Red Giants or Black Holes? The Antecedent Conditions and Multi-Level Impacts of Star Performers

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Red Giants or Black Holes? The Antecedent Conditions and Multi-Level Impacts of Star Performers

ABSTRACT
High-achieving employees, the “stars” of an organization, are widely credited with producing indispensable, irreplaceable, value-enhancing contributions. From the recruitment of celebrity CEOs to the fierce competition for star scientists, and from lucrative contracts for sports icons to out-sized bonuses for top salespeople, human capital strategies have long promoted the importance of star performers. Sixty years of research on stars has witnessed a wide array of contexts, levels of analysis, and sub-dimensions, much of which is focused on the accomplishments of these alpha-tail individuals. More recently, however, scholars have begun to draw varied conclusions regarding both the favorable and unfavorable impacts of star performers, leading to a balkanization of the perspectives comprising the stream. Our review of the multi-disciplinary work on stars synthesizes disparate studies, settles definitional problems, and integrates complementary factors into a coherent formative construct. Through this, we foster the development of a research agenda concerning the manner in which star performers are, by their very nature, simultaneously red giants and black holes, the precise balance of which is fertile soil for future inquiry.

Keywords: Stars, Star Performers, Human Capital, Talent Management, Celebrity

Ya either got it, or ya ain’t.
Some people got it, and make it pay.
Some people can’t even give it away.
You either have it, or you’ve had it!
- Styne, Sondheim, & Laurens,
Gypsy: A Musical Fable

There is no shortage of fault to be found amid our stars.
- John Green, The Fault in Our Stars

INTRODUCTION
Observed from earth, equipped with nothing more than the naked eye, most stars appear more or less the same; yet, stars’ celestial sparkle has inspired countless songs and stories for millennia, while becoming an indelible descriptor of high praise for uncommon human achievement. In organizational contexts, “stars” are widely, and often justly, credited with generating the majority of value-adding contributions in organizations (Fuller & Rothaermel, 2012; Furukawa & Goto, 2006; Zucker, Darby, & Brewer, 1994). According to O’Boyle and Aguinis (2012), stars are so
rare that their impact on organizational outcomes is best understood as a power law distribution, suggesting that a few alpha-tail individuals outperform the other 99.9%.

Management scholarship examining stars and non-stars extends back to Whyte’s (1956) comparative study of outstanding and average performers, a time when massive, globally operating firms dominated a manufacturing-intensive economy and human capital focused more on fitting in than on standing out (McGregor, 1960). Stars, while not an after-thought, did not figure prominently in research on value creation and value capture (McAdam & McClelland, 2002). Through the rise of the service economy and knowledge workers, scholarly focus shifted towards a conception of stars as rare, high-performing individuals, who are afforded significant organizational resources, high external status, wide visibility, who substantial social capital, and who contribute tangibly and forcefully to the competitiveness of firms (Call, Nyberg, & Thatcher, 2015; Porter, 1980). Fueled by real world insights regarding the escalating demand for star-level human capital, McKinsey Consulting’s report, *The War for Talent* (Chambers, Foulon, Handfield-Jones, Hankin, & Michaels, 1998), captured the *zeitgeist* of organizations panic-stricken over an incapacity to attract and retain star performers. In response, strategic human resource management (SHRM) programs made star recruitment and retention a focal point of efforts to drive superior financial performance (Damanpour, 1991; Furukawa & Goto, 2006; Sahay, 2018).

Mirroring this evolving tilt in management research and practice towards star performers, organizational scholars emphasized for decades the positive impacts of stars based on the premise that star performers are indispensable to successful firm performance – a premise that has, until recently, remained largely undisputed (Boynton & Fischer, 2005; Wright, Coff, & Moliterno, 2014), particularly in high-tech industries where stars are thought to exert a significant impact on innovation (Aguinis & O’Boyle, 2014; Corolleur, Carrere, & Mangematin, 2004; Hess &
Rothaermel, 2011; Higgins, Stephan, & Thursby, 2011; Zucker, Darby, & Torero, 2002). For example, Bell Labs developed the largest, most productive private-sector concentration of technical stars ever assembled, producing nine Nobel Prize winners, leading the global race to develop transistors, lasers, Unix, C++, radio astronomy, and photovoltaic cells (Gertner, 2012). But is the narrative on stars so straight-forward? “What if,” as Malcolm Gladwell (2002) asked, “smart people are overrated?” Enron and Theranos were also built by and populated with star performers, many of whom ultimately supported nefarious actions that resulted in felony convictions. Webvan, a start-up built by a star entrepreneur and financed by a star-studded line-up of venture capital firms, including Sequoia and Benchmark, quickly and ignominiously burned through $1.2 billion of investment capital before abruptly shutting down. At a minimum, this suggests that context is a key determinant of a healthy star culture (Dries, 2013).

Recently, management scholars have begun to examine whether there are circumstances in which stars may exert negative impacts on organizational performance. As new studies excavate and describe undesirable aspects of stars and star systems (e.g. Asgari & Hunt 2015; Groysberg & Lee, 2009; Groysberg, Polzer, & Elfenbein, 2011; Kehoe & Tzabbar, 2015) – such as sub-optimal resource allocations, unwanted disruptions to team chemistry, and the crowding out of non-stars - - this research suggests that boundary conditions and greater nuance are warranted. More than anything else, this counterpunctual vantage point on stars has laid bare definitional inadequacies and inconsistencies. While recent studies have begun to formalize an approach to stars research (e.g. Call et al., 2015; Groysberg et al., 2011; Li, Li, Li, & Li, 2020), progress is hindered by under-theorization and a lingering tendency for scholars to line up either for or against the efficacy of star performers. Consequently, the scholarly notion of “stars” still lacks the coherence of what can be reasonably regarded as a rigorous construct (Suddaby, 2010).
As scholars come to the realization that star performers are neither all favorable nor all unfavorable, important questions have arisen, such as: What is an appropriate and useful framework to describe the conditions that help or hinder a star’s ability to elevate organizational outcomes? And, even more basic: Can stars be studied fruitfully, and if so, how?

The purpose of this review is to address these questions by seeking to achieve four central aims. First, we review the existing literature on stars by tracing its definitional heritage and exploring the causes and consequences of its nascent theoretical foundation. Doing so provides much-needed separation from related constructs, while offering a definition of stars that is more relevant and applicable to organizational and management theory. Second, we explore the manner in which stars research has become a “construct-less” stream, and then propose a path forward by calling for a conceptualization of stars as a formative construct. Third, we delve into the specific substance of positive and negative star impacts through a research framework that organizes and integrates the existing literature, while offering a contingency approach to assess the multi-level impacts of star performers. Fourth, we articulate a more nuanced perspective of star impacts, one that embodies the conception that star performers are simultaneously “red giants” and “black holes.” Our review concludes with the challenges and opportunities of formalizing the star concept in management research.

**THE LITERATURE ON STARS**

Scholarly work on star performers has its roots in the post-World War II era of large-scale manufacturing giants (Whyte, 1956). Whyte’s central finding was that in static industries average workers are preferable, while stars are often desirable in dynamic environments. Since that early work, scholars began to identify other attributes of stars such as creativity (MacKinnon, 1966) and prestige (Merton, 1968). Through the subsequent decades, a narrative emerged, conceptualizing
stars as rarefied contributors to firm success. According to Rosen (1981), stars’ productivity is so exceptional that their output cannot be substituted through the work of other employees. Hunter, Schmidt, and Judiesch (1990) showed the importance of stars in jobs with high-complexity in which their productivity was found to be twice that of average workers. Wide acceptance of the ‘War for Talent’ perspective heightened the focus on star power (Michaels, Handfield-Jones, & Axelrod, 2001), and the corresponding belief that stars constitute a material differentiator of organizational success or failure (Bedeian & Armenakis, 1998; O’Boyle & Kroska, 2017). Scholars argued that if value creation hinges on individual contributions, the difference in output between stars and non-stars is a key determinant of firm-level outcomes (Groysberg, Lee, & Nanda, 2008). And yet, the precise impact of stars on both peers and organizations remains equivocal. An increasingly wide range of positive and negative star impacts (Dries, 2013) have emerged in recent years, suggesting that reflection upon the sprawling stars literature is warranted.

**Systematic Search for Stars**

To select a sample for our review, we used the following procedure, which is summarized in Table 1. First, we searched for articles with the term “star” in the title, keywords, or abstract via the EBSCO Business Source Complete (BSC) database. Although BSC publications are relatively free of references to stars in the astronomical sense, this is not uniformly the case. To address this concern, we removed IEEE and similar outlets, containing exclusively astronomical and scientific usage, after which our list contained 952 articles. Second, we made certain that each article’s scope was aligned with the subject of our study, since “stars” is used in many other contexts; for example, “five-star hotels” and “star-shaped networks.” This correction resulted in a set of 466 articles. Third, we excluded works that are not listed in Institute for Science Information’s Web of Knowledge Journal Citation Report, further reducing the number of articles to 308. Fourth, we
removed papers that do not have organizational or managerial implications, such as papers that are biographies of stars. This reduced the pool to 226 articles. Finally, we took an additive step by including articles from parallel fields that were well-cited and highly consistent with our objective of reviewing star performers in an organizational management context. Through this, 4 pieces were added, bringing the total set of articles to 230. The complete list of journals included in our search is enumerated in Table 2 and the pool of reviewed articles is listed in Table 3.

**INSERT TABLES 1, 2 and 3 ABOUT HERE**

Our search reveals a number of interesting trends that influenced the structure and substance of our review. First, the volume of articles on stars has risen markedly in recent years. Use of the term “star” in an organizational management context is eight times higher between 2000 – 2019 than it was in the preceding twenty-year period (Figure 1), indicating expanding scholarly interest in star performers and across an increasing number of journals, particularly since 2009.

**INSERT FIGURE 1 ABOUT HERE**

Second, reflecting scholarly efforts to better define the stars concept in management, there is evidence of increased work to separate the star construct from related terms, such as celebrity and talent (e.g. Aguinis & O’Boyle, 2014; Call et al., 2015; Tzabbar & Kehoe, 2014), upon which we elaborate in the following section. Third, there is an increased effort to dispel the atheoretic foundations of star research by seeking to situate the stars literature in more useful and effective conceptual framing – an issue that we take up in our discussion below of the stars construct. Fourth, research on stars continues to move simultaneously in radically disparate directions. Although escalating interest has spawned a proliferation of research, the stream reflects a lack of integration. A review of the literature on star performers highlights this continuing balkanization.
Literature on the Dimensions of Stardom

Through our review of the existing literature on stars, we identified four recurrent dimensions of stars that have been the primary focus of prior research: (i.) exceptional, long-term, high performance, (ii.) broad external status, (iii.) visibility in the labor market, and (iv.) substantial social capital. To date, studies have typically focused on select subsets of these four dimensions, rather than treating all four elements in holistic fashion. For example, Call and colleagues (2015) focus on three of the four dimensions – choosing to omit external status – but do so while treating stars as a reflective rather than a formative construct, an important topic upon which we elaborate later. Call and colleagues succeed in developing an insightful motivational framework and fostering improved understanding and application of the star construct among social psychologists. However, their omission of external status and their use of a reflective approach to the star construct are emblematic of the difficulties scholars have faced in their varied attempts to maintain logical coherence and avoid tautological reasoning in conceptualizing stars (Suddaby, 2010). Building on the need for a less-balkanized framework, Figure 2 offers a conceptual integration of these key dimensions, which we detail in the sections that follow.

**INSERT FIGURES 2 AND 3 ABOUT HERE**

*Performance.* The primary focus of the literature on stars involves their out-sized productivity. This central preoccupation is evident in Figure 3. While all of the articles in our review materially incorporated the performance dimension, each of the other three dimensions were included less than half the time. Nearly one-third of the articles described stars solely in terms of the performance dimension. This inconsistency underscores the extent to which high performance is a necessary, but insufficient condition of stardom.
Aguinis and O’Boyle (2014: 313) define stars as “a few individuals who contribute a disproportionate amount of output." Stars sit atop the performance pyramid (O’Boyle & Aguinis, 2012; Kehoe, Lepak, & Bentley, 2018) as high-achieving individuals who generate tremendous innovative value (Kehoe & Tzabbar, 2015; Liu, Mihm, & Sosa, 2018). The emphasis on stars’ performance is rooted in three seminal theories governing the value of human capital: resource-based view (Barney, 1991), knowledge-based view (Grant, 1996), and knowledge externalities and spillovers (Chen et al., 2020; Griliches, 1979; Jaffe, 1986). In a service-sector-driven, knowledge-based economy, the value of stars’ rare and valuable knowledge, capabilities, skills, and insights is made manifest through an out-sized ability to identify and engage new knowledge domains, while directing organizations towards the achievement of superior performance (Hitt, Biermant, Shimizu, & Kochhar, 2001; Kehoe et al., 2018).

