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ARTISTIC INFLUENCES AND INNOVATION IN THE POPULAR MUSIC INDUSTRY

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“At least the first forty songs we wrote were Buddy Holly influenced.”
- John Lennon on The Beatles

INTRODUCTION

In a creative industry, what pattern of artistic influences increases the likelihood that an artist will produce innovative products? Building on a forthcoming book chapter, this research examines all major artists in popular music between 1951 and 2008, their unique historic network of artistic influences, and their innovation achievements in the Popular Music Industry. The research applies network analysis to the social structure of the industry to see: do artists who create innovative products occupy unique structural positions in the complete network of artistic influences?

Individual positions in networks are known to impact the likelihood that an individual will recognize entrepreneurial opportunities and develop new venture ideas (Singh et al., 1999). Relatedly, Structural Hole Theory suggests that innovators will be more likely to have structural holes (disconnects) in their networks, allowing them to combine and exploit information which is inaccessible to others in the network (Burt, 1992, 2004). Applying Resource Dependency Theory to the network context (Pfeffer and Salancik, 1978), artist positions in influence networks should therefore enable or constrain access to resources from which artists might fashion new innovative products. Specifically, here we examine how one’s structural pattern of artistic influences make it more or less likely one will create innovative products in the Popular Music Industry (1951-2008).

Artistic influences are the set of recognized social predecessors in a Creative Industry (“forefathers” or “foremothers”) who are credited for prior achievements in a Creative Industry (Caves, 2002). The creative influences of artists in a Creative Industry can and do vary widely, but they are particularly interesting because artists openly recognize and celebrate their influences—the raw material from which they attempt to fashion industry-changing innovations (Theberge, 1997). For example, The Beatles report they were strongly influenced by Buddy Holly and Roy Orbison who, respectively, were influenced by Elvis Presley, The Clovers, Hank Williams, and Hank Ballard. Influence networks of this type, for each artist, can be assembled and traced back to before the creation of recognized innovation achievements in the industry to determine what patterns of influences are most productive for fashioning innovative products. We examine each artist’s structural pattern of artistic influences as idiosyncratic resources from which they may develop new music.

The popular music industry is of interest for research in entrepreneurship because it is a rich environment to explore the evolution of an industry, because musical innovations can be tracked, and because social networks are an important element in how innovations are assembled and diffused. Each artist is embedded in, and therefore occupies a unique position in, the historical/longitudinal network of musical influences (Granovetter, 1985). As such, one can study artists as a type of entrepreneur that looks to bring change to an industry by exploring and exploiting new combinations of resources (Schumpeter, 1934).
Our dependent variable is number of Grammy Awards won, the industry’s standard of an artist’s innovativeness. Grammy Awards are not bestowed based on an artist’s album sales or chart performance. Rather, the Grammy Foundation states, Grammy Awards are “the only peer-presented award to honor artistic achievement, technical proficiency and overall excellence in the recording industry”. We find that musicians with structural holes (disconnects) in their influences network—those who are brokers between otherwise disconnected artists—are most likely to create innovative products as measured by Grammy-winning. While generally consistent with research on structural holes and innovation, this finding is particularly interesting because of the scope of the data (14,000+ influence relationships) and the demonstration of the phenomenon across extremely indirect relationships across six decades.

**WHY NETWORKS MATTER IN CREATIVE INDUSTRIES**

Entrepreneurs and entrepreneurial firms in Creative Industries—such as music, film, publishing, software and design—commonly develop innovations and generate new wealth by exploiting resources in their professional and personal networks. Research has demonstrated that worker free agency in Silicon Valley—and particularly lax non-compete arrangements, fluid organizational boundaries and strong informal networks of talent—are critical to the pursuit of fast-changing opportunities in dynamic industries such as in the Information Technology and Life Sciences. Regional advantages, it follows, have been shown to emerge from heightened labor mobility and accepted norms of moving between and networking within organizations (Saxenian, 1996).

Relatedly, if one looks to the Popular Music Industry, artists responsible for major innovations have often combined new technologies, new group members and fused different musical styles to fashion new musical experiences (e.g., The Beatles, David Bowie, Pink Floyd, Stevie Wonder, and Herbie Hancock). More broadly, in Creative Industries, loose personal and professional affiliations are a treasure chest for locating critical talent, for sourcing funding for risky new ventures and for assembling teams to commercialize and industry-shaping innovation.

