimensions, commercial performance and artistic merit, traditionally form the key components of creative industries performance research (Caves, 2000; Hirsch, 2000; Lampel, Shamsie, & Lant, 2006; Lingo & O'Mahony, 2010; Simonton, 2009; Townley et al., 2009). While the former directly reflects the notion of economic capital, observed in the monetary income of the creative outcome, the latter is close to the definition of symbolic cultural capital as “the capacity to define and legitimize cultural and artistic values, standards and styles” (Townley et al., 2009).

Analyses of creative project performance usually focus on creative products. The commercial performance of a creative project may be defined and assessed directly, for instance as the price paid to own it (e.g. mainstream fashion, software games, and films), the number of copies sold (e.g. literature and recorded entertainment), total attendance and box office receipts (e.g. festivals, spectator sports, recorded entertainment, and performing arts), and rankings in the industry performance indexes (e.g. music charts, movie charts). The artistic merit encompasses both short-term peer- and expert-based evaluations, and longer-term expert-based evaluations. The former take the form of nominations and awards (Ginsburgh, 2003; Ginsburgh & Weyers, 1999; Hadida, 2010), ratings by professional critics (Hsu, 2006; Smith & Smith, 1986; Uzzi & Spiro, 2005) or both (Delmestri, Montanari, & Usai, 2005; Simonton, 2009). The latter are assessed through the inclusion of the creative project within “best of all times” rankings (Ginsburgh, 2003; Ginsburgh & Weyers, 1999) and reproductions of works in textbooks and anthologies (Galenson, 2011).
In the second chapter of this thesis I will discuss about commercial performance in the music industry. Specifically, the article aims at testing what has been theorized in the first paper of this work. Focusing on the analysis of the effect of diversity in teams on project performance, the paper investigates the following research question: what are the effects of the variety of past experiences accumulated by individuals within project-based industries on current project performance?

The creative context selected to develop the research is the US music industry since creative workers tend to move among temporary projects to build their careers. The final output (an album) is performed by multidisciplinary teams composed of specialists from several professions grouped in temporary project teams, which provide high level of diversity in terms of work experience. More specifically, this research analyses the experience of people who worked in the US music industry from 2000 to 2014 on 980 albums to provide a longitudinal dimension of experience patterns. The music industry has been chosen only infrequently as empirical setting for examining team performance in creative industries (Bougon, Weick, & Binkhorst, 1977). Therefore, the study adds a relatively less-examined context to the existing work on creative teams.

Since technological innovations and digitization have hit old and new economic sectors pervasively, our lifestyles - as citizens, as consumers, and as economic actors - have been revolutionized. Indeed, digital technologies and applications have not spared traditional sectors, such as the cultural heritage industry. Among all possible cultural-creative industries, technological innovations have broadly impacted museums and other historical and cultural heritage sites, in which numerous examples about the use of ICT in providing a more inclusive experience to visitors flourish (Parry, 2013). The creation, the dissemination, and the valorisation of cultural outputs can benefit from a broader and wiser usage of digital technologies (Marty, 2007). Therefore, the cultural industries require new production and consumption processes and modalities. Thus, it is important to foster creative and innovative approaches, including development of new tools and methods that can make the most of consumption and valuation of cultural-creative products and experiences.

This challenging scenario requires that old wisdom must be combined with new skills. Consequently, redefinition of roles and capabilities might take place. Public and private actors should coordinate their actions and interact with each other. In fact, considering technological innovation as an exogenous change and recognizing the emergence of new ways of conceiving
cultural experiences, it becomes relevant to understand what new competencies are required to better perform. Accordingly, it is important to investigate the attitude to change of the people already in the sector to understand if they will resist the change or operate in favour of it. Moreover, to conduct this analysis, it is important to explore what role they envision for themselves and, in case of any resistance to change, what levers the institutional actors can enforce to instil the renewal.

As far as cultural-creative industries are concerned, the widespread of digital technologies allows easier and faster interactions between the audience and the cultural-creative artefacts. This challenges the role of intermediaries and redefines who is to be considered as expert. If, on one side, the digitization offers new opportunities for the valorisation of cultural heritage, on the other side it provides unprecedented challenges for the human resource team working in the sector. This is particularly critical in very traditional settings, such as museums and historical and cultural heritage sites where conventional business models and the management criteria usually do not represent the most fruitful contexts to promote and/or facilitate the change. Starting from this consideration, the role of subsidized cultural organizations in fostering creativity and innovation has been debated (Selwood, 2009). In the past, museums were conceived as static and uninterested in change and development. More recently, a growing pressure has mounted on creating an economic impact and certainly on increasing audience engagement. Creativity and innovation thus “pertain to a number of things including changes in institutions’ outlooks and management, if not the transformation of their profit-making capacity” (Selwood, 2009, p. 233). Such change advocates for a redefinition of the individual roles working in traditional cultural organizations, since individuals are a primary source of creativity and innovation (Pratt and Jeffcutt, 2009).

In the third chapter of the thesis, I will highlight the impact of digital technologies in the redefinition of a very traditional role, such as that of the tour guide. The mediatory role of tour guides is important in linking the visitors to the cultural artefacts and to provide the cultural brokerage, i.e. providing the visitors with familiar idiom (Cohen, 1985). They are considered experts in the field and triggers to raise the interest of the public towards art and culture in general. In fact, not only they are perceived as the holders of the knowledge of art and the cultural value of artefacts, but they can convey the hedonistic value of culture consumption and raise the interest of the audiences and their engagement. Given their pivotal role in art and culture fruition for the public at large, tour guides cannot be exempt from technological changes, opening new opportunities for development as well as new challenges. In fact, tour
guides can consider technology as a chance to reshape and empower their role or, on the contrary, they might not be able to redefine their role in the new technology-driven competitive scenario, and they may feel threatened of being replaced by technological innovation (Kramer, 2007).
CHAPTER I

Diversity in creative teams: a theoretical framework and a research methodology for the analysis of the music industry

Abstract The success of many creative projects depends on how people are able to work uniformly in teams that are composed just for a limited time and without any expectations for further collaborations. In addition, each team member is different from the others because of their own experience, technical background, and beliefs. Even though diversity has been recognized to be a source of creativity, various studies show contrasting results of its effect on teams’ performances: positive, negative and nonsignificant. For this reason, this research aims at contributing to this field through the proposition of a theoretical framework and a research methodology that might be used in future studies to analyze the effects of team diversity on an unexplored setting: the music industry.

Keywords Team diversity, Creative industries, Creativity
1.1 Introduction

Creative industries rely on an organization of the work based on a temporary approach through which human and non-human resources are pulled together on short term basis. Similarly, team works are characterized by a limited time horizon. Therefore, people continuously look for new projects to join. This leads to a constant process of (re)combination of skills and competencies to reach valuable outcomes that researchers have started to investigate only recently.

A significant amount of research has been carried out to investigate the existing bonds between team characteristics and team outcomes in contexts of social creativity. Specifically, the effect of team diversity has been analyzed as firms become increasingly diverse and organizations start relying on cross-functional teams to handle complex and demanding issues. How work group diversity affects its performance is becoming ever more relevant but unfortunately, there is no clear understanding of the diversity-performance relationship. Indeed, nearly all dimensions of diversity that have been analyzed and researched have always provided mixed results: negative, positive or nonsignificant relationships with performance. Therefore, to improve our understanding of the relationship between diversity and performance, it would be worthwhile to investigate further empirical settings.

At the very beginning, creativity has mainly been examined by scholars on the basic principle that “it is generated by very talented individuals, gifted with a great imagination” (Glynn, 1996). Along this perspective, previous studies, focused on how ideas are generated, suggest that individuals are able to come up with a novel idea when they are naturally provided with a great intellectual ability or some other qualities that enable them to find innovative solutions (Glynn, 1996). As a result, many studies on creativity focused on how cognitive factors, or other individual characteristics such as personality, ethics, and motivation, contribute to the generation of novel ideas (Sternberg, 1985; Egan, 2005).

Even if extant studies on creativity primarily stress the individual perspective (Cahill et al., 1996), more recently, a large number of scholars have addressed the attention toward the importance of social factors as key contingencies to study and understand creativity (Amabile, 1996). Thus, some scholars showed that various contextual factors influence individual creativity such as goals, deadlines, expected evaluations on individual’s creative performance, job complexity, supervisory style (Amabile 1996, Oldham and Cummings 1996, Woodman et al. 1993).
Based on these most recent studies, the idea of social creativity has been introduced to explain
the creative outcome resulting from the interaction between two or more individuals (Flemingo
et al., 2007).

Along this perspective, studies have been conducted to analyze the network side of creativity
(Perry-Smith 2006). Creative networks can be seen as collaborative instruments to combine
individuals’ ideas, skills, and resources (Guimera et al., 2005). In fact, creativity does not
happen inside people’s heads but in interactions among individuals (Csikszentmihalyi, 1988).
An increased level of interaction makes the cross-fertilization of ideas increasingly likely. The
central idea of this perspective is that a deeper understanding of how creative outputs are
generated requires studying the individuals by looking at how and where they are located
within a network of interpersonal relationships. According to this, prior scholars (e.g. Faulkner
and Anderson, 1987; Cattani and Ferriani, 2008; Ferriani et al., 2009), examined the role of
social network in enhancing individuals’ ability to generate a creative outcome.

This paper aims at contributing to this stream of research by proposing novel insights on the
relationship between team diversity and teams’ performances. Among all creative industries,
the music sector seems to be appropriate to investigate on this phenomenon. Since, to our
knowledge, the music industry has never been chosen as empirical setting for the application
of the theoretical constructs linked to the topic of team diversity and performance, we have
determined to focus our research on its analysis. We center our attention on determined, job-
related, characteristics of team diversity such as functional background or industry experience.
These specific characteristics have been chosen because of their pertinence with our objective.

1.2 Theoretical framework

What factors are likely to influence the team diversity? In the sections that follow, we theorize
on the interplay of some of the main components of team diversity and how they influence the
performances of the creative outcome.

Recent reviews on the effects of diversity in work groups (Jackson et al., 1995; Milliken and
Martins, 1996) have contributed to our understanding of diversity in work teams, developing a
vision of diversity as a “double-edged sword”. Moreover, studies focused on diversity in work
groups have revealed that it can result in higher quality solutions together with a decrease in
team cohesion (Milliken and Martins, 1996; McLeod and Lobel, 1992; O’Reilly, Caldwell, and
Barnett, 1989). Nonetheless, other studies on this topic have showed inconsistency when
compared to the preexisting results. Therefore, no clear and conclusive results are accounted for (Cohen and Bailey, 1997).

Team diversity mirrors the level of differences among the people working together in a team (Harrison and Klein, 2007). Diversity can be given by differences connected with demographic characteristics (age, gender, ethnicity), job-related characteristics (background, tenure, industry experience) and also with psychological traits, such as personality, attitude or even values.

The differences related to demographic variables can be linked to team performance both in a positive and negative way (Tsui and Gutek, 1999; van Knippenberg et al., 2004). The concept that demographic diversity can improve the performance of a team derives from the informational diversity-cognitive resource perspective which points out that distributional differences can be used as indicators of available knowledge in opposing points of view (Cox and Blake, 1991; Williams and O’Reilly, 1998). Therefore, a more diverse team, in terms of demographic variables connected to the task, can prove more successful than a homogeneous team since it can provide different perspectives and a wider spectrum of knowledge.