The centerpiece of stars’ unique ability to create value, and that which distinguishes them from average performers, is the direct impact that stars can have on organizational performance. For example, in innovative pursuits (Liu et al., 2018), stars often possess the capacity to develop transformative approaches and profitable solutions, often independent of organizational support structures. There is also an emphasis in star research on time. Star performance is partially characterized by its longevity in that stars are those who maintain a high level of performance over a sustained period of time, thereby differentiating them from “flash-in-the-pan” performers and “one-hit wonders” (Call et al., 2015). The emphasis on duration minimizes the likelihood that stardom is strictly serendipitous. Although it is conceivable that some stars emerge purely as the consequence of chance (e.g. Fitza, 2014), the requirement that stars exhibit sustained exceptional performance makes this less likely (Aguinis & O’Boyle, 2014).
**Status.** As society plays an important role in how stars are defined, status is an inescapable dimension of stardom and stars are found to heavily populate higher levels of social hierarchies (Kehoe et al., 2018). Status is principally, though not exclusively, a function of a star’s actual performance as well as the attributes of that performance as they are perceived by others, which underscores the sense that stardom is at least partially in “the eye of the beholder.” According to social comparison theory (Festinger, 1954), stars are likely to activate socially driven arrangements and to exert influence on the social fabric of firms. According to Sauder, Lynn, and Podolny (2012: 268), “Status, for organizations as well as individuals, is broadly understood as the position in a social hierarchy that results from accumulated acts of deference.” Status is best defined as the level of respect and admiration that an individual receives (Magee & Galinsky, 2008). Scholars have distinguished between exceptional internal and external status, noting that internal status involves high levels of status among teams and organizations, while external status refers to broad exceptional status across an industry (Kehoe et al., 2018). Here, too, there are time-related effects associated with the durability of status and stars tend to enjoy high levels of external status over an extended period of time.

**Visibility.** History is rich in its accounts of brilliant individuals who passed undiscovered in their lifetimes. Vincent van Gogh, who sold only a single painting while alive, has had his works gaveled at more than $80 million in recent years, highlighting the extent to which stardom is not only temporally dependent, but also socially situated, such that visibility is highly relevant. By implication, then, stars are those who garner disproportionately high levels of attention and enjoy high levels of visibility in the labor market (Groysberg et al., 2008). Visibility has deep roots in the literature on celebrities, where scholars have studied stars’ disproportionate media attention and the popularized impact of celebrities’ emotional resonance (Hubbard et al., 2018). Call et al.
(2015: 626) defined visibility as “the extent to which an employee’s job performance and reputation are observable.” Management scholars have studied the visibility of high-achievers sparingly, but with some important insights that suggest fertile soil for additional research. For instance, Connelly and colleagues (2011) found that a star’s visibility serves as a key source of information signaling the quality of firms with which she or he is affiliated. Others (e.g. Oldroyd & Morris, 2012) have concluded that visibility can lead to more resources, opportunities, and peer effects. As with status, visibility can arise within organizations or societally. Groysberg and colleagues (2008) show that stars are likely to enjoy high levels of visibility in the external labor market, extending over long periods of time. However, the same socially-driven temporal effects that have enabled the works of van Gogh to age well, can work against a fading star, as visibility can wane if individuals fail to continue delivering superior performance (Call et al., 2015).

**Social Capital.** The final dimension of stars that is well-represented in existing literature consists of social capital, which functions to the benefit of both stars and their respective organizations (e.g. Oldroyd & Morris, 2012). Over and above their exceptional performance, the social capital of stars is manifested in valuable external connections and enviable access to tangible and intangible resources (Hess & Rothaermel, 2011; Kehoe et al., 2018), which together enable them to favorably impact organizational performance. Network research suggests that the content of social network resources impacts the speed of use and the value harvested from a star’s knowledge (Lee, 2007). Based on social network theory (Burt, 1992; Granovetter, 1973), stars’ social capital enables them to remain well-versed in cutting-edge knowledge, which is vital to identifying new opportunities and discarding obsolete conceptions (Dane, 2010). Studies have also shown that stars’ ability to recombine knowledge can be instrumental in tangibly enhancing firm performance (Grigoriou & Rothaermel, 2014). The social capital dimension of stardom suggests
the need to examine star impacts more expansively than simply relying upon performance measures. Given the importance of social mechanisms in generating new knowledge, there have been attempts to shift scholarly focus from stars’ unique generative capacities to their networking abilities (Grigoriou & Rothaermel, 2014). Studies have investigated stars’ connectivity to universities (Hess & Rothaermel, 2011), the impact of social capital on firm outcomes (Oldroyd & Morris, 2012), and the favorable outcomes spawned from collaborative insights and interpersonal helpfulness (Kehoe & Tzabbar, 2015; Liu, 2014; Liu et al., 2018; Oettl, 2012).

In sum, the literature on star performers consists of parallel conversations across a multiplicity of fields. Each conversation seems to recognize that the ascendance to stardom involves more than simply exceptional performance, but there is not clear agreement on how to understand and operationalize its dimensionality across diverse organizational contexts. This is, as we discuss next, a function of growing pains in the development of the stars construct, thereby raising an important question about whether the stars construct is something that can be effectively formulated as a reflective construct (MacKenzie, Podsakoff, & Jarvis, 2005).

**STARS: A DEFINITIONAL QUAGMIRE**

As much, or more so than other terminology used in the study of management and organizations, the term “stars” is heavily influenced by the popular origins and use of the word. Ordinarily, scholarly terms migrate into the popular consciousness, albeit with some considerable modification. In the case of “stars,” the term had a long, media-tinged existence prior to use in research and much of that popular figment has infused itself into scholarship in unfiltered fashion. Since the star concept has only recently been subject to serious definitional rigor, it presents scholars with a quagmire that is in equal measures a challenge and an opportunity. Unlike streams
such as talent management (e.g. Dries, 2013; Lewis & Heckman, 2006; O’Boyle & Kroska, 2017) that have engaged in bottom-up construct development through the explicit lens of human capital and organizational performance, the development of “stars” as an “unanchored” concept in organizational research continues to be hampered by a lack of semantic precision (Suddaby, 2010).

A pervasive mismatch exists between conceptual work that tends to treat stars as a formative construct (MacKenzie et al., 2005) and empirical work that treats stars as a reflective construct (Edwards & Bagozzi, 2000). We elaborate on these issues below.

**Unclear, Divergent, and Tautological Definitions**

“Stars” have been defined, conceptualized and measured in various ways, many of which are inconsistent with one another (Kehoe et al., 2018). This has resulted in difficulties in identifying and interpreting the character and substance of stars as well as their impact on peers, teams, and organizations. As noted above, while the primary focus of stars research focuses on their out-sized productivity, other studies have investigated their visibility in the market or high status, neither of which is necessarily a result of performance (e.g. Adler, 1985; Groysberg, et al., 2008; Kehoe et al., 2018), nor is either predictive of stars’ potential output in the future (e.g. Feldman & Goldsmith, 1986; O’Boyle & Kroska, 2017). Recent scholarly work has tried to inject greater nuance by examining the type of knowledge stars possess (Baba, Shichijo, & Sedita, 2009; Subramanian, Lim, & Soh, 2013); the portability of their knowledge (i.e. general or firm-specific) across varying organizational contexts (Groysberg et al., 2008), the basis of their perceived performance (Kim & King, 2014); the impact exerted across the employment life cycle (Morris, Alvarez, & Barney, 2018); and, the role of gender differences in shaping how stars are identified, rewarded, or even promoted (Aguinis, Ji, & Joo, 2018). However, as Table 4 indicates, a majority of studies define stars not based on their essential attributes or characteristics, but rather on the...
achievements or outcomes the star produces. This definitional heritage has led to the stars construct becoming a product of accretion; that is, a growing list of largely atheoretic facets that offer a functional definition of stars rather than a generalizable theory-based definition.

**INSERT TABLE 4 ABOUT HERE**

Thus, definitions of stars tend to suffer from tautological premises, wherein stars are defined based on the outcomes they supposedly produce. Many of these are highly idiosyncratic to specific contexts. For example, Higgins and colleagues (2011: 607) defined a star “as a university-affiliated scientist who is also the recipient of a Nobel Prize”. However, winning a Nobel Prize is a consequence of world-class research and is not an essential attribute of a star performer. Other examples include instances in which stardom is defined as circumstances "wherein relatively small numbers of people earn enormous amounts of money and dominate the activities in which they engage" (Rosen, 1981: 845), or in which the performance of stars is “disproportionately” higher than that of their peers (Call et al., 2015; Collings et al., 2017). In each of these cases, if firm-level achievement relies upon a nexus of both definable and undefinable dimensions, the specific role and impact of a star performer is, at a minimum, contingent upon individual and organizational factors that may defy identification, much less measurement.

**Unclear Construct Boundaries**

Problems also arise in the stars literature stemming from the lack of clear boundary conditions between star performance and other related constructs such as “celebrity”, “high performers”, or “top talent”. Celebrity mainly refers to someone who is the recipient of significant public attention (Rindova, Pollock, & Hayward, 2006; Rojek, 2001). Celebrities have unique attributes due to their emotional resonance and visibility with external audiences (Rindova et al., 2006), however, celebrity status does not always favorably enhance firm performance (Cho et al.,
As Call and colleagues (2015) argue, celebrities can have positive or negative recognition that results in high visibility. “High Performers” mainly refers to individuals who exhibit an unusually high output, judged against firm-level and industry-level norms. According to Gallardo-Gallardo et al. (2013), exceptional performers are those achieving at the 90th percentile. However, top performers do not invariably benefit from high visibility or social capital.

The conflation between star performers and other related constructs has emerged concomitantly with the widespread implementation of corporate talent management programs (Axelrod, Handfield-Jones, & Welsh, 2001; Chambers et al., 1998). Recent scholarly work defines talent management as “activities and processes that involve the systematic identification of key positions which differentially contribute to the organization’s sustainable competitive advantage, the development of a talent pool of high-potential and high-performing incumbents to fill these roles, and the development of a differentiated human resource architecture to facilitate filling these positions” (Collings & Mellahi, 2009: 305). As this definition indicates, talent management deploys “high potential” and “high performing” individuals to fill “key roles” in organizations. Yet, unlike the concept of star performers, top talent does not necessarily refer to visibility, status, or social capital. Top talent is different from high performers, as it focuses on strategic roles in organizations and tends to be future oriented as a senior-level planning activity.

A common thread running throughout these varied definitions and contexts is an increasingly pervasive assumption that the performance differentials between star employees and those of their peers are best characterized as power law distributions (O’Boyle & Aguinis, 2012) where very few alpha-tail individuals outperform the other 99%. However, power law distributions are difficult to describe in a non-tautological fashion (Dries, 2013): stars are extraordinary because
the extraordinary ones are stars. To address these definitional issues, it is essential to explore alternative, non-tautological approaches to defining the stars construct.

**Formative or Reflective Construct?**

Central to the confusing definitional pluralism of stars is the lack of consensus about how to address the causal nature of the construct, particularly the issue of whether “stars” is a formative or reflective construct (MacKenzie et al., 2005); an issue that has potent implications for how stars are defined, theorized, and operationalized by scholars. The distinction is critical (Edwards & Bagozzi, 2000), because as MacKenzie and colleagues (2005: 713) note, the use of formative constructs is appropriate when the sub-dimensions “capture unique aspects of the conceptual domain.” A formative approach to stars rests in the premise that one or more of the underlying sub-dimensions “create” the basis for and give meaning to the star construct. For example, scholars might argue that an individual’s high performance and social capital “form” the basis of her or his stardom. Conceived as a formative construct, the core dimensions of stardom together form a star. The formative components may or may not be highly correlated, since each represents a unique aspect of the construct. Conversely, a reflective approach is one in which stardom is “reflected” through the causal outcomes of being a star. The difference between formative and reflective constructs can be summarized as follows: X, Y, and/or Z together form (create, cause) a star; versus, a star is reflected by (causing) X, Y, and Z. According to a reflective approach, an individual can be identified as a star when each of the reflective components that constitute stardom can be observed and measured; and, even when that is the case, tautological issues remain if it is theorized that stardom is reflected by, and itself causes, exceptional performance. The differences between formative and reflective approaches are presented in Figure 4.

**INSERT FIGURE 4 ABOUT HERE**
As the left side diagram in Figure 4 indicates, if stars were considered to be a reflective construct, then all direct effects flow from the construct to the various measures of the construct. Consistent with Edwards and Bagozzi (2000), factor loadings ($\lambda_i$) express the magnitude of the construct’s effect and $\delta_i$ capture the random measurement error for each dimension, such that covariance among the dimensions is explained by a single common cause. Although this represents the approach depicted in Call and colleagues’ (2015: 625) important work on the motivational underpinnings of star performers, it is difficult to apply their approach in a non-tautological fashion. For example, high performance is largely within the control of an employee, but visibility requires the activation of and recognition by external stakeholders. Somewhat problematically, a reflective conceptualization of the stars construct posits that stardom is the underlying cause of high achievement, when actually high achievement is a precondition to achieving star status. A reflective approach to the star construct also envisions each of the dimensions reflecting directionally similar measurements for each of the dimensions. However, it is entirely conceivable that high-performance may diminish even while a star retains some measure of visibility, in which case the covariance among the dimensions cannot be explained by a common cause (i.e. the star construct). In these respects, it is difficult to conceive of stars as a reflective construct in a logically coherent fashion.

Alternatively, the right side of Figure 4 depicts stars as a formative construct, wherein the dimensions are correlated causes of star status and the construct itself does not explain the covariance among the dimensions. Rather, each of the dimensions potentially exert influence upon one another (as depicted through each dimension’s arrow), but are each what Edwards and Bagozzi (2000: 162) call “error-free causes” of the construct since the causality flows from the dimensions to the construct, each with magnitude $\lambda_i$, expressed as factor loadings. $\zeta$ is measurement error,
representing the portion of the star construct that is not captured by the dimensions. This, too, represents a departure from the reflective approach in that a reflective construct has a one-to-one mapping with its dimensions. Given the highly heterogeneous array of contexts for which use of the stars construct routinely arises – ranging from athletics, artists and academics to inventors, investors, and engineers – the development of a generalizable theory of star performers points to the need for and development of a formative construct, wherein measures can be validated using reliable scales that allow for flexible inter-relationships between the dimensions (MacKenzie et al., 2005). In this fashion, the definitions and theories governing star performers is sufficiently specific to differentiate stars from related constructs (e.g. talent or celebrity), but sufficiently general so that new theories need not be developed for each and every idiosyncratic human capital context. This, in turn, mitigates methodological concerns arising through the study of stars, while positioning the star construct as a more intelligible, veridical, and useful tool for the study and management of organizations – opportunities that we examine in concluding section.

