Agentic Networks and Entrepreneurial Opportunities: An Emerging Nonlocal Network Dynamics Perspective

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While literature has long highlighted that entrepreneurs benefit from having the right network connections, literature on network development has traditionally emphasized “rich-get-richer” dynamics and the role of existing ties in forming new socially-proximate ties, a perspective we call structural localism. In contrast, an emerging literature has begun to explore how entrepreneurs purposefully form non-local ties and actively dissolve ties to better pursue novel opportunities. This research, which we label agentic network change (ANC), is still in its nascent stages and we seek to address some of its current limitations. First, we describe ANC’s role in capturing entrepreneurial opportunities. Unpacking its influence on a range of entrepreneurial outcomes (e.g., resource acquisition, business model innovation, etc.), we argue that ANC plays a strong and direct role in the execution of entrepreneurial opportunities, but has a weak and lagged influence on opportunity discovery. Second, whereas prior literature has identified a partially overlapping set of ANC behaviors whose relatedness has been unclear, we develop its theoretical foundations to argue that ANC behaviors all operate through three mediating mechanisms grounded in bounded rationality and resource dependence theories. We draw our arguments together in an integrative framework and sketch an agenda for future ANC research.

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Network theory is an increasingly prominent and powerful perspective in research about entrepreneurship (Stam, Arzlanian, & Elfring, 2013; Stuart & Sorenson, 2007) because it is well-suited to addressing critical challenges entrepreneurs pursuing novel opportunities face around accessing industry information and acquiring resources (Bingham & Eisenhardt, 2008; Kirzner, 1997; Shane, 2000). Although entrepreneurs might prefer to begin already understanding all elements of the domains they seek to enter and already possessing all relevant resources, this is rarely the case (Schoonhoven & Romanelli, 2001; Schumpeter, 1934; Shane & Venkataraman, 2000). Instead, interactions with other parties are often needed to understand customer needs and relevant technologies, and to license resources that entrepreneurs can either not afford or which their providers are not willing to outright sell. Moreover, intensive collaboration may be required if inputs and services must be customized, or to convince early customers to adopt novel products and services that may still be in development.

An entrepreneur’s social relationships are a useful foundation for such collaboration if they mitigate some of the risk, uncertainty, and mistrust that may complicate interactions. Research is unequivocal on this fact: multiple studies have found that entrepreneurs with more network ties, more diverse networks, and ties to more prominent partners are more likely to access resources and generally outperform those who do not (Stam, Arzlanian, & Elfring, 2014). Network ties have been linked to various entrepreneurial outcomes, such as obtaining capital (Shane & Cable, 2002), engaging customers (Fisher, Kotha, & Lahiri, 2015), developing novel goods and services (Ozcan & Eisenhardt, 2009), and obtaining legitimacy and social status (Khaire, 2010; Pollock & Gulati, 2007).

Yet this simple story is complicated by the fact that entrepreneurs often begin with a set of network ties that are not fully appropriate or useful for addressing the opportunity at hand. Founders may lack ties to key reference customers, sources of capital, or suppliers of requisite technology, inputs, or services. Successfully forming these new ties is challenged by the fact that these potential partners are themselves often risk adverse and limited in how many relationships they can form. In fact, an entrepreneur’s prior success with past relationships may inhibit their capacity to address new opportunities if old relationships block new relationships because of ongoing commitments or potential
conflicts between old and new partners.

Research on network dynamics suggests that new relationship formation is often driven primarily by a firm’s existing relationships. The dominant view is what might be called structural localism, in which the network changes that are most likely to occur are to partners with whom the entrepreneur already has direct or indirect ties (Baum, Rowley, Shipilov, & Chuang, 2005; Podolny & Phillips, 1996; Stuart, Hoang, & Hybels, 1999). Specifically, the creation of new ties tends to take the form of tie repetition (the same partners working together repeatedly); tie referrals (forming ties with partners’ partners, also known as tie transitivity); and status matching (forming ties with partners of similar status, with status being influenced by network position) (Gulati & Gargiulo, 1999; Podolny, 1994; Sorenson & Stuart, 2001). When taken together, this research suggests a path-dependent and “rich-get-richer” dynamic in which the privileged few continue to acquire more and better ties over time. Because most entrepreneurs begin with lower power, fewer resources, and lesser status than their preferred partners, they are expected to either fail to form new ties to the most desirable partners or build a series of less useful ties that do not improve their capacity to capture fresh opportunities. This presents a puzzle for research on entrepreneurship and social networks: how do entrepreneurs pursuing new ventures change their networks to better capture new opportunities?

A handful of studies have emerged to address this question. By examining the behaviors of entrepreneurs that enable them to obtain financing, create innovations, and enter new market niches, this research has found that it is sometimes possible to overcome the forces of structural localism and dramatically improve an a venture’s network position (Davis, 2008; Hallen, 2008; Hallen & Eisenhardt, 2012; Obstfeld, 2005; Ozcan & Eisenhardt, 2009; Pollock, Porac, & Wade, 2004; Stam, 2010; Vissa, 2012; Zott & Huy, 2007). We call this different form of network evolution agentic network change (ANC) because it emphasizes how actors employ their constrained agency to produce purposeful and often beneficial changes to individual and firm networks. Examples include catalyzing positional change with the casual dating of many potential partners (Hallen & Eisenhardt, 2012), strategic network probing at networking events (Stam, 2010), and pruning networks of older ties that are blocking new relationships
The intentional, instrumental, and costly behaviors that are the hallmark of agentic network change are different than structurally local dynamics because of their orientation towards forming ties to relevant yet distant partners, or dissolving distracting and no longer relevant ties in order to radically improve an actor’s network position.

Although instructive, the ANC studies to date raise as many questions as they answer. First, while some of these studies have identified entrepreneur characteristics that amplify the efficacy of identified actions (Stam, 2010), it is still not clear where in the entrepreneurial process agentic network change would find its greatest impact. Many more studies of entrepreneurial networks link network positions (e.g., structural holes or network centrality) to venture outcomes than explore how and when these positions arise as entrepreneurs address opportunities. Moreover, the few notable exceptions focus on ANC during resource acquisition, so it is less clear how ANC might influence (or not) other entrepreneurial outcomes like discovering opportunities and business model innovation. A second related question is whether there is a common theoretical foundation to agentic network change. The emphasis in the early studies has been on a variety of middle-range ideas and theories in which ANC behaviors work in specific contexts (e.g., venture funding, product innovation) but where a broader set of logical mechanisms is unclear. The contrast with structural localism is striking, where a common set of theoretical logics (e.g., embeddedness, closure) explain a variety of specific network dynamics (e.g., tie repetition, tie referrals). Addressing these issues would represent a significant step forward in understanding how entrepreneurs reconfigure networks to capture fresh, new opportunities.