Starting from this insight, Pelled (1996) divided work group diversity in terms of high job-related and less job-related attributes, where job relatedness is the degree to which the attribute includes experiences, skills and perspectives which can be connected to cognitive work tasks. Since job-relatedness can describe whether a type of diversity is capable of increasing performance, it is deemed to be, potentially, important. Diversity attributes, such as functional, educational, or industry background, capture experiences and perspectives significant for the tasks most work groups perform (Pelled, 1996). On one side, some scholars (Sessa and Jackson, 1995; Milliken and Martins, 1996) propose that this type of diversity has a significant and stronger impact on the task-relevant group processes and performances. On the other side, diversity attributes such as age, gender and race register a minor impact on the group’s task (Pelled, 1996; Pelled et al., 1999). Although these attributes may reflect a broader set of experiences, they are expected to be less related to the work being performed. As suggested by Zenger and Lawrence (1989), “Although age similarity may produce similarity in general attitudes about work... such attitudinal similarity is unlikely to have much direct bearing on conversations about technical work.” Instead, these attributes form the context of more general social relationships and are less directly associated with team objectives (Sessa and Jackson, 1995).
There have been some empirical supports to this classification made by Pelled (1996). For example, a study conducted by Simons et al. (1999) argued that high job-related elements of diversity, such as the educational level, the company tenure and the perception of environmental uncertainty, interact with debate to influence top management. On the contrary, elements that are less job-related, such as age diversity, do not achieve similar outcomes. Therefore, debate can impact team outcomes especially when it is based on a set of different experiences and points of view relevant to tasks, rather than on other differences.

**Intrapersonal Functional Diversity**

The diversity represented by the functional background of each team member, defined as functional diversity, refers to the measure in which team members are narrow functional specialists with prior experience in a restricted range of functions, or are broader generalists whose work experiences cover a wide variety of functional domains. It is our firm belief that such a conceptualization of functional diversity is bound to promote significant implications for team performance.

To our knowledge, there have been no attempts to empirically examine the significance of intrapersonal functional diversity for teams, but few attempts have been made to examine its significance for individual managers (Campion, Cheraskin, and Stevens, 1994; Hitt and Tyler, 1991). Moreover, according to Burke and Steensma (1998), intrapersonal functional diversity is important not only for individuals, but also for management teams. Indeed, the Authors argued that management teams, composed of people with wide-ranging functional backgrounds, will have broader “dominant logics” (Prahalad and Bettis, 1986) and will be less inclined to decision-making biases such as escalation of commitment and overconfidence. These propositions have not been directly tested, but some studies are intuitively showing support with some evidence. For example, Rulke (1996) found that teams of MBA students, formed using a functional generalist selection strategy, performed better at a management simulation exercise than teams formed using a functional specialist selection strategy.

*Based on these notions, we propose that the intrapersonal functional diversity of a team will be positively associated with team performance.*
**Quantitative work experience**

Work experience is most often conceptualized in quantitative terms, reflecting either the time or the amount of experience (Tesluk and Jacobs, 1998). Time indicators operationalize work experience as the length of time spent performing a job or task, whereas amount indicators operationalize work experience as the opportunity to perform or the number of times a task has been performed (Quinones et al., 1995). For example, an artist with 5 years of experience and 1 album realized is clearly substantially different from an artist with 3 years of experience and 3 albums realized.

Therefore, each of the quantitative indicators relates to relevant components of work experience that are likely to affect a person’s performance in a team. Moreover, members of a team that have a stronger working experience or have already had the possibility of performing in the industry are likely to have gained more substantial job-specific knowledge and, therefore, should be more ready to focus their attention of team-specific issues in order to boost the performance in an interdependent team setting.

*For these reasons, we propose that teams work experience, in terms of time, is positively related to team performance.*

*Similarly, teams work experience, in terms of amount, is positively related to team performance.*

Interaction between two quantitative indicators of work experience should demonstrate a meaningful impact on team performance. Indeed, the combination of time and amount on work experience represents the concentration of relevant experience over time. According to Gioia and Poole (1984), the experience of performing more and over a longer time should further reinforce the relevant knowledge that is necessary to facilitate performance.

*We thus propose that the interaction between the time and amount of experience is positively related to team performance.*
1.3 Proposed research methodology

Data

Further empirical studies might focus on the analysis of the commercial results obtained by albums in the music industry. They should address the attention towards the U.S. market because its role in shaping the music industry is undisputed. Indeed, U.S. music sales grew by 0.8% to total $4.47 billion in 2013, accounting for 30% of global trade revenues (IFPI, 2014). These data affirmed America’s dominant position as the world’s largest music market with its nearest rival, Japan, experiencing a sharp 16.7% decline to total $3.01 billion. The sample for these future studies might be composed through the information given by two publicly available sources: Billboard.com and MusicBrainz.org.

From Billboard, data on the chart position obtained by each album every week can be collected. From MusicBrainz, the following information are available: team size, projects completed by each team member, years of experience in the industry for each team member, number and type of functional roles covered by each team member, genre of the albums, release date of the albums, label behind the production of the album, label’s main activity.

Dependent variable

The team performance variable can be calculated using the Top 200 weekly charts published by Billboard every Saturday. Specifically, it is our opinion that future studies should assign a score for each album in the chart calculating the sum of the inverse numbers for every position obtained by the album in the time frame considered. For example, if an album has been ranked for three weeks in the 2nd, 5th and 10th position, the score will be the sum of $1/2 + 1/5 + 1/10$. To higher scores correspond greater team performances over the analyzed period. Many studies have been using the number of weeks in chart as variable to analyze (Bhattacharjee et al., 2007; Klein and Slonaker, 2010). We propose to include other information in order to measure the commercial performance of an album over time. Indeed, the combination between weeks in chart and position in chart allows to measure the quality of the performance in addition to the length.
Independent variables

Intrapersonal functional diversity might be measured following the approach by Bunderson and Sutcliffe (2002) in their work on the intrapersonal functional diversity score for top management teams. Thus, considering their study, the independent variable can be operationalized as follows:

\[
\sum_{i=1}^{n} \left(1 - \sum_{j=1}^{P} P_{ij}^2 \right)/n
\]

where \(P_{ij}\) is the proportion of member \(i\)’s total years spent in role \(j\), and \(n\) is the number of the team members. Because it might be complicated to find information on time spent in each function, according to previous studies (Cannella et al., 2008), we propose to weight each team member’s roles equally. Finally, we suggest to normalize the measure so that it ranges from 0 (low intrapersonal functional diversity) to 1 (high intrapersonal functional diversity).

Work experience-time can be assessed as the number of years of experience in the music industry. This value has to be collected for each team member and then calculated, at a team level, as the average number of years of experience in the industry of the team.

Work experience-amount can be assessed as the number of projects (albums) completed by each team member. At a team level, it has to be calculated as the average number of projects completed by the team.

Control variables

Major label: a binary variable that is set to 1 if the distributing label for a given album is one of the major companies operating in the music industry (Universal, Warner, Sony). A value of 0 denotes independent and smaller music labels. Taking into consideration this variable is important because it is demonstrated to have an impact on the success of music albums. As shown by Goodley (2003), the major labels alone release about 30,000 albums annually and only a small fraction of the albums released are profitable and achieve the success indicated by appearing in the top charts (Seabrook 2003).

Release date: as shown by Montgomery et al. (2000), success of music albums might also depend on the release date. Specifically, industry figures show that a large number of albums are released during the Christmas holiday period. To control for the holiday effect, further studies should include a series of variables for each month. It would be interesting to use a
variable for each month rather than a binary variable to understand if there are other periods of the year which have an impact on chart’s positions in addition to Christmas time.

Genre: the likelihood of entering in a really famous chart as Billboard could also depend on music genre on the premise that the artistic content of an album might vary across genres. For example, one could argue that a country album is less likely to enter in the Billboard chart because country music is typically less popular among end-users. Thus, we propose to compute a binary variable that is equal to 1 if genre is ascribable to popular music (pop and rock); 0 otherwise. Similar studies on other creative industries have considered this variable as control (Cattani and Ferriani, 2008)

Label Type: a binary variable that is set to 1 if the distributing label for a given album is primary focused in the activity production rather than others. A value of 0 denotes what is called “imprint” activity. When a label is strictly a trademark or brand, not a company, then it is usually called an “imprint”. An imprint is sometimes marketed as being a "project", "unit", or "division" of a record label company, even though there is no legal business structure associated with the imprint.

Team size: research on group behaviour and performance has established that group size matters in order to explain group processes and outcomes (Goodman, Ravlin, and Argote, 1986). For this reason, we suggest to control for team size because larger teams are typically associated with larger projects and it is important to control for any possible relationship between size and performance.

Year: to control for the effect of all unobserved factors (e.g., macroeconomic trends, changes in taste or fashion, and other factors that might affect the music industry), we suggest to include dummies for each year of the study period into the model.
1.4 Discussion and contribution

The findings that will come out from this research spawn a web of relationships which jointly will increase the understanding of the complex tradeoff between increasing and reducing diversity in teams.

Specifically, quantitative job experiences and intrapersonal functional diversity have been studied to explain teams’ performances using a network approach (Cattani and Ferriani, 2008; Rodan and Galunic, 2004). Our research proposes to analyze the same variables using a different theoretical framework based on the literature on team diversity. In addition, future studies, following our approach, might decide to verify the empirical validity of the constructs proposed in a setting that, to our knowledge, has not been studied as much as other creative industries such as movie, visual arts, and tv series. The application of these constructs on an unexplored empirical setting, the music industry, might add some thoughtful insights on the topic.

In addition, this research prepares the ground to allow other empirical studies to give a contribution to the practitioners of the music industry. Indeed, explaining what are the factors that increase or reduce the commercial performance of the creative products realized by teams, these studies might be able to provide useful insights for the project managers who are charged with assembling teams combining people with different technical backgrounds and experiences.
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CHAPTER II

The impact of different experiences on team performance. An analysis of the US music industry

Abstract This paper contributes to the literature on creative organizations and team diversity by exploring the relationship between work experience diversity and team performance. To address this issue, the paper analyses the creative context of US music industry by investigating the career patterns of people who worked in this sector from 2000 to 2014. This study finds that a different relationship exists between several measures of work experience diversity and team performance. Specifically, work experience diversity expressed in terms of time (length of experience) is negatively associated with team performance. On the other hand, work experience diversity expressed in terms of amount (opportunity to perform) is positively associated with team performance. These findings provide an innovative perspective on the topic by analysing a less-examined project based industry to study creative teams

Keywords Experience, Team diversity, Creative industries
2.1 Introduction

Developing creative ideas concerning products, procedures, or services is seen as an imperative for organizations and organizational actors. Creativity is often presented as a necessary antecedent of innovation and as such meaningfully contributes to an organization’s ability to adapt to changing environments and to maintain a competitive advantage (Im, Montoya, & Workman Jr, 2013; Scott & Bruce, 1994).

Reflecting this important role of creativity for modern-day organizations, prominent managerial outlets have devoted considerable attention to questions of how to manage for creativity and avoid practices that stifle creativity itself.

The acknowledged need for high levels of workplace creativity coincides with a growing practice to organize work using team-based structures. Within these teams, three or more individuals act interdependently to fulfil a shared responsibility of reach a common set of objectives. The growing complexity of the issues organizations face means that teams of multiple persons with different, specialized knowledge or skills, are frequently required to work on a joint task (Hobday, 2000).

Arguments in favour of team-based creative work commonly imply that these teams are not only composed of multiple members but that these members bring different types of information, experiences, and perspectives to the table which, if properly combined, can lead to creative synergy allowing teams to develop more creative solutions than their respective members could have achieved individually (Bercovitz & Feldman, 2011; Taylor & Greve, 2006).

Even if the idea that diversity has a beneficial effect on teams’ creativity and performance, empirical research has not yielded equally consistent evidence for this proposed main effect (Bunderson & Sutcliffe, 2002; Kochan et al., 2003; Schippers, Den Hartog, Koopman, & Wienk, 2003).

Moving from these considerations, the present study attempts to analyse the effect of diversity in teams on project performance. Specifically, this study focuses on past work experience diversity since experience plays a central role in models of work performance and behaviour (Schmidt, Hunter, & Outerbridge, 1986; Tesluk & Jacobs, 1998).
Consistent with the study conducted by Campbell (1990), there is no “theory of experience” and what work experience is remains an open question. Tesluk and Jacobs (1998) attempted to explore the issue faced by Campbell and developed a conceptual model to summarize the key facets of work experience, factors that influence its development, and direct and indirect outcomes. Following the findings by these previous studies, this paper investigates the following research question: what are the effects of the variety of past experiences accumulated by individuals within project-based industries on current project performance?