Theory and research on networks provide insight into why networks—and particularly why entrepreneur positions in networks—matter (Bavelas, 1951; Milgram, 1967; Granovetter, 1985; Burt, 1992; Krackhardt, 1995; Powell and Smith-Doerr, 1996; Hills, Lumpkin and Singh, 1997; Singh et al., 1999; Ahuja, 2000; Borgatti and Foster, 2003; Freeman, 2004; Smith-Doerr and Powell, 2005). For example, Resource Dependency Theory, a foundational theory of networks research, predicts that one’s adaptability and chances of survival in an industry depends on one’s access to scarce resources in a business environment (Pfeffer and Salancik, 1978). Particularly, social contacts, or one’s position in a social network, may enable or constrain access to critical resources needed for basic operation, growth and innovation. Critical resources obtained though social contacts may include financial resources, such as funds needed to develop a technical innovation, or social capital, such as important social contacts needed to assemble or distribute an innovation. From this perspective, social ties—and particularly resources obtainable in the external environment—are what shape the survival and innovation capacity of certain industry players. A chief point in this theoretical perspective is that one’s position in a social network may enable or constrain strategic actions by an industry entrepreneur.

A second theory, Structural Hole Theory (Burt, 1992), which complements Resource Dependency Theory, suggests that brokers in networks should have advantages in recognizing entrepreneurial opportunities and fashioning innovations because they sit at the nexus of unique
information, also known as non-redundant information. Specifically, those artists who are connected to other network actors—where those network actors are otherwise unconnected—can exploit unique information flows and perceive entrepreneurial opportunities that only partially present themselves to others (who, by contrast, have inferior access to unique information by virtue of their network positions). This is in stark contrast to a competing view which argues that centrality in the network should be a valuable position for creating innovative products. However, while centrally-positioned artists in the influences network will have the most influences, they are also proportionately less likely to have access to unique (non-redundant) arrays of influences. Particularly, they have access to the same general resources which other centrally-positioned artists have, so potentially the same raw material from which to fashion innovative products. In summary, occupying a central position in the network is quite different than brokering structural holes in the network—the latter should be more fruitful for fashioning innovative products.

Structural Hole Theory is a social structural theory of competition and competitive advantage (Porter, 1985; Burt, 1992). Burt asserts Structural Hole Theory has important implications for individual and firm-level entrepreneurship along with other outcomes, including vision advantage, innovation, the discovery of “good ideas”, and ratings of individual job performance in organizational settings (1992, 2004). In specific terms, a structural hole is an absence of ties (or hole) between network peers from the perspective of a focal actor (1992). Structural holes may occur within networks at all levels of analysis, but here we explicitly consider the individual level of analysis.

A growing body of networks research suggests that brokerage across structural holes is favorable for initiating innovations (Burt, 1992; Krackhardt, 1995; Powell and Smith-Doerr, 1996; Hills, Lumpkin and Singh, 1997; Singh et al., 1999; Ahuja, 2000; Borgatti and Foster, 2003; Freeman, 2004; Smith-Doerr and Powell, 2005). Therefore, examining musicians in the music industry, we posit:

**Hypothesis 1:** The structural pattern of artistic influences for innovators will be different than non-innovators.

**Hypothesis 2:** Artists with structural holes in their influence networks will be more likely to create innovative products.

The context we are studying—six decades of music industry history—is particularly interesting because structural holes do not occur within a close, small group of industry participants. Moreover, the underlying social ties we examine are not direct in nature (i.e., few artists maintain relationships with all of their direct and indirect artistic influences—living or dead). Rather, we analyze the impact of different structural positions among direct and indirect influences on an artist’s likelihood of creating innovative products.

To summarize, network methods have found broad application in the study of business strategy, innovation processes, and earlier in epidemiology and politics (Wasserman and Faust, 1994; Powell and Smith-Doerr, 2007). Network analysis examines the architecture of direct and indirect social ties among network actors—such as people, teams, organizations and nations—and focuses on the relations among actors as opposed to the attributes of actors as is more common focus in the social sciences. Network research asks: does one’s position in the network affect one’s outcomes? Also, it asks: are there superior (or inferior) positions in the network from which initiate certain actions—which we examine here as creating innovative products.
THE POPULAR MUSIC INDUSTRY

Overview

The Popular Music Industry (1951-2008) is a fascinating context to explore the importance of direct and indirect artistic influences on innovation in an industry. Specifically, a culture of openness about one's creative influences—both near and distant—allows one to analyze artists' positions in the complete network of influences. By analyzing each artist's unique position in the complete network of musical influences, one can examine relationships between social structure and innovativeness.

The Grammy Awards

The Grammy Awards (originally called the Gramaphone Awards)—or Grammys—are presented annually by the National Academy of Recording Arts and Sciences of the United States for outstanding achievements in the music industry. Since the awards were established in the 1950's, nearly 8,000 Grammy awards have been bestowed. According to the Grammy Foundation, the Grammy Awards are “the only peer-presented award to honor artistic achievement, technical proficiency and overall excellence in the recording industry, without regard to album sales or chart position”. The Foundation states, “The Grammy Awards celebrate the enduring legacies of all forms of music; the creative process; and the art and technology of the recording process.” Major awards, which are not restricted by genre, include: Album of the Year, Song of the Year and Best New Artist. We chose this measure of an artist’s ability to create innovative products because it is measurable; because it is the industry’s standard for artist innovativeness; and because, as noted above, Grammy Awards are bestowed unrelated to the financial or chart performance of an artist.

