

**NETWORK LEADERSHIP AND TEAM CREATIVITY:  
AN EXPLORATORY STUDY OF NEW YORK CITY JAZZ BANDS**

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**ABSTRACT**

Jazz bands exemplify the creative economy of teams engaged in flexible and precarious work. Theory is conflicted concerning how leadership of such audience-facing organizations affects outcomes. For the 346 New York City jazz bands active in 2010, we explored how formal and network leadership related to music creativity and popularity; as well as to band longevity through the year 2021. Formal leadership may direct band members toward joint creative outcomes. Or such leadership may harm the free-flowing energy that fuels creative performance. Network leaders engage in *brokering* connections across the network of jazz musicians; or building *status* through connections to central people. The network in this case consisted of ties between people who had overlapping band membership. We found that formal leadership negated band creativity but made no difference to band popularity or longevity. Network leadership, defined as status, facilitated both creativity and popularity, whereas brokerage had no discernible effects. Interestingly, creative bands were less likely to endure. In the creative industries, formalized hierarchy may be less important for a team's creative output than representation in the external market for talent and aesthetic judgment that well-connected network leaders bring.

**KEYWORDS:** SOCIAL NETWORKS; CREATIVITY; LEADERSHIP; JAZZ; TEAMS; GIG ECONOMY.

The question of whether and how teams in the creative industries benefit from leadership is an important one to address. These industries contribute significantly to the economies of many countries. In the USA, for example, the annual contribution of the creative industries is estimated at \$700 billion, with employment estimated to be around 5 million people (Dodd, 2015). In many of the creative industry sectors such as dance (Harrison & Rouse, 2015), classical music (Murnighan & Conlon, 1991), and haute cuisine (Tan, 2015), creative production is organized through audience-facing, self-managing teams in highly competitive markets. Creativity is integral to the success and viability of these small team organizations that include the New York City jazz bands that we examine in this article (Umney & Kretsos, 2015).

However, the role of leaders in these audience-facing, self-managing teams is poorly understood. Whether we consider *formal leadership* that derives from occupation of a designated leadership position or *network leadership* that derives from occupation of a central social network position in the competitive field, existing research offers a confusing picture of how leadership relates to important outcomes such as team creativity, popularity, and longevity.

To explore the question of how leadership relates to these outcomes, we gathered data on jazz teams active in New York City. A key advantage of the jazz-band setting for the emergence of theory concerning leadership is the variation in leadership structure. These bands can be leader-led or leaderless; and the members of a band can vary greatly in terms of their positions in the network connecting musicians across the competitive field. Further, jazz music is frequently hailed as a metaphor for organizing (e.g., De Pree, 1992; Hatch, 1998) and jazz bands are studied as exemplars of creative endeavor (e.g., Bougon, Weick, & Brinkhorst, 1977). Jazz bands are “particularly intense workgroups” (Murnighan & Conlon, 1991: 165) that are designed for constant innovation (Barrett, 2012).

The need for exploratory research on the leadership of jazz bands and other audience-facing competitive teams is clear from the limitations of the existing literature. Formal leadership research has focused on settings where creativity is “a relatively less fundamental aspect of organizational activity” (Mainemelis, Epitropaki, & Kark, 2021:106) compared with settings in which creativity is a primary consideration. Much of the research emphasizes charismatic/transformational leadership, an emphasis that some have questioned because it defines leadership in terms of its effectiveness (van Knippenberg & Sitkin, 2013). The relevance of this research for our context – jazz bands competing for gigs and resources in New York City – is unclear.

From the perspective of social network research, network leaders are identified by their connections in the social arena (Carter, DeChurch, Braun, & Contractor, 2015: 603). Network leaders can contribute to team creativity by bringing resources, timely information, and influence opportunities from their interactions across the field of endeavor. But here again, there is confusion as to whether the kind of network leadership that matters for creativity derives from spanning across gaps in social structure to gather novel ideas (Burt, 2004) or is, instead, the result of the status and influence that derives from connections to the elite circles in which ideas, resources, and opportunities flow (e.g., Ibarra, 1993).

### **Formal Leaders**

In organizational behavior research, the case for the importance of *formal leadership*, not specific to teams, is clearly stated: “leadership makes a difference in the nature and success of creative efforts” (Mumford & Licuanan, 2004: 164; see also, Amabile & Khaire, 2008). Formal leaders are needed to facilitate, direct, and synthesize creative activity across a range of complex, ill-defined problems where performance requires novel yet useful solutions (Mumford, Scott,

Gaddis, & Strange, 2002). Formal leaders stimulate, motivate, and support followers to overcome the uncertainty and stress involved in creative work (e.g., Eisenbeiss, van Knippenberg, & Boerner, 2008). There is a need for leadership that provides people with “a common process or method of finding and defining problems” (Basadur, 2004: 111). Leaders act as team facilitators in brainstorming sessions (Rickards & Moger, 2000: 276). They facilitate the creativity of others, act as primary sources of creative thinking in directing the work of others, and they help synthesize the contributions of individuals into an integrated process (Mainemelis, Kark, & Epitropaki, 2015).

But this literature concerning the benefits of formal leadership has focused on settings where creativity is “a relatively less fundamental aspect of organizational activity” (Mainemelis, Epitropaki, & Kark, 2021:106) compared with settings in which creativity is a primary consideration. Indeed, research on how the *leadership of teams* affects creativity or innovation has been described as small and “relatively fragmented and scattered, with little integration or cohesion” (Rietzschel, Rus, & Wisse, 2021:129). Much research on the creativity of teams within organizations emphasizes team autonomy that involves coaching and sharing (reviewed in Liang, van Knippenberg, & Gu, 2021). Team-member autonomy stimulates information elaboration within the team, as well as team member empowerment. From this perspective formal, directive leadership of teams within organizations promotes team efficiency but is negatively related to team creativity (Li, Liu, & Luo, 2018).

Indeed, creative teams may benefit from the *absence* of formal leadership processes because these processes are likely to impede the self-organization that fuels creativity. The high level of expertise among team members can make formal leadership redundant according to leader substitutes theory (Kerr & Jermier, 1978). Formal leadership is theorized to impede

creativity, given that creative teams lend themselves to coordination with a minimum of formal rules (Barrett, 2012; Sawyer, 2010).

When we consider leaders of *teams in the creative industries*, including chefs at high-end restaurants (Bouty & Gomez, 2010) and conductors of orchestras (Marotto, Roos, & Victor, 2007), the limited research that we have, paints a picture of the creative leader “as the primary source of creative thinking and behavior... a master-creator who directs the implementation of their creative vision by other collaborators” (Mainemelis et al., 2021: 106). In these contexts, “the identity of the leader is often closely tied to the outcome... directive leaders see their role as ensuring followers produce a high-quality outcome” (Abecassis-Moedas & Gilson, 2017: 125). In these mainly qualitative studies, centralized formal leadership is far from being redundant (Rouse & Harrison, in press).

Thus, prior research is inconsistent in sometimes highlighting the positive effects on team creativity of formal leadership (e.g., Hughes, Lee, Tian, Newman, & Legood, 2018) and sometimes highlighting the negative effects (Li et al., 2018). And this research typically neglects the iconic case of teams in creative industries for whom creativity is a primary output and for whom commercial success depends on pleasing audiences. Our first exploratory research question, therefore, follows: Does formal leadership of teams in creative industries affect outcomes, which include creativity and audience popularity, positively, negatively, or not at all?

### **Network Leadership**

Leadership of teams in the creative industries involves not just the coordination of team members but also resource acquisition from external environments. These teams compete for resources that include personnel, customers, and new ideas. Thus, jazz teams in New York City strive to be creative while competing for gigs, record deals, airtime, and consumer purchases.