The main idea is that careers in project-based industries frequently do not take place within firms; instead, individuals move among different temporary projects. Within project-based industries, individuals (henceforth, team members) receive recognition from the market and they build their competences and capabilities on their previous experiences. As a matter of fact, experiences allow team members to translate the information acquired within a project into better choices and solutions for the future roles (Finkelstein & Hambrick, 1996). Most previous studies, however, focused on individuals’ career backgrounds to be a current trait brought with them from previous experiences, without examining how different careers brought by several individuals can be combined for a better performance at a team level. This paper aims at overcoming this issue, by focusing on the analysis of work experience diversity in teams and providing a systematic representation of the effect on the current project performance.

This research aims at giving a twofold contribution to the literature on creative organizations and team diversity. First, by exploring the relationship between work experience diversity and team performance, this research extends scholars’ comprehension of work experience as a central element in models of work performance and behaviour. As a matter of fact, building on other studies, this paper aims at giving theoretical attention to the concept of work experience. Second, by analysing the relationship between work experience diversity and team performance, this paper responds to calls for more research into those characteristics (job-related) that have a major and direct impact on team performance (van Knippenberg & Mell, 2016).

The creative context selected to develop the research is the US music industry since creative workers tend to move among temporary projects to build their careers. The final output (an album) is performed by multidisciplinary teams composed of specialists from several professions grouped in temporary project teams, which provide high level of diversity in terms of work experience.
More specifically, this research analyses the experience of people who worked in the US music industry from 2000 to 2014 on 980 albums to provide a longitudinal dimension of experience patterns. The music industry has been chosen only infrequently as empirical setting for examining team performance in creative industries (Bougon, Weick, & Binkhorst, 1977). Therefore, our study adds a relatively less-examined context to the existing work on creative teams.

2.2 Theory and hypotheses

2.2.1 Team diversity

Diversity is continuously increasing within organizations because of the need of acting inside and outside one’s primary domain of work (Susan E Jackson, May, & Whitney, 1995). Simultaneously, organizations are implementing work teams with greater frequency to integrate the knowledge of workers across broad specializations (Perretti & Negro, 2007; Sundstrom, Demeuse, & Futrell, 1990). By combining two of the most significant phenomena in the work place, diversity and work teams, organizations are attempting to achieve more innovative and higher performance.

Understanding the complexity of these phenomena is important for those researching how diversity among group members affects group outcomes. Recent reviews on the effects of diversity in work groups (Susan E Jackson et al., 1995; Milliken & Martins, 1996; van Knippenberg & Schippers, 2007) have contributed to our understanding of diversity in work teams, developing a vision of diversity as a “double-edged sword”. Moreover, studies focused on diversity in work groups have revealed that it can result in higher quality solutions together with a decrease in team cohesion (McLeod & Lobel, 1992; Milliken & Martins, 1996; Oreilly, Caldwell, & Barnett, 1989). Nonetheless, other studies on this topic have showed inconsistency when compared to the pre-existing results (Cohen & Bailey, 1997). Therefore, no clear and conclusive results are accounted for.

Team diversity mirrors the level of differences among the people working together in a team. Diversity can be given by differences connected with demographic characteristics (age, gender, ethnicity), job-related characteristics (background, tenure, industry experience) and with psychological traits, such as personality, attitude or even values.
The differences related to demographic variables can be linked to team performance both in a positive and negative way (Tsui & Gutek, 1999; van Knippenberg, De Dreu, & Homan, 2004). The concept that demographic diversity can improve the performance of a team derives from the informational diversity-cognitive resource perspective which points out that distributional differences can be used as indicators of available knowledge and opposing points of view (Cox & Stacy, 1991; Williams & O'Reilly, 1998). Therefore, a more diverse team, in terms of demographic variables connected to the task, can prove more successful than a homogeneous team since it can provide different perspectives and a wider spectrum of knowledge.

Following previous studies on group diversity, Pelled (1996) proposed the distinction between high job-related and less job-related work group diversity, where job relatedness is the degree to which the considered attributes include experiences, skills and perspectives which can be connected to cognitive work tasks. Since job-relatedness can describe whether a type of diversity is capable of increasing performance, it is deemed to be potentially important. Diversity attributes, such as functional, educational, or industry background, capture experiences and perspectives significant for the tasks most work groups perform (Pelled, 1996). Consequently, some scholars (Milliken & Martins, 1996; Sessa, 1995) proposed that this type of diversity has a significant and stronger impact on the task-relevant group processes and performances. Differently, less job-related diversity attributes such as age, gender and race register a minor impact on the group’s task (Pelled, 1996; Pelled, Eisenhardt, & Xin, 1999). Although these attributes may reflect a broader set of experiences, they are expected to be less related to the work being performed. As suggested by Zenger and Lawrence (1989), “Although age similarity may produce similarity in general attitudes about work... such attitudinal similarity is unlikely to have much direct bearing on conversations about technical work.” Instead, these attributes form the context of more general social relationships and are less directly associated with team objectives (Sessa, 1995).

There is some empirical support for Pelled’s classification. For example, a study conducted by Simons, Pelled, and Smith (1999) argued that high job-related elements of diversity, such as the educational level, company tenure and perceptions of environmental uncertainty, interact with debate to influence top management. On the contrary, elements that are less job-related, such as age diversity, do not achieve similar outcomes. Therefore, debate can impact team outcomes especially when it is based on a set of different experiences and points of view relevant to tasks, rather than on other differences.
Building on these considerations this study focuses on high job-related characteristics of diversity and specifically on work experience.

2.2.2 Work experience

Past and current life experiences are continuously affecting the development and the shape of knowledge, skills, attitudes, ambitions, beliefs, and behaviors. But because experiences involve a continuous flow of events across different aspects of our lives, any systematic development of the construct must start with a specific area of interest (Quinones, Ford, & Teachout, 1995). For this reason, researchers who want to investigate the concept of work experience should focus on more delineated domain of life events meant as a subset of life events that are most directly and immediately relevant to work attitudes, motivation, and performance and other issues of interest to organization studies.

Within the industrial-organizational psychology literature, work experience has been used almost interchangeably with tenure and seniority (Hofmann, Jacobs, & Gerras, 1992). They are closely related in that each contains a time element that refers to an individual’s length of service in a position or an organization. Specifically, seniority contains two dimensions: one that is based on length of time in various organizational units or roles (e.g., organization, department, job) and a second that defines the negotiated entitlements and decisions (e.g., decisions, promotions, and recall decisions) that are determined based on length of service. This first dimension, tenure, can be described as time in various organizational units or roles (e.g., managerial tenure, job tenure, occupational tenure). Experience, likewise, contains a time-based aspect in that it connotes acquisition over time of job-related knowledge, skills, and abilities (Lance, Hedge, & Alley, 1989). In fact, researchers have often tended to view experience and tenure as synonymous (McDaniel, Schmidt, & Hunter, 1988; Schmidt et al., 1986; Schmidt, Outerbridge, Hunter, & Goff, 1988).

Even if tenure and work experience share some characteristics, there are notable differences among the two concepts. One problem with the definition of tenure is that the amount of time spent in a job, in an organization or a department, does not have the same implications for all people. As a matter of fact, some people may improve their performance over time while others may get worse. Some other people may change less systematically (Hofmann, Jacobs, & Baratta, 1993; Hofmann et al., 1992). Therefore, solely time-based measures cannot take into consideration these interindividual differences. This is because conceptualizing work
experience as tenure does not consider those important events that happen over a career such as opportunities to perform a task or duties (J. K. Ford, Quinones, Sego, & Sorra, 1992) as well the nature or quality of specific experiences (DuBois & McKee, 1994; McCauley, Ruderman, Ohlott, & Morrow, 1994). Therefore, the concept of tenure seems to be too restrictive if used as the solely feature used to describe the experience of an individual.

Building on this consideration Tesluk and Jacobs (1998) propose a conceptual model to summarize the key facets of experiences, factors that influence its development, and direct and indirect outcomes. They found that experience depends on three core components. The quantitative component includes two of the three measurement modes described by Quinones et al. (1995). The first is a time-based measure of experiences which reflects the traditional reliance on length of time and working on a task or in a job or in an organization. The second measurement contained in the quantitative component is an amount measure. Many studies have recently supplemented tenure with measures of the number of times that a task or duty has been performed (J. Ford, Sego, & Teachout, 1991; Lance et al., 1989; Vance, Coover, MacCallum, & Hedge, 1989). The advantage of this type of measure is that it reflects important qualities that impact work experience, such as opportunity to perform and practice.

In contrast to the quantitative aspects, the qualitative component of work experience can be described by the specific nature of work situations that contribute to the richness of the experience construct, such as the variety and breadth of tasks and responsibilities performed in a job, the types of challenges encountered in an assignment, or the complexity of a task (DuBois & McKee, 1994; McCauley et al., 1994). These aspects are very context specific because certain modes are more appropriate for relating work experience to particular variables of interest.

The final component of experience in the model involves the interaction between qualitative and quantitative components. It can be described in terms of various types of acquired work experiences that depend on a particular dimension of time. One mode, density, is intended to capture the intensity of experiences; the other mode, timing, refers to when a work event occurs relative to a longer sequence of successive experiences such as those that characterize a career (Quinones et al., 1995).

This study focuses on the analysis of the first core component of work experience, the quantitative one.
2.2.3 Work experience diversity and performance

The distinction between new-timers and old-timers is particularly relevant in temporary structures with intended short life spans where teams continually cycle and recycle (Chen, 2005; Hackman, 2002; S. E. Jackson, Stone, & Alvarez, 1992). Old-timers are people who have been in the industry long enough to know their jobs and to possess business and creative knowledge to develop products accepted by the market. People with a long industry history are particularly valued as they have historical knowledge. This knowledge includes personal experiences of what has worked and what has failed in the past and knowledge about who has worked on specific projects and would thus be likely to know what was needed (Perretti & Negro, 2007).

New-timers are new to the industry and they do not possess sufficient knowledge to do their job. New-timers are expected to obtain the knowledge for their tasks through self-learning, which, at least initially, involved accessing the knowledge of old-timers, within the different project-based industries.

New-timers tend to enhance exploration and innovation and to improve the chances of finding new, creative solutions to tasks (Horwitz & Horwitz, 2007). Old-timers, on the other hand, tend to increase exploitation, inertial behaviour, and resistance to new solutions (March, 1991).

Team members with a similar past work experience might be able to solve issues and challenges faced during the process, especially when all individuals are experienced and they possess task-relevant knowledge acquired through prior experiences. As a matter of fact, prior experience in the industry may bring about positive effects on job performance because old-timers perfectly know the institutional norms and the cognitive mechanisms that influence the roles within the new organizational context (Dokko, Wilk, & Rothbard, 2009). Likewise, homogenous teams composed by old-timers may be more appealing to consumers because these individuals act as a recognition factor to the product that has been realized.

Similarly, teams composed by individuals with zero or less experience might be able to positively perform because of their ability to explore and find out new solutions to established practices. Therefore, homogenous teams composed solely by new-timers may bring about positive effects on job performance because of their capacity to avoid status quo commitment (Miller & Shamsie, 2001). Likewise, homogenous teams composed by new-timers may be more appealing to consumers because these people provide novelty through their fresh faces.
On the other hand, work experience heterogeneity creates conflicts between team members who might not be able to find the optimal balance between familiarity and novelty to approach a creative task. Likewise, the range of skills and perspectives offered by diverse past work experience may reduce the probability that a mixed team will be appealing to consumers because market might be confused from the combination of experienced members and fresh faces working together on the project. Hence, the following is hypothesized:

**Hypothesis 1 (H1). Within a project team, work experience diversity expressed in terms of time negatively affects the current project performance.**

The two main characteristics of project-based organizations are their temporary nature and their blurred boundaries. Thus, individuals are selected and assembled on a project-based logic, and their experiences add a value when they produce positive implications on project performance. Consistent with previous studies, projects can be considered as forms of organization that provide opportunities to perform or practice (Bechky, 2006; Obstfeld, 2012).