METHOD

Data

The data come from allmusic.com, a top industry information provider whose database is the platform for both America Online’s and Yahoo! Music’s e-commerce website. The archive provides data including each artist’s name (individual or group), discographies of albums and songs, and most importantly, lists of artists that have influenced each artist (1951’s-2008). In total, there are 14,000+ “influenced by” ties for nearly one thousand artists. This data allows for a seamless and complete network picture of all major artists in the industry and their artistic influences over the past six decades (See Figure 1 below for a sample of the data). Relatedly, Figure 2 provides a network visualization showing only the artistic influences among the most influential musicians in the industry (i.e., those cited most as artistic influences to all the other musicians in the industry).

For this study, we used UCINET 6.0 (Borgatti et al. 2002) to build-out the complete network of artistic influences and to measure the network positions associated with each artist. Based on each artist’s structural position in the network, we calculated each artist’s structural holes* in addition to other common structural network variables including betweenness centrality (the number of times a musician occupies the shortest average path between other musicians based on their position in the network) and in-degree (the number of musicians citing an artist as an artistic influence, i.e., a measure of influence). Because the following controls, we believed, could also influence the number of Grammies won, we also included in our model: the number of decades an artist produced music as well as the number of years they were deemed active, whether the artist is
a solo artist or a group, the total number of albums created, the total number of Top 10 albums created, the number of labels signed onto, and the total number styles of music played. To incorporate our prior research, which examined artist network positions as a predictor of new market pioneering, we also examined whether or not artists created into new markets in their first year of their existence (market pioneers vs. non-pioneers), arguably a separate potential measure of artist innovativeness.

Analysis

Initially, univariate and bivariate relationships between variables were examined by whether the artist won a Grammy award and whether the artist was a pioneer of a new market. Highly significant differences were found between each of these groups and key variables are shown below in Tables 1 and 2. Market pioneers (i.e., those creating music into new markets during their first year of existence) have almost six times the mean number of Top 10 albums (7.9 for market pioneers vs. 1.6 for others) and almost double the overall mean number of albums (24.8 vs. 14.9, respectively). For artists with at least one Grammy award, the results are more modest with five times the mean number of Top 10 albums (5.0 vs. .9) and almost 30% more albums overall (19.7 vs. 14.0).

A general linear model was fit to the data to predict the number of Grammy Awards won and its relationship to market pioneering. Significant variables are shown below in Table 3. The resulting adjusted R-square for the model was 0.618.

In Table 3, positive coefficients correspond to winning a higher number of Grammy awards while negative coefficients correspond to winning fewer Grammy awards. Not surprisingly, the number of decades an artist produces music, the number of albums produced by an artist, the number of other musicians influenced by the artist (in-degree), and pioneering a new market have a strong positive relationship to the number of Grammy’s won. Interestingly, solo artists win more Grammys than group artists. Somewhat surprising is that having multiple record labels and performing in multiple styles have a negative impact on the number of Grammy awards won.

Consistent with Hypothesis 1, which states that the structural pattern of artistic influences for innovators will be different than non-innovators, those winning the most Grammy awards are peripherally not centrally, located in the complete network of influences (i.e., high betweenness centrality predicts winning fewer Grammy Awards). Consistent with Hypotheses 2, which states artists with structural holes in their influence networks will be more likely to create innovative products, artists with more structural holes (i.e., low network constraint) win more Grammy awards.

Collectively, the findings about the negative association with centrality and the positive association with structural holes suggest brokerage among artistic influences is a better predictor of Grammy winning than occupying a central position in the influences network. Even considering the span across six decades of direct and indirect artistic influences—an uncommon network—Burt’s Structural Hole Theory appears to be supported by the findings here. Particularly, structural disconnects across artistic influences increases the probability of winning multiple Grammies.

IMPLICATIONS AND VALUE

This research draws attention to the unique social nature of innovative product creation in a creative industry. Specifically, despite the widespread stereotype of the socially-isolated tortured
artist, our findings suggest that innovators likely fuse together several different creative influences versus fashioning innovations from an absence of influences. As with our other research on new market pioneering in the music industry, overall, these findings de-emphasize the importance of one’s individual talent versus one’s idiosyncratic pattern of artistic influences in creating innovation in a Creative Industry.

As discussed, Resource Dependency Theory strongly suggests that one’s position in a network should impact one’s ability to create innovative products, particularly if one has superior access to resources that other’s do not. Here, access is meant in a creative or inspirational sense where all musicians have artistic influences, but only some have certain structural patterns among their influences and occupy certain unique structural positions in the complete network of influences. Being influenced by structurally-separated artists, through one lens, we find, appears to be an especially efficient way to access the disparate resources from which to fashion innovative musical products.

