



The role of demand-side narratives in opportunity formation and enactment



Satish Nambisan^{a,*}, Shaker A. Zahra^b

^a Sheldon B. Lubar School of Business, University of Wisconsin-Milwaukee, PO Box 742, Milwaukee, WI 53201, United States

^b Carlson School of Management, University of Minnesota, 321 19th Ave. South, Minneapolis, MN 55455, United States

ARTICLE INFO

Article history:

Received 23 February 2016

Received in revised form

23 April 2016

Accepted 7 May 2016

Available online 14 May 2016

Keywords:

Demand-side narratives

Opportunity formation

Opportunity enactment

Cognitive capabilities

ABSTRACT

Our understanding of how entrepreneurs capture knowledge about market needs and identify and exploit promising opportunities remains limited, despite the abundance of studies on the origins of opportunities. We propose that *demand-side narratives*—the cumulative articulations of needs, desires, ideas and experiences of demand-side participants—form a key micro-foundation of opportunity formation and enactment. New digital infrastructures such as social media facilitate the co-creation, sharing and collective interpretation of these narratives. We further propose that entrepreneurs' success in forming and enacting opportunities revealed by these narratives is enhanced by their cognitive capabilities related to demand articulation and resource mobilization. Our discussion seeks to improve our understanding of the cognitive underpinnings of opportunity formation and enactment and holds important implications for future research and practice in entrepreneurship.

© 2016 Elsevier Inc. All rights reserved.

1. Introduction

In a dynamic global market, demand is best characterized by fragmentation and heterogeneity. Consumer needs are also fluid and change rapidly, making it essential for entrepreneurs to seek and capture clues about opportunities in real time. Information about heterogeneous consumer needs or discontinuities in consumer preferences is often embedded in ongoing customer “conversations” about their own personal needs and desires. These narratives provide important signals of changing (or evolving) customer needs, offering a window into potential opportunities. Prior studies have emphasized the importance of interactions and relationships with customers and other demand-side participants as a critical vehicle for knowledge acquisition for entrepreneurs (e.g. Chandra and Leenders, 2012; Priem et al., 2012; Yli-Renko et al., 2001). However, our understanding of how entrepreneurs capture knowledge about market needs and form promising opportunities from demand-side narratives remains limited. As a result, in this paper, we ask: how and under what conditions do entrepreneurs' identify and exploit opportunities that are revealed in these narratives?

In this paper, we address this question by drawing on the demand-side approach—a perspective that is consumer-centric and which emphasizes product markets as key sources of value-creation (Adner and Snow, 2010; Priem, 2007). Specifically, we propose that demand-side narratives form a key micro-foundation of entrepreneurs' opportunity formation and enactment. These narratives are defined as cumulative articulations of needs, desires, problems, ideas, solutions, perceptions,

* Corresponding author.

E-mail addresses: nambisan@uwm.edu (S. Nambisan), zahra004@umn.edu (S.A. Zahra).

and everyday experiences of diverse demand-side participants (customers, users, market intermediaries, etc.) that constitute the market possibilities or the opportunity space. These narratives are revealed in communications and interactions among these diverse groups and vividly convey consumers' views, emotions, hopes, fears, aspirations, intentions and experiences around a perceived need. They also reveal the nature of issues or problems customers face and/or their expectations and possible solutions in a given context. Narratives “construct realities rather than reduce them through modeling ... and as such they grasp the complexities of real life events” (Khan and Sarv, 2013, p.204). As a result, the value of narratives in fostering innovation has been suggested before in the context of brand communities and communities of practice (e.g., Brown and Duguid, 1991; Muniz and O'Guinn, 2001) and in the broader context of strategic management (Müller and Becker, 2013).

Demand-side narratives have other important advantages in the context of opportunity formation and enactment. They allow entrepreneurs to learn about customer needs early and give them a chance to better understand the forces shaping these needs. Narratives could also reveal original ideas or “solutions” offered by customers. Importantly, narratives evolve with the participation and contribution of different demand-side participants and entrepreneurs can take part in such ongoing discussions; they can ask for clarification, probe or test competing claims, and even thread together ideas from multiple narratives.