Opportunity to perform is defined as the extent to which an individual is provided with or actively obtains work experiences relevant to the tasks for which he or she was trained. Thus, the opportunity to perform focuses on a subset of all the work experiences obtained by a person after training. Opportunity to perform is not simply a function of the assignment of tasks by a supervisor to trainee. Indeed, it also includes the active efforts of trainees to obtain work experiences relevant to the tasks for which they were trained. According to Quinones et al. (1995), amount measures of work experience refer to numerical counts such as the number of times a task was performed, the number of jobs held in an organization, the number of organizations a person has worked for. Similarly, amount measures of work experience in project-based industries may refer to the number of different projects accomplished since the first involvement with a project.

Flood et al. (1997) demonstrate that top management teams composed by individuals who performed in the same industry and job for a long time, lose the pioneering attitude, defined as the capacity of an organization to develop new products ahead of rivals. Similarly, creative workers that spent their careers on one or few projects, may perform worse than those who joined a greater number of teams. Since project-based organizations encompass work...
experiences of temporary workers, prior experience accumulated in projects accomplished by these individuals may affect the variety of ideas and knowledge available when a new project team is assembled. Thus, teams composed by individuals with a greater industry-specific experience, measured by the number of projects completed, might be able to develop better ideas, products or services compared to rivals. This means that, in absolute terms, the opportunity to perform can positively affect project performance due to a greater attitude of team members.

However, when teams are composed by individuals with a similar high number of projects accomplished in the industry, the positive effects of the individual diversity of experiences brought by the team members may decline, because an excess of diversity may hamper the likelihood that prior experiences in the industry provide task-relevant knowledge and skills that can be transferred to the new job. As a matter of fact, an excess of industry experimentation may cause a lack of specialization without providing any relevant knowledge and skills for the new task, which may negatively affect current project performance (Adkins, 1995; Dokko et al., 2009). Likewise, teams composed by individuals with a similar low number of projects accomplished in the industry might perform negatively as well in the current project, because of the lack of industry-specific experience needed to develop products, services or ideas superior to rivals.

On the other hand, heterogeneous teams composed by individuals who have accomplished a different number of projects in the industry may enhance current project performance, because those members who had a greater opportunity to perform and practice in the industry can compensate the lack of knowledge about the industry experienced by those people who had accomplished just few projects in their careers. Hence, the following is hypothesized:

**Hypothesis 2 (H2).** Within a project team, work experience diversity expressed in terms of amount positively affects the current project performance.
2.3 Methods

Data collection and sample

Creative industries are mainly organized around projects, which allow to reach temporary advantages in product markets. Accordingly, albums’ productions are normally realized on a project basis with a duration of several months and with highly customized and project-specific results. Additionally, each music production is based on a modular structure of occupational roles, which allows temporary teams to be assembled (Bechky, 2006). Consequently, each project team can be considered as a specific type of temporary organization formed by flexible workers. Flexibility is a relevant feature for those working in the creative industries since they experiment with different patterns both in terms of situations to solve and of opportunities to face. Flexibility represents a valuable characteristic that individuals need to advance in their career in project-based industries.

Roles are often organized hierarchically within projects, with project management roles distinguished from technical ones. The roles of producers and performers are the most relevant in music projects. Producers oversee and manage the sound recording and production of a band or performer’s music, which may range from recording one song to recording a lengthy concept album. He or she may gather musical ideas for the project, collaborate with the artists to select cover tunes or original songs by the artist/group, work with artists and help them to improve their songs, lyrics or arrangements. Performers are those people who sing live in front of an audience and make recordings for broadcast, CD or download. They interpret music by using their knowledge of voice production, melody, harmony and rhythm. They may sing alone as a soloist, work with a group of musicians or sing with others in a choir. Producers and performers are generally considered “above the line” critical roles, whereas technicians such as sound engineers, arrangers, lyricists are considered “below the line”. The final output of each music production is an album, a collection of music tracks that can be individual songs or instrumental recordings.

The present study analyses the characteristics of people who worked in the US music industry from 2000 to 2014 by leading the albums’ productions within that period. For each finalized project, the following information was collected: 1) the complete composition of the temporary team in terms of the main people involved in the album production, 2) the complete prior experience history of each team member before entering in the current project both in terms of
years spent in the industry and in terms of number of projects accomplished, and 3) project performance in terms of albums’ rankings. The sample includes 980 albums.

Data used in this study where retrieved from different sources, including: 1) MusicBrainz, a publicly available source to collect information about albums’ productions, 2) AllMusic, an online music guide service website who collect discographic information on artists working in the music industry, and 3) Billboard, which is the most powerful and authoritative database to collect data about the music charts for the US music industry (Anand & Peterson, 2000; Bhattacharjee, Gopal, Lertwachara, Marsden, & Telang, 2007; Gopal, Bhattacharjee, & Sanders, 2006).

2.4 Variables

Dependent variable

One of the most common approaches to evaluate the success of a project is considering whether the project met its time and budget goals (Shenhar, Dvir, Levy, & Maltz, 2001). This conceptualization, even if useful, is not adequate for creative projects. Within creative industries, project success depends on artistic – i.e., awards – as well as commercial performance – i.e., rankings, and sales (Caves, 2000; Delmestri, Montanari, & Usai, 2005). Although albums are conceived with the business perspective in mind, their utility remains uncertain until they are purchased and experienced by the market. Thus, consumers play a pivotal role at determining the success of a creative product. For this reason, current project performance is here measured in terms of rankings and specifically, we consider the Billboard 200 charts which ranks the 200 most popular music albums and EPs in the US. This chart is published weekly by Billboard magazine and it is based on sales both at retail and digital channel. On-demand streaming is also included in Billboard 200 tabulation. Previous studied have been using the number of weeks in charts as a variable to analyze when considering the Billboard rankings (Bhattacharjee et al., 2007; Klein & Slonaker, 2010). Accordingly, the same measure has been adopted in this study.

Independent variables

The independent variables evaluate the variety of patterns followed by team members along two dimensions of the work experience construct: length of experience within a specific
project-based industry, measured by the number of years that a team member has been active in the industry since his/her first involvement with a project; amount of experience within the same project-based industry, measured by the number of projects accomplished by a team member since his/her first involvement with a project.

Since this study focuses on the project level of analysis, the individual information about team members have been aggregated to the team level. Therefore, both the number of total years spent in the industry and the total number of projects accomplished by the team members for each team have been calculated.

To account for the appropriate measure of diversity, this study follows the approach by Harrison and Klein (2007). They define diversity as the distributional differences among team members on a common attribute. More specifically, they propose three distinctive types of diversity: separation, variety, and disparity. The former considers differences in positions and opinions among members within an organizational unit. In contrast, diversity as variety entails differences in information, experience, and knowledge among members, reflecting access to particular or unique sources of knowledge. Finally, diversity as disparity shows “differences in concentration of valued social assets or resources such as pay and status among unit’s members” (Harrison & Klein, 2007).

According to the developed conceptual model, both work experience diversity, expressed in terms of time, and work experience diversity, expressed in terms of amount, are defined as variables that reflect the distance between team members based on the length of time they have worked in the industry and on the amount of projects accomplished. Therefore, the two measures of diversity were calculated using the coefficient of variation which captures the asymmetry that is fundamental to the conceptualization of diversity as disparity. Thus, to assess work experience diversity expressed in terms of time within teams, each team’s standard deviation of years of experience has been divided by the team’s average number of years of experience. Similarly, to assess work experience diversity expressed in terms of amount within teams, each team’s standard deviation of projects completed has been divided by the team’s average number of projects completed (Allison, 1978).

Control variables

In addition to the diversity of prior experiences for which effects are hypothesized, a number of other factors may affect project performance. Accordingly, control variables were used to
account for these factors. First, despite massive disruption and upheaval over nearly two decades, the recorded music industry remains highly concentrated at the top. According to data released by independent label group WIN, an astounding 62.4 percent of all music sold, downloaded, and streamed worldwide comes from just three major labels — Sony Music Entertainment, Warner Music Group, and Universal Music Group — in 2016. In the United States, that figure is 64%. Thus, this variable has been considered to have an impact on project performance because the major labels alone release about 30,000 albums annually and only a small fraction of the albums released are profitable and achieve the success indicated by appearing in the top charts. Indeed, a binary variable has been included in the study. Its value is set to 1 if the distributing label for a given album is one of the major companies operating in the music industry. A value of 0 denotes independent and smaller music labels. Second, as shown by Bhattacharjee et al. (2007), success of music albums might also be impacted by their time of release. Specifically, industry figures show that a large number of albums are released during the Christmas holiday period. To control for the so-called Christmas effect, a binary variable has been included. Its value is equal to 1 if the album has been released in November or December, 0 otherwise. Third, the likelihood of entering in authoritative rankings might also depend on music genre on the premise that the artistic content of an album might vary across genres. For example, one could argue that a country album is less likely to enter in the rankings because country music is typically less popular among end-users. Thus, this study considers a binary variable that is equal to 1 if genre is ascribable to popular music (pop and rock); 0 otherwise. Similar studies on other creative industries have considered this variable as control (Cattani & Ferriani, 2008). Fourth, research on group behavior and performance has established that group size matters in order to explain group processes and outcomes (Goodman, Ravlin, & Argote, 1986). For this reason, a control for team size has been included since larger teams are typically associated with larger projects and it is important to control for any possible relationship between size and performance. Fifth, the role of stars in the performance of their team or organization is a general theme in the academic literature on group dynamics. The prevalent view is that, all else being equal, groups with more talented individuals should outperform groups with less talented members. For example Tziner and Eden (1985), who study military task crews, show that group productivity is positively related to the summed abilities of the group member. Groysberg, Polzer, and Elfenbein (2011), who examine Wall Street equities research analysis, find that groups benefit from having members who achieve high individual performance. In the music industry, a star’s artistic reputation is primarily
revealed through awards and nominations and it represents a sign of quality for audiences, executives, the media, and other constituencies (Wallace, Seigerman, & Holbrook, 1993). Thus, it is a likely predictor of the star’s future project performance. Therefore, this study controls for the stars’ artistic reputation measuring the number of awards and nominations received by each person in our dataset before the current project. Data about awards and nominations, differently evaluated, are collected from The Recording Academy source, which is the association in charge to organize the Grammy Awards ceremony. Finally, a control for the effect of all unobserved factors (e.g., macroeconomic trends, changes in taste or fashion, and other factors that might affect the music industry) has been included in the study by considering dummies for each year of the study period into the model (Cattani & Ferriani, 2008).

2.5 Results

The descriptive statistics and correlations of the variables used in this study are reported in Table 1. The number of albums observed is N = 980.

[Table 1 here]

The results of the ordinary least squares (OLS) regression methods are reported in Table 2.

[Table 2 here]

Model 1 of Table 2 reports the effect of the control variables on the dependent variable (weeks in charts). The major variable is positively and significantly (p<0.001) associated with the weeks in charts. Specifically, the results confirm that if an album is produced under the control of one of the three major companies operating in the industry, it will last longer on the charts than an album produced independently. This is in line with the results obtained by previous studies which found that independent labels, hampered by the lack of resources to reach wider audiences, tend to operate in niche segments and thus, because of a lower exposure, tend to last shorter on the charts (Spellman, 2006; Strobl & Tucker, 2000). Genre is positively and significantly (p<0.001) associated with weeks in charts. Pop and rock albums will last longer on the charts because they are more likely to appeal a broader audience and thereby generate more sales than less popular genres (Hsu, 2006). Star reputation is positively and significantly (p<0.001) associated with weeks in charts. This finding confirms the idea that teams with more accredited talented individual members will outperform groups with less talented members.
(Groysberg et al., 2011; Tziner & Eden, 1985). Christmas effect is positively and significantly (p<0.05) associated with weeks in charts. This means that an album released during the Christmas time does perform better than an album introduced in the market in another period (Bhattacharjee et al., 2007). Finally, also team size is positively and significantly (p<0.01) associated with weeks in charts. The result is consistent with previous studies which found that large teams may reach higher level of performance than small teams especially when they operate in less stable environment (Haleblian & Finkelstein, 1993).