**Measures and Methods in Stars Research**

Our review of the multi-disciplinary literature on stars illuminates the importance of moving towards a definitional construct for stars that is more conducive to theory-building and theory-testing (Suddaby, 2010). However, since the organizational and sectoral circumstances involving star performers vary quite dramatically from context to context, the methods and measurements used by scholars to operationalize stars as a reflective construct are stymied by the circular reasoning that accompanies the reflective approach, yielding incomplete explanatory models. The lack of agreement regarding what actually constitutes a star renders meaningful comparisons across empirical studies practically unachievable.
Within the boundaries of existing measures and definitions, stardom is largely an idiosyncratic, post hoc designation, with little generalizability or predictive capacity. The vast majority of empirical studies operationalize stars solely through measures of performance. Often, even when an article’s conceptual framing incorporates social capital, status, or visibility, these dimensions are excluded from the empirical design. This means that much of the empirical work on stars involves a one-to-one mapping between high performance and stardom, despite the fact that scholars have identified multiple sub-dimensions in addition to performance. For instance, one of the most highly cited scholarly works in the stars literature -- Groysberg et al. (2008) -- define stars as individuals who are disproportionately productive and highly visible in the external labor market. However, the study excludes, without justification, the dimensions of status and social capital, and identifies stardom solely through an assessment of ranked performance without operationalizing visibility as a distinct facet of stardom. This is not unusual in stars research. On the contrary, as Table 5 reveals, a common thread running through the empirical work on stars is the tendency to identify stars exclusively through idiosyncratic, post hoc measures of comparative performance, while other conceptually relevant dimensions bear little scrutiny. Examples include Tartari et al. (2014), who defined academic stars as individuals achieving the top 1% of citations and top 25% of grants; and, Rothaermel and Hess (2007), who defined star scientists as those producing publications and citations three standard deviations above the mean. Although each of these studies conceptually broach other dimensions of stardom, neither operationalizes any facets other than performance in their respective empirical models.

INSERT TABLE 5 ABOUT HERE
From Quagmire to Clarity: An Alternative Definition

Existing treatments of stars (e.g. Call et al., 2015; Li et al., 2020; O’Boyle & Aguinis, 2012) have aptly underscored the importance of positioning stars as a coherent construct. As we have argued above, in order to achieve this a shift is needed to re-conceptualize stars as a formative construct. Such a shift addresses several fundamental issues regarding the causal direction of stardom’s relationship to its various dimensions as well as the manner in which scholars should address the conceptual and empirical linkages between stars, organizations, and managers.

There is precedence for adopting a formative approach to construct development in organizational and management theory. For example, entrepreneurial orientation is a robust, widely used, multi-dimensional construct, for which scholars vary the number of dimensions based on how the construct is being employed for a given line of inquiry (George, 2011; George & Marino, 2011). This is preferable to engaging in an unending process of accretion, whereby new stipulations are appended to a construct over time; a process that limits the generalizability and intelligibility of the focal construct. Recognizing the need for a definition that supports the aims of developing a formative construct that does not suffer from tautological premises, we propose the following general definition of star performers:

“Stars are individuals who are widely and enduringly perceived as possessing rare, desirable qualities through which they can produce exceptional outcomes.”

Applying this alternative definition, the dimension of uncommon performance is established as a necessary condition for star formation, but other formative dimensions of stardom arise and are justified as a function of the relevant context. Rather than pinning the definition of stars to an ever-expanding list of attributes, our alternative definition demarcates the vital attributes of stars without burdening the construct with dimensions that may vary by context. For example, as
displayed earlier in Figure 4, Call et al. (2015) depicts a reflective construct and one that does not include external status. However, for the study of management and organizations, external status is critical to numerous contexts and management challenges and organizational dynamics – as is the formative approach.

**STAR ANTECEDENTS: THE DRIVERS OF STAR FORMATION**

**Literature on the Antecedents of Stardom**

As the foregoing discussion makes clear, most conceptual and empirical work on stars has focused on their performance-related impacts, while, the antecedents to stardom have been accorded limited attention, primarily on the part of economists and talent management scholars (Adler, 1985; Collings et al., 2017; MacDonald, 1988; Rosen, 1981). Among economists, Rosen’s (1981) study of stars revealed the role of market changes in developing stars. He also found that the window for stars’ impact is fleeting since, at equilibrium, the costs for the aggregated output of average workers is indifferentiable from the costs for star-quality performance. Conversely, Adler (1985) discovered, counter-intuitively, that instances arise in which the absence of any discernible talents still leads to heightened earnings and stardom. In other words, not only are there conditions in which there is no economic benefit to organizations from stars (e.g. Rosen, 1981), sometimes those who are accorded star status perform no better than average (e.g. Adler, 1985). These findings marked a watershed in the development of the stars concept because the studies demonstrated that stardom is more multi-faceted than mere giftedness. Other scholars followed this line of analysis, such as MacDonald (1988), who identified the importance of early entry into an occupation.
Aside from economists, scholars of organizational design and development have developed multiple, competing perspectives on the sources and the curation of talent as a key driver of stardom. According to Dries (2013), six theoretical perspectives have emerged in the literature on talent management, representing varied assessments of star antecedents: talent as capital, talent as giftedness, talent as individual differences, talent as strengths, talent as identity, and talent as social perception. Scholars have also studied the degree to which talent is, or is not, dependent on specific contextual circumstances and whether or not it is transferable (e.g. Bullock et al., 2009). Cognizant of the notion that not all talent leads to stardom and not all stars are the most talented, scholars in strategic human resource management (SHRM) have studied the inter-connected roles of ability and motivation (e.g. Hough & Oswald, 2000; Vallerand et al., 2003). More recently, research has begun to explore talent management as an integrated organizational process. For example, Collings et al. (2017) focused on the emergence and development of talent as a three-part "matching" process: the right person to the right set of tools to the right set of firm-level needs.

Perspectives from economics and SHRM are both informative regarding individual sources and market-based needs for talented individuals who are capable of prodigious accomplishments. However, neither perspective is equipped to support investigations of how and why star performers emerge and persist, nor does either view comprehensively explain the varied impacts of stars on their respective organizations. Having drawn together key dimensions of what constitutes a star, it is next necessary to ascertain specific pathways to the four essential dimensions of stars -- performance, status, visibility, and social capital -- to understand how one becomes a star.

**Pathways to Performance**

Economists, focusing on the productivity of stars, have pointed to market changes as the main reason that one becomes a star. For instance, in a seminal work by Rosen (1981), stars are
defined as “relatively small numbers of people who earn enormous amounts of money and dominate the activities in which they engage” (Rosen, 1981: 845). According to Rosen (1981), high quality output can be the result of the work of a few individuals who are highly talented. Early entry into a profession (MacDonald, 1988), consistency in performance (Hilary & Hsu, 2013), prior related-industry experience (Bradley, Gokkaya, & Liu, 2017), and political skills (Cullen, Gerbasi, & Chrobot-Mason, 2018) have been cited as important preconditions of stardom. Call and colleagues (2015: 628), focusing on an individuals’ motivation and abilities, noted the role of deliberate practice, defined as "a rigorous prolonged engagement in those activities that have been found most effective in improving performance” in developing expertise in a field. Duckworth and colleagues (2007: 1087) identify “grit” -- defined as “perseverance and passion for long-term goals” – as a key attribute of stars, proving the necessary motive for long-term commitment by an individual to increase her or his human capital.

One of the important debates regarding talent is whether it is the substance of giftedness or hard work (Day & O’Connor, 2017; Dries, 2013; Ericsson, Krampe, & Tesch-Römer, 1993; Helding, 2011). The widely accepted definition of talent – as formulated by Simonton (1999: 436) – involves “any innate capacity that enables an individual to display exceptionally high performance in a domain that requires special skills and training.” Day and O’Connor (2017) argue that talent can be understood as both a gift and effort-based state. Another important question regarding talent is whether it is context-specific or can be transferred to new domains (Dries, 2013). The context-dependent perspective emphasizes the interaction between personal and situational factors, the importance of fit between the individual and environment, and the significance of firm-specific knowledge (Dominick & Gabriel, 2009; Groysberg et al., 2008).
Pathways to Status

The arena of public opinion may suffice in defining star status for CEOs, athletes, and film stars, but this is insubstantial for organizational and management theory. The role of society is central in defining high-status individuals. As Hubbard et al. (2018: 1978) put it, “The socio-cognitive content of status draws attention to relationships and relative social standing, emphasizing that high-status actors’ merits have been vetted by others.” Although status can be, and often is, self-reinforcing (Bunderson, 2003), it can be attained through multiple mechanisms. According to Kehoe and colleagues (2018), previous high performance, extraordinary networking abilities, social relations among celebrities, and prominent affiliations with elite individuals or institutions are each potential sources of high status. Status can be attained directly through an individual’s exceptional performance or, in some instances, indirectly through the exceptional performance by others; for instance, when a star is serving in a coaching, mentoring, or supervisory capacity (Magee & Galinsky, 2008). Status is not always permanent, but it tends to be durable. Even though stars rarely maintain the same level of exceptional performance across the entire arc of a professional career (e.g. Groysberg et al., 2008), the status derived from outstanding achievements typically enjoys long-lived organizational perceptions and a stable position in the upper-echelons of evaluative hierarchies. Status-by-association also plays an important role, wherein the close association with other stars can provide a source of greater status (Allen et al., 2004), such as affiliations with celebrities and elite institutions (Merton, 1968).

Pathways to Visibility

Unlike status, which is manifested as both tangible and intangible acknowledgement of superlative performance, visibility explicitly involves garnering attention (Hubbard et al., 2018);
most pronouncedly, attention in the marketplace for labor. Kehoe and colleagues (2018) found that star-performer visibility is achieved first and foremost through superlative performance, typically measured against widely accepted industry standards. This puts a premium on comparative performance rankings that are generated and publicized by third-party personalities and entities. However, high performance does not necessarily lead to high visibility. For instance, as individuals are promoted to higher levels in organizations and their role becomes more strategic, the chances of becoming more visible tends to increase. Uniqueness of individuals, idiosyncratic attributes, marketing abilities, and the quality of performance in strategic roles often lead to greater visibility (Dries, 2013; Ehrmann, Meiseberg, & Ritz, 2009).

As Oldroyd and Morris (2012) point out, more visible individuals are more likely to be accessible to others and are more often sought out for interviews and other highly visible interactions. Thus, performance is a critical ingredient for a star’s visibility, but visibility can also enhance the social perception of a star’s performance. In this vein, Call and colleagues (2015) emphasized individual attributes, such as political skills and one’s acumen in social “navigation,” both of which influence the ability of individuals to attract attention and heightened perceived value (Ferris et al., 2007). Scholars have also taken note of organization-specific and industry-specific reporting practices that contribute to visibility-driven pathways to stardom. The performing arts, particularly television and movies, are renown for awards, as are sports. Similarly, star analyst rankings on Wall Street and a host of media-driven, C-suite comparisons, figure prominently in business milieus. While such visibility may enhance status as well as perceptions of performance, visibility is tenuous in that it often fluctuates with the vagaries of celebrity status (McDonald, 2000). Still, the effects of visibility on labor market dynamics can be extraordinarily important in some industries, where industry-specific media spawn and promulgate stardom
through expert knowledge of their constituent audiences (Hubbard et al., 2018), thereby playing a vital role in determining how individuals become visible in their respective markets.

**Pathways to Social Capital**

Social capital is a complex resource which is built over a long period of time. Because of stars’ unique and varied types of knowledge, they are likely to be successful in connecting different knowledge sources. Thus, they are also able to assume the roles of boundary spanner, gatekeeper, connector (Conyon, He, & Zhou, 2015), and creative synthesizer (Liu et al., 2018). Plus, because of the recognition stars receive, more people are likely to seek ties with them. According to Oldroyd and Morris (2012), stars’ high performance and exceptional visibility are important contributors to the stars’ relatively high social capital, again underscoring the highly interactive nature of the formative dimensions comprising the stars construct. Oldroyd & Morris (2012: 399) asserted that through “the nature of affiliatory tie formation, stars are likely to be connected to many more individuals than average employees.” Since the quantity and quality of these ties are also subject to a power-law distribution, stars are likely to have “exponentially more associations and the concomitant social capital than average employees.” Research also suggests that stars are more likely to position themselves in value-enhancing networks (Lin, Ensel, & Vaughn, 1981). In this regard, the role of political skills can be pivotal in identifying beneficial relationships (Call et al., 2015). Over and above individual effects, organizations also play a demonstrable role in providing opportunities to develop social capital through mentoring programs with formal executive-level sponsorship (Hezlett & Gibson, 2007).
STAR IMPACTS: A MULTI-LEVEL CONTINGENCY PERSPECTIVE

Literature on Star Impacts

While extant literature concerning the antecedents of stardom has been largely limited to scholars in economics and SHRM, a broader range of scholars have shown interest in studying the impact of stars in organizational and managerial settings, including the launch and sale of new products under uncertain conditions (Liu, Liu, & Mazumdar, 2014), the success or failure of movies (Elberse, 2007), the ability to navigate among stakeholder groups within organizations (Hoegele, Schmidt, & Torgler, 2014), and the moderating role of stars on critics’ review and box office performance (Basuroy, Chatterjee, & Ravid, 2003). Scholars have also studied the role of sports stars in attracting TV audiences, promoting brand equity, and furthering the marketing efforts of firms, even though most empirical research suggests that stars exert nominal influence on the purchasing decisions of most consumers (Goran, Hair, & Krupka, 2017; Pifer, Mak, Bae, & Zhang, 2015; Scelles, 2017). Table 6 summarizes the most important findings on the antecedents and outcomes of stars in varied contexts and fields of study.