The purpose of this paper is to address these questions in the literature on entrepreneurial networks, and put the agentic network change perspective on a firmer theoretical foundation. In our view, much of the confusion around the role of ANC in entrepreneurship stems from a lack of clarity about the role of network change in capturing new opportunities. The entrepreneurship literature typically conceives of opportunity-based entrepreneurship as a set of challenges along a spectrum from what is often called “opportunity discovery” (e.g., sensemaking about market dynamics, understanding possibilities for arbitrage and profit, and framing new technological discontinuities) to what is sometimes
called “opportunity execution” (e.g., assembling resources, developing and refining business models, product innovation, and streamlining commitments to conserve effort and attention). Although ANC behaviors have been observed across the discovery-execution spectrum, prior studies have indicated that entrepreneurs often discover new opportunities serendipitously and without explicit search or reconfiguration of their networks. In this paper, we argue that ANC may have a more direct and frequent role in the execution of entrepreneurial opportunities, as new network ties are formed to acquire resources from very different domains and to radically adapt business models as a source of value creation once these resources are in place. ANC may also play a critical role in the dissolution of ties that block new resource configurations and business models or vestigial ties that are distracting and no longer relevant during opportunity execution. In contrast, ANC may play a more limited role during opportunity discovery, and may only be relevant for some entrepreneurs whose relationships inhibit cognition (Hahl, Kacperczyk, & Davis, 2016), and with only a lagged and less consistent effect. Together these arguments help to address the puzzle about why fixed network positions explain surprisingly little of the variation in venture performance in larger sample studies: an entrepreneur’s initial network may be sufficient for opportunity discovery, but is rarely sufficient for opportunity execution. Here ANC is likely to play a critical role in the development and reconfiguration of useful networks.

We begin by contrasting structural localism and agentic network change, considering differences both in the types of network changes on which they focus and the different theoretical logics underlying both types of change (i.e., social embeddedness and closure versus resource dependence and bounded rationality). Building on resource dependence and bounded rationality arguments, we also clarify the theoretical mechanisms that underlie ANC’s effects on opportunity execution, but argue a weaker and lagged effect on opportunity discovery. Finally, we describe the most frequently observed formation and dissolution behaviors that lead to ANC and enable entrepreneurs to achieve important execution outcomes. We conclude with a sketch of an agenda for future research on entrepreneurship and agentic network change.
CONTRASTING STRUCTURAL LOCALISM AND AGENTIC NETWORK CHANGE

Structural Localism

So as to better introduce and define agentic network change, we first begin with a review of the traditional social embeddedness perspective on network tie evolution and its resulting dynamic of structural localism. Social embeddedness builds on the idea from sociology that a firm or individual’s behavior and outcomes are often substantially constrained by social structures in the form of surrounding network ties and the status hierarchies they produce (Granovetter, 1985; Portes & Sensenbrenner, 1993; Powell, Koput, & Smith-Doerr, 1996). Whereas early work focused on how surrounding networks influenced outcomes and behaviors such as finding a job or being perceived as high-quality (Granovetter, 1973; Podolny, 1993), later work extended the social embeddedness perspective to consider how surrounding network ties may also influence the formation of new inter-firm relationships.

Specifically, the social embeddedness perspective on network evolution and formation suggests that firms often rely on existing network ties to identify reliable potential partners where there are mutual needs (Gulati, 1995; Podolny, 1994). The social embeddedness perspective on network formation is grounded in resource dependence theory’s insight that ties are more likely to form where two actors1 are interdependent and have mutual need for one another’s resources (Casciaro & Piskorski, 2005; Pfeffer & Nowak, 1976; Wry, Cobb, & Aldrich, 2013). However, whereas resource dependence theory suggests that firms may scan across a broad environment to identify interdependencies, the social embeddedness perspective emphasizes that accurately identifying mutual fit and assessing partner reliability may be quite difficult (Gulati, 1995). This perspective highlights that existing networks thus substantially influence the formation of new relationships because existing direct and indirect network ties act as information “pipes” that accurately relay otherwise private information (although see Anindya and Rosenkopf (2015) for an intriguing perspective on the limits of this view). By contrast, distant network ties act as information “prisms” that broadcast a signal of endorsement based on which other firms are

1 Throughout the paper, we follow convention in the social network literature and use “actor” to refer to an individual, group, or organization within a network (i.e., a node). Similarly, we use “privileged” to denote actors with an advantage in terms of their structural position (i.e., their position in relevant networks or status hierarchies).
willing to affiliate with a focal firm (Gulati & Gargiulo, 1999; Podolny, 2001).

Supporting the social embeddedness perspective, prior network ties have been found to influence the formation of new ties and give rise in a few ways to the pattern of network change that we term structural localism. First, firms have a strong tendency to engage in tie repetition, working with the same partners again, since their prior experiences are likely to have acted as information pipes providing firsthand knowledge about what the other may contribute to a new relationship (Gulati, 1995; Podolny, 1994; Sorenson & Stuart, 2001). Second, firms have a strong tendency to form new ties around indirect ties based on referrals from their partners’ partners. This is because indirect ties also act as information pipes that provide accurate information about potential partners’ reliability, capabilities, and mutual interest. Additionally and especially relevant for structural localism, common partners may also encourage network closure by having their partners also work with one another, since this provides greater trust and social discipline (Burt, 2005; Obstfeld, 2005; Simmel, 1950). Third, when firms do venture beyond their existing direct and indirect network ties, they have a tendency to primarily form ties with firms that are similar in status as based upon how centrally they are positioned in the broader industry network (Gulati & Gargiulo, 1999; Podolny, 1994). Here network ties play a key role by serving as prisms that summarize and triangulate the decisions of other firms to affiliate with a focal firm (Chung, Singh, & Lee, 2000; Podolny, 1993).

Broadly, structural localism suggests that network change largely consists of incremental reinforcements of existing network positions, with new partners primarily residing within an actor’s existing clique of strong connections. For research on the role of networks in entrepreneurship, however, structural localism presents a puzzle around how entrepreneurs may form distant ties outside of their existing clique to partners where intermediate connections are either weak or nonexistent.

**Agentic Network Change**

In contrast to the social embeddedness perspective with its resulting dynamic of structural localism, an emerging stream of literature has begun to explore how entrepreneurs and other individuals and firms may purposefully take actions so as to beneficially and radically improve and reconfigure their
networks. We label this process *agentic network change* (ANC), and define it as actor-level behaviors that are intentional, instrumental, and costly, and which produce network changes unlikely under structural localism. In particular, ANC deals with the formation of non-local network ties (i.e., to new partners where intermediating connections are weak or non-existent, and the partners often of higher-status) and the active dissolution of ties that would otherwise be preserved or strengthened. Each aspect of this definition has been selected to focus the construct on the strategic improvement of networks, and to differentiate this type of network change from the path-reinforcing dynamics described by structural localism. As we detail later, ANC is a general form of network change driven by a variety of actor-level behaviors in different contexts, though it is especially relevant for explaining network dynamics around capturing entrepreneurial opportunities.

The first distinguishing aspect of ANC is that it is *intentional*, resulting from actors purposefully seeking to change their network. For instance, multiple studies in this stream have focused on entrepreneurs explicitly looking to form a variety of early ties (exchange ties, equity investments, and alliances) (Hallen, 2008; Vissa, 2012). Likewise, in the corporate context, Obstfeld’s (2005) work on the strategic orientations of actors highlights managers purposefully connecting and introducing others. The intentionality requirement thus excludes network changes arising from serendipitous encounters in social contexts where participation is primarily driven by other goals, such as participating in church groups or activities for children (Brieger, 1974; Feld, 1981). Intentionality sometimes takes the form of targeting particular nodes or ties for formation or dissolution. Alternatively, intentionality may also take the form of an actor seeking to form a type of node or tie without initially knowing which potential partners may have those attributes – for instance, an entrepreneur may attend a conference hoping to meet industry contacts that may help her learn about a relevant new technology and providers of that technology (Stam, 2010). Note that our arguments do not imply that structurally local changes are not sometimes intentional, although they need not be.