Some formal team leaders are active as boundary spanners in the organizational field outside of their specific team domain (e.g., Ancona & Caldwell, 1990). Informal leaders within teams (e.g., Wheelan & Johnston, 1996) are also sometimes active linking together teams within organizations (Guo, Heidl, Hollenbeck, Yu, & Howe, 2022). But the literature on team leadership has tended to focus on leadership within the team rather than exploring the role of leadership in the context of teams competing for resources. This focus on internal team leadership extends both to the role of formal leaders (e.g., Rouse & Harrison, in press); and informal leaders, who monitor and manage relationships within the team (e.g., Schaubroeck, Peng, Hannah, Ma, & Cianci, 2021). There has been a neglect of *network leaders*, people who may have no formal authority within a group, but who are nonetheless influential by virtue of their centrality in the broader field (Carter, DeChurch, Braun, & Contractor, 2015: 603). These externally well-connected leaders gather ideas and other resources of use to their small organizations from the environment of competing team organizations. In this process, people can gauge the extent to which team members are central players in the relevant community (Banerjee, Chandrasekhar, Duflo, & Jackson, 2019). Team members attribute leadership to those colleagues who bring resources that help the team achieve its goals (Carnabuci, Emery, & Brinberg, 2018).

There are two main accounts of network leaders, one that emphasizes network brokerage whereas the other emphasizes network status (Kenney et al., 2012). Brokerage is key to structural hole theory: the broker across structural holes is a critical player in the response to disorder (Burt, 1992: 116) given that “much of business leadership is about bringing together ill-connected functions, organizations, or market segments” (Burt, 2002:171). Good ideas and other resources accrue to social network brokers whose contacts are disconnected from each other

(Burt, Kilduff, & Tasselli, 2013). The more heterogenous the contacts, the less redundancy there is in terms of knowledge, and the more likely the broker is to garner diverse ideas, opportunities, and resources (Burt, 2004; Hargadon & Sutton, 1997). The broker fuels creativity by supplying good ideas but also spots opportunities such as gigs, record deals, and other chances that facilitate commercial success (Long Lingo & O'Mahony, 2010). The act of leadership consists, in part, of moving complex information from a place where it may be seen as quite mundane to the network leader's team where it has value (Burt, 2021). And in this process, the information itself is likely to be changed to be more relevant to the home team.

An alternative conception emphasizes the *status* of network leaders rather than their brokerage. High-status leaders are well-respected in the field as indicated by their connections to well-connected people (Heinz & Laumann, 1982). Applied to the context of teams in the creative industries, it is the leader's credibility in the field of experts that facilitates the transfer of new ideas and opportunities to teams. Without this field-based legitimacy, the contributions of individuals are likely to be disregarded (Burt, 1992) given the resistance to new ideas characteristic of teams and organizations in general (Mueller, Melwani, & Goncalo, 2011). People with ties to well-connected others across the industry are better positioned to bring to their teams the resources that foster creativity and enhance commercial success. In the gig economy of music production, connectedness between teams is facilitated by overlapping membership (Uzzi & Spiro, 2005).

The presence of a high-status person within a team can trigger a self-reinforcing process by which colleagues within the team confer leadership on the individual; and the individual develops an identity as a leader (Emery, Daniloski, & Hamby, 2011). But the presence of these network leaders within a team can constrain the emergence of other innovators (Kehoe &



Tzabbar, 2015), crowd out valuable contributions from team members, and disrupt team chemistry (Groysberg, Polzer, & Elfenbein, 2011), thereby impeding the creativity that is so essential for teams in creative industries (Asgari et al., 2021). There is, therefore, the potential for both positive and negative effects of well-connected network leaders on creative outcomes. And a recent meta-analysis found no support for this type of global connectedness on the performance of teams (Brennecke & Stoemmer, 2018).

Network leadership can, of course, overlap with formal leadership (e.g., Ancona, 1990) and with emergent informal leadership – the provision of help and advice to team members (Neubert & Taggar, 2004). But current research provides little guidance concerning how network leadership – defined as network centrality in the organizational field within which audience-facing teams compete -- affects creative teams in the creative industries in terms of longevity, creativity, and popularity. Our second, two-part research question follows: Are the outcomes of teams in the creative industries positively affected by the presence of network leaders in the team? The subsidiary question concerns how to conceptualize network leadership, whether in terms of brokerage in the creative field, or in terms of the status that derives from connectedness to the well-connected.

In the spirit of exploratory research, we address not only the performance outcomes of creativity and audience popularity for the jazz bands in our sample. We also examine an outcome that has been of concern to team researchers (Balkundi & Harrison, 2006) and features in an iconic study of music groups (Murnighan & Conlon, 1991) as well as research on entrepreneurial teams (Vedres & Stark, 2010), namely the longevity of the team. Prior research would support the idea of a positive relationship between leadership that facilitates a team's popular success and the longevity of the team: for small organizations, success in the marketplace is necessary for

survival (Barnett, 1997). But the relationship between creativity and team longevity is less clear, necessitating an exploratory investigation. On the one hand, creativity can deepen relationships at work, thereby fostering commitment to the collective (as suggested by Goncalo, Katz, Vincent, Krause, & Yang, 2021). Collective creativity can induce deeply rewarding flow-like states that provide motivation for team members to stay together (Sawyer, 2010). But there are also centrifugal pressures on the members of creative bands. Members of creative bands, like members of successful startups (Saxenian, 2007), find it relatively easy to form or join new ensembles or pursue solo careers.

## METHODS

### Setting

We drew on survey, interview, and archival data to stitch together the social network among 596 professional jazz musicians in New York City circa 2010. Of the 346 bands in our sample, 96 had no formal leader. Data on creativity came directly from jazz experts, who coded creativity based on audio samples from records released by the bands. The judges were kept purposefully blind as to the origins and authorship of the music because such knowledge is known to distort how people hear a tune (Babon, 2006; Phillips, 2013). Band popularity was assessed by the extent of album sharing on an online platform. We measured band longevity as the number of years since data collection in 2010 until the last band performance we could find. Our questions focus on team outcomes as affected by leadership rather than on the outcomes of individuals within teams (cf. Cattani & Ferriani, 2008).

Jazz music is produced across the world, but its roots are quintessentially American. Its pre-history is often traced to the city of New Orleans in the early 19th century. At that time, due to a range of historical circumstances—slavery, war, economic trade—New Orleans comprised a

heterogeneous mix of people from Africa, the Caribbean, and Europe. This cultural diversity spawned several musical hybrids, including the syncopated and Blues inflected sounds that prefigure jazz. Indeed, it has been argued that the “rhythms of ragtime, the bent notes and chord patterns of the Blues, and an instrumentation drawn from New Orleans brass bands and string ensembles” that gave early jazz its signature sound originated in the polyrhythms of the people who occupied the margins of New Orleans society (Gioia, 2011: 34).

Jazz has undergone many transformations and changes since the first jazz recording, in 1917, by the Original Dixieland Jazz Band of New Orleans. Several different styles—e.g., swing, bebop, hard bop, free jazz, acid jazz— have risen to prominence over the years<sup>1</sup>. But rather than fading away, these past styles have become simultaneously available, resulting in a field that is characterized by hybridity and synthesis (Szwed, 2000). Contemporary jazz music borrows freely from the remnants of past traditions while disdaining “hierarchies and pomposity” (Szwed, 2000: 9). Given the ready availability of even the most arcane historical recordings, and efforts by neo-traditionalists — most recognizably, the virtuoso trumpet player, Wynton Marsalis — to revive public interest in the jazz repertory, contemporary jazz musicians seeking to make a creative contribution must struggle not just with their current competitors but with the increasingly vocal ghosts of musicians past. New York City has long been one of the epicenters of jazz, having been home to such legends as Charlie Parker, Miles Davis, and Lester Young. The city is home to numerous musical training academies, and it features many venues that feature live jazz performances.

### **Data Collection and Model Specification**

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<sup>1</sup> A detailed genealogy of jazz is beyond the scope of this paper (but see, e.g., Giddins & DeVeaux, 2009; Gioia, 2011; Szwed, 2000).

We endeavored to map the full network of connections among all jazz musicians active in New York City in the 2010 calendar year. A key challenge in social network research is boundary specification – deciding which ties and which people to include (Kilduff & Brass, 2010). In some settings it is clear which people should be included in the network— monks in a monastery, for example (Sampson, 1969). But in settings like ours the boundary can be harder to discern. In our research, we defined a tie as existing between two musicians if they were members of the same band. In the world of jazz musicians, players tend to have multiple “gigs”—i.e., they belong to more than one band<sup>2</sup>. To determine membership in the active jazz band community, we followed a respondent-driven sampling method (see Borgatti, Everett, & Johnson, 2013: 32-35; Wasserman & Faust, 1994: 45-50). This approach utilized a combination of interviews, free-lists, and archival data from online magazines and websites. The network data we collected eventually encompassed 596 musicians, based in NYC, spread across 346 jazz bands.