INSERT TABLE 6 ABOUT HERE

As Table 6 reveals, star performers have also piqued the interest of strategy scholars, who have mainly focused on how stars impact peers’ and firms’ performance as well as the influence they exert on knowledge generation and innovative outcomes (e.g. Grigoriou & Rothaermel, 2014; Kehoe & Tzabbar, 2015; Tzabbar & Kehoe, 2014). In this vein, recent research examines the relative scarcity of stars’ knowledge, stars’ unique capacity to create and capture value, and the boundary conditions of stars’ impact (Aguinis & O’Boyle, 2014). Similarly, entrepreneurship – where the outsized impact of stellar individuals is best modeled as a power law distribution (Crawford, Aguinis, Lichtenstein, Davidsson, & McKelvey, 2015) – has also attracted scholarly
interest; specifically, studies have investigated the role of stars in forming new ventures, attracting investors, mobilizing human capital, engaging in corporate venturing decisions, and launching new product introductions (Corolleur et al., 2004; de Bettignies & Chemla, 2008; Fuller & Rothaermel, 2012). Zucker et al. (2002), examining biotechnology industry, emphasized the importance of star scientists at the time of market entry and in the performance of initial public offerings. This line of inquiry has also engaged the important role played by star faculty entrepreneurs in the success of new technology ventures (Fuller & Rothaermel, 2012) and the relative success of immigrant entrepreneurs in developing science-based ventures (Kahn, La Mattina, & MacGarvie, 2017). An increasingly large literature suggests that nascent firms, sectors, and industries -- those characterized by the novel introduction of innovative technologies, business models, and organizational forms (Hunt, 2018) -- are often dominated by stars (Rindova et al., 2006; Zucker et al., 2002), such as Elon Musk, Richard Branson, or Steve Jobs.

The ability of scholars to assess the net impact of stars is heavily dependent upon construct validity and measurement. While we have shown that the indispensability of stars is not a foregone conclusion, neither is it true that stars are no more valuable than an average achiever. Instead, the impact of star performers is contingent upon a wide array of factors that require adopting a multi-level perspective, including peers and organizations.

**The Contingent Impact of Stars**

Stars not only exist and operate in a social context, but are also defined by the social contexts that create, nurture, and reward them. Although there have been multiple attempts to examine stars’ impact on peers, teams, and firm-level outcomes, few scholarly works have sought to examine the impacts holistically, in multi-level fashion. While these studies have unearthed varied mechanisms related to an assortment of outcomes, the overall substance of the work has
been limited by a lack of integration, thereby impeding the development and growth of a more substantive research agenda on stars. In the following sections, we will discuss multi-level impact of stars in more detail. A summary of the theoretical foundations and mechanisms of how stars impact their peers and firms is presented in Table 7.

**INSERT TABLE 7 ABOUT HERE**

**Peer-Level Impacts of Stars**

One of the primary mechanisms through which stars impact their colleagues is via knowledge spillovers and externalities (Griliches, 1979; Jaffe, 1986). Stars are likely to positively impact non-stars’ performance, especially if they have formal collaborations and as far as stars are willing to share their knowledge (Azoulay et al., 2010; Kehoe & Tzabbar, 2015) and facilitate creative synthesis with non-stars (Liu et al., 2018). Groysberg and Lee (2010) found that stars can increase retention of non-stars since they provide additional, high-value knowledge to fellow employees as well as new perspectives to solve problems. Stars are also known to directly and indirectly enhance the capabilities of their colleagues (Kehoe et al., 2018; Liu et al., 2018), by giving advice, providing technical assistance, and helping others develop and manage their respective networks (Azoulay et al., 2000; Higgins, 2001; Higgins et al., 2007). Evidence also suggests that stars are likely to set influential norms and practices in organizations, potentially making tasks easier for non-stars (Lacetera et al., 2004; Liu et al., 2018).

Stars’ status can also be a source of benefits to non-stars since stars are likely to positively impact their peers’ performance by serving as a social referent through their elevated status (Festinger, 1954). Intentionally or unintentionally, stars may serve as role models to other employees (Huckman & Pisano, 2006), motivating non-stars to emulate their performance (Lockwood & Kunda, 1997). Flynn and Amanatullah (2012) showed that high-status co-actors can
positively impact the performance of others by setting stars as referents. Stars can also positively impact the legitimacy of teams (Luo, Koput, & Powell, 2009). For instance, having a star inventor on a team improves the likelihood of successful patent renewals (Liu, 2014). Stars’ visibility also sends positive signals regarding organizational quality to outside entities (Connelly et al., 2011). Research suggests that stars can positively impact colleagues’ performance by providing access to highly visible network connections and sources of external, market-based recognition.

However, these favorable impacts are not the entire story. Negative impacts arise when stars are unable or unwilling to share the knowledge underlying their unique results. Through their exceptional performance, stars are likely to occupy central roles (Zucker et al., 2002), which may limit the emergence of new leaders in an organization (Kehoe & Tzabbar, 2015). Non-stars are, therefore, unduly dependent on stars’ expertise and support (Brass, 1984). According to resource dependence theory (Casciaro & Piskorski, 2005; Emerson, 1962), imbalance in mutual dependence can negatively impact innovative outcomes (Kehoe & Tzabbar, 2015). Power imbalances can prevent teams from harnessing beneficial skills and sharing high-value information (Tzabbar & Vestal, 2015). Additionally, if the performance level of stars seems utterly unachievable to others, non-stars may choose to put little or no effort into closing the performance gap (Brown, 2011).

Due to their high, broad status, stars are likely to attract substantial organizational resources, since that is often a central rationale in hiring stars (Prato & Ferraro, 2018). By attracting and controlling key organizational resources (Kehoe & Tzabbar, 2015; Zucker et al., 2002), stars and their respective organizations may discount innovative contributions by other individuals (Asgari & Hunt, 2015). This effect is especially toxic if there is a gap between status and quality of the performance (Kim & Kang, 2014; Merton, 1968), since high status actors enjoy access to higher budgets, better resources, and more opportunities for recognition (Asgari & Hunt, 2015;
Merton, 1968). Prato and Ferraro (2018) showed that new hires actually have a negative impact on incumbents’ performance due to limited knowledge spillovers and a significant drain on incumbent resources. Similarly, Agrawal, McHale, and Oettl (2017) showed that hiring stars negatively impacts the performance of incumbents in unrelated fields.

The pronounced level of stars’ visibility can also become a matter of contention (Kim & Glomb, 2014; Lam et al., 2011). Since stars are far more likely to be promoted, and since they enjoy higher compensation (Trevor, Reilly, & Gerhart, 2012), the rewards and recognition build greater visibility for the stars, which ironically makes the stars even more of a target to be hired away by competitors (Chambers et al., 1998). Although higher pay can increase retention among top performers (Trevor et al., 2012), this can lead to perceptions of injustice among non-stars (Rousseau, Ho, & Greenberg, 2006), especially if the organization does not justify the pay disparity. This can result in higher turnover rate by non-stars, disrupting organizational routines.

**Firm-Level Impacts of Stars**

Stars’ impact has been studied through the lens of various firm-level outcomes, including the value stars create and capture (e.g. Groysberg et al., 2008; Kehoe et al., 2018), the innovation they generate (e.g. Tzabbar & Kehoe, 2014), and the impact they have on financial performance, product quality (e.g. Ertug & Castellucci, 2013), or alliance outcomes (e.g. Baba et al., 2009; Subramanian et al., 2013).

One of the most important reasons firms invest in attracting and retaining stars is because of stars’ knowledge-based resources and their potential contribution to knowledge generation (Grant, 1996). Stars possess tacit knowledge that helps them achieve extraordinarily high task performance. Tacit knowledge helps individuals who need to engage in the complex processes of identifying, integrating, and transforming new knowledge (Cohen & Levinthal, 1990; Hitt et al.,
Stars can also increase firms’ absorptive capacity and intellectual capital through their knowledge resources (Song et al., 2018). As such, stars are likely to lead the search for new sources of knowledge and innovation (Kehoe & Tzabbar, 2015) since their unique knowledge not only helps them establish value-enhancing routines (Kehoe et al., 2018; Nelson & Winter, 1982), but also assists with the optimization of existing knowledge (Tzabbar & Kehoe, 2014).

The visibility of stars in the labor market can also help firms in a number of ways. Stars’ presence works as a signal of quality especially in emerging industries (Acharya & Pollock, 2013; Higgins et al., 2011). Higgins and colleagues (2011) showed that affiliation with a Nobel Prize winner has a positive impact on initial public offerings. Stars are also likely to impact the quality of recruits by signaling high organizational quality. Agrawal et al. (2017) showed that hiring stars increases the quality of new recruits, especially in institutions that are not highly ranked.

Stars’ social capital and their networking abilities are important sources of value creation, as well, by helping firms to access rare and valuable knowledge resources and to enter new markets by developing networks with strategic partners (Cross & Thomas, 2008). This is especially important in knowledge-based organizations where communication and knowledge flows need to be maintained and leveraged to achieve novel outputs (Oldroyd & Morris, 2012). Stars are more likely to work as boundary-spanners in organizations due to their social connections, which can facilitate the flow of information (Tushman & Scanlan, 1981). They also tend to be gatekeepers, which increases the firms’ ability to innovate, as stars are capable of understanding varied schemas (Allen & Cohen, 1969). Through this, stars transfer and assimilate knowledge from external sources, transform it, and disseminate it among organizational members (Cohen & Levinthal, 1990; Rothaermel & Hess, 2007).
There are, however, potential maladies as well. The negative impact of stars is most often a consequence of performance issues, though researchers have also identified problems arising from status asymmetries and the excessive social capital of stars. The high performance of stars is rarely sustained across all contexts. Groysberg and colleagues (2008) emphasized the role of firm-specific knowledge in stars’ performance, demonstrating that as investment analysts move to new firms, they show a decline in their performance due to the lack of firm-specific knowledge. Since firms pay significant sums in order to attract and hire stars from outside, crises are sometimes precipitated when stars fail to live up to the high expectations, as shown in instances of over-paying star scientists (Groysberg et al., 2008) and star athletes (Lewis, 2004). There is also an issue with excessive reliance on stars. Since stars occupy central roles and since non-stars heavily rely on them to generate new approaches, this dynamic can be harmful to firms if stars create myopia through the establishment of star-centric routines and processes (Chen & Garg, 2018). Studies also demonstrate that stars’ social capital can become excessive and, if left unchecked, exert a negative impact on firm performance. Oldroyd and Morris (2012) showed that stars’ disproportionate levels of information overload can stifle productivity. And, since stars have abundant social capital, they need to send and receive more information to maintain their respective networks. Given these high information processing requirements, stars may actually begin to display lower levels of performance, especially early in one’s tenure at a new firm (Oldroyd & Morris, 2012).

Stars are likely to increase status asymmetry and disrupt knowledge-sharing routines (Tzabbar & Vestal, 2015). For instance, Tzabbar and Vestal (2015) showed that stars tend to increase the negative impact of geographic dispersion on novel innovation generation within teams. They might also prioritize their personal goals over organizational goals (Kehoe & Tzabbar, 2015). Given greater access to resources, stars have less need to cooperate and are likely to be less
cooperative in team activities due to ego issues (Hambrick, 1994), revealing self-interested behaviors aimed at maintaining their perceived value. Each of these challenges has the potential to disrupt the collective outcomes of the group (Groysberg et al., 2011) since stars consume and control key resources (Zucker et al., 2002) that often crowd out the contributions and learning opportunities of others (Asgari & Hunt, 2015; Li et al., 2020).

Another issue regarding stars’ organizational impact is the manner in which they create and capture value. Kehoe et al. (2018) theorized that high performance and broad status of stars uniquely impacts the way stars create or capture value. One context in which this has been proven true is the movie industry. On the one hand, movie stars are known to create value and increase the predictability of box office outcomes, thereby serving as an instrument of risk mitigation, especially in the efforts to generate international revenues from foreign audiences, which reduces much of the uncertainty accompanying big-budget movie production (Basuroy et al., 2003; De Vany & Walls, 1999; Liu et al., 2014). On the other hand, the role played by stars in determining box office results is not without controversy since stars garner enormous financial rewards. Thus, while some studies have found a positive impact on financial outcomes (Sochay, 1994), others have found that stars are not always worth the added cost (De Vany & Walls 1999; Elberse, 2007; Liu, Mazumdar, & Li, 2015), suggesting that stars sometimes capture more value than they create.

In sum, stars’ multi-level impacts are highly contingent upon an array of individual and organizational factors that determine the extent to which the relevant dimensions of stardom generate net-favorable or net-unfavorable outcomes. Contingencies drawn from existing literature, as presented in Table 8, point to further issues and opportunities in studying stars.