The second distinguishing aspect of ANC is that it is *instrumental*, with network change being not only purposeful but designed to achieve a particular and explicitly recognized non-network goal like
Vissia (2012), for instance, identifies “network broadening” actions that help entrepreneurs establish early exchange ties, including purposefully reaching out to specific strangers and finding out more about them. Using a historical example outside of entrepreneurship, Padgett and Ansell (1993) describe how Cosimo de’ Medici leveraged robust action in the form of ambiguous statements and actions that could be interpreted differently by diverse actors to purposefully establish power across networks of otherwise opposed interests. In contrast, the instrumental requirement excludes ties formed purely for the goal of homophily (i.e., connections based on demographic similarity) or social affect (Ingram & Morris, 2007; McPherson & Smith-Lovan, 1987). Rather, ANC occurs as actors seek to satisfy goals such as gaining access to required capital or better understanding target markets.

Third, ANC is also costly on the part of the actor relative to structurally local change (e.g., tie repetition, tie referrals, or status matching). The cost may be of time, resources, attention, or even psychological discomfort. In studying how entrepreneurs efficiently form network ties, Hallen and Eisenhardt (2012) identify four underlying behaviors (casual dating, timing around proof points, scrutinizing interest, and crafting alternatives) that require a critical allocation of time and often involve strategic tradeoffs in terms of resources or other opportunities. Similarly, in a corporate context, Davis (2008) shows that the success of inter-firm collaborations often depends on managers explicitly investing time and effort in “pruning,” keeping prior personal ties between employees from across firms from interfering with the collaboration’s goals. In contrast, while structural localism highlights that high-status actors may often receive many network formation enquiries including from other high-status actors (Gulati & Gargiulo, 1999; Podolny, 1994), accepting such requests requires little effort and accepting actors are thus not engaging in ANC. While structural localism may at times arise from networking efforts that are intentional or instrumental, prior theory suggests structural localism is unlikely to involve high-cost formation. Overall, the costly requirement focuses ANC on network changes unlikely to be encouraged or easily facilitated by an actor’s local social structure.

Agentic network change research is related to, but distinct from, a related stream of philosophical and empirical inquiry exploring the extent to which any individuals may exert agency (control) over the
social structure (Barley & Tolbert, 1997; Emirbayer, 1997; Emirbayer & Goodwin, 1994). Relative to this philosophical stream, ANC assumes that individuals can produce radical changes in their networks, but that doing so may be difficult, requiring strategic actions that may be non-obvious and involve nontrivial trade-offs. That is, ANC assumes that a purposeful and substantial reshaping of an actor’s network is often possible but challenging and costly. We believe this middle road on the agency versus structural determinism debate is in line with recent empirical results and theory indicating that having a desirable structural position is often not sufficient to leverage its benefits, suggesting that complementary action also plays a critical role (Burt, 2012; Obstfeld, Borgatti, & Davis, 2013). Indeed, although outside our focus on connecting ANC and entrepreneurship, this view is also in line with related literature exploring how ANC may also help facilitate individual career advancement and the building of personal social capital (Bensaou, Galunic, & Jonczyk-Sedes, 2013; Burt, 2012; Sasovova, Mehra, Borgatti, & Schippers, 2010). More broadly, this middle road is also consistent with the entrepreneurship literature’s recognition that some firms may often substantially influence their outcomes, even if not all firms may have equal access to the same moves.

**Agentic Network Change’s Theoretical Foundations**

While structural localism is clearly grounded in the logics of social embeddedness and network closure, ANC literature to date has often been inductive in nature and focused on developing middle-range theory that links inductively identified ANC behaviors with non-local network formation and the active dissolution of network ties. To the extent that a common theoretical foundation for ANC does indeed exist, an explicit articulation is an important step in the development of a theoretical paradigm around agentic network change and the advancement of “normal” science within this paradigm (Hambrick, 2007).

Here we argue that ANC’s theoretical foundations may be understood as lying at the intersection of theories of resource dependence and bounded rationality. Consistent with resource dependent theory (Casciaro & Piskorski, 2005; Pfeffer & Nowak, 1976; Wry et al., 2013), a core challenge of ANC is identifying potential partners where there is mutual need for one another’s resources. This is also a core
challenge addressed by the social embeddedness perspective, which emphasizes the role of existing network ties acting as information pipes and prisms to help identify such mutual fit (Gulati & Gargiulo, 1999; Podolny, 2001). In contrast, however, ANC behaviors focus on information channels and processes beyond existing ties for the identification of mutual fit. Additionally, ANC research also builds on challenges explicated by bounded rationality theory (March, 1978; Simon, 1947), recognizing that correctly identifying such mutual need is complicated by the often limited diffusion of relevant information and the cognitive biases of both potential partners and the focal actors. Such challenges may also be especially problematic in the context of ANC where the trust, commitment, and mutual understanding provided by existing network ties is absent.

Taken together, the foundations of resource dependence theory and bounded rationality suggests that the efficacy of ANC behaviors to effect the non-local formation and active dissolution of ties may depend on three underlying mediation mechanisms. First, ANC behaviors must overcome or leverage the cognitive biases of all involved parties so as to either overcome inertia that works against non-local formation or the dissolution of local ties, or to exploit behavioral tendencies to amplify potential partner interest. For instance, entrepreneurs who might benefit from ANC may avoid attempting new ties or dissolving now irrelevant ties due to inertia from biases such as escalating commitment, the status quo bias, and social affect where professional relationships have become personal (Kahneman, Knetsch, & Thaler, 1991; Lawler & Yoon, 1996; Staw, 1976). Moreover, when actors do seek new ties, they may have a strong tendency toward tie referrals due to biases around social proof (i.e., heavily weighting the opinions of others) and preferring others who are perceived as belonging to the same social group (Cialdini, 1993; Rao, Greve, & Davis, 2001; Tajfel & Turner, 1979). At the same time, actors seeking non-local ties may exploit the cognitive biases of those with whom they seek connections, including leveraging biases such as the recency effect (where individuals tend to overweight recent information) and potential partners having varying cognitive schemas that create differences in their perceptions of a venture’s attractiveness (Chase & Simon, 1973; De Bondt & Thaler, 1985). In short, ANC behaviors must navigate the focal actor’s and potential partners’ cognitive biases that might stall non-local formation or
the active dissolution of ties.

Second, these foundations suggest that ANC behaviors will also need to utilize information channels beyond existing social ties to aid non-local formation and the active dissolution of otherwise persisting ties. By definition, ANC formation involves the pursuit of new ties absent the trust and familiarity provided by strong direct or indirect ties. To be effective, ANC formation behaviors must therefore provide actors with alternative mechanisms for capturing attention and conveying quality. In some instances, this may take the form of non-network information signals – e.g., entrepreneurs launching products, obtaining customers, or even their prior success prior to their venture’s founding (Fisher et al., 2015; Hallen & Eisenhardt, 2012; Rao, 1994). In other cases, and building on bounded rationality’s recognition that actors may be unsure of how to pursue an opportunity (Gavetti, Levinthal, & Rivkin, 2005), ANC behaviors may attract others by providing leadership and coordination on how an ecosystem of partners might collaborate (Davis, 2013; Ozcan & Eisenhardt, 2009). In terms of active dissolution, the ANC perspective stands in contrast to structural localism’s emphasis on ties naturally atrophying due to neglect or the absence of closure (Burt, 2002; Marsden, 1982). Rather, ANC often focuses on the active dissolution of ties that might otherwise be preserved, including because they are frequently used information channels. Accordingly, a key step in active dissolution is intentionally seeking information through other channels so as to allow targeted ties to dissolve (Davis, 2008).