Specifically, the identification of bands and band members proceeded as follows. Before entering the field, we conducted a search in Factiva looking for jazz groups in New York City that were currently producing jazz. The initial list contained 25 musicians. The first author contacted each musician by mail in which she introduced herself, briefly explained the subject and purpose of the research, and asked the musician for an interview. The first author obtained informed consent from each interviewee and explained that any information they provided that

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<sup>2</sup> For example, one of the most prolific jazz musicians in our sample, Mary Halvorson, was, at the time of data collection, associated with the Anthony Braxton Diamond Curtain Wall Trio, Ingrid Laubrock Anti-House, Crackleknob, a duo with Daniel Levin, Map, Marc Ribot Trio, a duo with Jessica Pavone, a duo with Weasel Walter, the Mary Halvorson Quintet, the Mary Halvorson Trio, the Taylor Ho Bynum Sextet, the Taylor Ho Bynum Trio, the Anthony Braxton Septet, the Anthony Braxton twelvetet, Thirteenth Assembly, the Tom Rainey Trio, and a quintet called Yore.

was not already in the public domain would be anonymous. During the interviews, musicians recommended relevant others and provided contact details. To supplement this procedure, the first author also documented notices of performances scheduled during the period of data collection. Between November 2009 and June 2010, she contacted 106 New York City (NYC) based jazz musicians. Three musicians declined interviews, 32 never replied, 71 agreed to be interviewed, and 60 interviews were arranged with 61 musicians (there was one double interview). As part of the interview, she asked respondents to list the bands of which they were members and to list their collaborators.

Overall, this set of processes provided a list of 288 jazz bands from which we excluded 12 bands who were either not associated with jazz, were not operating at a professional level (college bands or bands impossible to trace on the internet) or were not based in NYC. Based on concert agendas published in relevant magazines, such as TimeOut New York, we added another 70 NYC-based bands. The resulting network represented joint membership in 346 jazz bands of 596 jazz musicians based in NYC. We then used the “affiliations 2-mode to 1-mode” procedure in the software program UCINET to convert this people-by-bands (2-mode) network into a musician-by-musician (1-mode) network in which a tie indicated that two people were members of the same band (Borgatti, Everett, and Freeman, 2002).

## **Variables**

**Band creativity.** We drew on the consensual assessment approach to the measurement of creativity: products are creative to the extent that appropriate observers agree that they are creative (Amabile, 1996: 33). We recruited three judges, living in Paris, France, with deep

domain-specific knowledge of jazz<sup>3</sup> to evaluate the creativity of the 203 (of 346) teams that produced at least one album in the previous three years. The three male judges were, in 2010, aged 47, 55, and 64 respectively, and each had over 20 years of experience in the jazz industry, including experience producing jazz recordings.

For each band in our sample, we selected the most recently released album, and from each album, we randomly selected a song to list in randomized playlists that were evaluated by the judges. All visible identifiers (band name, song name, and release year) were removed from these playlists to exclude any possible biased appraisal of the music (e.g., Phillips, 2011).

After reviewing the items previously developed by Amabile (1996: 41-59) to examine artistic creativity, we adapted six items for use in our creativity scale. Each judge used the scale to independently evaluate (1= “Not at all”; to 5 = “Very much”) the extent to which a piece of jazz music: (1) sounded “original and fresh”; (2) “inspiring to you as a connoisseur”; (3) “takes you by surprise”; (4) “matches your understanding of jazz and its possibilities”; (5) “coheres as a unity”; and (6) “reflects technical virtuosity and/or precision.”

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 Table 1 about here  
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Table 1 shows that the six-item scale exhibited two underlying factors, which we labeled “novelty” and “mastery of convention”<sup>4</sup>. Inter-rater reliability (Cohen’s kappa) for the novelty

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<sup>3</sup> Following Amabile’s advice, the judges were not “preselected on any dimension other than their familiarity with the domain” (1996: 42).

<sup>4</sup> For the second dimension, we chose the label “mastery of convention” rather than the more commonly used label of “usefulness” (Amabile, 1996) because the notion of usefulness is misleading in the context of creative music. Music is not more or less useful; it is more or less technically sophisticated in the sense of displaying a mastery of musical conventions (Becker, 1982; Godart, Seong, & Phillips, 2020).

and mastery of convention items was .94 ( $Z < .001$ ) and .93 ( $Z < .01$ ), respectively, well above the accepted threshold of .61 (Kvalseth, 1989). Cronbach's alpha for the scale was 0.83. Given our view of creativity as consensually determined, inter-judge reliability here is akin to construct validity: "if appropriate judges independently agree that a given product is highly creative, then it can and must be accepted as such" (Amabile, 1996: 43). We computed an overall score for band creativity by adding the average scores for "novelty" and "mastery of conventions." To get a sense of the language the judges used to anchor their judgments of creativity, see the Appendix.

**Band popularity.** Our measure of band popularity was based on the extent to which a band's most recent album was shared among consumers on Souseek, an online music-sharing platform. In comparison to other such platforms operating around 2019, such as Isohunt or KAT, that primarily focused on film and television content, Souseek only offered audio file sharing. We counted the number of times an album was shared among users of the platform. We used the log of the variable to address high kurtosis.

**Band longevity.** This measure is a count of years since 2010 (when the network data on the bands were collected) that the band mounted its most recent performance. We obtained these data by querying, in December 2021, a contemporary jazz website, popular with jazz musicians and fans: [www.allaboutjazz.com](http://www.allaboutjazz.com).

**Formal leader.** It is common practice in jazz to name the band after its formal leader. Thus, this variable was coded as 1 if the band had a formal leader and as 0 otherwise. Of the 346 teams in our sample, 250 had formal leaders. To determine whether a band had a formal leader we first checked to see if the band was named after a particular musician in the band (e.g., Mary Halvorson Quintet). In cases where it was unclear whether the band had a formal leader, we

examined record reviews and checked to see if the review mentioned a band leader or noted that the band was a collaborative enterprise with no formal leader. Duos -- bands comprised of two members -- may constitute a special kind of collaboration. Except for one duo in which one member was formally mentioned as a leader, we coded formal leadership as 0 for duos.

### **Network Leaders**

Given the exploratory focus of our investigation, network leadership was conceptualized in two different ways, as status and as brokerage. We computed status in terms of eigenvector centrality (Bonacich, 1987)<sup>5</sup> and brokerage in terms of betweenness centrality<sup>6</sup> from the one-mode musician-by-musician network.

Eigenvector centrality considers both direct and indirect connections in a recursive procedure that captures the extent to which an individual is connected to well-connected others (Bonacich, 2007). A high eigenvector centrality score indicates that the individual is connected to individuals who are themselves well-connected. Thus, an actor's eigenvector centrality is proportional to the sum of centralities of the actors to which the actor is connected. Eigenvector centrality scores are only interpretable if they are based on a connected network, so we confirmed that the network of ties between musicians was fully connected. The eigenvector centrality score is interpretable as a measure of reputability and status in information and resource exchange networks (e.g., Ballinger, Cross, & Holtom, 2016; Bonacich & Lloyd, 2015; Burt & Merluzzi, 2014; Mehra et al., 2006). We measured eigenvector centralities using the network analysis package UCINET (Borgatti, Everett, & Freeman, 2002).

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<sup>5</sup> For the formula, see Borgatti, Everett, & Freeman (1992).

<sup>6</sup> See Freeman (1979) for rationale and formula.



The betweenness of an actor in a network is the extent to which an actor falls along the shortest paths between all other pairs of actors in a network (Freeman, 1979). An individual who has a high betweenness centrality is akin to a bridge connecting others in the field. Previous work shows that the betweenness of individuals predicts innovative performance (Mehra, Kilduff, & Brass, 2001); and employees whose bosses occupy bridging positions in the network of bosses exhibit radical creativity (Venkataramani, Richter, & Clarke, 2014).

**Number of network leaders in the band.** We coded an individual as a network leader if she or he had a centrality score in the top five percent of our sample (for a similar approach to identifying those with exceptional network connectedness, see Grigoriou & Rothaermel, 2014). We measured network leadership in two different ways as betweenness centrality and as eigenvector centrality, corresponding to the two alternative conceptualizations of network leadership. Thus, this variable was represented by two different measures<sup>7</sup>. We used the log of the measures to address high kurtosis.