To test Hypothesis 1, the negative relationship between work experience diversity expressed in terms of time and weeks in charts, was first evaluated in model 2. More specifically, model 2 shows a significantly (p<0.05) negative coefficient for work experience diversity expressed in terms of time, which supports H1. This finding is consistent with the idea that heterogenous teams in terms of years spent in the industry, perform worse than more homogeneous teams.

Similarly, model 2 analyses how work experience diversity expressed in terms of amount affects weeks in charts. The result shows a positive and significant effect (p<0.10), which supports H2. This finding is consistent with the idea that heterogeneous teams composed by people who had different opportunities to perform in the industry, perform better than more homogeneous teams.

2.6 Conclusions and implications

The diversity concept is increasingly prominent in studies related to team composition and team performance. Prior researches have investigated different aspects of diversity in teams (Cox & Stacy, 1991; Pelled, 1996; Pelled et al., 1999; Sessa, 1995; Simons et al., 1999; Tsui & Gutek, 1999; van Knippenberg et al., 2004; Williams & O'Reilly, 1998), but they have scarcely obtained consistent results. Moving from these consideration, this study contributes to tracking individuals’ experiences within the context of creative project-based industries, filling a notable gap in diversity studies. More specifically, the paper analyses how past work experience diversity may influence current project performance. To address this issue, this study investigates past work experience measures of diversity, both the length and the amount of experiences by team members working in a specific project-based industry. The findings suggest that heterogeneous teams composed by members who show a variety of experiences in terms of length of career, are less likely to perform positively in the current projects. On the contrary, more heterogenous teams composed by individuals who accomplished a different
number of projects in the considered project-based industry, are more likely to affect positively
the current project performance.

The presence of this negative relationship between work experience diversity expressed in
terms of time and current project performance reveals that creative workers tend to be
extremely different regarding their careers’ length. Indeed, old-timers and new-timers team
members have a different approach to solve issues faced in temporary organizations. The
former tend to increase exploitation, inertial behaviour, and resistance to new solution. The
latter tend to enhance exploration and innovation to improve the chances of finding new,
creative solutions to tasks. In addition, old-timers act as a recognition factor for the realized
product and this makes their presence more appealing for consumers. However, also new-
timers may be appealing for consumers because they provide novelty to products through their
fresh faces. Therefore, a mixed team composed both by old-timers and new-timers reduce the
probability of being appealing to consumers because market might be confused from the
combination of different range of skills and perspectives.

The positive relation between work experience diversity expressed in terms of amount and
current project performance reveals that creative workers tend to perform better together if they
have substantial differences in terms of projects accomplished in the past. Indeed, when teams
are composed solely by individuals with an excess of industry experimentation, they may suffer
of a lack of specialization which, in turn, may negatively affect the current project performance.
Similarly, when teams are composed solely by individuals who accomplished a similar low
number of projects in the project-based industry, they may negatively affect the current project
performance because of their lack of knowledge and industry experience. Therefore, a mixed
team composed by individuals with different backgrounds in terms of amount of experience,
may outperform more heterogeneous teams because of the right balance of knowledge and
experience provided by team members.

This study has several theoretical implications. First, this research addresses the literature on
team diversity. As these findings show, work experience diversity may also occur with regard
to amount-based measures. Prior literature has overwhelmingly emphasized tenure diversity
without any or few references to other dimensions of the work experience construct (Lance et
al., 1989; McDaniel et al., 1988; Schmidt et al., 1986; Schmidt et al., 1988). Gaining
knowledge, skills, and experiences across different projects within the same project-based
industry may produce positive performance implications for new projects. This finding is

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subject to copyright restrictions
mainly driven by the possibility to transfer the information and the capabilities acquired from previous job experiences to new roles.

Second, previous research has emphasized the importance of combine new-timers with old-timers in order to increase the likelihood to perform positively in current and future projects (Meiseberg & Ehrmann, 2013). This study, presenting opposing results, provides an innovative perspective to this phenomenon by analysing a less-examined project based industry to study creative teams.

2.7 Limitations and future research

The study suffers from obvious limitation that represent opportunities for future research. The distinctive nature of the industry selected to conduct the analysis provides some doubt on the generalizability of the findings; therefore, the results should be interpreted with caution outside the music industry. In the setting chosen, organizations are assembled and disassembled in short period of time. Project organizations operate under highly uncertain and volatile circumstances, and it is under these conditions that diversity conveying experiences and knowledge absorbed in previous jobs becomes critical in fostering creativity.

The definition of current project performance used in this paper focuses on the commercial aspect of the creative effort by the consideration of albums’ rankings. Other definitions model creativity as a process rather than as an outcome by emphasizing an individual’s engagement in a creative act (Drazin, Glynn, & Kazanjian, 1999). Researchers interested in creative processes rather than outcomes need to adopt different methodological approaches to deal effectively with meanings and cognitive frames, such as in-depth case studies, participant observation, or interviews.

Despite the adopted longitudinal research design, reverse causality might represent a threat to the findings of this study. It is clearly plausible to assume that highly creative accomplishments could themselves push music professionals to work together repetitively, thus resulting in the endogenization of one or more structural properties of the network created in the industry. To overcome this issue, future research should include qualitative research, which provides a better understanding of how project teams are formed.

A further limitation relates to the exclusive use of the quantitative component of the conceptual model proposed by Tesluk and Jacobs (1998) on work experience. Future research should
include both the qualitative and the interaction component to provide a more exhaustive comprehension of the work experience diversity on project performance.
2.8 References


### 2.9 Tables

#### Table 1

**Correlations and descriptive statistics**

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<th></th>
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<th>2</th>
<th>3</th>
<th>4</th>
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<th>6</th>
<th>7</th>
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<td>1</td>
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<td>20.16</td>
<td>25.19</td>
<td>1</td>
<td>139</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>2</td>
<td>Work experience diversity (time)</td>
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<td>0.83</td>
<td>0</td>
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<td>-0.03</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>Work experience diversity (amount)</td>
<td>1.65</td>
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<td>0</td>
<td>5.74</td>
<td>-0.01</td>
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<td>0.14***</td>
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<td>-0.02</td>
<td>1</td>
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<tr>
<td>5</td>
<td>Genre</td>
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<td>0.01</td>
<td>0.14***</td>
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<td>3</td>
<td>144</td>
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<td>0.01</td>
<td>-0.04</td>
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<td>0.06+</td>
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N = 980

* p<0.10, * p<0.05, ** p<0.01, *** p<0.001

#### Table 2

**Results of regression analysis: weeks in charts**

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<th>Std err</th>
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<th>Std err</th>
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<td></td>
<td>Yes</td>
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<td>4.77**</td>
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<tr>
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<td>5.13**</td>
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</tr>
<tr>
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<tr>
<td>Christmas effect</td>
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<td>6.32**</td>
<td>2.21</td>
</tr>
<tr>
<td>Team size</td>
<td>0.19**</td>
<td>0.06</td>
<td>0.21***</td>
<td>0.06</td>
</tr>
<tr>
<td>Constant</td>
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+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001
CHAPTER III

To be (a techno-fan) or not to be? How self-perception dilemmas of traditional roles impact innovation in the cultural industries

Abstract
In the last decade, technological innovations have impacted the cultural industries in unprecedented ways. Not only new technologies provide fresh opportunities for the promotion of cultural heritage, they also provide brilliant solutions for audience engagement. Among the cultural industries, some important results have arisen from museums and historical and cultural heritage sites in which numerous examples flourish with the use of ICT to provide a more comprehensive experience for visitors. It is common knowledge that technology has a positive impact on demand; its impact on supply, however, is less clear. Cultural organizations are not always ready to adopt technological innovations, as personnel may lack the required competencies. For example, tour guides are a category that may face the biggest challenge. This challenge may result in a better definition of their roles or, on the other hand, tour guides may not be able to position themselves in the new technology-driven competitive scenario. What would the impact of these opposite outcomes be, in the cultural industry, in terms of audience engagement and performances? Our paper addresses this question by analysing the self-perceptions of a panel of tour guides who are challenged by technological innovations. Results show that different clusters of tour guides can be detected and that different scenarios may be envisioned.

Keywords: digital culture, technology acceptance, tour guides
3.1 Introduction

Since technological innovations and digitization have hit old and new economic sectors pervasively, our lifestyles - as citizens, as consumers, and as economic actors - have been revolutionized. Indeed, digital technologies and applications have not spared traditional sectors, such as the cultural heritage industry. Among all possible cultural-creative industries, technological innovations have broadly impacted museums and other historical and cultural heritage sites, in which numerous examples about the use of ICT in providing a more inclusive experience to visitors flourish (Parry, 2013). The creation, the dissemination, and the valorisation of cultural outputs can benefit from a broader and wiser usage of digital technologies (Marty, 2007). Therefore, the cultural industries require new production and consumption processes and modalities. Thus, it is important to foster creative and innovative approaches, including development of new tools and methods that can make the most of consumption and valuation of cultural-creative products and experiences.

This challenging scenario requires that old wisdom must be combined with new skills. Consequently, redefinition of roles and capabilities might take place. Public and private actors should coordinate their actions and interact with each other. In fact, considering technological innovation as an exogenous change and recognizing the emergence of new ways of conceiving cultural experiences, it becomes relevant to understand what new competencies are required to better perform. Accordingly, it is important to investigate the attitude to change of the people already in the sector to understand if they will resist the change or operate in favour of it. Moreover, in achieving this analysis, it is important to explore what role they envision for themselves and, in case of any resistance to change, what levers the Institutional actors can enforce to instil the renewal.

As far as cultural-creative industries are concerned, the wide spread of digital technologies allows easier and faster interactions between the audience and the cultural-creative artefacts. This challenges the role of intermediaries and redefines who is to be considered as expert. If, on one side, the digitization offers new opportunities for the valorisation of cultural heritage, on the other side it provides unprecedented challenges for the human resource team working in the sector. This is particularly critical in very traditional settings, such as museums and historical and cultural heritage sites where the conventional business models and the management criteria usually do not represent the most fruitful contexts to promote and/or facilitate the change. Starting from this consideration, the role of subsidized cultural
organizations in fostering creativity and innovation has been debated (Selwood, 2009). In the past, museums were conceived as static and uninterested in change and development. More recently, a growing pressure has mounted on creating an economic impact and certainly on increasing audience engagement. Creativity and innovation thus “pertain to a number of things including changes in institutions’ outlooks and management, if not the transformation of their profit-making capacity” (Selwood, 2009, p. 233). Such change advocates for a redefinition of the individual roles working in traditional cultural organizations, as individuals are a primary source of creativity and innovation (Pratt and Jeffcutt, 2009).

In our study, we highlight the impact of digital technologies in the redefinition of a very traditional role, such as that of the tour guide. The mediatory role of tour guides is important in linking the visitors to the cultural artefacts and to provide the cultural brokerage, i.e. providing the visitors with familiar idiom (Cohen, 1985). They are considered experts in the field and triggers to raise the interest of the public towards art and culture in general. In fact, not only they are perceived as the holders of the knowledge of art and the cultural value of artefacts, but they can convey the hedonistic value of culture consumption and raise the interest of the audiences and their engagement. Given their pivotal role in art and culture fruition for the public at large, tour guides cannot be exempt from technological changes, opening new opportunities for development as well as new challenges. In fact, tour guides can consider technology as a chance to reshape and empower their role or, on the contrary, they might not be able to redefine their role in the new technology-driven competitive scenario, and they may feel threatened of being replaced by technological innovation (Kramer, 2007).