The emergence of new digital infrastructures such as social media and virtual worlds facilitate the gradual co-creation (or social construction) of narratives as consumers share their individual experiences and perceptions and thereby edit, refine, enrich and sharpen the needs' delineated in a narrative. As recent studies indicate, diverse types of such digital forums—crowdsourcing and crowdfunding platforms (Mollick, 2014; Stanko and Henard, 2016), social media (Azkarate and Croasdell, 2013; Fischer and Reuber, 2011), virtual worlds (Chandra and Leenders, 2012; Wasko et al., 2011), digital 3D printing forums (Rayna et al., 2015), and digital makerspaces (Mortara and Parisot, forthcoming)—assume greater significance as a venue for entrepreneurs to easily and relatively inexpensively access, interpret and act upon such demand-side narratives.

Building on recent research on the cognitive processes that underlie opportunity formation and enactment (e.g., Garud and Giuliani, 2013; Garud et al., 2014; Grégoire et al., 2011; Read et al., 2009), we consider how entrepreneurs make sense of signals of change and form beliefs about emerging opportunities revealed in demand-side narratives. We also focus on two associated sets of cognitive capabilities: (a) demand articulation capabilities (e.g., Kodama, 1995) that relate to contextualizing, comparing, and integrating knowledge from narratives to formulate opportunities; and (b) resource mobilization capabilities (e.g., Stuart and Sorenson, 2007) that relate to identifying, acquiring, and transforming knowledge resources to enact opportunities. Our discussion highlights important directions for future research and practice in this area, particularly in revealing the cognitive underpinnings of opportunity formation and enactment in an increasingly digital world.

2. Demand-side narratives and opportunity formation and enactment

Demand-side narratives serve as a primary resource for entrepreneurs to explore, examine and clarify both the problem space and the solution space; i.e., narratives serve as the means to drive the cognitive processes that underlie opportunity formation and enactment. Entrepreneurs create new opportunities by contextualizing the signals that narratives offer—signals regarding changes in market or customer aspirations—in an incremental and inductive manner through their interactions with actors in various (digital and/or non-digital) forums.

Recent literature in entrepreneurship has depicted the creation of entrepreneurial opportunities and their enactment as intertwined, emergent processes with distributed entrepreneurial agency (Alvarez et al., 2013; Garud and Giuliani, 2013). Accordingly, opportunity formation involves “meaning making” (Bruner, 1990) and “transforming the extant world into new possibilities” (Venkataraman et al., 2012, p. 26) through a co-evolutionary process (Garud and Karnøe, 2003) in which the entrepreneur continually engages and interacts with other involved actors (Alvarez and Barney, 2007; Garud and Giuliani, 2013). Thus, opportunity formation can be depicted as a process of gradual development of narratives into opportunities through continued interactions among entrepreneurs and other demand-side actors—or a process of social construction (Berger and Luckmann, 1967) of opportunities from narratives. Thus, to the extent that entrepreneurs can engage with users and other demand-side participants and acquire narratives of needs and experiences, the more they will be able to develop, probe and refine those narratives further and conceive, create or form new entrepreneurial opportunities. Further, exposure to diverse set of narratives would likely facilitate better interpretation of such market signals and the formation of associated opportunities. These diverse strands of knowledge also could help entrepreneurs to cross-validate consumer needs with information from multiple sources, giving them critical insights into the ‘use value’ (Bowman and Ambrosini, 2000; Priem, 2007) associated with potential opportunities.

Still, beyond a threshold level, entrepreneurs' efforts at acquiring and interpreting increasing sets of such demand-side narratives would likely bear diminishing returns in terms of formulating actionable opportunities. Reconciling competing narratives and the distinct “worldviews” they represent would likely consume considerable entrepreneurial resources. Further, a multitude of such demand-side narratives may pull an entrepreneur in different directions or towards wildly varying set of market possibilities that enhance his/her action-specific uncertainty (McMullen and Shepherd, 2006), potentially derailing opportunity formation.

Now consider the role of demand-side narratives in opportunity enactment. Opportunity enactment can be viewed as an

interactive process—that involves entrepreneurs and demand-side participants—of converting the opportunities formulated from demand-side narratives into “commercially viable concepts” (Patel and Terjesen, 2011). Specifically, the narratives and the related interactions help provide useful clues about desired “product” attributes and functionality whether they are product concepts or business models. Narratives (and the diverse interactions around them) could also help entrepreneurs discover and test the viability of different “need-solution pairs” and bring greater clarity to both the need landscape and the solution landscape (von Hippel and von Krogh, 2016).