**Formal leader is network leader.** For bands with formal leaders, we scored the formal leader as a network leader if the formal leader also scored in the top 5 percent of centrality scores (variable = 1; otherwise = 0) for betweenness centrality (brokerage network leadership) or eigenvector centrality (status network leadership).

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<sup>7</sup> In our sample, network leaders we identified using the eigenvector-based approach included Mary Halvorson, Taylor Ho Bynum, Jessica Pavone, and Nate Wooley. Network leaders using the betweenness based approach included Dan Weiss, Nate Wooley, David Smith, and Loren Stillman.

## Control Variables

**Band visibility.** This was measured as the total number of times a band was mentioned in the public press over the period December 2005 to December 2010. We used the log of the variable to address high kurtosis.

**Band experience.** Previous research shows that experience working as a team influences the creativity of teams (Gino, Argote, Miron-Spektor, & Todorova, 2010; Taylor & Greve, 2006). Band experience was measured as the total number of concerts played by the band before 2010 (dating back to 2005) as indicated on performance agendas published in daily newspapers, magazines, and specialized press (e.g., *JazzTimes* and *All About Jazz*) available through LexisNexis. We used the log of the variable to address high kurtosis.

**Band size.** The effects of team size on team outcomes are well-documented (e.g., Cummings, Kiesler, Bosagh Zadeh, & Balakrishnan, 2013). Out of the 346 bands, there were 46 duos, 96 trios, 92 quartets, 60 quintets, 24 sextets, 9 septet, 9 octets, 5 nonets, and 5 “big” bands with 10 members or more. We calculated band size as the total number of musicians in a team, logged to address high kurtosis.

**Inverse Mills ratio.** Sample selection bias refers to problems where the dependent variable is observed for only a restricted, nonrandom sample. A potential selection bias might exist in our regression analysis because the unit of analysis is the album ( $n = 203$ ), whereas many teams ( $n = 143$ ) included in the full network had not yet released any albums. All teams that produced a record were selected non-randomly from the population of teams. Following prior research (e.g., Kilduff, Crossland, Tsai, & Bowers, 2016), we used a Heckman two-stage approach (Heckman, 1979) to correct potential bias. First, using a Probit model, we regressed the binary variable “album” (whether a team had released an album or not) on three different

variables that seemed likely to affect album production: (1) a categorical variable that reflected whether a team had a formal leader; (2) a variable reflecting team size; and (3) a variable that captured prior team experience, as reflected in previous concerts performed as a team. A variable that measured the number of past reviews acted as our instrument (Bascle, 2008). Based on the results of the Probit regression, we calculated the inverse Mills ratio. Second, we included the inverse Mills ratio as a control in our analysis.

### ANALYSIS

For analyses predicting band creativity and band popularity, we used OLS regression to derive coefficients. Given the possibility for multicollinearity between our measures of network leadership, we confirmed that VIF scores were acceptable (scores were less than 2.5 for the network leadership variables and less than 4.3 for other variables). Given the non-random nature of our network sample, standard significance tests can produce misleading results (Borgatti, Everett, & Johnson, 2013: 144). We therefore relied on a permutation-based node-level regression routine in the software package UCINET 6 (Borgatti et al., 2013: 157-158). This routine uses ordinary least squares regression to derive coefficients whose significance is then assessed using a permutation-based procedure (Borgatti et al., 2013: 144-147)<sup>8</sup>. Band longevity is an over-dispersed count variable. We therefore used negative binomial regression—a generalization of the Poisson model that accounts for overdispersion—for analyses predicting band longevity (Greene, 1997).

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<sup>8</sup> The pattern of significance was the same irrespective of whether we computed *p*-values using the permutation-based approach or the standard OLS approach.

## FINDINGS

What kind of leadership promotes the creativity, popularity, and longevity of audience-facing teams in the creative industries? Does formal leadership promote these outcomes? Or is it what we term *network leadership*, that is, leadership that taps into resources accessible through the relationships that connect people across different teams? And if it is network leadership, is this best understood as brokerage across gaps in the network, or the status that derives from connections to the best-connected people in the creative field?

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 Table 2 about here  
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Table 2 provides preliminary answers to our research questions in terms of descriptive statistics and correlations among the variables. Table 2 shows that jazz bands with formal leaders tended to be less creative than jazz bands without formal leaders ( $r = -.29, p < .001$ ). Further, it was high status rather than brokerage that characterized effective network leaders: jazz bands with high-status members (as measured by the number of band members with high eigenvector centrality scores) tended to be creative ( $r = .26, p < .001$ ) and popular ( $r = .25, p < .001$ ) whereas the presence of highly-ranked brokers in a band (as measured by the number of band members with high betweenness centrality scores) did not significantly affect a band's creativity or popularity.

### **Band Creativity**

Were the regression results, which controlled for the effects of several theoretically relevant variables, consistent with these correlations? The answer is: yes. The results of OLS regressions predicting band creativity are shown in Table 3. Model 1 shows that bands were more creative if they were experienced ( $b = 0.45, p < .01$ ) and smaller in size ( $b = -0.94, p <$

.001). Model 2 shows that, accounting for the effects of these control variables, bands with formal leaders, relative to those without formal leaders, produced music that was deemed less creative by judges ( $b = -0.39, p < .05$ ).

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 Table 3 about here  
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One formal band leader in our sample made remarks that help explain the negative effects of directive leadership on team creativity: “I tend to bring in a composition once I have a very clear idea of what I want it to sound like and what I want to achieve by playing the piece, so that I can then articulate it to everyone else in the group and communicate it.” Another formal band leader told us: “I just give them a new page and say this is the tempo.” By contrast, a member of a leaderless band told us: “We all write compositions for the group and then bring them in and then collectively make changes and rearrange them.” When teams are comprised of musicians or other creative people, formal leadership may interfere with the self-organization and coordination that help teams achieve creativity.

Irrespective of whether the jazz band had a formal leader or not, the question arises as to whether the number of network leaders in a band affected the band’s creativity. The results in Model 3 of Table 3 show that the number of status-based network leaders in a band predicted the extent to which the band produced creative music ( $b = 0.52, p < .001$ ). Brokerage-based network leadership did not significantly affect band creativity ( $b = 0.02, ns$ ). Model 4 shows that if a band did have a formal leader, it was more creative to the extent that the formal leader was a high-status network leader among New York City jazz bands ( $b = 0.42, p < .10$ ).

### **Band Popularity**

Model 2 in Table 4 shows that the presence of a formal leader was not a significant predictor of jazz band popularity ( $b = 0.02$ , *ns*). Model 3 shows that the presence of status-based network leaders in a band predicted the band's popularity ( $b = 0.50$ ,  $p < .001$ ) but there was no significant effect of the presence of network leaders in a band when network leadership was defined as brokerage ( $b = -0.09$ , *ns*).

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 Table 4 about here  
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### **Band Longevity**

As shown by the non-significant results across all models in Table 5, there was no evidence that formal leadership by itself affected jazz band longevity. But, as Model 5, Table 5 shows, formal leaders who also had status in the creative field as network leaders did positively affect band longevity ( $b = 1.32$ ,  $p < .01$ ). Moreover, bands with a history of popularity tended to survive ( $b = 0.44$ ,  $p < .01$ ) whereas creative bands were less likely to endure ( $b = -0.65$ ,  $p < .001$ )<sup>9</sup>.

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 Table 5 about here  
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### **Auxiliary Tests**

In our dataset, a musician can belong to multiple bands. Indeed, it is this membership of individuals across bands that leads to the emergent network structure of the field in which some individuals are well-connected, and others are not. It is possible that the ties between bands

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<sup>9</sup> The size of the coefficient in a negative binomial model represents the effect of the variable on the logarithm of the dependent count variable.

create a situation where the errors in our regression are not independent. Of course, we cannot test this directly (because we cannot observe the errors) but we can test for autocorrelation in our residuals. To do this, we estimated a band-level regression model, collected the residuals, and then ran a spatial autocorrelation test using Geary's  $C$  (Cliff & Ord, 1972) to determine whether bands with ties to each other tended to have more similar residuals. Geary's  $C$  varies between 0 and infinity, with 1 indicating independence and values closer to zero indicating positive autocorrelation. This was paired with a QAP permutation test to determine significance. A separate test was conducted for each dependent variable.