**INSERT TABLE 8 ABOUT HERE**
ISSUES AND OPPORTUNITIES IN THE STUDY OF STARS

As the foregoing exploration suggests, the calculus of determining the impact of star performers is both fascinating and vexing. Our multi-level, contingency framework suggests that stars can be both a key to the future and an impediment to its realization. Firms can and should be mindful of the intricate interplay between varied forces affecting star impacts. The calculus underlying this can be complex. As Alex Mayyasi (2013) discussed the matter in his piece, What's So Special About Star Engineers? the solution is not one-size-fits-all.

“In many industries where the contributions of star performers have not been adequately recognized and rewarded, firms need to do more to recruit, empower, and hold onto their star performers. In places like Silicon Valley, however, people need to restrain themselves from blindly joining the cult of A players.”

Red Giants, Black Holes, or Both?

Competing Conceptions. Empirically and conceptually, the supporting case for seeking star performers seems strong, particularly in the context of a knowledge-based economy and alarming shortages of knowledge workers or leaders (Pobst, 2014). As our review reveals, the overwhelming focus of the stars literature is primarily on high performance (e.g. Aguinis & O’Boyle, 2014) and a broad consensus supports the assertion that the stars’ exceptional performance (e.g. Groysberg et al., 2008; Zucker et al., 2002), heightened status, enviable visibility, and substantial social capital (e.g. Oldroyd & Morris, 2002) are not only net positive, but a vital source of sustainable competitive advantage.

The challenge, and scholarly opportunity, is that star performers do not always produce starry results. Emerging research begun to reveal counterproductive, counterintuitive aspects of star systems (e.g. Asgari & Hunt, 2015; Kehoe & Tzabbar, 2015). A number of select studies have investigated potential short-comings of star systems, testing the premise that instances exist in
which stars may adversely impact their respective organizations. For instance, Li and colleagues (2020) noted the negative indirect impact of stars on non-stars’ development. Chen and Garg (2018), studying National Basketball Association teams, showed that the temporary absence of star players positively impacts performance as non-stars assume new roles and the team develops new capabilities and routines. Kehoe and Tzabbar (2015), argue that stars are likely to hinder the emergence of leaders in firms, while Asgari and Hunt (2015) showed that star systems crowd out the valuable contributions of non-stars.

In addition to work on star employees and scientists, strategy and entrepreneurship researchers have also studied star founders and CEOs. Counterproductive impacts of star founders are evident in what entrepreneurship scholars have termed the “founder problem,” in which brilliant individuals are often forced to leave the firms they founded in order for businesses to effectively scale and mature (e.g. Wasserman, 2003). Research also shows that star CEOs, despite exceptional remuneration, do not necessarily act in the best interest of their organizations. As Lovelace and colleagues (2018) note, studies (e.g. Malmendier & Tate, 2009; Wade, Porac, Pollock, & Graffin, 2006) show that as CEOs attract social acclaim, their firms experience a decline in performance. As with much of the stars literature, these disparate results suggest that a much more nuanced approach is warranted.

As we argued above, the moderated impacts of stars can best be treated by taking a contingency-based approach (Mone, McKinley, & Barker, 1998), based on the notion that there is not a singular, unique, or best approach to find a fit among the variety of organizational factors that determine superior star performance (e.g., Donaldson, 2001).

**Assessing Costs and Benefits – An Integrated Approach.** One way to simultaneously account for both the benefits and costs of star performers is to conceptualize both the positives and
negatives as necessarily and inevitably co-occurring. The truest measure of whether a star performer constitutes a net asset in meeting individual and organizational aims is to simultaneously assess the net impacts. From the stand-point of star research and ongoing work to develop stars as a viable construct, an integrated approach to conditions and impacts is essential (Dries, 2013). Towards this end, scholars can employ models that support a simultaneous, integrated evaluation of both the “Red Giant” and “Black Hole” facets of star performance, as illustrated in Figure 5.

**INSERT FIGURE 5 ABOUT HERE**

As the multi-level, contingency framework reveals, star performers embody, to varying degrees the attributes of both red giants and black holes. The confluence of contingent factors that ultimately determine a star’s impact varies by context, by time, and by idiosyncrasies related not only to a star’s performance but also a star’s interactions with others. The purpose of Figure 5 is to demonstrate the future research opportunities in better defining and further parsing these interactions. For example, Figure 5a illustrates a desirable arrangement, whereby the productive powers of a star are broadly harnessed and favorably impactful as a nexus with other firm-level and peer-level aims. In addition to the stellar individual output, other positive effects outweigh unavoidable, but somewhat limited, downsides. Figure 5b illustrates what can be considered a black hole; the star’s individual contribution is substantively eclipsed by significant downside impacts, such as excessive resource consumption and negative social or even economic impacts on peers and the firm. Figure 5c illustrates an isolated star, where there are limited positive or negative effects beyond the star’s individual contribution. Figure 5d illustrates a star context characterized by ambivalent circumstances, wherein the favorable impacts of a star are realized, but so too are the unfavorable impacts, each to a relatively similar degree. In all the figures, comparing the relative shaded area above versus below the horizontal line illustrates net effects.
As a framing device for future study, an investigation of co-occurring impacts enables scholars to apply the star concept in a more useful, veridical, and authoritative fashion.

**Opportunities for Future Research**

To facilitate and enrich future research we have identified three central challenges for the stream. First, the definition of stars cannot be subsumed by a never-ending accretion of factors that appear to produce exceptional performances. For the sake of coherence and intelligibility across the varied contexts comprising the stars literature, an evolving grocery list definition is not viable. Second, to move past its tautological roots, stars must be developed as a formative construct. Third, scholars must develop and validate scales that can be shown to support sub-dimensions used in the empirical studies of stars.

As we have asserted throughout, the shift to stars as a formative construct not only alters the trajectory of future research on star performers, it also fortifies its legitimacy as a meaningful facet of managerial and organizational scholarship. A formative approach to stars is inherently forward-looking, making the construct useful to scholars of organizations and management as well as actionable by practitioners. As such, the correlated causes comprising the sub-dimensions of stars are applicable to a highly heterogeneous array of contexts and the development of a generalizable theory of star performers. A clearer definition, multi-level impacts, and an integrated command of the co-occurring impacts of star performers opens a pathway to a multitude of provocative research questions for the future study of stars. For example, equipped with our formalization of a stars construct, scholars can hypothesize more aptly and effectively about heterogenous organizational outcomes arising as a consequence of hiring or developing star performers. Qualitative and quantitative empirical work can be performed addressing when, how, and why some sub-dimensions of a formative star construct are more or less instrumental to
organizational performance than others – notably, a critical analysis that cannot be performed if treating stars as a reflective construct. Concurrently, our contingency approach enables scholars to simultaneously account for stars’ positive and negative multi-level impacts across a wide range of idiosyncratic contexts.

As for scale development of stardom’s dimensions, our review opens lines of inquiry for future scholarship that better connect the literature’s conceptual and empirical foundations. Meanwhile, practitioners can apply our formative approach to stars through the lens of SHRM by assessing the potential impact of star performers as a strategic investment decision, optimizing a firm’s human capital portfolio by deploying star performers in a fashion that generates benefits while minimizing the detriments. Other key areas constituting particularly fertile ground for scholars and practitioners include the following.

**Stars and Organizational Excellence.** The question of whether stars make the organization or organizations make the stars is far from clear. Given the increasingly mobile workforce, this “chicken-or-egg?” dilemma raises a host of important questions. Is stardom migratory? Are its impacts transferrable from organization to organization? With respect to status and visibility, stardom generates social benefits for the star, but can these be translated into organizational value? Blockbuster sports trades (Glenn, McGarrity, & Weller, 2001; Lewis, 2004), high-profile CEO hires (Kiefer, Miller, & Hunt, 2020; Wade et al., 2006), renown directors of films and Broadway plays (Barbas, 2016) – each of these has led to famous flops as often as they have led to success stories. What generalizable confluence of factors result in the ability or inability of a star’s impact to deliver fruitful results? McKinsey’s report argued that the war for talent called for extraordinary measures in order to attract and retain stars:

“You need to do everything you can to keep them engaged and satisfied—even delighted. Find out what they would most like to be doing, and shape their career
and responsibilities in that direction. Solve any issues that might be pushing them out the door, such as a boss that frustrates them or travel demands that burden them,” (Michaels et al., 2001: 131)

But, is it clear that this actually leads to organizational excellence? Arthur (1994) asserts that while the traditional career literature is grounded in the perspective that organizations exert influence over individuals’ careers, it is increasingly apparent that individual careers exert influence on organizations, especially in the context of star performers. As scholars of talent management (Cappelli, 2008; Dominick & Gabriel, 2009; Dries, 2013) have asked, what tensions exist between transferable and context-specific stardom? Given the simultaneity of red giant effects and black hole effects, what is the most fruitful way to consider the careers of star performers? To what extent are the impacts of transitory or lasting benefit? How does the coming and going of stars influence a firm’s ability to build and then leverage tacit knowledge for sustainable competitive advantage? In the face of a market increasingly characterized by a contingent workforce (Cappelli, 2008), what is the role of stars for any given firm?

Crowding Out Effects and Non-Occurrence. Studies have also found that star systems unwittingly crowd out valuable contributions from non-stars (Asgari & Hunt, 2015). The rationale undergirding star-focused corporate innovation is that firms will realize the highest achievable “bang for the buck” by investing heavily in a small population of talented individuals (Aguinis & O’Boyle, 2014), but the asymmetric commitment of resources may also create an undesirable power imbalance in the organization, particularly when stars believe that sharing resources is at odds with their unique status in the firm (Overbeck & Park, 2006). Star systems tend to reinforce the notion that high-achieving innovators are “made” not “born” (Chen & Garg 2018); but, in actuality, the asymmetric allocation of resources in favor of star performers simply makes the
superior performance of stars a self-fulfilling cycle; that is, stars receive more resources and attention, which allows them to perform better, which invites still more resources.

As Asgari and Hunt (2015) noted, stars do in fact objectively perform at a higher level than peers. To do otherwise would invalidate their designation as a star performer. However, they also argue that the focus on measuring and rewarding star performance often ignores the non-occurrence of output that might have otherwise been generated by non-stars, if resources and attention had been allocated more equitably. The comparative lack of attention paid to the issue of non-occurrence is not unique to the study of stars, but the star context makes the exclusion of non-occurrence particularly evident. Chen and Garg (2018) do immense justice to this point in their empirical investigation of NBA teams that must cope with the temporary absence of a star player. They find that non-stars can, and often do, step into new roles in effective fashion. Asgari and Hunt (2015) similarly found, quite counter-intuitively, that the departure of non-star supervisors hurt firms more so than did the departure of stars. Initial work in this area suggests that star impacts are both complex and convoluted, and that resources and attention afforded star performers may be more of a self-fulfilling prophecy than a formula for firm excellence. Scholars may therefore ask when and how are the aims of organizational teams promoted or subverted by a focus on stars? When does unwanted crowding out occur? And, how can non-occurrence be better understood and captured in management research?

*Gender, Age, Race and Other Demographic Impediments to Stardom*. A corollary to the crowding out effects involves the marginalization of employees not designated as stars, which can arise from measurement criteria that are incomplete, biased, or poorly understood (Dries, 2013). If existing conceptions of stars function merely as a socially constructed mirror of the values and priorities of those who administer star systems (Lewis & Heckman, 2006), then the supporting
systems of measurement are at risk of homophily and other forces emblematic of those who possess power and who exercise key organizational judgments (Pfeffer, 2001). For example, research has demonstrated that white males are given more fertile, higher-potential sales accounts than are women and minorities (Comer, Nicholls, & Vermillion, 1998; Russ & McNeilly, 1988). In *Glengarry, Glen Ross* fashion, the rationalization is that good leads are best given to top performers, but if top performers are those with the good leads, then their perch at the top of the leaderboard is generally secure. Organizations may, therefore, intentionally or unintentionally reinforce the tableau of discrimination that accompanies the differential allocation of precious firm resources. Scholars may wish to investigate the extent to which star systems work in concert with or at cross-purposes against the aims of inclusiveness, diversity, and organizational equity. Are firms better off in a more holistic fashion as a consequence of star impacts? Do star-driven policies of reward and recognition foster some organizational aims at the expense of others? Are power law distributions of human capital relevant, given a multiplicity of organizational aims, each of which is an essential facet of creating and capturing value? What are the wider stakeholder implications of approaches to human capital built upon power law assumptions? How do critical theory perspectives of management inform the positive and negative aspects of elevating the contributions of a small group of employees above the contributions of others?

**Strategic Implications.** Scholars in fields such as strategic management, entrepreneurship, industrial economics, and technical innovation, each have a vested stake in the study of star performers. Recent work on employee mobility (e.g. Marx, Strumsky, & Fleming, 2007), VC influence (Fitza, Matusik, & Mosakowski, 2009), CEO influence (Fitza, 2014), highly visible boards (Coles, Daniel, & Naveen, 2008), and technological change agents (Antonelli, 2002), are just a few of the streams that must take into account the contingent impacts of star performers. For
these scholars, conceptual and empirical opportunities exist to investigate the manner in which star employees play a role in value creation and value capture under a variety of contextual circumstances, across industries and under varying levels of environmental dynamism. As the definitional boundaries of stars are more clearly demarcated, and as scales are more thoroughly developed and validated for the formative dimensions of stardom, scholars can ask: how does star formation occur that leads to value-creating processes and outputs that enhance firm competitiveness? How do stars influence the velocity and vector of industrial change, especially with regard to innovative technologies, business models, and organizational forms? Are there industries for which stars are ideally suited? Are there others for which stars are anathema to success? Executives at Proctor and Gamble have for decades famously eschewed the notion of a star-centric culture as being unwanted, even counter-productive at a consumer brand company that is focused on execution of its core values (Gladwell, 2002). Is this exactly the opposite in other firms and other industries? And, for entrepreneurship research, do stars bolster or hinder the prospects for successful business venturers? Is the notion of stars the fulfillment of entrepreneurial action, or is stardom contrary to entrepreneurial aims, particularly given the emphasis on founding teams? Are all founding teams better off with at least one star? How many stars is too many for any one team, any one company, or any one industry?