Third, the resource dependence and bounded rationality foundations of ANC highlight the need for exploration and sensemaking to focus on potential partners with mutual needs. In particular, and building on bounded rationality’s recognition that relevant information for key decisions often diffuses unevenly or is not available, ANC formation behaviors must address the fact that available signals are often insufficient for accurately evaluating a distant firm’s resources or resource needs. Similarly, and in contrast to resource dependence theory’s portrayal of an actor’s own resource needs being obvious and relatively stable, the bounded rationality side of ANC requires recognition that firms are also often unsure as to whether and how they wish to approach emerging opportunities. Accordingly, ANC may require exploratory discussions and engagement to facilitate sensemaking around emerging collaborative
opportunities. At the same time, many such exploratory efforts may not prove productive, requiring active
dissolution so as to conserve resources and effort for more productive uses and other explorations (Vissa
& Bhagavatula, 2012). Additionally, sensemaking is also likely to be an important step in active
dissolution so as to consciously recognize where prior ties have become less relevant or nearby third-
party ties may be interfering in an actor’s own efforts.

Taken as a whole, resource dependence theory highlights that engaging non-local network
formation will depend on engaging partners with mutual resource needs, while bounded rationality
explicates a number of reasons why this may be quite challenging in the absence of existing network ties
acting as information pipes or prisms. At the same time, bounded rationality also highlights ways in
which potential partners may also fail to act rationally, creating opportunities that ANC behaviors may
exploit. Similarly and in terms of dissolution, resource dependence highlights the need for dissolving ties
that are now less relevant due to changing resource needs or due to their interference in other ties and
efforts; yet here bounded rationality again suggests that such active dissolution may be complicated by
cognitive biases that foster inertia around such ties or inhibit the recognition of changing resource needs.
Table 1 contrasts the social embeddedness and ANC perspectives on network change.

AGENTIC NETWORK CHANGE AND ENTREPRENEURIAL OPPORTUNITIES

As we outlined in the introduction, the literature conceives of opportunity-based entrepreneurship
as a set of activities ranging from opportunity discovery to opportunity execution (see Fisher 2012 for a
review). While definitions of entrepreneurial opportunities vary, a central idea is that entrepreneurial
opportunities reflect a novel combination of a market need and a solution to those needs that is superior to
current alternatives for some customers (Eckhardt & Shane, 2003; Kirzner, 1997; Sarasvathy, Dew,
Velamuri, & Venkataraman, 2010). The simplest opportunities involve trading arbitrage, in which an
entrepreneur supplies goods or services traditionally supplied in one market or geography to another one
where it is more valuable than alternatives and profit is possible. In contrast, much of the literature on
entrepreneurial opportunities focuses on high-impact opportunities arising from the emergence of new
technologies or new markets, where entrepreneurs can quickly capture large market shares and achieve sustainable competitive advantage. An example is Apple, which was founded around bringing desktop computer technology (a variant on an existing technology) to the home computer market (a market still in its infancy at that time) (Isaacson, 2011). Likewise, the Silicon Valley venture ZenPayroll seeks to disrupt the market for payroll software and services for small to medium size enterprises (SMEs) using modern web and cloud software; in this case the market is preexisting and much of the technical infrastructure has been developed in other contexts, but the technology’s application to the SME payroll market is novel (Reeves, 2015).

A prevalent theme in the entrepreneurship literature is that entrepreneurs often rely on a network of relationships to capture new opportunities (Stam et al., 2014). Both academic research and anecdotal accounts suggest that “who you know” is at least as important as “what you know” (Khaire, 2010; Pollock & Gulati, 2007; Shane & Cable, 2002; Stuart et al., 1999; Zott & Huy, 2007). Yet such studies have often taken a relatively static view of entrepreneurial networks. In contrast, and consistent with our ANC arguments in the prior section, many case studies have noted that entrepreneurs often invest significant time and resources in trying to change their networks to achieve opportunity-specific goals. Entrepreneurs face a variety of challenges including the discovery of opportunities, the acquisition of resources, the refinement of innovative business models, and the development of envisioned products. Yet the ANC literature to date has left unclear the extent to which ANC may be more or less important for each of these different outcomes. In other words, what role does ANC play in the different phases of capturing entrepreneurial opportunities?

As we argue below, understanding the role of networks in the capture of entrepreneurial opportunities requires unpacking how ANC facilitates the different phases of the entrepreneurial process. While structural localism may indeed be the dominant pattern of new tie formation in many contexts, we argue it is unlikely to be responsible for the most productive changes to entrepreneurs’ networks. We highlight the different elements of capturing entrepreneurial opportunities, and consider where ANC may have a differential influence across the entrepreneurial process. We distinguish between ANC in the form
of forming non-local network ties, where intermediating connections to new partners are weak or nonexistent and the partners are often of a higher status, and the active dissolution of ties that would otherwise be preserved or strengthened.

**Opportunity Discovery**

Opportunity discovery is a cognitive process in which entrepreneurs see new possibilities for value creation by assembling new combinations of market needs and solutions. Effective discovery often involves seeing new possibilities as a result of prior experience or social connections. Shane’s (2000) study of eight sets of entrepreneurs’ perceptions and recognition of an opportunity is an exemplar. These eight groups were all attempting to exploit the same MIT invention, a process for three-dimensional printing. Yet despite beginning with the same technology, only four teams discovered viable opportunities and these were in different industries (e.g., industrial design, pharmaceuticals, power generation, and manufacturing). The other four abandoned the technology. The four teams that discovered viable business opportunities either had prior knowledge or work experience about an industry where the technology could be applied (e.g., pharmaceuticals) or social connections to partners in these industries (e.g., architects) (Shane, 2000).

Consistent with these examples, research on innovation and creativity suggests that individuals and firms are more likely to recognize entrepreneurial opportunities when they occupy network positions that exhibit so-called brokerage positions (i.e., structural holes) that bridge otherwise unconnected network cliques or knowledge communities (Burt, 1992; Fleming, Mingo, & Chen, 2007; Hargadon & Sutton, 1997). Such ties create a “vision advantage” in identifying good ideas that form the basis of opportunities (Burt, 2004). At the same time, though, entrepreneurship research also suggests that the identification of promising entrepreneurial opportunities is often highly uncertain and serendipitous. While brokerage positions may offer insights into novel combinations of knowledge, the 3D printing example shows that not all such novel combinations may correspond to a promising pairing of a non-trivial market need and feasible solution to that need. Moreover, given that discovery depends on novel combinations, it may be difficult to predict beforehand which brokerage positions are likely to yield
attractive opportunities or when such discovery will occur.

Taken as a whole, these prior findings suggest ANC may at times influence the discovery of entrepreneurial opportunities, though the relationship may also be weak and inconsistent. First, since research indicates that many opportunities are serendipitously discovered by individuals not actively looking for entrepreneurial opportunities (Fisher, 2012; Sarasvathy, 2001; Shane, 2000), this suggests many entrepreneurs will have discovered their opportunities on the basis of existing ties or prior knowledge. Second, even if would-be entrepreneurs do engage in ANC explicitly for the purpose of finding an opportunity, any resulting brokerage position may have a low likelihood of yielding in the near-term a promising entrepreneurial opportunity. Overall, we thus expect there to be only a weak relationship between ANC and the immediate discovery of entrepreneurial opportunities, but that would-be entrepreneurs who more frequently and persistently engage in ANC will over the long-term be more likely to discover promising entrepreneurial opportunities.

**Opportunity Execution**

In contrast to opportunity discovery, opportunity execution refers to the actual actions taken to access, acquire, and assemble resources into new combinations that create value for customers. The distinction between opportunity discovery and execution is essential for this literature because the processes and useful antecedents are so different. For example, in Shane’s (2000) study above, the outcome focused only on the discovery phase. Yet those four who successfully discovered an opportunity would presumably need to take actions around financing, manufacturing, marketing, and other areas to execute these opportunities. It is also important to recognize that opportunity discovery and execution need not unfold in a linear sequence. Entrepreneurs may iterate between discovery and execution elements, as taking action often generates new insights about the opportunity’s nature (Sarasvathy, 2001). As entrepreneurs form new relationships, these ties might provide both cognitive and behavioral benefits.