We found no evidence of autocorrelation when the dependent variable was band creativity (*Geary's  $C = 0.58, ns.$* ) or band longevity (*Geary's  $C = 0.57, ns.$* ). However, there was some evidence of network autocorrelation when the dependent variable was band popularity (*Geary's  $C = 0.49, p = .03.$* ). This suggests that the results predicting band popularity should be interpreted with caution. However, the extent of autocorrelation is modest: a QAP regression using band-to-band ties to predict squared differences in residuals explained only 0.1 percent of the variance.<sup>10</sup>

One of the implications of using the eigenvector-based approach to measure network leadership in the context of 2-mode data is that musicians who played in larger bands were more likely to be assigned higher eigenvector centrality scores. Could network leadership be the straightforward result of playing in larger bands? To examine this possibility, we computed, for each musician, a measure capturing the average size of the bands the musician played in and entered it as a control variable in our regression models. This measure, as expected, was

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<sup>10</sup> With 346 bands, there were 59,685 dyadic observations in the autocorrelation tests. This large sample size explains in part why a modest level of autocorrelation can be significant.

significantly correlated with the eigenvector-based measure of network leadership ( $r = 0.29, p < .001$ ). However, this variable was not a significant predictor of band creativity ( $b = 0.02, p = .76$ ), band popularity ( $b = -0.01, p = .93$ ), or band longevity ( $b = -0.11, p = .41$ ) and its inclusion did not alter the pattern of support for the effects of eigenvector-based network leadership on the band's creativity and the band's longevity. These results suggest that network leadership was not merely a matter of playing in large bands; it also mattered how well connected the people one played with were.

We coded team creativity based on judges' evaluations of one randomly selected song from each album being judged. As an alternative approach to coding the creativity of an album, we selected the most popular song from each album using data from the free music streaming site Last.fm. After assembling the playlist, we randomized and anonymized each list and asked our three judges to code each song's creativity using the six-item, 5-point creativity scale described above. This alternative measure of creativity was significantly correlated ( $r = 0.58, p < .001$ ) with our original measure of band creativity. We re-ran the regression models in Table 3 using this alternative coding of creativity. The pattern of significant results was the same for all three dependent variables, with two exceptions: the effects of having a formal band leader went from being significant ( $b = -0.46, p < .001$ ) to marginally significant ( $b = -0.36, p = .07$ ); and the effects of a formal leader also being a status-based network leader went from being marginally significant ( $b = 0.42, p = .07$ ) to not significant ( $b = 0.41, p = .16$ ). The number of network leaders in a band remained a strong predictor of the band's creativity ( $b = .60, p < .01$ ).

We failed to find evidence that brokerage-based network leadership affected creativity of jazz bands. However, it could be argued that the creative benefits for jazz bands of network leaders who span across gaps in the social structure are only available if these network leaders



have the status that ensures their ideas are regarded by their colleagues as legitimate (Burt, 1992). We created a new measure that identified the number of people in each band who both scored in the top five percent for eigenvector centrality and the top five percent for betweenness centrality. This new variable was not a significant predictor of band creativity ( $b = .04, p = .66$ ); and the inclusion of this variable did not change the results. It was the presence of individuals who were network leaders in the sense of being well connected to individuals who were themselves well connected that was positively associated with a band's creativity ( $b = .43, p < .05$ ).

One could argue that duos—teams of two persons—represent a special kind of team in which collaborative interactions tend to be especially intimate and intense (Rouse, 2016). Our sample included 46 duos, of which 15 produced an album. We included a dummy variable that was coded as 1 if the team was a duo. This variable was not significant in any of the regression models, except when predicting band longevity: Duos were marginally less likely than non-Duos to persist ( $b = -0.88, p = .08$ ). The inclusion of this additional control variable did not change the pattern of results reported in the tables.

Teams composed of demographically diverse individuals can be more creative than homogenous teams. To account for this possibility, we used Blau's (1977) index of heterogeneity to assess the demographic diversity present in each team. We focused on race and gender because both are readily visible attributes and have implications for emergent team processes (such as cooperation and conflict) that relate to team outcomes. This heterogeneity index was not a significant predictor of creativity ( $b = -0.48, p = .26$ ); and its inclusion did not change the pattern of results reported in Table 3.

We checked to see if accounting for differences in the level of attention given to an album by the media changed the pattern of significance reported in Tables 3, 4, and 5. The inclusion of a control variable that counted the number of reviews that the album received in the press was not a significant predictor of band creativity ( $b = .01, p = .83$ ) and the inclusion of this variable did not change the pattern of results reported in the tables. Media attention predicted band popularity ( $b = 0.11, p < .01$ ). Even with this additional control in the regression model, however, the number of network leaders in a band (as measured by eigenvector centrality) was a significant predictor of band popularity ( $b = 0.50, p < .01$ ). Media attention was not a significant predictor of band longevity ( $b = -0.14, p = 0.30$ ), and its inclusion did not change the pattern of results reported in Table 5.

Our approach to network leadership has focused on the best-connected people in an overall field. We used a cutoff of 5 percent to identify network leaders (for a similar approach to identifying network stars, see Grigoriou & Rothaermel, 2014). We found the same pattern of results, albeit a little weaker, using an alternative 10 percent cutoff. Last, we checked for, and ruled out, the possibility of a curvilinear relationship between the number of network leaders in a band and the band's creativity, popularity, and longevity.

## DISCUSSION

Through a study of jazz bands in New York City, we sought answers to exploratory questions concerning the leadership of creative teams. First, we asked how formal leadership of these teams affected creativity and band popularity? We found that teams with formal leaders, compared to those without formal leaders, were less creative. Formal leadership was unrelated to band popularity. Second, we asked how the presence of network leaders affected these outcomes? We found that the presence of network leaders in jazz bands had positive effects on

both creativity and popularity. The subsidiary question concerned how to conceptualize network leadership in the context of team creativity. Our research showed that network leadership in terms of the status that derives from connectedness to the well-connected positively affected creativity and popularity whereas network leadership in terms of brokerage did not.

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Figure 1 about here  
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Our findings are summarized in Figure 1, which represents a template for future research rather than a set of conclusive results<sup>11</sup>. Figure 1 suggests that network leaders fuel the creativity of the teams to which they belong. And this network leadership derives from the connectedness of the network leader across the competitive landscape of self-managed team organizations rather than from brokerage across disconnects. The status that comes from being well-connected across the field of small organizations is more important in the context of these creative teams than the brokerage across structural holes that has been shown to be important for formal leaders of teams within the more siloed world of large organizations (e.g., Venkataramani et al., 2014). The timely movement of knowledge and information from one place to another emphasized in structural hole theory (Burt, 1992) is important in managing the process by which separated professional groups are coordinated (e.g., Kellogg, 2014); but this kind of brokerage may be less important for creativity and popularity in the creative industries than access to the elite people who control resources and set trends (e.g., Friedman & Laurison, 2020).

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<sup>11</sup> In a path analysis, we found the model depicted in Figure 1 fit the data well (*Chi-square* = 8.92, *df* = 9, *p* = .45). All control variables, and the betweenness based measure of network leadership, were included in the path analysis but are not depicted in the figure to enhance visual clarity.

A recent review noted the absence of work on interconnectedness across teams and called for researchers to examine whether teams composed of individuals who are exceptionally well-connected outside their team outperform others (Park, Grosser, & Roebuck, 2020). Our findings suggest that the creativity of teams was enhanced by the presence of more than one well-connected network leader, in contrast to the situation within organizations where too many network stars within a team (as identified by the members of the teams themselves) can inhibit learning and experimentation (Li et al., 2020). In contrast to work suggesting that stars can hinder the emergence of other leaders in a team (Kehoe & Tzabbar, 2015) and stifle the contributions of others, we found that the presence of many network leaders in a team did not spoil the tune. Our findings align with research on self-organized entrepreneurial teams that suggests that new trends and tacit knowledge are available to people who belong to more than one team. These network leaders are “multiple insiders” who contribute to the creative dynamism within teams whereas brokers who span across structural holes do not (Vedres & Stark, 2010).