Therefore, we aim at contributing from a twofold perspective: on one side, we contribute to the ongoing discourse about the future of cultural-creative industries by detecting the paths of evolution of central roles; on the other side, we attempt at highlighting what makes a “good” integration of cultural and creativity-based products, services, and processes with technological solutions to create high-value innovations and cultural enhancement in society as a whole.
3.2 Theoretical background

Digital resources have aroused particular interest because they are considered capable of attracting a wider audience (Corradini & Campanella, 2013; Kalay et al. 2007). Multimedia applications are becoming increasingly prominent and popular among the communication tools used in museums to help visitors know and understand the exhibits. These applications include: screens of different sizes (often touchscreens), interactive installations and portable devices, near field communication (NFC, Angelaccio et al., 2012), internet of things (IoT, Chianese and Piccialli, 2014), virtual and augmented reality (AR, Weber, 2014), whose costs have become more affordable. Compared to traditional communication tools (e.g. captions and text panels, guided tours), new technologies offer the possibility of extending the methods of access and information for the visitors, from the point of view of both the quantity and the quality (Marty, 2007; Smith & Iversen, 2014). In addition to text and images—usually used in cultural contexts—video, sound, and interactive tools can be proposed in simple, fast, personalized, and effective ways. In other words, innovation plays a crucial role in cultural industries, not only in terms of innovative outcomes, but also and foremost as it constantly introduces different experience goods (Peltoniemi, 2015). Hence, the use of new technologies as an integral element in the production of cultural offerings has gradually attracted interest in the literature of economics of culture and cultural heritage management (Marchegiani, 2017). Nevertheless, less attention has been paid so far to the organizational implications of cultural heritage digitization. This is particularly true when we consider the impact of new technologies on the skills, competencies, and abilities of the roles in cultural-creative industries (Marchegiani and Rossi, 2016). As innovation may stem from atypical recombination of elements from the tradition (Messeni Petruzzelli and Savino, 2015), it is important that conventional knowledge is combined with distant sources (Cannarella and Piccioni, 2011). Indeed, such a pervasive impact of technologies requires workers in the sector to develop technologically-related competencies. From this perspective, the adoption and use of technology has long been of wide interest in the managerial and organizational fields (Orlikowsky and Scott, 2008). It is no accident that recent research on technology has focused the interest on the process of enactment, which is related to how people interact with a technology in their ongoing practices and what their situated use of technology is (Orlikowsky, 2000). On the same vein, sociomateriality builds on the concept of sensemaking (Weick, 1995), as it enables a deeper understanding of the social construction of the technology implementation and of the ongoing use and change of technologies in the workplace (Leonardi and Barley, 2010). Sensemaking,
seen as the process through which people work to understand novel, unexpected, or confusing events (Maitlis and Christianson, 2014), is central in organizations and has a great impact on innovation and creativity (Drazin, Glynn, & Kazanjian, 1999; Hill & Levenhagen, 1995).

Pursuing and adopting new technologies is often difficult at an organizational and individual level. Behavioural, social, and cognitive forces underlie this phenomenon. Among them, identity is of particular interest, both at an organizational level (inter alia, Gioia et al., 2000; Tripsas, 2009) and at an individual level (Fishbein and Ajzen, 2011). As previously stated, among the actors that work in the cultural heritage sector, we focus on tour guides. The mediatory role of these subjects is important in linking the visitors to the cultural artefacts and to provide the cultural brokerage (Cohen, 1985). They constitute a bridge between the cultural organizations, which own and manage a given cultural asset, and the audience. Thus, they have a prominent role in cultural heritage valorisation as they contribute to delivering a full and comprehensive experience to the visitors. Although they are not integrated in the cultural organization, they belong to a network of relations, institutions, and actors that constitute a proper organizational ecosystem (Sicca & Zan, 2005). Their competencies are certified and they engage individuals or groups of visitors to enhance their cultural experiences. Therefore, the technology adoption and usage of the guides should have a direct impact on the valorisation of cultural heritage through ICTs. In fact, according to Bryon (2012), technological innovations contribute at increasing the demand of stories, and thus the storytelling ability of tour guides has become more salient. Their role as interpreters and intercultural communicators is stronger (Weiler & Black, 2014a), and their communicative ability supports their roles as experience brokers (Weiler & Black, 2014b).

However, the adoption of innovative technologies in any organizational context is not always straightforward and it can result in a less than smooth process. The literature flourishes with models that aim at deploying the determinants of technology adoption. One of the technology acceptance mainstream models is the Technology Acceptance Model (TAM), originally conceived by Fred Davis in 1989 and widely adopted in cultural sectors (e.g. Huan et al, 2013). TAM is an intentions-based model that aims at providing an explanation of the determinants of technology acceptance, capable of explaining user behaviour across a broad range of end-user computing technologies and user populations. TAM is based on the Theory of Reasoned Action (Fishbein & Ajzen, 1975) and it provides an explanation of the determinants of technology acceptance. Since its introduction, TAM has increasingly enjoyed wide acceptance.
and has proven to be a reasonably accurate predictor of both users’ intentions to use an information technology and of their system usage. Based on the original version by Davis and on subsequent works of Venkatesh & Davis (2000), we adapted the TAM including the following variables: Perceived Utility of technology (PU), Perceived Ease of Use of technology (PEOU), and Attitude towards technology (AT) (Figure 1).

We assessed AT through a cluster analysis to map the differences in the whole sample with respect to the guides’ attitude towards technology, and consequently offer a description of the profile of those who show a more prominent attitude. In fact, those people might play a crucial role in fostering the desired change in the cultural industries, and promote a better cultural experience for the audiences.

If the actual use of the technology takes place, a process of sensemaking can occur and the guides can experience satisfaction with respect to their role as redefined by technological innovation. Hence, the remaining variables of the adapted TAM are tested as predictors of the overall satisfaction of the tour guides who are reshaping their roles in the industry. More specifically, we set the following Hypothesis:

**Hypothesis 1 (H1): Both the perceived ease of use (PEOU) and the perceived utility (PU) of technology are positively associated with the satisfaction (S) of the tour guides regarding their role identity as redefined by technological innovation.**

In our study, we adopt a sensemaking-based perspective on technology adoption and use (Seligman, 2006; Schiavone et al., 2009). From this perspective, technological innovations may impact the guides’ identity in two directions: a) they may feel threatened by being replaced by the technology (negative sensemaking); or b) they can be positively challenged and view the new technologies as a chance to enrich their job (positive sensemaking).

We proxy the positive/negative sensemaking with the perceived utility of the technology. Connecting this to the TAM, as far as the PEOU is concerned, we believe that the facility in using the technology enhances the guides' satisfaction regardless of their attitude towards technology. In fact, when a technology is easy to use, its application in cultural contexts is straightforward. As far as PU is concerned, we posit that attitude towards technology mediates...
its effect on the guides' satisfaction, through the process of sensemaking. In fact, we hypothesize that positive sensemaking occurs in those tour guides who have a positive attitude towards technology. Indeed, their self-confidence in using the technology supports the redefinition of their role identity as mediators between the cultural artefacts and the audience. Therefore, the technology is seen as an instrument to enrich their job. On the contrary, we hypothesize that negative sensemaking occurs in those tour guides who have a negative attitude towards technology. Being role conservative, they perceive the technology as a substitute for their job and as a threat to their role identity, thus negatively impacting their satisfaction.

Therefore, with respect to the different AT that we detect in the different clusters, we differentiate the hypotheses as follows:

**Hypothesis 1a (H1a):** Considering the cluster of guides who present a more prominent attitude towards technology with respect to their role identity as redefined by technological innovation, both the perceived ease of use and the perceived utility of technology are positively associated with the satisfaction.

**Hypothesis 1b (H1b):** Considering the cluster of guides who present a more adverse attitude towards technology with respect to their role identity as redefined by technological innovation, the perceived ease of use of technology is positively associated with their satisfaction, whilst the perceived utility of technology is negatively associated with their satisfaction.
3.3 Methods

Data collection and sample

The present analysis has been designed and conducted through an on-line survey. To investigate the impact of technology on the self-perception of tour guides about the redefinition of their role in the cultural heritage field, a questionnaire has been developed and sent to the individuals working as official and recognized tour guides in the Italian museums and archaeological sites.

Before the administration of the survey, we carried out extensive exploratory research. Several in-depth, semi-structured interviews have been completed with relevant actors in the cultural heritage field, such as: museums’ directors; tour guides associations; managers of museums located in Rome; managers from the Italian Ministry of Cultural Heritage and Tourism. The interviews confirmed our preliminary hypotheses that the experts don’t see the technologies applied to cultural heritage as a limit for visitors. Rather, they think that these technologies could emphasize the role of tour guides, making the cultural experiences more innovative and interactive. They tend to perceive them as means through which museums can attract especially young audiences.

Subsequently, we developed a questionnaire consisting of 28 questions. It is divided into six blocks, each one exploring a particular aspect of the research.

3.4 Variables

Dependent variable

Satisfaction of tour guides regarding their role identity as redefined by technological innovation is assessed through one single item in the questionnaire: “Please indicate how the overall satisfaction regarding your role identity has been affected by the introduction of technological innovation in cultural experiences.” Responses were made on a five-point Likert-type scale ranging from “not at all satisfying” to “exceptionally satisfying.”

Independent variables

Perceived ease of use of technology by tour guides (PEOU) is measured by the following item: “Do you think easy to use technologies have a positive impact on cultural visits?” Responses
were made using a five-point Likert-type scale ranging from “not at all positive” to “extremely positive.”

Perceived utility of technology applied to cultural experiences (PU) consists of 4 items completed by the respondents. Responses were made on a five-point Likert-type scale ranging from “not at all agreed” to “completely agreed.” Cronbach’s alpha on this scale was .75.

Control variables

In addition to the variables of the adapted TAM, for which effects are hypothesized, a number of other factors may affect the overall satisfaction of tour guides regarding their role as redefined by technological innovation. Accordingly, control variables were used to account for these factors. First, we control for the technological capabilities of both the tour guides and the visitors. Then, we control for the promotion effort provided by the cultural institution, as a proxy of the organizational context. As a matter of fact, sensemaking impacts innovation according to the organizational context (Jay, 2013). Working in highly innovative organizations encourages people to engage in knowledge practices and readily make sense of unexpected changes (Drazin, Glynn, & Kazanjian, 1999). Thus, we posit that when the cultural institution actively promotes the use of innovative technology to enrich the cultural experience, the satisfaction of the tour guides is higher.

3.5 Discussion of the results

404 individuals returned the questionnaire, 22% of which are men, and 78% women. Most respondents are aged between 31 and 40 years (38%), and between 41 and 50 years (31%). The average age is 42.5 years with a minimum age of 21 and a maximum age of 77 years. In regards to the geographical distribution, 68% of the tour guides work specifically in Rome, 10% in another city of the Lazio region, and 22% in other Italian regions. 78% of the respondents work both in museums and archaeological sites, while 11% declared to operate exclusively in museums and another 11% just in archaeological sites. About the education background of the people involved in our study, 15% hold a diploma, 53% a graduate degree, and 32% a post-graduate degree.

Cluster analysis

We applied a cluster analysis using the software SPSS: this statistical technique allows to group
the analysed subjects (tour guides) on the base of the likelihood of values scored by a set of variables (called grouping variables). The exploratory Principal Component Analysis (PCA) is used to identify the grouping variables. We focused on the items of the questionnaire reported in Table 1. These items provide the opportunity to collect information on the following aspects: 1) the impact of technological devices on the cultural experience; 2) the impact of technology on the work done by tour guides.

The PCA analysis, being a statistical procedure that uses an orthogonal transformation to convert a set of observations of possibly correlated variables into a set of values of linearly uncorrelated variables called principal components, leads to a smaller number of artificial variables that account for most of the variance in the observed variables.

[Table 1 Here]

According to the Kaiser rule, we decide to drop all components with eigenvalues under 1.0 – this being the eigenvalue equal to the information accounted for by an average single item. Four components then remain explaining the 70.28% of the total variance in our original dataset (Table 2). We decided to test the Kaiser criterion by analysing the scree plot too (see Figure 2). In the Cattell scree test plot, as one moves to the right, towards later components, the eigenvalues drop and the curve makes an elbow when the drop ceases. According to the Cattell’s scree test, we should drop all further components after the one starting the elbow. Combining the results of both the previous analysis, we retained the four components as identified by the Kaiser rule. As reported in Table 3, the reliability test provides a Cronbach’s alpha of .603 that is acceptable given the exploratory nature of our developed constructs.