**Life-Cycle, Team, and Time Considerations of Stars.** Some stars are recruited externally while others are identified and developed internally; however, little is known about the relative merits and demerits of each approach in any comparative fashion. In each case, an employee engages the firm at a different point in his or her career and each brings to bear a different level of organizational embeddedness (Mitchell, Holtom, Lee, Sablynski, & Erez, 2001), including the presence or absence of peer effects. As such, organizational scholars can investigate the employee
lifecycle and other temporal considerations attendant to star status and the systems that foster the added attention and expectations of stardom. For external recruits, how does stardom play out at the time of hiring, during a sustained, embedded presence, and at the time of departure? How are existing teams favorably and unfavorably influenced by the recruitment of a star? How is the calculus of these impacts moderated by tenure, level in the organization, reward structures, and intangible forms of recognition? For individuals who are identified and developed internally, does the escalation in status and visibility impact output by the star as well as his or her peers? How does an escalation in status impact the effectiveness of teams? At another level of micro-inquiry, are stars more or less resilient than non-stars? Research has suggested that star employees struggle with failure more so than less talented, less visible employees (Groysberg et al., 2008). According to Hambrick (1994), stars may be less willing to share information, cooperate, make joint decisions, and behave in a way that supports interdependent tasks. Additionally, when stars believe that sharing resources with other scientists is inconsistent with the goals of driving their own research idea, they may become less willing to nurture collaborations with non-stars (Overbeck & Park, 2006), partially as a function of ego (Hambrick, 1994), and partially as function of efforts to protect stars’ privileged status (Hogan & Hogan, 1991). If so, does this create healthy competition or an unwanted dynamic among stars and non-stars? Unhealthy firms run the risk of being “star struck,” resulting in a failure to generate operational and financial gains. Examples of these effects include famously unexploited developments, such as Xerox’s Palo Alto Research Center in the 1980’s (Weiser, 1991), which developed but did not capitalize on numerous personal computing breakthroughs, underscoring the organizational and cultural challenges of star systems (e.g., Overbeck, Correll, & Park, 2005). Central to this is the effective collaboration of stars with others.
Given the conflicting perspectives regarding the potential value of high-performing individuals, we expect that the direct and indirect impact of stars will vary as a consequence of differing levels of social and structural fit with the organization, aspects that we believe vary by phase and tenure. Accounting for this set of conditions shifts away from sole preoccupation with individual performance to one that incorporates the social context, including a star’s impact on others. Incorporating social-contextual factors is consistent with recent research on stars and talent management (e.g., Minbaeva & Collings, 2013; Somaya & Williamson, 2011) that has begun to shift from a singular focus on the exceptional capacity to generate innovation to a model that also incorporates the ability to handle knowledge flows and social interactions (e.g., Grigoriou & Rothaermel, 2014; Saleh & Hunt, 2020); thereby taking into account emotional and social intelligence, as well.

Also, as scholars increasingly explore vital facets of status and social capital stars, including what are sometimes called “relational stars,” (Grigoriou & Rothaermel, 2014), what findings are revealed concerning firm level outcomes for creativity, innovation, customer service, product or service quality, and various profitability measures? How much does a star impact depend upon the work that needs to be accomplished? Finally, as aging stars exhibit a decline in performance, what happens to their status, visibility, and social capital? What is the most effective means by which to handle changes in a star’s stardom?

**Conjectural Assumptions and Scholarly Complicity.** As noted from the outset, to a far greater degree than many other facets of management research, the star concept emanates from and is deeply rooted in popularized conceptions and uses of the term. This heritage, while offering color and enthrall, has been a hinderance to the development of a useful star performer construct. Ordinarily, it is left to scholars to titrate the constituent ingredients of organizational and
managerial studies, but in this regard, scholars are handicapped in servicing that aim by virtue of our own involvement in an industry that promulgates and celebrates star performers. Like all other industries, academia benefits from the novel breakthroughs and splendid achievements of individuals. Much more so than other industries, scholarly research supports an established set of formalized – though often imperfect – measures to determine and reward star performance. There are few star systems more extravagantly maintained than that evidenced by scholarly research. For those who achieve scholarly stardom, the financial remuneration, status, visibility, and social capital are substantial. It is difficult to think of a working population less-well-equipped and facing more potential bias on the matter of star performance than scholars themselves.

And yet, despite these vested interests, management scholars are unusually well-situated to objectively scrutinize and critique the conjectural assumptions attendant to stars and to play a central role in the development of measurement scales for its constituent dimensions. Inspired by recent work in the talent management literature to address the foundational assumptions of that stream (e.g. Dries, 2013), management scholars can tangibly advance the organizational and managerial understanding of star impacts by assessing the underlying assumptions: that stars are more important to firm outcomes than other members of an organization; that stars create more value than other members of an organization; that stars deserve more rewards; that stars will leave if they do not receive more money; that stars inevitably burn out; and, perhaps most interestingly, that stars are rare. Conceptually and empirically, each of these conjectural assumptions has implications for every Division of the Academy. Moreover, the practical benefits of gaining clarity through a vigorous investigation of stars is germane to organizations of all sizes, ages, and purposes.
Conclusion

For scholars of management and organizations, the multi-level impacts of stars are at once non-uniform and non-ignorable. In some sense, the field is just beginning to make sense of the star concept, which is the first step towards a veridical, intelligible, and useful formative construct for stars. The rise of cinema stars in the early 1900s dramatizes this point. Few people today would recognize the name Gabriel-Maximilien Leuvielle, but in 1909, the man known by the stage name “Max Linder” was the first film actor to be formally credited for his role in a movie, thereby becoming the first international film star. Prior to Leuvielle, men and women had appeared in thousands of films as unnamed, uncredited participants, primarily due to the fact that film producers worried that if actors’ names were known, then they would be able to demand more money for being in films (Dyer, 1979). On this point, the producers could not have been more prescient. With scant regard to the economics of film production, adoring fans of the movie-going public demanded to know not only the names, but greedily consumed every available detail – more often fabrication than fact -- of their screen favorites. Following Leuvielle’s lead, in very short order, all actors were fully credited and, true to the prediction of film producers, the salaries of newly minted stars grew exponentially and the concept of “star” was permanently ensconced in the public psyche. It has taken far longer for the prominent role and innovative influence of individuals to become fully manifested in the world of business (Cappelli, 2008). In some sense, it is a story that is still unfolding. For management scholars, it is a story that will at least partially define the constellation of issues that define the future of the field.
REFERENCES


Li, Y., Li, N., Li, C., & Li, J. (2020). The boon and bane of creative “stars”: A social network exploration of how and when team creativity is (and is not) driven by a star teammate. *Academy of Management Journal, 63*(2), 613-635.


### Table 1: Article Search Procedures

<table>
<thead>
<tr>
<th>Step</th>
<th>Literature Search Procedure</th>
<th>Beginning # of Articles</th>
<th>Change</th>
<th>Ending # of Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Searched for papers in EBSCO Business Source Complete with the term &quot;star&quot; in the title, abstract, or keywords</td>
<td>952</td>
<td>0</td>
<td>952</td>
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<tr>
<td>2</td>
<td>Identified and excluded articles outside the domain of our study (e.g. five-star hotels, star-shaped networks)</td>
<td>952</td>
<td>-486</td>
<td>466</td>
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<tr>
<td>3</td>
<td>Identified and excluded articles not listed in Institute for Science Information’s Web of Knowledge Journal Citation Report</td>
<td>466</td>
<td>-158</td>
<td>308</td>
</tr>
<tr>
<td>4</td>
<td>Identified and excluded papers that did not have organizational or managerial implications (e.g. biographies of stars)</td>
<td>308</td>
<td>-82</td>
<td>226</td>
</tr>
<tr>
<td>5</td>
<td>Searched for papers in parallel fields that were well-cited</td>
<td>226</td>
<td>4</td>
<td>230</td>
</tr>
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</table>

### Table 2: Journals Included in Star Literature Review

<table>
<thead>
<tr>
<th>A</th>
<th>Academy of Management Journal</th>
<th>Journal of Urban Economics</th>
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</thead>
<tbody>
<tr>
<td>B</td>
<td>Academy of Management Review</td>
<td>Industrial &amp; Corporate Change</td>
</tr>
<tr>
<td>C</td>
<td>Administrative Science Quarterly</td>
<td>Industrial Marketing Management</td>
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<tr>
<td>D</td>
<td>American Behavioral Scientist</td>
<td>Kyklos</td>
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<tr>
<td>E</td>
<td>American Economic Review</td>
<td>Information Economics &amp; Policy</td>
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<tr>
<td>F</td>
<td>American Economic Review</td>
<td>Information Systems Journal</td>
</tr>
<tr>
<td>G</td>
<td>American Journal of Economics &amp; Sociology</td>
<td>International Journal of Contemporary Hospitality Management</td>
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<tr>
<td>H</td>
<td>American Sociological Review</td>
<td>International Journal of Research in Marketing</td>
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<tr>
<td>I</td>
<td>Applied Economics</td>
<td>International Review of Financial Analysis</td>
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<tr>
<td>J</td>
<td>Applied Economics Letters</td>
<td>Managing Service Quality</td>
</tr>
<tr>
<td>K</td>
<td>Asia Pacific Journal of Human Resources</td>
<td>Journal of Accounting &amp; Economics</td>
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<tr>
<td>L</td>
<td>Asia Pacific Journal of Management</td>
<td>Journal of Accounting Research</td>
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<tr>
<td>M</td>
<td>Australian Economic Papers</td>
<td>Journal of Applied Psychology</td>
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<tr>
<td>O</td>
<td>British Journal of Management</td>
<td>Journal of Business Finance &amp; Accounting</td>
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<tr>
<td>P</td>
<td>Business History Review</td>
<td>Journal of Business Research</td>
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<tr>
<td>Q</td>
<td>Business Horizons</td>
<td>Journal of Consumer Behaviour</td>
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<td>R</td>
<td>California Management Review</td>
<td>Journal of Corporate Finance</td>
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<td>S</td>
<td>Cambridge Journal of Economics</td>
<td>Journal of Economic Geography</td>
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<td>T</td>
<td>Contemporary Accounting Research</td>
<td>Journal of Economics</td>
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<td>V</td>
<td>Decision Sciences</td>
<td>Journal of Finance</td>
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<td>W</td>
<td>Economic Geography</td>
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<td>X</td>
<td>Economic Inquiry</td>
<td>Journal of Financial Services Research</td>
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<td>Y</td>
<td>Economics Journal</td>
<td>Journal of International Management</td>
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<td>Z</td>
<td>Economica</td>
<td>Journal of Labor Economics</td>
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<td>A</td>
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<td>B</td>
<td>Emerging Markets Finance &amp; Trade</td>
<td>Journal of Law, Economics &amp; Organization</td>
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<td>C</td>
<td>Empirical Economics</td>
<td>Journal of Management</td>
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<td>Enterprise &amp; Society</td>
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<td>E</td>
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<td>F</td>
<td>European Journal of Marketing</td>
<td>Journal of Managerial Psychology</td>
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<td>G</td>
<td>European Management Journal</td>
<td>Journal of Marketing</td>
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<td>H</td>
<td>European Planning Studies</td>
<td>Journal of Marketing Research (JMR)</td>
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<td>I</td>
<td>European Planning Studies</td>
<td>Journal of Media Economics</td>
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<td>K</td>
<td>Financial Management</td>
<td>Journal of Small Business Management</td>
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<td>L</td>
<td>Financial Management</td>
<td>Journal of Sport Management</td>
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<tr>
<td>M</td>
<td>Human Resource Management</td>
<td>Journal of the Academy of Marketing Science</td>
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Table 3: Articles Included in Star Literature Review