An example of research about entrepreneurial opportunity execution is Baker and Nelson’s (2005) study of 29 small firms actively engaged in combining resources in unique ways to execute opportunities they had previously discovered. These opportunities ranged from construction, vehicle
maintenance, electricity generation, landscaping, to decorating. Although not focused on network ties per se, this study found that executing opportunities typically involved either using existing relationships or forming new ones to gain find resources or get agreement to use them in new combinations (Baker & Nelson, 2005). Often, deeper relationships were formed with customers or other stakeholders who needed to be convinced about the value new combinations provided.

Here we argue that ANC is particularly relevant for four different, though often inter-dependent, elements of entrepreneurial opportunity execution: resource acquisition, business model innovation, product innovation, and the conservation of resources and eliminating commitments. While resource acquisition has, often implicitly, been featured in some prior ANC studies, we further develop the logic, and then illustrate ANC’s relevance for the other critical aspects of opportunity execution as well.

**Resource Acquisition.** To execute opportunities, entrepreneurs must have resources critical to developing the venture’s product or service and to connect that offering to customers. This includes capital for hiring employees, access to relevant intellectual property and manufacturing assets, a sales force for acquiring customers, and the engagement of suppliers of inputs and required services. Since ventures are often born resource poor (Stinchcombe, 1965), resource acquisition has often been highlighted as an essential step in venture survival and development (Eisenhardt & Schoonhoven, 1996; Fisher et al., 2015; Zott & Huy, 2007). Prior ANC studies have examined behaviors that may facilitate the acquisition of resources such as key partners (Ozcan & Eisenhardt, 2009; Zott & Huy, 2007), investors (Hallen, 2008; Hallen & Eisenhardt, 2012), and customers (Vissa, 2012; Vissa & Bhagavatula, 2012). Moreover, acquiring a certain volume of resources may also provide a venture with legitimacy (Fisher et al., 2015), and high-status resource providers may enhance a venture’s status (Lee, Pollock, & Jin, 2011; Stuart et al., 1999).

Here we extend extant ANC literature by arguing it is the formation of non-local ties that may be especially beneficial for the acquisition of critical resources by entrepreneurs. This is because the brokerage underlying opportunity discovery may often involve entrepreneurs who are deeply grounded in one domain (i.e., have deep structural localism in that domain), but who have “just enough” exposure to
the other domain to identify a novel combination as promising and deserving of further exploration (Shane, 2000). For instance, the aforementioned founders of ZenPayroll were serial internet entrepreneurs who had frustrations with payroll at prior ventures; in other words, they had deep knowledge around relevant technologies but limited connections to the payroll industry and related service providers (e.g., tax and legal experts) (Reeves, 2015). Non-local tie formation may also be critical based on shifts in a venture’s target offering or due to a venture’s maturing. In fact, many startups find they need to “pivot” to a new offering or embrace a “Plan B” as they either find flaws in their current offering or unexpectedly discover a more promising opportunity (Marx, Gans, & Hsu, 2014). As these examples illustrate, entrepreneurs may be able to discover opportunities with only a modest embeddedness in some opportunity domains, but executing on these opportunities may often require the formation of non-local network ties to access the best suppliers, customers, or partners.

**Business Model Innovation.** While generally not emphasized in the ANC literature to date, ANC may also play a critical role in helping entrepreneurs develop and refine their business model. A venture’s business model describes how a firm “does” business, elaborating interconnected sets of activities within the firm and exchange relationships amongst key partners (Zott, Amit, & Massa, 2011). Research suggests, however, that business models often evolve substantially after the discovery of an opportunity (Rindova & Kotha, 2001; Siggelkow, 2001). In some cases this takes the form of the aforementioned pivots, where entrepreneurs may learn that an initially conceived business model is critically flawed. In other cases, entrepreneurs may learn their initial business model is incomplete or built on naïve assumptions. For instance, while Elon Musk originally intended for SpaceX to acquire many components from current suppliers to the rocket industry, he later found many of these components over-engineered and not available at the desired price point; this lead to refinement in the SpaceX business model with more components being designed internally (Vance, 2015).

So as to better understand how they should change or further develop their business models, entrepreneurs may especially benefit from non-local network tie formation. While entrepreneurs could seek advice and understanding from strong connections within their local network neighborhood, many of
these connections may have similar knowledge and connections as the entrepreneur (Burt, 2005). By reaching outside of their local network, however, entrepreneurs may be more likely to address unrecognized knowledge gaps that may help them either identify flaws in their current business model or which may provide insight into even more attractive alternatives. For instance, the dress-rental venture Rent the Runway was founded by two MBA students who lacked prior experience in the dress industry. To better understand the viability of their intended business model the founders connected with dress designers, all of whom were outside of their local network, which revealed important and necessary changes focused on younger women who might not be able to purchase the dresses outright (Eisenmann & Winig, 2012), suggesting that non-local tie formation was a critical element in developing a new business model.

**Product Innovation.** Although some entrepreneurs begin with a fully formed solution, many opportunities involve the development of wholly new products (Marx et al., 2014; Shane, 2000). While entrepreneurs may often have substantial technical expertise and may be able to strategically hire other key skill sets, some technical capabilities or relevant resources may only be available through other firms or other firms may be able to provide such assistance more quickly than hiring (Davis & Eisenhardt, 2011). For instance, when Instagram initially launched, its service proved unexpectedly popular and the entrepreneurs needed to rapidly improve their server infrastructure to be able to handle all of the demand. While this was outside of the expertise of Instagram’s founders, one of them reached out to Facebook’s then CTO (whom he had previously met years earlier at a party) who helped them make short-term fixes to keep their service running (Krieger & Systrom, 2011).

Non-local tie formation may be critical for several aspects of product innovation. As illustrated in the Instagram example, non-local formation may be critical for engaging relevant expertise outside of a firm’s boundary. Non-local formation may also be especially important in the development of products that serve as complements to other firms’ offerings, and where some degree of adaptation or integration is needed. For instance, after initially focusing on putting paper catalogues online, Pinterest later pivoted to focus on allowing users to easily share collections of items by “pinning” them to a public page (Baribeau,
Key to making their new technology successful, however, was Pinterest integrating their technology with web content players such as Flickr, YouTube, and Vimeo to allow automatic attribution of photos and videos (Gannes, 2012). In other cases, entrepreneurs may need to engage partners with relevant physical or technical assets for building or testing their offering; for instance, SpaceX had to engage with the Air Force and other U.S. government agencies to be able to test its rockets at their facilities (Vance, 2015). Overall, just as product innovation often involves the novel bridging of ideas (Burt, 1992; Fleming et al., 2007; Hargadon & Sutton, 1997), so too may the formation of non-local ties play a critical role in helping ventures develop and bring new products to markets.

**Conserving Resources and Eliminating Commitments**

Beyond the formation of non-local ties, opportunity execution may also benefit from entrepreneurs’ agentic dissolution of ties. Entrepreneurs pursuing new ventures may often be constrained by no-longer relevant ties that allocate resources to suboptimal uses, occupy too much attention, or limit the ability to act because of conflicting commitments (Davis, 2008; Ryall & Sorenson, 2007; Sasovova et al., 2010; Zenger & Lazzarini, 2009). These ties may have once benefited the entrepreneur, but may no longer be relevant as the business model has changed or prior needs have already been addressed. Examples of existing ties that outlive their usefulness include early customer relationships from a now abandoned business model or partners that contributed to early platform-development. Likewise, ventures may also have inherited from their employees cross-firm connections that interfere with the development of intentional ties between more appropriate levels of the firm. Of course, these ties may dissolve without any effort (sometimes called “tie decay”) (Burt, 2002), but we argue that entrepreneurs may actively try to dissolve some of these ties so as to better preserve and focus their limited resources, attention, and effort, or eliminate conflicting commitments.