These components are then rotated using a varimax rotation that allows the retained factors to be correlated to enhance interpretability of the PCA solution. The 4 factors identified represent the underlying dimensions of the impact of technology on different aspects of our selected variables.

[Table 2 Here]

[Figure 2 Here]

[Table 3 Here]

To determine which variables are the most relevant for each factor, we focus on the eigenvectors of the variables for each component: the higher the eigenvector, the more the variable explains the factor itself. We associate each factor with those variables that have a
loading that exceeds 0.35 in absolute value and are statistically different from zero at conventional levels. Each identified variable has been used as being able to explain a single factor. Put in other terms, each variable is selected as a determinant for the dimension in which it presents the highest eigenvector (Table 4).

Considering that each dimension captures some aspects of the impact of technology in the cultural heritage field, the identified factors have been labelled according to the variables contained in each one (Table 5). *Innovating art* is the factor which explains the role of technology as a driving force to rethink art in the cultural heritage field. Indeed, this factor includes all those variables mirroring the positive impact of technological changes on cultural experiences. *Dark side of innovation on art* is the factor associated with all those variables that explain the negative impact of technology on the artistic intrinsic value of the work of art. For instance, variables in this factor express how technology tends to stand above art and trivialize its meaning. *Innovating cultural roles* explains the positive impact of technology on the role covered by those people working in the cultural heritage field. This component reflects the role of technology as an enhancer of opportunities provided to tour guides during the execution of their tasks. *Dark side of innovation on tour guides* explains the negative impact of technology on the role covered by those people who operate in the cultural heritage field. As a matter of fact, this factor is associated with those variables that explain how technology limits and makes irrelevant the competencies of tour guides during the cultural experiences.

We then conducted a hierarchical clustering analysis to identify the critical features of homogeneous individuals and intergroup differences. A set of clustering criteria were carefully considered to select the most appropriate one. We finally decided to apply a hierarchical method, and in particular the Ward’s method. Agglomerative hierarchical algorithm starts with $n$ cluster, where $n$ is the number of observation. The distance between observations is calculated and the two closest points are merged into a cluster. The process iterates until all observations are included in one cluster. Distances among clusters were measured using the squared Euclidean distances.

Four clusters emerged from the statistical analysis. The statistical criteria adopted for settling down a four-clusters solution seem to be confirmed by the analysis of the dendrogram reported
in Figure 3.

[Figure 3 Here]

As a validity check we verified that the results provided by the Ward’s method were similar to the cluster solutions produced by the complete linkage’s methods, in terms of cluster centroid. The dendrogram in Figure 3 shows the hierarchical clustering obtained using the method previously described. The vertical axis represents the observations and the clusters; the horizontal axis measures the distance between clusters. It emerges the existence of three clusters: each cluster takes in 158, 115, 67 and 64 tour guides, respectively.

Table 6 shows the analysis of variance between clusters and within cluster (Cluster means square and error mean square), \( F \) value and \( P \) value (Significance): the results show that all clusters are statistically different from each other for all the variables with a significance level of 99%. From Table 6 we can also assume that the variable “dark side of innovation on tour guides” is influencing the profile of clusters the most (\( F=227.73 \)), while “Innovating cultural roles” is the least influencing variable.

[Table 6 Here]

The distinct characteristics of the tour guides belonging to the four clusters are summarized in Table 7 and described below:

- Tour guides belonging to cluster 1 are the youngest in our sample with an average age of 41 years old. They have been working in the industry for 9 years and for this reason, they are the least experienced compared to the other groups. Their attitude towards technology is extremely high with an average value of 3.62 out of 5. From Table 8 we can also postulate that cluster 1 is very close to both factors 1 and factors 4, respectively innovating art and innovating cultural roles. Then, tour guides in cluster 1 are those who conceive the digital technologies as very promising in the cultural industry both regarding the value of the artwork, and regarding their role in the field. Therefore, we call them “Techno-fans”;

- Tour guides belonging to cluster 2 are aged on average 43 years old and they have been working in the industry for 10 years. Their attitude towards technology is low (2.98 out of five) but this is not the group with the lowest value in our sample. From Table 8 we can affirm that, compared to cluster 1, neither factor 1 nor factor 4 impact this group. However, both factor 2 (dark side of innovation on art) and factor 3 (dark side of innovation on art)
innovation on cultural roles) have an impact on the people belonging to cluster 2. Therefore, tour guides in this group see digital technologies as a dangerous threat both for the intrinsic value of art and for their role in the industry. We call them “Techno-adverse”;

- Tour guides belonging to cluster 3 are more experienced than those belonging to the previous groups (11 years of experience on average) but they have the same age of the tour guides called Techno-adverse (43 years old on average). Their attitude towards technology is lower than the Techno-fans but higher than the tour guides in cluster 2 (3,1 out of 5). From Table 8, we can observe that exclusively factor 1 (innovating art) has an impact on this cluster. It means that tour guides in cluster 3 are willing to accept technology as a driving force to innovate art and add value to the artworks, but they do not present any implications in terms of how art impacts on their role in the field. Therefore, we call them “Art-lovers”;

- Tour guides belonging to cluster 4 are the most experienced since they have been working in the field for 13 years and they also are the oldest in our sample with an average age of 45 years old. Their attitude towards technology is the lowest among all groups with a value of 2,93 out of 5. From Table 8, we can postulate that factor 3 has a relevant impact on cluster 3, this meaning that tour guides belonging to this group are exclusively worried about the negative impact of digital technologies on their role in the field. As a matter of fact, we call them “Role-conservative”.

Test of the hypotheses

The results of the ordinary least squares (OLS) regression are reported in Table 9

Model 1 of Table 9 reports the effect of the considered variables on the dependent variable for all the tour guides in our sample. The control variables are significantly associated with the dependent variable. Specifically, both the technological capabilities of the tour guides (p<0.05) and of the visitors (p<0.05) are positively associated with the satisfaction of tour guides.
regarding their role identity as redefined by technological innovation. Similarly, the promotion effort provided by the cultural institution is positively and significantly (p<0.001) associated with the dependent variable. Perceived ease of use of technology by tour guides (PEOU) is positively and significantly (p<0.001) associated with the dependent variable. On the contrary, perceived utility (PU) of technology on cultural experiences is negatively and significantly (p<0.10) associated with our explanatory variable. These findings partially support H1. As a matter of fact, while the positive effect of PEOU is proved by our results, the hypothesized relationship between PU and the satisfaction of tour guides presents an opposite sign. We suggest that this unexpected effect is because the majority of the tour guides involved in our sample present a low attitude towards technology. Indeed, tour guides belonging to the “techno-fan” cluster are 158, whereas the remaining three clusters count 246 tour guides in total.

We then tested the other two hypotheses considering the different level of attitudes towards technology that we detected in different clusters. Model 2 of Table 9 reports the effect of the considered variables on the dependent variable for all the tour guides in the “techno-fan” cluster. Among the control variables, technological capabilities of visitors (p<0.10) and promotion effort by the cultural institution (p<0.001) are positively and significantly associated with the dependent variable. On the contrary, technological capabilities of tour guides are not significantly associated with the satisfaction of tour guides regarding their role identity after the introduction of technology in cultural experiences. The explanation might be given by the fact that the people in the cluster are homogeneous in terms of attitude towards technology (the highest in our sample as reported in table 7). Thus, we can suppose that there are not significant differences among them in their technological capabilities. Among the independent variables, perceived ease of use of technology by tour guides (PEOU) is positively and significantly (p<0.001) associated with the dependent variable, while perceived utility of technology on cultural experiences (PU) is not. These findings partially support H1a. From these results, it seems that PEOU has an impact on the satisfaction of those tour guides who present a more prominent attitude towards technology, whilst PU seems to be irrelevant for them. We suggest that the intrinsic characteristics of the people belonging to the “techno-fan” cluster wipe out the effect given by the perceived utility of technology on cultural experiences because, as demonstrated in the cluster analysis, the techno-fan tour guides recognize a positive effect of technology on both their role (Innovating cultural roles) and on the art (Innovating art).

Model 3 of Table 9 reports the effect of the considered variables on the dependent variable for
all the tour guides in the “role-conservative” cluster. Among the control variables, the promotion effort of the cultural institution is the only variable significantly (p<0.05) affecting the satisfaction of those tour guides who present a lesser attitude towards technology. Neither the technological capabilities of the tour guides in this cluster nor the technological capabilities of the visitors are significantly associated with the dependent variable. Among the independent variables, perceived ease of use of technology by tour guides (PEOU) is positively and significantly (p<0.001) associated with the dependent variable. Perceived utility of technology on cultural experiences (PU) is negatively and significantly (p<0.10) associated with the satisfaction of those tour guides who present a more adverse attitude towards technological innovation. These findings completely support H1b.

3.6 Conclusions

Although digitization is becoming more and more pervasive, there are areas of resistance to change in traditional cultural sectors. Focusing on the museum and historical and cultural heritage industry, our results show that traditional roles such as the tour guides’ may take different positions in coping with the digital wave: some of them, named “role-conservative”, are reluctant to embrace the change; on the contrary, others, who are more “techno-fan” (and therefore more interesting to our aims), report very stimulating outcomes stemming from the adoption of digital technologies, accounting for better cultural experiences.

More specifically, our findings show that the positive outcomes are associated with certain circumstances, such as the technological capability of the visitors, and the ease of use of new technologies. These results suggest that when it comes to cultural experiences in museums and historical and cultural heritage sites, technology should not overcome the cultural value of the artefacts, but it can be a fruitful instrument to enrich their fruition process by visitors. Moreover, the intermediary role of the tour guides cannot be replaced. In fact, they should work in close connection with the museums in effectively promoting the innovative cultural experience.

With this piece of research, we aim at contributing both theoretically and practically. On a theoretical basis, we expand upon the stream of research about the impact of technology on individuals within the organization, by focusing – specifically – on the process of roles redefinition in the cultural fields reshaped by technological innovations and on the sensemaking that each actor confers to the technological innovations (Orlikowsky, 2000).
Moreover, we contribute on the models on technology acceptance by complementing the framework of TAM with the processes of positive and negative sensemaking.

Practical implications of our study convey an argument in favour of the usage of ICTs to encourage the enjoyment and enhancement of cultural heritage. Policy makers and managers of cultural institutions should consider our study as an insight on the redefinition of the traditional roles and models in the cultural setting. As digitization is non-reversible and is indeed becoming more and more pervasive, public and private actors should devote respectable attention to the enactment of change through the engagement of more proactive roles as change agents. This would increase the likelihood that cultural institutions engage in innovation ecosystems and favor the encounter of creativity-based products and services with technology solutions.
3.7 References


Jay, J. (2013). Navigating paradox as a mechanism of change and innovation in hybrid...