Our finding that formal leadership negatively affects team creativity contrasts with the large literature on the positive benefits of leadership for teams in which creativity is not the primary outcome (see the review by Hughes et al., 2018). Our findings are also discrepant with prior research concerning how maestros in fields such as classical music (Marotto, et al., 2007), high-end restaurants (Bouty & Gomez, 2010), and dance troupes (Rouse & Harrison, in press) drive peak performance through their dominance of team members. We did find that formal leaders who were also network leaders positively affected the creativity of their teams, a finding which is compatible with research on three famous band leaders (Duke Ellington, Art Blakey,

Miles Davis) who combined a developmental, collaborative leadership style with high status in the creative field (Humphreys, Ucbasaran, Lockett, Colville, Brown, & Pye, 2012).

As Figure 1 reminds us, it is not just creativity that the network leadership of small team organizations in the creative industries facilitates but also the popularity of the creative product with audiences. There has long been tension within the creative industries between the desire for creativity and the necessity of audience popularity, between innovation and commerce (Negus, 1995). The pursuit of creative work often involves a departure from tradition and a focus on originality and technical prowess. Historically, bebop jazz musicians were criticized as rebels who had thrown over the earlier swing tradition and whose music was such that, as an article in Collier's complained, "You can't sing it. You can't dance it. Maybe you can't even stand it" (Gioia, 2011: 200). The path that enhances creativity, as the beboppers were well-aware, can be a different one than that which enhances a band's popularity.

Given this tension between the pursuit of popularity and the engagement with creativity, the tentative but significant findings summarized in Figure 1 are encouraging: the creativity of teams, we suggest, helps rather than hurts the popularity of team creative products. Given the statistical results, the path between creativity and popularity in Figure 1 could be drawn in either direction. Taking into consideration the literature on the tendency of organizations enjoying success to persist rather than innovate (Levinthal & March, 1993), we intuited that creativity drove popularity rather than the other way round, a conjecture that invites future research.

The story concerning the longevity of teams is different: the higher the creativity of the team, the shorter its longevity, perhaps because creativity can engender a range of negative outcomes in teams including disinhibition leading to dishonesty, cognitive depletion, and work-life imbalance (Khessina, Krause, & Goncalo, 2018). Moreover, creative workers, whether in

jazz bands or in Silicon Valley startups, may exhibit a greater willingness to move across organizational boundaries compared with employees negotiating careers within internal labor markets (Saxenian, 1996).

### **Limitations and Boundary Conditions**

The challenges that jazz bands face as they strive to create new music are different from the challenges facing teams in large corporations. As others have noted (e.g., Heath & Sitkin, 2001), research that focuses on large organizations can limit our understanding of concepts central to organizational behavior, especially given that most people are employed in small organizations (Granovetter, 1984). Similarly, the teams we studied compete directly for audience attention in the marketplace and are therefore different from advertising teams that create products for clients; and from corporate inventor teams that present ideas for patenting (see Perry-Smith & Mannucci, 2017). Our findings have limited generalizability for these kinds of teams within bureaucratic settings and for those teams whose efforts are focused purely on routine tasks (e.g., Clarke, Richter, & Kilduff, 2021).

Our research is limited in being unable to trace the emergent leadership within teams that has been the focus of much research within bureaucratic contexts (e.g., Hanna, Smith, Kirkman, & Griffin, 2021). In the absence of formal leadership of small organizational creative outfits, if the network leader also plays the role of coordinator within the team, does this boost or harm team processes? Current research on emergent leadership is scattered across many different literatures that focus on internal dynamics rather than on the external status or brokerage of resource providers (Cox, Madison, & Eva, 2022; Lungeanu, DeChurch, & Contractor, 202). Our portrayal of network leaders has been positive, but it is also possible that some network leaders use their influence to damage individuals' careers rather than to enhance them. We need more

research on how externally focused leadership affects outcomes that include not just team creativity and popularity but also the careers of individuals within and across teams (e.g., Kilduff, Crossland, Tsai, & Bowers, 2016).

We examined network leadership exclusively in terms of network connections. However, one could also be a leader in terms of previous exemplary performance or creativity (e.g., Li et al., 2020). Are these bases of leadership substitutes for one another when it comes to their effects on team creativity? We lacked historical performance data, so we were unable to examine how team creativity was shaped by leadership grounded in social networks, relative to leadership grounded in prior performance (Grigoriou & Rothaermel, 2014).

Our measure of band longevity focused on a band's most recent performance (since 2010). We were not able to distinguish between a disbanded jazz band and a dormant one that might re-form and play at a future time. Creative groups can go through periods of dormancy before performing again.

We lacked the data necessary to unpack the temporal linkages between network leadership at the individual level and creativity at the team level. Perhaps the individuals who were exceptionally well-connected in the field were themselves exceptionally creative individuals, and it was their exceptional creativity, rather than their exceptional connectedness in the field, that was the foundation of their team's creativity. We suspect that the direction of causality runs in both directions. It is likely that creative musicians are pulled into various bands ("projects," as they are often described by jazz musicians) with well-connected musicians, so that, over time, they, too, become well connected. However, not every collaboration is equally creative. There is an emergent quality to team creativity that makes it more than just a sum of the creativity of its members. It is not uncommon in the creative industries to find a group of people

who are creative together but whose subsequent efforts, solo or with a different cast of individuals, fail to shine (Sawyer, 2010:11). Moreover, just as creative players contribute to the bands they play in, playing with other musicians contributes, over time, to one's own creativity. A coevolutionary approach seems best suited to understanding this complex dynamic between the creativity of individuals, their location in the field's network, and the creativity of the bands to which they belong.

### **Future Research**

Jazz bands have inspired organizational theorists to speculate about the processes of organizing for innovation (e.g., *Organization Science* special issue on jazz, 1998) but we need new research to see the extent to which our results concerning leadership of jazz bands generalize to contexts within organizations. Contemporary work teams, like the jazz bands we examined, may contain individuals who are members of more than one team at the same time. Our exploratory findings suggest that the presence of externally well-connected individuals may enhance team creativity but may also erode team viability. Individuals who are connected to many teams may find themselves stretched thin and unable to give the band appropriate attention. For example, Vijay Iyer, a well-known New York City jazz musician, noted that the various ongoing endeavors of members of the leader-less ("collective") band, Fieldwork, made it difficult for the band to continue playing: "each of us is pursuing our own individual projects, and it's made it hard for us to connect... [and this] ends up competing with the collective" (McGuire, 2011).

Our findings on jazz bands suggest new research on the network leadership of entrepreneurial teams that are involved in new product development and launch (Conlon & Jehn, 2009). These entrepreneurs resemble jazz musician in that they experience setbacks in uncertain



environments in the form of roadblocks, failures, and disappointments that erode resilience (Blatt, 2009). Jazz musicians and other creative workers often struggle for years to gain visibility while experiencing periods of unemployment and uncertainty (Caves, 2000; Friedman & Laurison, 2019). Future research can investigate the extent to which teams in entrepreneurial contexts in which people belong to several teams (e.g., the global video game industry -- de Vaan, Stark, & Vedres, 2015) benefit from network leadership in terms of positive outcomes such as creativity; but also suffer from negative outcomes such as reduced team longevity (e.g., Vedres & Stark, 2010) and career outcomes (e.g., Kilduff, Crossland, Tsai, & Bowers, 2015).

We need more research on how network leadership evolves (e.g., Carnabuci, Emery, & Brinberg, 2018). Qualitative studies may be particularly useful for identifying the mechanisms by which network leadership influences team creativity and popularity. We have emphasized that status, derived from exceptional connectedness within the field, contributes to band creativity because high status players are able to provide access to resources and ideas shared among elite artists. It is also possible that the connectedness of network leaders inspires team members to produce their finest work. As one of the jazz legend Art Blakey's sidemen once noted, "how could one not become intoxicated" with the awareness of how connected Blakey was to other famous figures in jazz (Goldsher, 2002: 12)? It seems likely that the influence tactics needed in settings such as jazz bands and entrepreneurial teams differ from those used in more formal organizational settings (Mumford et al., 2002). The annals of jazz history contain extensive accounts of how different band leaders coaxed creativity out of their bands, but we lack accounts of how network leaders who were not formal leaders inspired creativity. Collecting systematic data on influence tactics used by such network leaders represents a future research opportunity.