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<th></th>
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<tr>
<td>P</td>
<td>Pan et al. 2018</td>
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<td>Quitte et al. 2018</td>
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<td>Xing et al. 2018</td>
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<tr>
<td>Star Definition</td>
<td>Focal Dimension</td>
<td>Essential Attribute</td>
<td>Reference</td>
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<tr>
<td>Stardom refers to a situation &quot;wherein relatively small numbers of people earn enormous amounts of money and dominate the activities in which they engage&quot;.</td>
<td>Outcome-driven</td>
<td>Achieves superior wealth, Achieves superior performance</td>
<td>Rosen (1981: 845)</td>
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<tr>
<td>&quot;We understand a star scientist to be someone who is, by an order of magnitude, both more productive in and more influential on a specific research field than the average (nonstar) scientist active in this field.&quot;</td>
<td>Outcome-driven</td>
<td>Achieves superior performance</td>
<td>Rothaermel &amp; Hess (2007: 900)</td>
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<tr>
<td>Star manager is someone &quot;who has an idea and a unique skill to run a new venture.&quot;</td>
<td>Attribute-driven</td>
<td>Possesses unique skills</td>
<td>de Bettignies &amp; Chemla (2008: 505)</td>
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<tr>
<td>Stars are disproportionately productive and highly visible in the external labor market.</td>
<td>Outcome-driven</td>
<td>Achieves superior performance, Achieves superior social status</td>
<td>Groysberg et al. (2008)</td>
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<tr>
<td>Star scientists are those whose publications are above the average, but they show a patenting record below the average.</td>
<td>Outcome-driven</td>
<td>Achieves superior productivity</td>
<td>Baba et al. (2009)</td>
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<td>Star scientists are those who create connectivity to upstream knowledge sources such as universities.</td>
<td>Attribute-driven</td>
<td>Possesses superior social ties</td>
<td>Hess &amp; Rothaermel (2011)</td>
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<tr>
<td>&quot;we define a star as a university- affiliated scientist who is also the recipient of a Nobel Prize.&quot;</td>
<td>Outcome-driven</td>
<td>Achieves superior performance</td>
<td>Higgins et al. (2011: 607)</td>
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<tr>
<td>&quot;CEOs are labeled stars when their firms have enjoyed sustained levels of high performance.&quot;</td>
<td>Outcome-driven</td>
<td>Achieves superior performance</td>
<td>Graffin et al. (2013: 387)</td>
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<tr>
<td>Stars are &quot;a few individuals who contribute a disproportionate amount of output&quot;.</td>
<td>Outcome-driven</td>
<td>Achieves superior productivity</td>
<td>Aguinis &amp; O'Boyle (2014: 313)</td>
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<tr>
<td>They introduced relational stars (i.e. integrators and connectors) where integrators are &quot;outliers in centrality&quot; and connectors are &quot;outliers in bridging behavior&quot;.</td>
<td>Outcome-driven</td>
<td>Achieves superior social status</td>
<td>Grigoriou &amp; Rothaermel (2014: 586)</td>
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</tr>
<tr>
<td>Star scientists are &quot;highly prolific individuals&quot;</td>
<td>Outcome-driven</td>
<td>Achieves superior productivity</td>
<td>Tzabbar &amp; Kehoe (2014: 450)</td>
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<tr>
<td>Stars show prolonged and relatively disproportionate high performance, external visibility and social capital.</td>
<td>Attribute-driven &amp; Outcome-driven</td>
<td>Achieves superior performance, Achieves superior social status</td>
<td>Call et al. (2015)</td>
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</tr>
<tr>
<td>Star CEOs are &quot;members of the National People’s Congress (NPC) or the National Committee of the Chinese People’s Political Consultative Conference (CPPCC)&quot;.</td>
<td>Attribute-driven</td>
<td>Possesses superior social status</td>
<td>Conyon et al. (2015: 412)</td>
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</tr>
<tr>
<td>Stars are &quot;top performers who are &quot;on the fast track&quot; in the organization&quot;.</td>
<td>Outcome-driven</td>
<td>Achieves superior performance</td>
<td>Long et al. (2015: 463)</td>
<td></td>
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</tr>
<tr>
<td>&quot;Stars are identified based on the cumulative influence of their ideas, which is measured by the number of prior cumulative patent forward citations per inventor&quot;</td>
<td>Outcome-driven</td>
<td>Achieves superior performance</td>
<td>Hohberger (2016: 686)</td>
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</tr>
<tr>
<td>Stars &quot;make disproportionate individual contributions to their organizations” and they follow the 80-20 rule.</td>
<td>Outcome-driven</td>
<td>Achieves superior performance</td>
<td>Chen &amp; Garg (2018: 1240)</td>
<td></td>
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</tr>
<tr>
<td>They conceptualized status, performance, and universal stars. Status stars are performers who have high external status because of previous exceptional task performance or affiliation with elite individuals or institutions. Performance stars are individuals who show outstanding performance. Universal stars are individuals who both show outstanding performance and have extensive external status.</td>
<td>Outcome-driven</td>
<td>Achieves superior performance, Achieves superior social status</td>
<td>Kehoe et al. (2018)</td>
<td></td>
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</tr>
<tr>
<td>They defined creative stars as those who show high levels of creativity relative to other employees and also have a reputation of creativity.</td>
<td>Attribute-driven</td>
<td>Achieves superior creativity</td>
<td>Li et al. (2020)</td>
<td></td>
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</tr>
</tbody>
</table>
Table 5: Measures and Methods in the Empirical Investigation of Stars – Representative Studies

<table>
<thead>
<tr>
<th>Illustrative Study</th>
<th>Stars Measurement</th>
<th>Core Findings</th>
<th>Methodological Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graffin et al. (2008)</td>
<td>Two measures of CEO star status: (i.) if a CEO was recognized in Financial World contest in the current year, and (ii.) the number of total recognitions in the past five years.</td>
<td>Star CEOs financially benefit from their stardom. However, top management team members are also paid more when they work with a star CEO. Working with star CEOs helps TMT members become CEOs themselves.</td>
<td>Reflective measure, using only external, third-party evaluations. Interaction effects between status and performance not incorporated.</td>
</tr>
<tr>
<td>Baba et al. (2009)</td>
<td>Star scientists are those who have above average publication records.</td>
<td>In collaborations between firms and universities, firms with star scientists have little impact on innovation.</td>
<td>Reflective measure. No measures for social capital, which would be germane to the focal phenomenon.</td>
</tr>
<tr>
<td>Higgins et al. (2011)</td>
<td>A scientist is considered to be a star if he/she has been awarded a Nobel prize.</td>
<td>The presence of a star in a firm undertaking an IPO creates a signal of high quality to investors.</td>
<td>Reflective measure and one that does not solely capture individual achievement. Peer and organizational impacts loosely inferred.</td>
</tr>
<tr>
<td>Hess &amp; Rothaermel (2011: 901)</td>
<td>Stars are &quot;researchers who had both published and been cited at a rate of three standard deviations above the mean.&quot;</td>
<td>Star scientists and upstream alliances create redundancy in firms' knowledge sources and thereby decreases firms' innovation. However, star scientists and downstream alliances provide complementary knowledge in firms' innovation.</td>
<td>Reflective measure. No measures for social capital, which would be germane to the focal phenomenon.</td>
</tr>
<tr>
<td>Oettl (2012)</td>
<td>Helpful star scientists are high both in productivity and helpfulness. High-productivity scientists are those who have ever been in the top 5% of both the yearly citation and yearly impact factor-weighted publications. Helpful scientists are those who have ever been in the top 20% of the yearly distribution of acknowledgments in a year.</td>
<td>If a helpful scientist dies, their coauthors show a decline in the quality of their output but not in the quantity of their output. If a non-helpful star scientist dies, their death does not impact their coauthors’ output.</td>
<td>Generally a balanced study. Combination of reflective measure of performance with formative measure of social capital. Status and visibility not included, despite being germane to citation rates and perceived assistance to others.</td>
</tr>
<tr>
<td>Grigoriou &amp; Rothaermel (2014: 598)</td>
<td>Stars are &quot;the inventors with patents that are three standard deviations above the mean number of patents of every other inventor in the same 5-year time window.&quot;</td>
<td>Stars positively impact innovation and knowledge generation through their superior ability in knowledge recombination, but also by making their peers more productive.</td>
<td>Reflective measures despite strong formative theorization.</td>
</tr>
<tr>
<td>Tartari et al. (2014)</td>
<td>Star scientists are academics who are in the top 1% of the citations distribution in their area of expertise, and also in the top 25% of the EPSRC grants distribution.</td>
<td>Industry engagements of academics are impacted by their peers' behavior. The effect of peers is weaker for star scientists.</td>
<td>Reflective measures despite strong formative theorization.</td>
</tr>
<tr>
<td>Tzabbar &amp; Kehoe (2014)</td>
<td>Innovation performance score was calculated using the number of patents, tenure, forward citations, and years since patent was awarded. If the innovation performance score of a scientist is one standard deviation above the average of the industry, the person is considered to be a star.</td>
<td>Innovative involvement of a star who leaves the organization heightens the negative impacts on exploitation and decreases the positive impacts of stars' departure on exploration.</td>
<td>Reflective measure, focusing exclusively on high performance, even though social capital is a relevant dimension of peer and organizational impacts.</td>
</tr>
<tr>
<td>Kehoe &amp; Tzabbar (2015)</td>
<td>Stardom calculated using the number of patents and forward citations, normalized by the tenure of the scientist. If productivity scores are 2 standard deviations above the average of all scientists, they are considered to be a star.</td>
<td>Stars are likely to positively impact firms’ productivity. However, they constrain the emergence of other stars in the organization.</td>
<td>Reflective measure, focusing exclusively on high performance, even though social capital is a relevant dimension of peer and organizational impacts.</td>
</tr>
<tr>
<td>Illustrative Study</td>
<td>Stars Measurement</td>
<td>Core Findings</td>
<td>Methodological Concerns</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Hohberger (2016)</td>
<td>Stardom was calculated using the number of citations considering the one percent cut-off point.</td>
<td>Stars are not better than non-stars at developing the ideas of earlier star inventions. If stars try to build on their own inventions, their future inventions will be negatively impacted.</td>
<td>Reflective measure, focusing exclusively on high performance, even though social capital is a relevant formative dimension of idea development.</td>
</tr>
<tr>
<td>Agrawal, McHale, &amp; Oestl (2017: 859)</td>
<td>Star is a scientist whose &quot;citation weighted papers published up until year t − 1 is above the 90th percentile&quot;.</td>
<td>Hiring a star does not enhance existing scientist productivity, but does improve the quality of new hires.</td>
<td>Reflective measure, focusing exclusively on high performance, even though social capital, visibility, and status are relevant formative dimensions of incumbent impacts and new employee recruitment. Assumes all reflective dimensions are independently identical.</td>
</tr>
<tr>
<td>Aguinis et al. (2018: 1289)</td>
<td>Stars are scientists &quot;who have published at least one article in one of the 10 most influential mathematics journals from January 2006 to December 2015.&quot;</td>
<td>There is a gender productivity gap between males and females -- where males are more productive than females-- and this gap is more significant in more elite ranges of performance.</td>
<td>Reflective measure, focusing exclusively on high performance, even though social capital, visibility, and status are relevant formative dimensions of gender-based phenomena.</td>
</tr>
<tr>
<td>Chen &amp; Garg (2018: 1250)</td>
<td>They used value over replacement player (VORP) to identify stars. A player is considered to be a star &quot;if in the previous season, he was above the 90th percentile of league-wide performance per the VORP statistic, and played in a majority of games for his team.&quot;</td>
<td>They showed that a star’s short-term absence makes others search for new routines and positively impacts organizational performance.</td>
<td>Reflective empirical orientation despite theorizing formative effects. Assumes all reflective dimensions are independently identical.</td>
</tr>
<tr>
<td>Prato &amp; Ferraro (2018)</td>
<td>Using the All-America Research Team ranking, they identified stars as those who were ranked in the top three industry performers when they were hired.</td>
<td>Hiring stars negatively impacts incumbents’ performance. This impact is less detrimental for star incumbents.</td>
<td>Reflective measure, using only external, third-party evaluations. Interaction effects between status and performance not incorporated.</td>
</tr>
<tr>
<td>Li et al. (2020: 620)</td>
<td>In R&amp;D teams, stars were identified as team members achieving the highest creativity scores based on a survey completed by the team leader. In sales teams, leaders nominated stars based on the following definition: “Creative stars are employees who display superior creativity relative to others and have a reputation of being creative.”</td>
<td>Stars who have central positions in teams have a direct positive impact on team creativity. However, they have an indirect negative impact on team creativity by negatively impacting non-stars’ learning in explorative and exploitative activities.</td>
<td>Generally a good design. Focal measure is consistent with a formative conceptualization. However, the operationalization of stardom excludes relevant dimensions: social capital, visibility, and status.</td>
</tr>
</tbody>
</table>
### Table 6: Antecedents and Impacts of Stardom – Representative Studies Across Varied Contexts and Fields