For example, on crowdfunding platforms, an important but perhaps less emphasized contribution is the continuous market inputs and narratives that the crowdfunding community members provide to help entrepreneurs refine and adapt their product concepts and business models to better fit the changing consumer needs (e.g. Stanko and Henard, 2016; Gerber and Hui, 2013). Indeed, while entrepreneurs may present their initial ideas in terms of product prototypes in a crowdfunding community, consumers (funders or backers) add their own narratives to further develop those ideas and to help bring clarity to specific features and functionalities of the new product concept. The ability for potential customers (and other demand-side participants) to critique and build on one another's ideas and narratives in real time reflects how entrepreneurs can ensure that their final products will meet customers' latent needs.

Clearly, beyond a threshold level, entrepreneurs' efforts at acquiring and interpreting increasing sets of such demand-side narratives would likely bear diminishing returns in terms of enacting specific opportunities. For example, Fischer and Reuber (2011) showed that when entrepreneurs engage in high levels of interactions with potential customers on Twitter (or social media), they experience “effectual churn”—“a continuous looping between social interaction through Twitter and the reassessment of means and effects achievable, without progression through the effectuation process” (p2). In other words, as the number of demand-side narratives acquired increase and as entrepreneurs' interactions based on those narratives intensify, they may benefit less and less as they get caught up in repeated iterations of interactions and cognition without advancing to behaviors or actions that reflect opportunity enactment. This becomes particularly true as demand-side actors (for example, customer investors on crowdfunding platforms) bear less cost (relative to the entrepreneur) for engaging in such repeated interactions. Our discussion suggests the following proposition:

Proposition 1. *Entrepreneurs' acquisition of demand-side narratives will exhibit a non-linear (inverted U-shaped) relationship with their success in (a) opportunity formation and (b) opportunity enactment, such that beyond a threshold level, acquisition of more demand-side narratives will have negative impact on both opportunity formation and opportunity enactment.*

3. Demand articulation and opportunity formation

Entrepreneurs have to interpret the demand-side narratives in ways that create a better understanding of the nature and potential of the associated opportunities. Drawing on prior research on the cognitive processes of opportunity identification (e.g., Gregoire et al., 2010; Gregoire and Shepherd, 2012; Garud and Giuliani, 2013), we suggest demand articulation as a key individual-level cognitive capability that determines how well entrepreneurs can make sense of the signals of change, form beliefs about emerging opportunities, and socially construct new opportunities based on those narratives.

The concept of demand articulation, first introduced by Teubal et al. (1976) and later expanded upon by Kodama (1995), relates to the process of gradually specifying (or clarifying) the demand for a product that does not currently exist by considering a diverse set of signals from consumer needs to technological possibilities to societal pressures (including ethical considerations, implementation issues, etc.). This process suggests that demographics and psychographics that are highly prized in traditional market research do not fully capture latent demand—particularly, when consumers do not know a given product category or consumers' conception of a product's use (e.g., what it does and how it is used) is different from what is commonly specified. Demand articulation entails a series of “iterative, inherently creative processes in which stakeholders try to address what they perceive as important characteristics of, and attempt to unravel preferences for an emerging innovation” (Boon et al., 2011). As such, demand articulation is an interactive learning process in which producers (here, entrepreneurs) and demand-side actors engage in a continued dialog that helps to gradually reveal the contours and the nature of an entrepreneurial opportunity. This perspective aligns well with the opportunity creation perspective in entrepreneurship research (Alvarez et al., 2013). We believe that demand articulation capability enhances entrepreneurs' ability to form opportunities from demand-side narratives in three specific ways that combine to magnify the benefits to be derived from these narratives predicted earlier in proposition 1.

First, demand articulation involves the entrepreneurs' ability to immerse in the problem (narrative) context and to view these narratives from the consumers' perspective. As noted previously, opportunity formation is “meaning making” (Bruner, 1990) and not merely information processing. To weave together or evolve new opportunities from these narratives, entrepreneurs have to understand users' “recollections of past experiences and their future aspirations” (Garud and Giuliani, 2013, p159) that in the first place informed those narratives. It might also require entrepreneurs to temporarily suspend their own prior beliefs, assumptions, and hypotheses regarding a “needs” context and allow themselves to adopt consumers' vantage points in interpreting the narratives. More broadly, consumers are likely to see the structure and boundaries of the “problem” and the “solution” differently from producers (Tripsas, 2008), and as such entrepreneurs' learning-oriented ability to overcome their own “functional fixedness” (Adamson, 1952; Duncker, 1945; McCaffrey, 2012) assume critical significance. In other words, entrepreneurs' ability to anchor opportunity formation in consumers' personal experiences and

aspirations rather than on their own prior knowledge, experiences, and perceptions would critically shape how truly the structure, scale and scope of the emerging opportunities reflect reality.