Active dissolution involves either the termination of exchange and contracts in formal ties, or ceasing routinized informal interactions that may be expected by the partner (Davis, 2008). Active dissolution may be especially critical where now irrelevant or distracting ties are otherwise likely to persevere and not decay naturally (Dahlander & McFarland, 2013). As argued earlier, such tie
preservation may be the result of inertia due to individual bias such as escalating commitment, the status quo bias, and the emergence of social affect amongst interacting individuals (Kahneman et al., 1991; Lawler & Yoon, 1996; Staw, 1976). Externally, tie preservation may be encouraged by network closure and the presence of many common partners who may either implicitly or explicitly encourage cohesiveness amongst the clique (Heider, 1958). Yet the commitments carried by these prior ties may pose a conflict with new ties that the entrepreneur wishes to form. Additionally, in the case of distracting or constraining ties amongst other parties, such ties may naturally be preserved because they are of value to the engaged parties, though not necessarily to the entrepreneur. Overall, these logics suggest entrepreneurs may often benefit from purposefully withdrawing from their own ties and by using fiat to dissolve interfering ties amongst others.

BEHAVIORS DRIVING AGENTIC NETWORK CHANGE

Having elaborated on how agentic non-local formation and active dissolution of network ties may help entrepreneurs beneficially address a range of entrepreneurial challenges, we now move back to expand on the specific ANC behaviors that may facilitate such formation and dissolution. We attempt to identify fundamental behaviors for entrepreneurial agentic network change that have been recognized in one or more prior ANC studies and which operate through a common theoretical logic. While our list is not exhaustive, we have sought to select those fundamental behaviors that have been highlighted in multiple ANC studies. As we suggest below, these behaviors work through common mechanisms that are grounded in bounded rationality and resource dependence theories – namely, overcoming and leveraging the cognitive biases of involved parties (including both the entrepreneur and potential partners), utilizing information channels current beyond existing ties, and sensemaking to focus on potential partners with mutual needs. Table 2 summarizes the developed fundamental ANC behaviors and their mechanisms.

Fundamental ANC Behaviors for Non-local Network Formation

Clique probing. Clique probing involves actors actively searching for interested and relevant partners across different network cliques (i.e., sets of highly interconnected actors) or other cohesive
groups (Davis, 2015). Relevant to the ANC mechanisms, clique probing facilitates sensemaking through exploratory ties that help identify potential partners with mutual needs. This is important because entrepreneurs may have difficulty accurately ascertaining partner quality, may be unsure what types of partners might be interested in their resources, and may be unsure what types of resources they need to pursue their focal opportunity (Fisher, 2012; Gavetti & Rivkin, 2007; Hallen & Pahnke, 2015). Clique probing also uses information channels other than existing ties (instead emphasizing direct contact across cliques) and navigating cognitive biases (in this case overcoming an entrepreneur’s biases for existing ties or new ties via referrals).

This logic is nicely illustrated by the work of Vissa and Bhagavatula (2012), who find that entrepreneurs are most likely to develop fruitful exchange relationships when they reach out directly to potential exchange partners (i.e., cold-called) and do not rely on introductions, and when they have greater churn in the number of potential partners they contact (Vissa, 2012; Vissa & Bhagavatula, 2012). Such probing is also seen by Hallen and Eisenhardt (2012), who find that despite relying on referrals, entrepreneurs often need to meet with multiple potential investors before identifying those willing to invest. Clique probing extends the network foundations of the probing introduced in prior ANC studies by recognizing that since social networks tend to exhibit small-world structures, and information and beliefs within cliques are likely to be more homogenous (Burt, 1992; Uzzi & Spiro, 2005; Watts, 1999), entrepreneurs may improve their likelihood of finding interested partners by overcoming tendencies toward local tie formation and probing across different network cliques or other like-minded groups.

**Hot focalization.** A second fundamental agentic network change behavior is what we call *hot focalization*, whereby entrepreneurs engage potential partners at emotionally salient social foci (e.g., industry conferences, cocktail parties, mixers) around increasingly popular trends that attract participants from across domains. Such gatherings can be said to be “hot” because they provide an opportunity to build new connections with structurally distant others and to cooperate in the pursuit of common goals in an emotionally salient way (Brieger, 1974; Feld, 1981). In line with the ANC mediating mechanism of sensemaking around mutual resource needs, these hot foci allow actors to explore a range of partners and
identify potential partners with similar interests but of whom they may previously have been aware.

Likewise, in terms of the ANC mediator of utilizing information channels other than existing ties, hot focalization emphasizes obtaining introductions and assessing fit through direct interactions either at or resulting from such foci. Finally, consistent with the ANC mediator of leveraging cognitive biases, hot foci may be particularly effective as organizations and individuals are often willing to take on greater risks to engage with emerging trends or other opportunities around currently unmet needs (Beckman, Haunschild, & Phillips, 2004; Sorenson & Stuart, 2008).

Illustrating the efficacy of hot focalization for entrepreneurs is Stam’s (2010) study of software entrepreneurs, in which he found that attending a conference with a diverse set of participants helped entrepreneurs establish brokerage connections that ultimately led to greater sales growth – though this effect was most pronounced for entrepreneurs with more diverse prior experience, suggesting that some degree of prior familiarity with different domains may be important. Overall, hot focalization may help entrepreneurs both identify and engage a distant and diverse set of relevant partners.

Simultaneous engagement. Simultaneous engagement is the engaging of two or more potential partners at the same time and by offering a vision of collaboration. Multiple partners are typically needed because each partner possesses some complementary resource upon which value creation depends (Davis, 2013; Kapoor, 2013; Lingo & O'Mahony, 2009). Simultaneous engagement uses the attractiveness of multiple potential partners to increase the likelihood that each of them will form ties with the actor, thus leveraging cognitive biases that privilege social proof in decisions (Cialdini, 1993; Rao et al., 2001). Additionally, simultaneous engagement also works through the ANC mediating mechanism of utilizing information channels other than existing ties (instead using still forming ties to attract potential partners) and sensemaking around mutual resource needs (by offering a vision for how an ecosystem of partners may collaborate).

For example, Ozcan and Eisenhardt (2009) found that entrepreneurial firms in the mobile gaming space were more successful in building attractive portfolios of ties when they offered a compelling vision of the new industry and simultaneously brought prominent but otherwise disparate firms together in the
pursuit of this vision. Theoretically, simultaneous engagement may be understood as a more dynamic, bounded rationality take on the network brokerage logic highlighted by Simmel (1950) and Burt (1992). Specifically, in addition to simply connecting others, simultaneous engagement recognizes an intermediary may be necessary to architect a vision of collaboration and that still forming ties may be sufficient for attracting partners. Simultaneous engagement may thus be understood as a network bootstrapping mechanism where entrepreneurs borrow others’ attractiveness to facilitate their own network development.