<table>
<thead>
<tr>
<th>Illustrative Study</th>
<th>Field of the Study</th>
<th>Context of the Study</th>
<th>Focus of the Study</th>
<th>Core Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosen (1981)</td>
<td>Economics</td>
<td>NA</td>
<td>Emergence of stars</td>
<td>They showed the role of market changes in developing stars and emphasized that the quality of the stars’ work cannot be reached by the aggregation of the output of a number of average workers.</td>
</tr>
<tr>
<td>Adler (1985)</td>
<td>Economics</td>
<td>NA</td>
<td>Emergence of stars</td>
<td>They discovered that instances arise in which no discernible, special talents can still lead to heightened earnings and stardom. In other words, emergence of stars can be due to different levels of prior knowledge of consumers about the star.</td>
</tr>
<tr>
<td>McDonald (1988)</td>
<td>Economics</td>
<td>NA</td>
<td>Emergence of stars</td>
<td>They explained the importance of early entry into an occupation in becoming a star.</td>
</tr>
<tr>
<td>Zucker, Darby, and Torero (2002)</td>
<td>Strategic management/Entrepreneurship</td>
<td>High technology industry</td>
<td>Impact of stars on firm innovation</td>
<td>They showed that stars are the main drivers of innovation and emergence of industries.</td>
</tr>
<tr>
<td>Grigoriou &amp; Rothaermel (2014)</td>
<td>Strategic management</td>
<td>High technology industry</td>
<td>Impact of stars on firm innovation</td>
<td>Drawing on knowledge-based view of the firm and social networks, they showed that stars who are outliers in centrality and bridging behavior have high knowledge recombination abilities and help other scientists develop higher abilities as well.</td>
</tr>
<tr>
<td>Tzabbar &amp; Kehoe (2014)</td>
<td>Strategic management</td>
<td>High technology industry</td>
<td>Impact of stars on firm innovation</td>
<td>Drawing on knowledge-based view of the firm and routines and processes, they showed that stars' departure increases firms' exploration and decreases firms' exploitation.</td>
</tr>
<tr>
<td>Kehoe &amp; Tzabbar (2015)</td>
<td>Strategic management</td>
<td>High technology industry</td>
<td>Impact of stars on firm innovation</td>
<td>Drawing on resource dependence theory, they showed that stars enhance firm productivity, but limit the emergence of other leaders in organizations.</td>
</tr>
<tr>
<td>Liu, Mazumdar, &amp; Li (2015)</td>
<td>Strategic management</td>
<td>Creative contexts</td>
<td>Impact of stars on firm performance (revenue)</td>
<td>They examined the controversy regarding the impact of stars in the movie industry. Since stars gain high financial rewards and large payments, the true impact of stars on firm outcomes has not been without controversy. They showed that a star has an indirect impact on revenue through their impact on theater allocations.</td>
</tr>
<tr>
<td>Corolleur, Carrere &amp; Mangematin (2004)</td>
<td>Entrepreneurship</td>
<td>High technology industry</td>
<td>Impact of stars on firm innovation</td>
<td>Drawing on knowledge-based view of the firm, they showed that star scientists create riskier and more valuable firms.</td>
</tr>
<tr>
<td>de Bettignies &amp; Chemla (2008)</td>
<td>Entrepreneurship</td>
<td>High technology industry</td>
<td>Impact of stars on firm performance</td>
<td>They showed that competition for stars can lead to mobilizing human capital and engaging in corporate venturing decisions.</td>
</tr>
<tr>
<td>Fuller &amp; Rothaermel (2012)</td>
<td>Entrepreneurship</td>
<td>High technology industry</td>
<td>Impact of stars on firm performance</td>
<td>They showed the important role played by star faculty entrepreneurs in the success of new technology ventures and attracting funds.</td>
</tr>
<tr>
<td>Kahn, La Mattina, &amp; MacGarvie (2017)</td>
<td>Entrepreneurship</td>
<td>High technology industry</td>
<td>Impact of stars on firm performance</td>
<td>They showed that immigrant entrepreneurs enjoy a premium in developing new science-based ventures.</td>
</tr>
<tr>
<td>Basuroy, Chatterjee, &amp; Ravid (2003)</td>
<td>Marketing</td>
<td>Creative contexts</td>
<td>Impact of stars on firm performance (revenue)</td>
<td>They studied the moderating role of stars on critics’ review and box office performance. They showed that stars can mitigate the negative impact of critics’ review on box office revenues.</td>
</tr>
<tr>
<td>Elberse (2007)</td>
<td>Marketing</td>
<td>Creative contexts</td>
<td>Impact of stars on firm performance (revenue)</td>
<td>They examined the role of stars in the success or failure of movies. They showed that stars increase the revenues of theatres. They also found insufficient evidence to show that stars add more value than the value they capture to movie companies.</td>
</tr>
<tr>
<td>Hoogeve, Schmidt, &amp; Torgler (2014)</td>
<td>Marketing</td>
<td>Creative contexts</td>
<td>Impact of stars on organizational identification</td>
<td>They studied the role of stars in navigating among stakeholder groups within organizations. They found that stars impact the level of fans identification with teams.</td>
</tr>
<tr>
<td>Liu, Liu, &amp; Mazumdar, (2014)</td>
<td>Marketing</td>
<td>Creative contexts</td>
<td>Impact of stars on firm performance (revenue)</td>
<td>The showed the importance of the role of stars in the success of movies especially under uncertain conditions – i.e. in the early stages and riskier stages of movie production.</td>
</tr>
</tbody>
</table>
## Table 7 – Theoretical Foundations of Stars’ Multi-level Impact

<table>
<thead>
<tr>
<th>Valence of Impact</th>
<th>Focal Dimension</th>
<th>Theoretical Perspective</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>Performance</td>
<td>Knowledge externalities and spillover (Griliches, 1979; Jaffe, 1986)</td>
<td>• Impact on incumbent scientist performance in related fields (Agrawal et al., 2017)</td>
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<td>• Impact on peer performance through their collaborations (Oettl, 2012)</td>
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<td>• Impact on non-star productivity through formal collaborations (Azoulay et al., 2010)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Impact on capability development among others (Kehoe et al., 2018)</td>
</tr>
<tr>
<td>Positive</td>
<td>Status</td>
<td>Social Comparison Theory (Festinger, 1954)</td>
<td>• Impact as social referents and role models (Flynn &amp; Amanatullah, 2012; Huckman &amp; Pisano, 2006)</td>
</tr>
<tr>
<td>Positive</td>
<td>Visibility</td>
<td>Signaling theory (Connelly et al., 2011)</td>
<td>• Increase legitimacy of inventor team and patent renewal (Lurie et al., 2009)</td>
</tr>
<tr>
<td>Negative</td>
<td>Performance</td>
<td>Resource dependence theory (Casciaro &amp; Paikorski, 2005; Emerson, 1962)</td>
<td>• Hinder teams from enhancing skills and information of peers because of power imbalance (Kehoe &amp; Tzabbar, 2015)</td>
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<td></td>
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<td></td>
<td>• Negative impact on innovative outcomes because of imbalance in mutual dependence (Kehoe &amp; Tzabbar, 2015)</td>
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<tr>
<td></td>
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<td></td>
<td>• Hinder non-stars knowledge sharing because of high perceived value of stars’ knowledge and low perceived value of non-stars’ knowledge (Van der Vegt et al., 2010)</td>
</tr>
<tr>
<td>Negative</td>
<td>Status</td>
<td>Routines and processes (Nelson &amp; Winter, 1982)</td>
<td>• Cause disruptions on knowledge sharing routines because of status asymmetry (Tzabbar &amp; Vestal, 2015)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Limited knowledge spillover of new hires to incumbent employees (Prato &amp; Ferraro, 2018)</td>
</tr>
</tbody>
</table>

### Stars’ Impact on Firms

<table>
<thead>
<tr>
<th>Valence of Impact</th>
<th>Focal Dimension</th>
<th>Theoretical Perspective</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>Performance</td>
<td>Knowledge based view and knowledge integration (Grant, 1996)</td>
<td>• Innovatively lead knowledge search (Kehoe &amp; Tzabbar, 2015)</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>• Enhance firms’ absorptive capacity and intellectual capital with unique and valuable knowledge (Song et al., 2018)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Routines and processes (Nelson &amp; Winter, 1982)</td>
<td>• Develop norms and practices (Kehoe et al., 2018)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Simplify learning processes (Chen &amp; Garg, 2018)</td>
</tr>
<tr>
<td>Positive</td>
<td>Visibility</td>
<td>Signaling theory (Connelly et al., 2011)</td>
<td>• Impact quality of new recruits of firms by signaling organizational quality through association with stars (Agrawal et al., 2017)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Signal quality in initial public offerings (Higgins et al., 2011)</td>
</tr>
<tr>
<td>Positive</td>
<td>Social Capital</td>
<td>Social network theory (Burt, 1992; Granovetter, 1973)</td>
<td>• Bring value-enhancing information and perspectives (Oldroyd &amp; Morris, 2012)</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>• Facilitate varied schemas and work as boundary spanners and gatekeepers (Allen &amp; Cohen, 1969; Tushman &amp; Scanlan, 1981)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Enhance knowledge search and recombination opportunities (Gregorius &amp; Rothaermel, 2014)</td>
</tr>
<tr>
<td>Negative</td>
<td>Performance</td>
<td>Routines and processes (Nelson &amp; Winter, 1982)</td>
<td>• Generate unwanted, unproductive myopia (Chen &amp; Garg, 2018)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Knowledge based view (Grant, 1996)</td>
<td>• Destroy firm value because of a lack of firm-specific knowledge (Groysberg et al., 2008)</td>
</tr>
<tr>
<td>Negative</td>
<td>Status</td>
<td>Routines and processes (Nelson &amp; Winter, 1982)</td>
<td>• Precipitate status asymmetry and undercut knowledge-sharing routines (Asgari &amp; Hunt, 2015)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Knowledge based view and knowledge integration (Grant, 1996)</td>
<td>• Control resources (Zucker et al., 2002)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Crowd out contributions and learning of others (Asgari &amp; Hunt, 2015; Li et al., 2020)</td>
</tr>
<tr>
<td>Negative</td>
<td>Social Capital</td>
<td>Social network theory (Burt, 1992; Granovetter, 1973)</td>
<td>• Negatively impact performance because of information overload and information processing limitations (Oldroyd &amp; Morris, 2012)</td>
</tr>
</tbody>
</table>
### Table 8: Contingencies related to Star Impacts – Representative Studies

<table>
<thead>
<tr>
<th>Contingency</th>
<th>Illustrative Study</th>
<th>Core Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Green et al. (2009)</td>
<td>Studying star analysts, they showed that women are more likely to become star analysts than men. However, mens' earning estimates are likely to be more accurate than women's. This is because women are likely to outperform men in other aspects of performance.</td>
</tr>
<tr>
<td></td>
<td>Aguinis et al. (2018)</td>
<td>Stars' productivity can be shown as a power law distribution. In the range of more elite performers, there is more underrepresentation of women.</td>
</tr>
<tr>
<td>Star's helpfulness</td>
<td>Oettl (2012)</td>
<td>Stars' helpfulness in terms of giving advice and feedback is more useful for peers than stars' helpfulness in terms of technical access to material.</td>
</tr>
<tr>
<td>Star’s innovative involvement</td>
<td>Tzabbar &amp; Kehoe (2014)</td>
<td>Stars' innovative involvement positively impacts their negative effects after their departure on exploitation. Stars' innovative involvement negatively impacts their positive effects after their departure on exploration.</td>
</tr>
<tr>
<td>Star’s collaborative involvement</td>
<td>Tzabbar &amp; Kehoe (2014)</td>
<td>Stars' collaborative strength positively impacts the negative effect of the stars' turnover on firms' exploitative activities. Stars' collaborative strength positively impacts the positive effect of the stars' departure on firms' explorative activities.</td>
</tr>
<tr>
<td>Age</td>
<td>De Pater et al. (2014)</td>
<td>The earnings of female movie stars surge until the age of 34. However, their earnings decline as they get older. Male movie stars’ earnings increase until age 51 and then their earnings become stable.</td>
</tr>
<tr>
<td>Breadth of knowledge</td>
<td>Kehoe &amp; Tzabbar (2015)</td>
<td>Breadth of the knowledge of stars diminishes the negative impact of stars on non-stars' leadership.</td>
</tr>
<tr>
<td>Collaborative strength</td>
<td>Kehoe &amp; Tzabbar (2015)</td>
<td>Collaborative strength of stars diminishes the negative impact of stars on non-stars' leadership.</td>
</tr>
<tr>
<td>Environmental dynamism</td>
<td>Miller &amp; Shamsie (1996)</td>
<td>Drawing on the resource-based view of the firm, they studied the contingencies of the stars' impact in the movie industry such as environmental dynamics. Long-term contracts with stars helped financial performance in less dynamic environments.</td>
</tr>
<tr>
<td>Organizational dynamics</td>
<td>Wade et al. (2008)</td>
<td>Star CEOs and their respective firms benefit in the short-term. However, stars status creates a burden of celebrity for future performance of the CEO and firm.</td>
</tr>
<tr>
<td>Firm pursuit</td>
<td>Groysberg &amp; Lee (2009)</td>
<td>Stars who were hired to explore new activities experienced a long-term drop in their performance. However, stars who joined firms to exploit current activities showed a short-term decline in their performance.</td>
</tr>
<tr>
<td>Team coordination</td>
<td>Li et al. (2020)</td>
<td>Team coordination can decrease the negative impacts of a star’s centrality on non-stars’ learning and team creativity.</td>
</tr>
</tbody>
</table>
Figure 1: Publications Contributing to the Literature on Stars

Figure 2: Dimensions of Stardom

- **Theoretical Perspective**
  - Signaling theory (Connelly et al., 2011)

- **Visibility**
  - Related Term
    - Celebrity

- **Status**
  - Related Term
    - Status Stars
    - e.g. Previous high performer stars or those affiliated with elite individuals or institutions (Khoe et al., 2018)

- **Social Capital**
  - Related Terms
    - Social Stars
    - e.g. Integrators or connectors in social networks (Grigoriou & Rothaermel, 2014)

- **Performance**
  - Related Terms
    - High Performers
    - Top Talent

- **Theoretical Perspective**
  - Social Network theory (Burt, 1992; Granovetter, 1973)

- **Theoretical Perspective**
  - Resource-based View (RBV) (Barney, 1991)
  - Knowledge-based View (Grant, 1995)
  - Knowledge externalities and spillover (Griliches, 1979; Jaffe, 1986)
Figure 3: Star Dimensions: Frequency of Use in Scholarly Research

![Bar Chart](chart.png)

- Performance
- Status
- Visibility
- Social Capital

Figure 4: Reflective versus Formative Star Construct

**Reflective Approach**
(e.g. Call et al., 2015)

**Formative Approach**
(Reconciliation of theory and empirics)

Reflective Approach

Formative Approach
Figure 5: Illustration of Integrated Consideration of Concurrent Star Effects

(A.) "Well-harnessed Red Giant"

(B.) "Black Hole"

(C.) "Solitary Red Giant"

(D.) "High Ambivalence"