Second, demand articulation involves the ability to seek out similarities between key elements of a demand-side narrative and the elements of a target market so as to form beliefs about related opportunities. Recent research suggests that when entrepreneurs are able to find both superficial and structural similarities they are likely to form more positive beliefs about the associated opportunity (Gregoire et al., 2010; Gregoire and Shepherd, 2012). Superficial similarity relates to two objects, concepts, or situations sharing some basic information elements that resemble each other, whereas structural similarity relates to the sharing of the same logical relationships between their respective parts (Markman and Gentner, 1993). Entrepreneurs' interactions with consumers could enrich demand-side narratives and help them identify the critical elements of such narratives as well as illuminate their underlying logical relationships. Further, entrepreneurs' ability to draw on their own as well as others' knowledge and experiences to find "similar" contexts or markets (with superficial and/or structural similarity) and to incorporate that into their interactions with demand-side actors will critically shape their success in formulating more concrete ideas and beliefs about specific (obvious and non-obvious) opportunities. Thus, more broadly, entrepreneurs' cognitive capabilities related to such structural alignment (Markman and Gentner, 1993) could become invaluable in revealing the really important part of the problem and ensuring a more market-focused solution.

Third, demand articulation also involves the ability to integrate the micro- and macro-level signals (user needs, societal trends, cultural norms, etc.) that emerge from different types of narratives and use it to devise a more coherent and better-defined opportunity. The contradictions, ambiguities, and paradoxes that are present in the narratives need to be revealed, examined, validated, and reconciled to create such a coherent profile of an opportunity. Entrepreneurs' ability to bring together a diverse set of narratives and to resolve the potentially conflicting storylines is crucial for providing stable scaffolding for the opportunity formation process. Entrepreneurs' knowledge integration capabilities and efforts would also allow consumers and other demand-side participants to bring forth and "test" their prior beliefs and perceptions about a potential opportunity, and in the process, facilitate defining with greater clarity the contours (and the limits) of that opportunity. Our discussion indicates that demand articulation can magnify the benefits to be derived from demand-side narratives (predicted earlier in proposition 1), suggesting the following proposition:

Proposition 2. *The relationship between entrepreneurs' acquisition of demand-side narratives and their success in forming potential opportunities will be positively moderated by their demand articulation capability, such that the higher (or better developed) the demand articulation capability, the greater the benefits from the narratives (i.e. steeper the front part and the flatter the back part of the inverted U-shaped curve identified in proposition 1).*

4. Resource mobilization and opportunity enactment

Entrepreneurs' success in enacting opportunities will be improved by their *resource mobilization capability*. Resource mobilization is the process by which entrepreneurs identify, acquire and integrate relevant resources to enact opportunities (e.g., Stuart and Sorenson, 2007). Two specific individual-level cognitive capabilities appear to be especially relevant for resource mobilization.

First, resource mobilization involves the ability to identify the nature or type of resources that will be needed for opportunity enactment by making connections among the existing set of distinct and diverse resources, including narratives. Specifically, demand-side narratives can lead entrepreneurs to consider or evaluate the possibilities afforded by their existing resources; i.e., to conceive those bundles of resources in ways that bring their business concept to life, setting the stage for opportunity exploitation. These connections enable entrepreneurs to recognize gaps in their resource portfolio, and importantly, to make such gaps visible to demand-side participants thereby facilitating the iterative development of possible paths to commercialization. For example, in a study of entrepreneurs' use of the Twitter platform, Fischer and Reuber (2011) found that entrepreneurs' interactions with other stakeholders triggered a continuous cognitive reassessment of the means (tangible and intangible resources) in ways that revealed the need for other resources and reshaped the very approach taken to develop new offerings. Thus, more broadly, entrepreneurs' effectual thinking skills allow them to examine the possibilities (effects) informed by the narratives and alter their mix of needed resources (means) (Read et al., 2009) through interactions with demand-side participants.