By generalizing findings, this research may contribute to our understanding of the role of networks in new product innovation in other Creative Industries. Moreover, taking a portfolio perspective, this research may suggest that music recording companies, such as BMG, Sony Music or Universal, might examine their aggregate artist portfolio positions in influence networks to maximize the probability of creating innovative products in the future. Such an inquiry might suggest music recording companies are strongly, or weakly, positioned for future industry evolution. Broadly, if extended, this research may inform artists and executives in other creative industries, such software, gaming, film and publishing, about strategies to generate and sustain innovation.

Future research examining networks in Creative Industries should examine how artist positions in networks impact commercial success, which often differs dramatically from what is regarded historically and contemporarily as innovation. While there are artists in creative industries that are widely regarded for creating commercially-successful innovations, a common outcome is innovation without commercial success or commercial success without innovation. Clearly, research on creative industries needs to examine both market and financial outcomes in relation to these questions. More broadly, this research presents the opportunity to disentangle the importance of individual talent—which is so commonly viewed as a primary driver of innovation—and the importance of idiosyncratic social influences on innovation.

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NOTES

*Note: The term “structural hole” can be somewhat confusing. The term structural hole only indirectly conveys the idea it refers to, that is, the gaps between individuals or firms with ties to a focal actor. Furthermore, Burt uses another term, "network constraint," to refer to the absence of gaps. For example, individuals with few structural holes in their network, according to Burt, face "high network constraint"—that is their network ties have ties with each other. We avoid the phrase "network constraint" in this analysis in favor of the more commonly used structural holes terminology. In the results, therefore, signs (+/-) have been flipped for all structural hole variables to allow for use of this simpler language.
REFERENCES


Donath, J. 2001. The Visualization of Large-Scale Conversations, Cambridge, MA: MIT Sociable Media Group


Figure 1. Detailed Example of Artistic Influences for The Beatles. Picture/graphic from www.allmusic.com.
Figure 2: Network of Major Influencers

This network visualization shows creative influences among artists who were most influential in the Popular Music Industry (1951-2008). An arrow indicates the direction of influence (was influenced by); influence is most often unidirectional but can be bidirectional.
Table 1. Market Pioneers vs. Non-Pioneers

<table>
<thead>
<tr>
<th>Market Pioneers</th>
<th>Mean Number of Top 10 Albums</th>
<th>Mean Number of Albums</th>
<th>Mean Number of Grammy Awards</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Mean</td>
<td>1.601</td>
<td>14.943</td>
<td>0.613</td>
</tr>
<tr>
<td>No Median</td>
<td>0.000</td>
<td>12.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Yes Mean</td>
<td>7.889</td>
<td>24.778</td>
<td>1.333</td>
</tr>
<tr>
<td>Yes Median</td>
<td>1.000</td>
<td>20.000</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Table 2. Grammy Winners vs. Non-Winners

<table>
<thead>
<tr>
<th>Won a Grammy?</th>
<th>Mean Number of Top 10 Albums</th>
<th>Mean Number of Albums</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Mean</td>
<td>0.91</td>
<td>14.02</td>
</tr>
<tr>
<td>No Median</td>
<td>0.00</td>
<td>11.00</td>
</tr>
<tr>
<td>Yes Mean</td>
<td>5.01</td>
<td>19.69</td>
</tr>
<tr>
<td>Yes Median</td>
<td>3.00</td>
<td>17.00</td>
</tr>
</tbody>
</table>

Table 3: Results of the General Linear Model Predicting Number of Grammy Awards Won

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Decades</td>
<td>0.351</td>
<td>0.001</td>
</tr>
<tr>
<td>Number of Years Active</td>
<td>-0.056</td>
<td>0.035</td>
</tr>
<tr>
<td>Solo or Group</td>
<td>1.452</td>
<td>0.001</td>
</tr>
<tr>
<td>Number of Albums</td>
<td>0.04</td>
<td>0.001</td>
</tr>
<tr>
<td>Number of Labels</td>
<td>-0.121</td>
<td>0.001</td>
</tr>
<tr>
<td>Number of Styles</td>
<td>-0.063</td>
<td>0.02</td>
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<tr>
<td>In-Degree</td>
<td>0.399</td>
<td>0.001</td>
</tr>
<tr>
<td>Betweenness Centrality</td>
<td>-5.459</td>
<td>0.001</td>
</tr>
<tr>
<td>Structural Holes</td>
<td>0.486</td>
<td>0.046</td>
</tr>
<tr>
<td>Pioneered a market</td>
<td>0.328</td>
<td>0.001</td>
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</table>