**Signal synchronization.** A fourth foundational ANC behavior relevant for entrepreneurs seeking to form non-local ties is signal synchronization. An entrepreneur exhibits signal synchronization when pursuing tie formation soon after a notable signal of accomplishment, such as being awarded a patent (Hsu & Ziedonis, 2007), releasing a new product (Davis, 2013), or winning a certification contest (Rao, 1994). Signal synchronization works through the ANC mediating mechanism of leveraging cognitive biases, in this case recognizing that evaluators may have cognitive biases around overemphasizing recent information (De Bondt & Thaler, 1985; Kahneman, Slovik, & Tversky, 1982). Additionally, signal synchronization works through the ANC mediator of utilizing information channels other than existing ties (instead emphasizing signals of accomplishment) and sensemaking around mutual resource needs (by making quality indicated by accomplishments easier for potential partners to understand). Illustrating the concept, Hallen and Eisenhardt (2012) found that entrepreneurs are more likely to be more efficient in obtaining equity investments if they time formal fundraising efforts to follow soon after proofpoints, or easily understood, substantial, and verifiable signals of accomplishment. Overall, entrepreneurs may have limited signals of quality and progress, and synchronizing tie formation to come soon after signal availability may amplify these signals’ impact to better attract desired partners.

**Fundamental ANC Behaviors for Active Dissolution**

**Selective neglect.** Many entrepreneurs already have numerous ties that occupy their attention and entail specific commitments, but new opportunities typically require resources from only a small subset of current partners. A dilemma emerges when unnecessary partners continue to occupy key resources or
introduce strategic conflict with more relevant partners. In this case, entrepreneurs may employ *selective neglect* and consciously disengages entrepreneurs from certain relationships (Ozcan & Eisenhardt, 2009; Smith, Menon, & Thompson, 2010; Vissa & Chacar, 2009). Selective neglect may be beneficial when entrepreneurs suspend some of their current ties to focus (sometimes temporarily) on other critical issues – for instance, purposefully neglecting ties with potential investors during periods of intensive networking with potential customers (Vissa & Bhagavatula, 2012). Another example occurs in Ozcan and Eisenhardt’s (2009) where entrepreneurs would sequentially attend to only some ties and selectively neglect others so as to better focus their attention and effort. Selective neglect may also be especially relevant following pivots or business model changes that leave prior ties less relevant. In all of these cases, selective neglect works to consciously overcome inertia from escalating commitment and social affect (the ANC mediator of overcoming cognitive biases), diminishes attention given to these ties as information sources so as to further their dissolution (the ANC mediator of information channels other than existing ties), and engages in sensemaking by consciously calling for a reevaluation of the present mutual fit of existing relationships (the ANC mediator of sensemaking around mutual fit).

**Interaction interference.** Sometimes entrepreneurs wish to dissolve ties between other parties. For example, political history illustrates how powerful third parties such as Cosimo de’ Medici, Lyndon Johnson, and other state actors sought to undermine others’ relationships (Fernandez & Gould, 1994; Padgett & Ansell, 1993). The ability to influence others’ ties can be founded on formal authority, as in the case of employees who report directly to an entrepreneur, or strong informal influence, as in the case of an entrepreneur who holds a critical resource (e.g., technologies, patents, market access) on which other parties depend. In these contexts, entrepreneurs may use a process we call *interaction interference* to directly intervene in others’ relationships, blocking their communications, interactions, or joint work with the intention of weakening their ties. This may be especially relevant in entrepreneurship when two firms designing a new collaboration are also joined by personal ties that might interfere with more formal and intentional collaboration channels. In some cases, these personal ties are occupied by individuals of great power who might derail productive collaboration. For example, Davis (2008) found that managers of
interfirm collaborations explicitly requested that individuals with connections to collaboration partners redirect their efforts and stop communicating, and also reassigned individuals to different roles so as to keep prior personal relationships from interfering in the development of firm-level collaborations, suggesting that active interference in others’ ties may sometimes be necessary to execute opportunities.

**DISCUSSION**

We began by noting that although most of the literature on network development has traditionally emphasized “rich-get-richer” dynamics and the role of existing ties in forming new ties, this research didn’t appear to explain how entrepreneurs may purposefully engage in non-local network dynamics that are better suited to pursuing novel opportunities, a process we label agentic network change (ANC). A handful of studies had explored how entrepreneurs sometimes were able to form non-local ties, connect to high-status partners, and create new network configurations, but this literature had yet to address when ANC would find its greatest impact during the entrepreneurial process, what the theoretical foundation of ANC might be, and what are the specific mediating mechanisms through which ANC behaviors help entrepreneurs capture new opportunities.

Our first main contribution is a sketch of an emerging perspective about how agentic network change has a positive impact on outcomes that are relevant for opportunity-focused entrepreneurship. We focus on formation and dissolution behaviors such as clique probing, hot focalization, simultaneous engagement, signal synchronization, selective neglect, and interaction interference. These intentional, instrumental, and high cost behaviors create non-local ties, including connections to high status actors, and new configurations of ties that are the hallmark of agentic network change. These behaviors find their key impact on opportunity execution-oriented outcomes such as resource acquisition, business model innovation, and product innovation that require non-local network changes that are less likely to occur by structural localism. The mediating mechanisms explain why these behaviors have the impact they do. Grounded in fundamental theories of resource dependence and bounded rationality, we identify three mediating mechanisms – overcoming and leveraging cognitive biases of involved parties, utilizing information channels current beyond existing ties, and sensemaking about the mutual needs of potential
partners – through which ANC behaviors effect these impactful changes to entrepreneurial networks.

Second, whereas much of the ANC literature in the context of new ventures has focused on formation behaviors, our framework highlights the often complementary nature of entrepreneurs engaging in the active dissolution of network ties. Interestingly, much of the literature on ANC dissolution has focused on dissolution amongst larger firms engaging in cross-firm collaborations. Yet it may be especially relevant in new venture contexts, where resources, effort, and time are especially scarce (Stinchcombe, 1965). Here active dissolution may complement non-local formation in two ways. First, it may free up resources, effort, and attention for ANC formation behaviors. Additionally, and especially important, it may help entrepreneurs eliminate conflicting commitments so they can engage in greater exploratory tie formation by bounding the overall cost of attempting ties that ultimately provide little value.

**A Research Agenda about Agentic Network Change in Entrepreneurship**

Above, we explicated a model linking a range of fundamental ANC behaviors to various core entrepreneurial outcomes, ranging from opportunity discovery to business model innovation. Collectively, this research suggests a research agenda for better understanding the full range of behaviors by which entrepreneurs may agentially and advantageously change their networks. First, by explicating the resource dependence and bounded rationality foundations of ANC, we believe our study may help foster greater deductive elaboration and testing of ANC theory. In contrast and as noted, much of the work to date has been largely inductive in nature and has focused on the development of middle-range theories linking specific behaviors to venture performance and resource acquisition. Yet by introducing these common foundations, our hope is to provide a theoretical basis for ANC development through deductive elaboration. Thus, just as behavioral finance has built on studies of cognitive biases to identify various market irrationalities, so too may ANC scholars also draw on these biases to identify either challenges that ANC behaviors must address or decision biases that they may exploit. Similarly, our synthesis here also draws attention to areas in ANC that may be underdeveloped. Specifically, little behavioral work focuses on mechanisms for capturing attention, or actively dissolving ties.
Beyond an additional elaboration of ANC behaviors, more rigorous empirical testing is also needed to better understand the efficacy of different ANC behaviors, as well as their relative importance. Thus, analogous to how Stam et al.’s (2014) meta-analysis offers insight into the importance of social capital for entrepreneurs (weak ties, structural holes, network diversity, etc), the ANC literature could benefit from quantitative analyses offering insight into the relative importance of different ANC behaviors and/or behaviors and structure. For instance, how effective is signal synchronization versus clique probing in non-local formation. Such analyses could also offer insights into where identified ANC behaviors serve as complements versus substitutes. Additionally, similar to how variance decomposition studies have clarified the importance of different drivers of firm performance (McGahan & Porter, 1997; Rumelt, 1991), quantitative analyses may also begin to offer insight into the importance of ANC relative to an entrepreneur’s existing network structure or demographic attributes. In fact, it is highly probable that entrepreneurs exhibit big differences in the skill in which they implement ANC behaviors, and it is also unclear what antecedents might drive ANC usage. Overall, first-order questions for much ANC theory to date is whether it holds up to analysis in larger sample studies with substantial heterogeneity in actors, structures, and sectors, as well as just how effective are various identified behaviors. Beyond both validating and quantifying impact, quantitative studies could also serve to clarify the contingencies influencing the efficacy of various ANC behaviors for entrepreneurs. Here future studies could contribute by examining how the efficacy of ANC behaviors is influenced by contingencies such as uncertainty around the target opportunity (including market versus technology uncertainty), the ventures stage of development (cf., Fisher et al., 2015), or an entrepreneur’s current resources, network, and legitimacy.