Our focus in this paper is on active ties. However, “ghost ties” (Kilduff, Tsai, & Hanke, 2006) to team members from the past may influence the creativity of actors today. Networks change and evolve over time, so it is possible that current networks do not fully account for observed outcomes. The creativity of a band today can be shaped by members who have come and gone but whose influence lingers. The trumpeter Kenny Dorham’s creativity and finesse in running through chord changes that produced his melodic, airy sound were such that, long after his death, Dorham continued to shape the distinctive sound of the Jazz Messengers (Goldsher, 2002). Ties from the past, from this perspective, can produce a relational residue, a “network memory,” that “project[s] a structural overhang over the present, much like a shadow of the past” (Soda, Usai, & Zaheer, 2004: 893). Perhaps what matters therefore is not just how well-connected one is in the field today but also how well-connected an individual is to important figures in the past. Team members are, at least to some extent, aware of one another’s relational histories. Status and prestige can derive from connections to high-status others from the past, especially those forged during particularly formative periods in an individual’s professional development (e.g., Halgin et al., 2020). The relative influence of past and present connectedness on team creativity is a topic ripe for inquiry.

The question of network leadership itself demands further research in the light of our finding that brokerage leadership had no effects on the outcomes of interest despite prior work on the extent to which brokerage relates to creative ideas (Burt, 2004) and creative production (Long Lingo & O’Mahony, 2010). Our research suggests that it is the status of the people you are in contact with that facilitates access to the resources that fuel your team’s creative and productive output. The context we investigated was similar to the bio-tech network in which innovation by individual firms depended on access to the flow of ideas and resources between

organizations (Powell, Koput, & Smith-Doerr, 1996). Our context was less similar to networks within organizations in which brokerage helps managers compete for promotions and bonuses (Burt, 1992). Creativity and innovation are not always well served by brokerage across separated units (e.g., Ahuja, 2000). Network leaders, to succeed in helping the several teams to which they belong, may need to invest in the onerous process of building and maintaining trust across teams that exhibit different cultures and priorities (Tasselli & Kilduff, 2018).

### **Implications for Practice**

Our study is exploratory, so implications for practice are necessarily tentative. The findings suggest that leaders of small organizations in the creative industries or in entrepreneurial contexts may unintentionally stifle the very creativity they hope to engender if their leadership is based solely on their formal role. Absent the connectedness in the artistic field that provides not only legitimacy but also the possibility of idea recombination and resource access, formal leaders' influence may negate creative endeavors. Further, despite the importance of brokerage for the creativity of individuals within large corporations (e.g., Burt, 2004), leadership that derives from individuals spanning across the landscape of self-organized creative teams—of which the jazz band is an exemplar (e.g., De Pree, 1992)—may prove ineffective in facilitating either creativity or popular success. Finally, our provisional results suggest an unexpected outcome from the successful accomplishment of team creativity: a greater likelihood of non-survival due perhaps to conflicts within teams (e.g., Murnighan & Conlon, 1991) or the availability of opportunities in the wider competitive arena (e.g., Saxenian, 1996). Taken together, our results suggest that the leadership of creative teams is a balancing act involving robust tradeoffs over time between the pursuit of creativity, the practical necessity of some popular success, and the ability of the band to avoid being pulled apart.

## Conclusion

Currently, there is a paucity of research concerning whether leadership matters for small team organizations competing in the creative industries. These teams are typically composed of skilled workers who collaborate intensively in the context of creative projects (Mainemelis et al., 2015). Despite the history of research showing the importance of leadership in formal organizations and in teams, formal supervisory behaviors that may be appropriate for the encouragement of outcomes in non-creative jobs may inhibit creativity in contexts such as jazz bands.

Our study of jazz musicians, exemplars of workers in the creative economy, found that the presence of formal leaders suppresses team creativity whereas the presence of network leaders, i.e., people with connections to the well-connected in the creative field, enhances team creativity. The network leader, by playing a part in more than one team, occupies a multiple insider role that facilitates the recombination of ideas and resources necessary for fueling not only team creativity but also the popularity that helps teams endure.

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TABLE 1  
Factor Analysis of Scale Measuring Band Creativity

Team creativity	Novelty	Mastery of Convention
Originality	<b>0.94</b>	-0.04
Inspiring	<b>0.81</b>	0.24
Unexpected	<b>0.96</b>	-0.10
Conforms to jazz genre	0.11	<b>0.72</b>
Coherence	-0.19	<b>0.73</b>
Technicality	0.20	<b>0.51</b>

<sup>a</sup> Rotated factor loadings, oblique promax. Cronbach's alpha: 0.83.

TABLE 2  
Means, Standard Deviations, and Correlations

	Mean (s.d.)	1	2	3	4	5	6	7	8	9	10	11
1. Brand Creativity	6.41 (0.89)											
2. Brand Popularity	1.25 (0.90)	0.28***										
3. Brand Longevity	1.42 (2.93)	-0.18*	0.19*									
4. Brand Visibility	1.07 (1.30)	0.09	0.37***	0.12+								
5. Brand Experience	0.48 (0.74)	0.09	0.36***	0.21**	0.41***							
6. Brand Size	1.59 (0.31)	-0.33***	-0.03	0.09	0.11+	0.11*						
7. Inverse Mills	0.15 (0.09)	0.04	-0.22**	-0.16*	-0.17**	-0.84***	-0.14**					
8. Formal Leader? (Yes = 1)	0.72 (0.45)	-0.29***	-0.02	0.05	0.16**	0.13*	0.40***	-0.21***				
9. Number of Network Leaders (Eigen.)	0.38 (0.53)	0.26***	0.25***	-0.12	-0.06	-0.06	0.10+	-0.04	0.01			
10. Number of Network Leaders (Bet.)	0.47 (0.46)	0.09	0.11	-0.15*	0.01	0.01	0.20***	-0.04	-0.07	0.55***		
11. Formal Leader in a Network Leader (Eigen.; Yes = 1)	0.11 (0.32)	0.21**	0.20**	0.03	0.05	0.03	0.09	-0.11*	0.22***	0.59***	0.28***	
12. Formal Leader in a Network Leader (Bet.; Yes = 1)	0.11 (0.31)	0.08	0.12+	-0.04	0.08	0.09	0.10	-0.14*	0.22***	0.25***	0.40**	0.42***

Note:  $N = 346$ , except for analyses involving Brand Creativity ( $n = 203$ ) and Brand Longevity ( $n = 222$ ); \*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$ ; +  $p < .10$  (two-tailed tests).

TABLE 3  
Linear Regression Models Predicting Band Creativity

	Model 1	Model 2	Model 3	Model 4
Band Visibility	0.01 (0.05)	0.01 (0.05)	-0.01 (0.05)	-0.01 (0.05)
Band Experience	0.45** (0.15)	0.40** (0.15)	0.51** (0.14)	0.51*** (0.14)
Band Size	-0.94*** (0.20)	-0.77*** (0.20)	-0.78*** (0.20)	-0.78*** (0.20)
Inverse Mills Ratio	3.02** (1.11)	2.55* (1.12)	3.49** (1.08)	3.63*** (1.08)
Formal Leader Yes=1		-0.39* (0.16)	-0.39* (0.15)	-0.46** (0.15)
Num. of Network Leaders (Eigen.)			0.52*** (0.13)	0.34* (0.16)
Num. of Network Leaders (Bet.)			0.02 (0.14)	0.00 (0.15)
Is Formal Leader a Network Leader (Eigen.)				0.42 <sup>+</sup> (0.23)
Is Formal Leader a Network Leader (Bet.)				0.11 (0.20)
F	9.05***	8.63***	10.15***	8.53***
Adj. R squared	.20	.19	.25	.25

\*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$ ; +  $p < .10$  (two-tailed tests).



TABLE 4  
 Linear Regression Models Predicting Band Popularity

	Model 1	Model 2	Model 3	Model 4
Band Visibility	0.18*** (0.05)	0.18*** (0.05)	0.16*** (0.05)	0.16** (0.05)
Band Experience	0.48*** (0.14)	0.48*** (0.14)	0.57*** (0.14)	0.57*** (0.14)
Band Size	-0.13 (0.19)	-0.13 (0.20)	-0.10 (0.20)	-0.10 (0.16)
Inverse Mills Ratio	1.59 (1.09)	1.61 (1.11)	2.44* (1.08)	2.48* (1.09)
Formal Leader (Yes = 1)		0.02 (0.16)	0.01 (0.15)	-0.02 (0.16)
Num. of Network Leaders (Eigen.)			0.50*** (0.13)	0.47*** (0.16)
Num. of Network Leaders (Bet.)			-0.09 (0.14)	-0.12 (0.15)
Is Formal Leader a Network Leader (Eigen.)				0.07 (0.23)
Is Formal Leader a Network Leader (Bet.)				0.09 (0.20)
F	13.36***	10.64***	10.82***	8.40***
Adj. R squared	.20	.19	.25	.25

\*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$  (two-tailed tests).