3.8 Tables and Figures

Table 1. Questionnaire items for Principal Component Analysis

Below are a number of statements regarding the role of technological devices on cultural experiences. Please read each one and indicate to what extent you agree or disagree with each statement

- Technological devices increase the likelihood to visit a museum or an archaeological site
- Technological devices limit the visit to the devices’ owners
- Technological devices make the visit more stimulating
- Technological devices make the visit more involving
- Technological devices demotivate art’s enthusiastic
- Technological devices demotivate who doesn’t own a personal device
- Technological devices alienate visitors from the external context
- Technological devices make the visit more educational

Below are a number of statements regarding the role of technology on the work done by tour guides. Please read each one and indicate to what extent you agree or disagree with each statement

- Technology enlarged the spectre of your competencies
- Technology downsized your professional role
- Technology restricted the tour guide’s role as a mere support during the cultural experience
- Technology enriched the role of the tour guide
- Technology made unnecessary the role of the tour guide
- Technology reinvented the role of the tour guide

Table 2. Principal Component Analysis

<table>
<thead>
<tr>
<th>Component</th>
<th>Initial Eigenvalues</th>
<th>Extraction Sums of Squared Loadings</th>
<th>Rotation Sums of Squared Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>% of Variance</td>
<td>Cumulative %</td>
</tr>
<tr>
<td>1</td>
<td>4,458</td>
<td>31,846</td>
<td>31,846</td>
</tr>
<tr>
<td>2</td>
<td>2,302</td>
<td>16,443</td>
<td>48,289</td>
</tr>
<tr>
<td>3</td>
<td>1,835</td>
<td>13,106</td>
<td>61,395</td>
</tr>
<tr>
<td>4</td>
<td>1,244</td>
<td>8,888</td>
<td>70,283</td>
</tr>
<tr>
<td>5</td>
<td>0.679</td>
<td>4.848</td>
<td>75.131</td>
</tr>
<tr>
<td>6</td>
<td>0.622</td>
<td>4.442</td>
<td>79.573</td>
</tr>
<tr>
<td>7</td>
<td>0.594</td>
<td>4.242</td>
<td>83.815</td>
</tr>
<tr>
<td>8</td>
<td>0.506</td>
<td>3.611</td>
<td>87.426</td>
</tr>
<tr>
<td>9</td>
<td>0.409</td>
<td>2.918</td>
<td>90.345</td>
</tr>
<tr>
<td>10</td>
<td>0.333</td>
<td>2.379</td>
<td>92.724</td>
</tr>
<tr>
<td>11</td>
<td>0.311</td>
<td>2.223</td>
<td>94.947</td>
</tr>
<tr>
<td>12</td>
<td>0.265</td>
<td>1.893</td>
<td>96.840</td>
</tr>
<tr>
<td>13</td>
<td>0.257</td>
<td>1.837</td>
<td>98.677</td>
</tr>
<tr>
<td>14</td>
<td>0.185</td>
<td>1.323</td>
<td>100.000</td>
</tr>
</tbody>
</table>
**Table 3. Reliability statistics**

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.603</td>
<td>.603</td>
<td>14</td>
</tr>
</tbody>
</table>

**Table 4. Rotated Component Matrix**

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make visits stimulating</td>
<td>.888</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Make visits involving</td>
<td>.885</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Make visits educational</td>
<td>.781</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase likelihood of visiting</td>
<td>.759</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demotivate who doesn’t own a personal device</td>
<td>.857</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demotivate art’s enthusiastic</td>
<td>.805</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alienate visitors</td>
<td>.765</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limit visiting</td>
<td>.752</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Downsize role</td>
<td></td>
<td>.876</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restrict role</td>
<td></td>
<td>.813</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Make the role unnecessary</td>
<td></td>
<td>.732</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reinvent the role</td>
<td></td>
<td></td>
<td>.802</td>
<td></td>
</tr>
<tr>
<td>Enhance the role</td>
<td></td>
<td></td>
<td>.717</td>
<td></td>
</tr>
<tr>
<td>Enlarge competencies</td>
<td></td>
<td></td>
<td>.710</td>
<td></td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.  
Rotation Method: Varimax with Kaiser Normalization.  
a. Rotation converged in 5 iterations.
Table 5. Dimensions of the impact of technology in the cultural heritage field

<table>
<thead>
<tr>
<th>Innovating art</th>
<th>1) Make visits stimulating</th>
<th>2) Make visits involving educational</th>
<th>3) Make visits educational</th>
<th>4) Increase likelihood of visiting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dark side of innovation on art</td>
<td>1) Demotivate who doesn’t own a personal device</td>
<td>2) Demotivate art’s enthusiastic</td>
<td>3) Alienate visitors</td>
<td>4) Limit visiting</td>
</tr>
<tr>
<td>Innovating cultural roles</td>
<td>1) Reinvent the role</td>
<td>2) Enhance the role</td>
<td>3) Enlarge competencies</td>
<td></td>
</tr>
<tr>
<td>Dark side of innovation on tour guides</td>
<td>1) Downsize role</td>
<td>2) Restrict role</td>
<td>3) Make the role unnecessary</td>
<td></td>
</tr>
</tbody>
</table>

Table 6. ANOVA test

<table>
<thead>
<tr>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>147,974</td>
<td>3</td>
<td>49,325</td>
<td>.000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>255,026</td>
<td>400</td>
<td>.638</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>403,000</td>
<td>403</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>168,479</td>
<td>3</td>
<td>56,160</td>
<td>.000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>234,521</td>
<td>400</td>
<td>.586</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>403,000</td>
<td>403</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>254,182</td>
<td>3</td>
<td>84,727</td>
<td>.000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>148,818</td>
<td>400</td>
<td>.372</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>403,000</td>
<td>403</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>83,080</td>
<td>3</td>
<td>27,693</td>
<td>.000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>319,920</td>
<td>400</td>
<td>.800</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>403,000</td>
<td>403</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7. Cluster description

<table>
<thead>
<tr>
<th>CLUSTER</th>
<th>Number of obs.</th>
<th>Age</th>
<th>Work Experience</th>
<th>Attitude Towards Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – Techno-fan</td>
<td>158</td>
<td>41</td>
<td>9</td>
<td>3.62</td>
</tr>
<tr>
<td>2 - Techno-adverse</td>
<td>115</td>
<td>43</td>
<td>10</td>
<td>2.98</td>
</tr>
<tr>
<td>3 – Art lovers</td>
<td>67</td>
<td>43</td>
<td>11</td>
<td>3.10</td>
</tr>
<tr>
<td>4 - Role conservative</td>
<td>64</td>
<td>45</td>
<td>13</td>
<td>2.92</td>
</tr>
</tbody>
</table>
Table 8. Cluster centroids

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Cluster 1</th>
<th>Cluster 2</th>
<th>Cluster 3</th>
<th>Cluster 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Techno-fan</td>
<td>0.660</td>
<td>-0.810</td>
<td>0.070</td>
<td>-0.240</td>
</tr>
<tr>
<td>Techno-adverse</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art lovers</td>
<td>0.140</td>
<td>0.720</td>
<td>-0.430</td>
<td>-1.190</td>
</tr>
<tr>
<td>Role conservative</td>
<td>0.120</td>
<td>0.370</td>
<td>-1.700</td>
<td>0.800</td>
</tr>
<tr>
<td>Dark side of innovation on tour guides</td>
<td>0.550</td>
<td>-0.400</td>
<td>-0.450</td>
<td>-0.160</td>
</tr>
</tbody>
</table>

Table 9. OLS regression results

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived utility of technology</td>
<td>-0.06+</td>
<td>0.03</td>
<td>0.01</td>
</tr>
<tr>
<td>Perceived ease of use of technology</td>
<td>0.30***</td>
<td>0.04</td>
<td>0.35***</td>
</tr>
<tr>
<td>Promotion effort</td>
<td>0.24***</td>
<td>0.04</td>
<td>0.28***</td>
</tr>
<tr>
<td>Technological capabilities tour guides</td>
<td>0.08*</td>
<td>0.04</td>
<td>0.04</td>
</tr>
<tr>
<td>Technological capabilities visitors</td>
<td>0.11*</td>
<td>0.04</td>
<td>0.13+</td>
</tr>
<tr>
<td>Constant</td>
<td>1.37***</td>
<td>0.2</td>
<td>0.93**</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.44</td>
<td></td>
<td>0.58</td>
</tr>
<tr>
<td>Obs.</td>
<td>404</td>
<td></td>
<td>158</td>
</tr>
</tbody>
</table>

Figure 1. Theoretical framework adapted from TAM

Source: Adapted from Money & Turner, 2004
Figure 2. Scree Plot

Figure 3. Dendrogram using Ward linkage method
FINAL CONCLUSIONS

The aim of this dissertation was to contribute to the increasing interest on the contexts of creative and cultural industries given that they represent ones of the most rapidly growing sectors of the world economy, not just in terms of income generation but also for job creation and export earnings. Since human creativity and innovation, at both the individual level and group level, are the key drivers of these industries, they have become fundamental for the creative economy in the 21st century and have attracted the attention of numerous researchers who started investigating these phenomena.

In the first part of the thesis the attention has been focused on the analysis of the music industry and the effects that diverse teams might have on the performances achieved. Specifically, we investigated how characteristics of creative groups can serve to either enhance or constrain engagement in creative processes, the development of creative outcomes, and ultimately project performance. We focused on the diversity concept that has become increasingly prominent in studies related to team composition and team performance. Prior researches have investigated different aspects of diversity in teams, but they have scarcely obtained consistent results. Moving from these consideration, this dissertation aims at contributing to tracking individuals’ experiences within the context of creative project-based industries, filling a notable gap in diversity studies. More specifically, the study analyses how past work experience diversity may influence current project performance. To address this issue, we investigated past work experience measures of diversity, both the length and the amount of experiences by team members working in a specific project-based industry. The findings suggest that heterogeneous teams composed by members who show a variety of experiences in terms of length of career, are less likely to perform positively in the current projects. On the contrary, more heterogenous teams composed by individuals who accomplished a different number of projects in the considered project-based industry, are more likely to affect positively the current project performance.

This study has several theoretical implications. First, it addresses the literature on team diversity. As these findings show, work experience diversity may also occur with regard to
amount-based measures. Prior literature has overwhelmingly emphasized tenure diversity without any or few references to other dimensions of the work experience construct. Gaining knowledge, skills, and experiences across different projects within the same project-based industry may produce positive performance implications for new projects. This finding is mainly driven by the possibility to transfer the information and the capabilities acquired from previous job experiences to new roles.

Secondly, previous research has emphasized the importance of combining new-timers with old-timers in order to increase the likelihood to perform positively in current and future projects. This study, presenting opposing results, provides an innovative perspective to this phenomenon by analysing a less-examined project based industry to study creative teams.

In the second part of this thesis the attention has been focused on cultural industries, specifically visual arts, to investigate the controversial effects that technology might have on the dynamics of this sector. Since technological innovations and digitization have hit old and new economic sectors pervasively, our lifestyles - as citizens, as consumers, and as economic actors - have been revolutionized. Similarly, digital technologies and applications have not spared traditional sectors, such as the cultural heritage industry. Among all possible cultural-creative industries, technological innovations have broadly impacted museums and other historical and cultural heritage sites, in which numerous examples about the use of ICT in providing a more inclusive experience to visitors flourish.

In this scenario, the dissertation aims at investigating the impact of digital technologies in the redefinition of a very traditional role, such as that of the tour guide. The mediatory role of tour guides is important in linking the visitors to the cultural artefacts and to provide the cultural brokerage, i.e. providing the visitors with familiar idiom. They are considered experts in the field and triggers to raise the interest of the public towards art and culture in general. In fact, not only they are perceived as the holders of the knowledge of art and the cultural value of artefacts, but they can convey the hedonistic value of culture consumption and raise the interest of the audiences and their engagement. Given their pivotal role in art and culture fruition for the public at large, tour guides cannot be exempt from technological changes, opening new opportunities for development as well as new challenges. In fact, tour guides can consider technology as a chance to reshape and empower their role or, on the contrary, they might not
be able to redefine their role in the new technology-driven competitive scenario, and they may feel threatened of being replaced by technological innovation.

Our results show that traditional roles such as the tour guides’ may take different positions in coping with the digital wave: some of them, named “role-conservative”, are reluctant to embrace the change; on the contrary, others, who are more “techno-fan”, report very stimulating outcomes stemming from the adoption of digital technologies, accounting for better cultural experiences.

More specifically, our findings show that the positive outcomes are associated with certain circumstances, such as the technological capability of the visitors, and the ease of use of new technologies. These results suggest that when it comes to cultural experiences in museums and historical and cultural heritage sites, technology should not overcome the cultural value of the artefacts, but it can be a fruitful instrument to enrich their fruition process by visitors. Moreover, the intermediary role of the tour guides cannot be replaced. In fact, they should work in close connection with the museums in effectively promoting the innovative cultural experience.

With this study, the dissertation aims at contributing both theoretically and practically. On a theoretical basis, we expand upon the stream of research about the impact of technology on individuals within the organization, by focusing – specifically – on the process of roles redefinition in the cultural fields reshaped by technological innovations and on the sensemaking that each actor confers to the technological innovations. Moreover, we contribute on the models on technology acceptance by complementing the framework of TAM with the processes of positive and negative sensemaking.