Another critical direction for future development is further developing empirical methodologies well-suited for studying ANC. The challenge here is that while network evolution is often studied in panel datasets that coarsely capture networks across different periods, there is often substantial time between each period – thus making it difficult to capture the rapid formation and dissolution that may often underlie ANC. Additionally, ANC behaviors are generally not available in archival data. This suggests that future quantitative studies of ANC may need to draw on creative approaches to either collect or
manipulate the use of ANC behaviors. One possibility is the use of field experiments, whereby some entrepreneurs (but not others) are provided with instruction about relevant ANC behaviors so as to explore endogeneity about whether ANC behaviors alter the opportunity structure or simply enable their execution – see for example Burt’s tracking the long-term outcome of executive education participants instructed about structural holes (Burt & Ronchi, 2007). Alternatively, and as illustrated by Vissa in his ANC studies, future studies might also benefit from methods analogous to time journals, frequently and repeatedly asking entrepreneurs about both ANC behaviors and changes to their networks (Vissa, 2012; Vissa & Bhagavatula, 2012), including dissolved ties which have been difficult to measure. Another intriguing possible is the extent to which ongoing ANC activities may have left digital footprints; for instance, access to the email records of entrepreneurs might be another attractive means of capturing and studying ANC. Overall, while each of these methods may have its own limitations, creative use of various methods is likely to be necessary to drive forward more rigorous and quantitative testing of ANC theory.

We have introduced and elaborated ANC with the hope of drawing attention to these emerging ideas as understudied but of high importance to entrepreneurs. In contrast to the traditional social embeddedness and network closure perspectives that predict a pattern of structural localism and incremental change, ANC promises insight into how entrepreneurs may proactively rewire and improve their networks. Here we have focused on extending the theoretical underpinnings and logical coherence of ANC. We have done so by explicating where ANC is more or less important in the entrepreneurial process (opportunity execution vs opportunity discovery) and the common mediators through which ANC behaviors effect non-local formation and active dissolution. Our hope is that the theoretical framework and insights developed here bring clarity and guidance to aid future scholars seeking to deductively and empirically test the nature and efficacy of agentic network change, thereby developing ANC as theoretical perspective with which to understand new organizations.
Table 1. Comparison of Structural Localism and Agentic Perspectives on Network Change

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<tr>
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<th>Structural Localism</th>
<th>Agentic Network Change</th>
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<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>The formation of new ties around an actor’s existing strong ties and the status they confer</td>
<td>Non-local tie formation or active dissolution arising from actor behaviors that are intentional, instrumental, and costly</td>
</tr>
<tr>
<td><strong>Key Theoretical Foundations</strong></td>
<td>Social embeddedness and network closure</td>
<td>Resource dependence and bounded rationality</td>
</tr>
<tr>
<td><strong>Which ties are likely to form?</strong></td>
<td>Structurally local ties – i.e., repetition of existing ties, new ties based on partners’ referrals, and new ties with partners of a similar status</td>
<td>Non-local ties, connections to higher status actors, and new network configurations that are oriented towards new purposes</td>
</tr>
<tr>
<td><strong>Which ties are likely to dissolve?</strong></td>
<td>Weak brokerage ties spanning cliques likely to atrophy through neglect; Tie decay is more likely among very new and very old ties than moderately old ties</td>
<td>Those targeted by actors’ intentional, instrumental, and costly actions, including otherwise strong ties or those that carry conflicting commitments or overly large resource requirements</td>
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</table>
| **Logical mediating mechanisms**     | Relying on existing direct and indirect ties relaying information and trust; Distant ties creating signals of endorsement. | Oriented towards forming non-local ties with these mechanisms:  
- Overcoming and leveraging cognitive biases of involved parties  
- Information channels beyond existing ties (signals, conference interactions, etc.)  
- Sensemaking around mutual resource needs |
<p>| <strong>Overall Dynamic Impact</strong>           | Rich-get-richer network evolution in which privileged actors reinforce or improve their position; incremental reinforcement for the rest. | Non-proximate network dynamics in which actors improve or substantially reconfigure their network. |
|                                      | Responsible for the majority of tie formations and dissolutions.                   | Responsible for a minority of tie formations and dissolutions.                        |
| <strong>Relevance for Entrepreneurship</strong>   | Diverse and relevant initial networks provide path-dependent advantages for some entrepreneurs | Especially critical for opportunity execution, particularly where entrepreneurs lack or need to radically reconfigure networks to acquire resources, engage in business model and product innovation, and conserve resources and eliminate conflicting commitments |</p>
<table>
<thead>
<tr>
<th>Agentic Change Process</th>
<th>Description</th>
<th>Resource Dependence and Bounded Rationality Foundations of ANC</th>
<th>Literature</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clique Probing</strong></td>
<td>Forming exploratory ties across industry cliques or other cohesive groups to find potential partners with relevant knowledge, resources, and goals</td>
<td>Overcome own biases toward local tie formation (e.g., social proof, in-group bias)</td>
<td>Gather information through exploratory discussions</td>
</tr>
<tr>
<td><strong>Hot Focalization</strong></td>
<td>Identifying and connecting with potential partners at emotionally engaging social foci (e.g., key conferences, parties)</td>
<td>Leverage potential partners’ heightened emotional openness resulting from foci’s “heat”</td>
<td>Gather information through interactions at foci</td>
</tr>
<tr>
<td><strong>Simultaneous Engagement</strong></td>
<td>Engaging two or more potential partners at the same time</td>
<td>Leverage potential partners’ bias toward social proof</td>
<td>Uses attractiveness of multiple potential partners to increase the likelihood that each will form ties with the entrepreneur</td>
</tr>
<tr>
<td><strong>Signal Synchronization</strong></td>
<td>Engaging potential partners when quality signals emerge and other negative information is likely to be unavailable</td>
<td>Leverage potential partners’ bias toward overweighting recent information</td>
<td>Signals from recent accomplishments</td>
</tr>
<tr>
<td><strong>Selective Neglect</strong></td>
<td>Temporarily or permanently suspend less relevant relationships</td>
<td>Overcome own biases around tie preservation (e.g., escalating commitment, status quo bias, social affect)</td>
<td>Reduce information gathering from focal tie to avoid its preservation</td>
</tr>
<tr>
<td><strong>Interaction Interference</strong></td>
<td>Disrupts relationships between others who impede other collaborative efforts</td>
<td>Overcome biases towards relying on existing ties as opposed</td>
<td>Eliminate existing ties that colleagues rely on instead of gathering</td>
</tr>
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