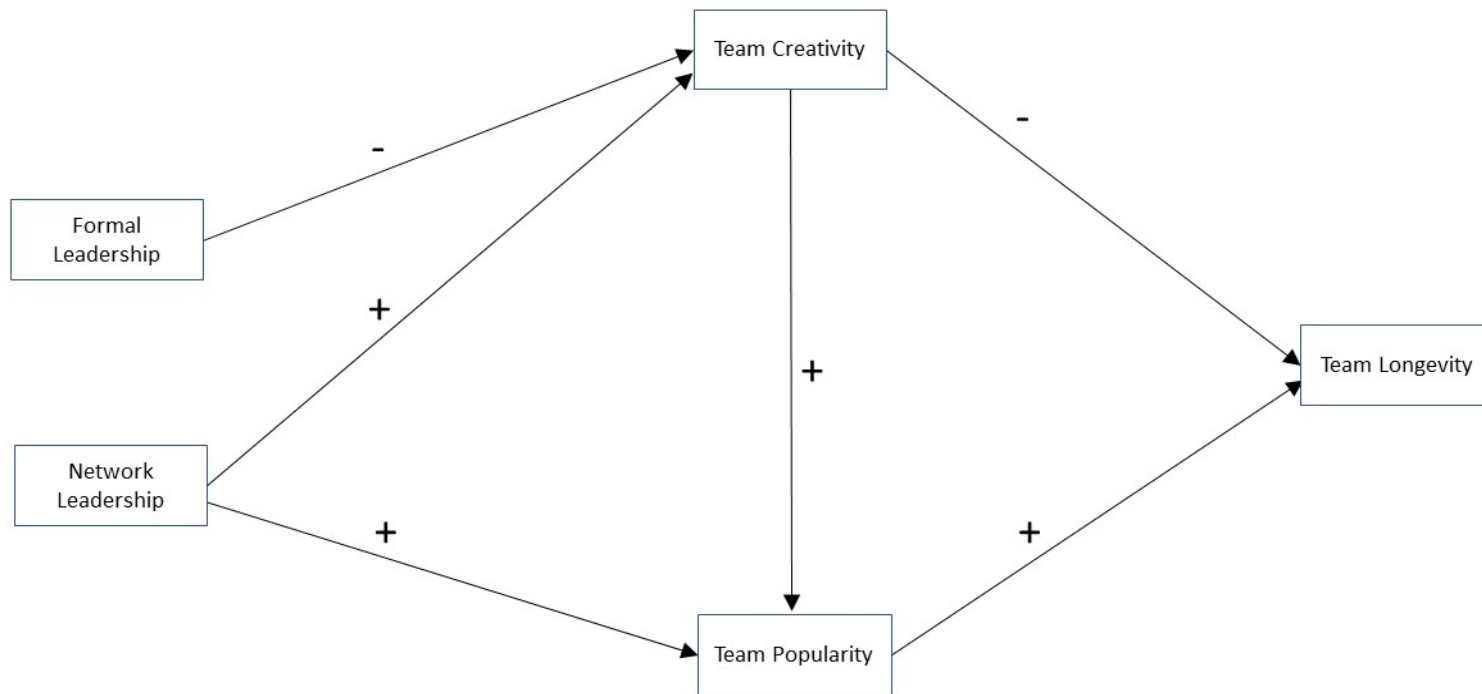
TABLE 5

## Negative Binomial Regression Models Predicting Band Longevity

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model 5</b>
Band Visibility	-0.00 (0.08)	-0.00 (0.08)	0.02 (0.08)	0.03 (0.08)	0.06 (0.10)
Band Experience	0.52* (0.23)	0.56* (0.24)	0.56* (0.24)	0.49* (0.24)	0.32 (0.29)
Band Size	0.65* (0.33)	0.58+ (0.34)	0.87* (0.36)	0.83* (0.36)	0.34 (0.43)
Inverse Mills Ratio	0.68 (1.67)	1.01 (1.74)	0.97 (1.79)	0.33 (1.82)	0.42 (2.09)
Formal Leader (Yes = 1)		0.16 (0.25)	0.06 (0.26)	-0.04 (0.27)	-0.53 (0.32)
Num. of Network Leaders (Eigen.)			-0.22 (0.22)	-1.08** (0.34)	-0.74+ (0.41)
Num. of Network Leaders (Bet.)			-0.82*** (0.24)	-0.61* (0.27)	-0.36 (0.32)
Is Formal Leader a Network Leader (Eigen.)				1.64*** (0.49)	1.32* (0.60)
Is Formal Leader a Network Leader (Bet.)				-0.28 (0.37)	-0.24 (0.46)
Past Creativity					-0.65*** (0.18)
Past Popularity					0.44** (0.16)
Pearson Chi Square	574.27	574.14	542.70	481.86	403.04
Log Likelihood	-352.65	-352.46	-342.10	-335.76	-243.45
Likelihood Ratio Chi Square	24.02***	24.40***	45.13***	57.80***	56.40***

\*\*\*  $p < 001$ ; \*\*  $p < .01$ ; \*  $p \leq .05$ ; +  $p < .10$  (two-tailed tests).

Figure 1  
An Emergent Model



Note: Network leadership is based on eigenvector centrality. Betweenness centrality network leadership and all control variables were included in the path analysis but are not shown here to simplify the diagram. Betweenness based network leadership was not a significant predictor of team creativity, team popularity, or team longevity.

## Appendix

## Sample of Jazz Experts' Aesthetic Judgments of Music

Expert	High Creativity	Low Creativity
1	<ul style="list-style-type: none"> <li>○ Interesting, long, complex, expressive.</li> <li>○ Mysterious, interesting, original, groovy (second part), modern.</li> <li>○ Original, mature, a bit kitsch, strong.</li> <li>○ Dirty, expressive.</li> <li>○ Very interesting sound, nice mood.</li> </ul>	<ul style="list-style-type: none"> <li>○ Conventional, a bit superficial.</li> <li>○ Mature, relaxed, a bit boring.</li> <li>○ Conventional, a bit boring.</li> <li>○ Naïve, not very powerful.</li> <li>○ Very conventional, but well played, relaxed.</li> </ul>
2	<ul style="list-style-type: none"> <li>○ Rock, pop, and, if you will, jazz a la Soft Machine. In other words, <u>JazzPop</u>, with even a little bit of Techno.</li> <li>○ Fantastically staggering pseudo ballad which is not actually a ballad.</li> <li>○ Simultaneously passionate and unbearable. Great guitar. Very good!</li> </ul>	<ul style="list-style-type: none"> <li>○ Jazz, Latino conventional, a bit superficial... nothing special to say about it.</li> <li>○ Very quiet jazz, well played. There is all you need yet it bores me.</li> <li>○ Drum introduction quite cool for a quartet that doesn't really hold any surprises.</li> </ul>
3	<ul style="list-style-type: none"> <li>○ Weird, daring mix of instrumental voices– hard to describe genre though jazz infused.</li> <li>○ Too noisy but fantastic dynamics and innovation– a true breakthrough. Wild and acoustic Zorn tune turned mad.</li> <li>○ Sounds like Tony <u>Malaby</u>. Interesting slow intro. All musicians working together yet in opposition. [They are] building up to... a difficult piece to grasp but that makes it interesting. A strange version of dare I say Night in Tunisia (not really).</li> </ul>	<ul style="list-style-type: none"> <li>○ What is perplexing is that nothing here is perplexing. Just routine easy up-tempo composition with attempts at surprises and vigorous soloing though nothing happens.</li> <li>○ Playful, nothing new sound a la 50s bad Art Pepper/Sonny Cross imitation. No barriers reached or broken.</li> <li>○ Basic treatment of an old idea and tune. Very generic.</li> </ul>

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