Second, resource mobilization involves the ability to acquire and adapt (e.g., integrate/transform) the resources in appropriate ways to further opportunity enactment. Entrepreneurs will need to communicate the need for resources (whereby members who have the requisite resources may self-identify) and then engage with members in further dialog to acquire those resources. For example, on crowdfunding platforms, entrepreneurs employ models or prototypes of the opportunities to not only acquire additional resources from their future customers and other demand-side participants but also integrate that into their approach to opportunity enactment. Such cognitive prototyping of the opportunities (i.e., giving them meaning and form) also adds clarity, specificity, and meaning to the knowledge gathered from the narratives about consumers' needs (Zahra et al., 2007). Entrepreneurs' ability to fashion their dialog with demand-side participants using such cognitive prototyping techniques will shape how well the narratives and the associated opportunities are interwoven with fine-grained details to provide a meaningful rendering of potential products and services, business models and plans. Our discussion suggests that resource mobilization can magnify the benefits to be derived from demand-side narratives

(predicted earlier in proposition 1), suggesting the following proposition:

Proposition 3. *The relationship between entrepreneurs' acquisition of demand-side narratives and their success in enacting potential opportunities will be positively moderated by their resource mobilization capability, such that the higher (or better developed) the resource mobilization capability, the greater the benefits from the narratives (i.e. steeper the front part and the flatter the back part of the inverted U-shaped curve identified in proposition 1).*

5. Discussion and conclusions

Our discussion of opportunity formation and enactment from the perspective of demand-side narratives makes three contributions to future research on entrepreneurship.

First, we have illustrated how the concept of demand-side narratives could explain entrepreneurial actions. As our discussion underscores, these narratives bring a sharper focus on the critical source of entrepreneurial opportunities—consumers and their dynamic, heterogeneous needs (Priem et al., 2012)—and emphasizes interactions with consumers as the process by which such consumer needs are revealed and entrepreneurial opportunities are formed and enacted. Our discussion builds on the cognitive perspective of entrepreneurship (e.g., Gregoire et al., 2011) and enriches discussions of the cognitive underpinnings of opportunity formation and enactment. And, in doing so, we have also illustrated the potential to integrate key ideas and concepts from several distinct research areas (e.g., user innovation, opportunity formation, demand articulation, knowledge management, etc.) to inform on entrepreneurship.

Second, by conceptualizing demand-side narratives as a key micro foundation of opportunity formation and enactment, we offer a pathway for future theoretical and empirical work in this area. As such, these narratives could form an appropriate theoretical construct to integrate micro (e.g., entrepreneurs' cognitive capabilities) and macro (e.g., opportunity exploitation, venture creation) level concepts and advance our understanding of entrepreneurs' success in forming and enacting opportunities. The focus on demand-side narratives lends itself to both qualitative and quantitative empirical research, as evidenced in earlier studies on online communities that have considered narratives as a measure of the richness of the knowledge gained from participation in digital networks (e.g. Wasko and Faraj, 2005). Future conceptual and empirical research may examine and expand on the sub-processes that underlie the evolution of narratives into entrepreneurial opportunities. In this regard, growing recognition of the narrative perspective in entrepreneurship research (Garud and Giuliani, 2013; Garud et al., 2014) might offer promising paths forward.

Third, by recognizing and discussing both demand articulation and resource mobilization, we also contribute to a better understanding of the cognitive capabilities that would shape entrepreneurs' effectiveness in interpreting and enacting opportunities revealed by demand-side narratives. We have identified specific elements that make up these two cognitive capabilities. Prior empirical studies related to these elements (or sub-capabilities)—for example, on structural alignment (Gregoire and Shepherd, 2012)—offer promising pathways for operationalizing demand articulation and resource mobilization in future empirical research. Further, going beyond the capabilities considered here, future research could also examine the significance of additional cognitive skills and capabilities in forming and enacting opportunities based on demand-side narratives.

Finally, though prior studies have acknowledged the importance of knowledge about consumers in the entrepreneurial process, our discussion shows a need to go beyond this knowledge to also learn about the ways consumers develop and communicate their understanding of markets through narratives in a wide range of forums—from social media to offline brand communities (Parmentier, 2015). A focus on demand-side narratives could inform entrepreneurs in both startups and established companies on varied activities including innovation, marketing and brand development essential for making their ventures successful.

References

- Adamson, R.E., 1952. Functional fixedness as related to problem solving: a repetition of three experiments. *J. Exp. Psychol.* 44 (4), 288.
- Adner, R., Snow, D., 2010. Old technology responses to new technology threats: Demand heterogeneity and technology retreats. *Ind. Corp. Chang.* 19, 1655–1675.
- Alvarez, S.A., Barney, J.B., 2007. Discovery and creation: alternative theories of entrepreneurial actions. *Strateg. Entrep. J.* 1 (1), 11–26.
- Alvarez, S.A., Barney, J.B., Anderson, P., 2013. Forming and exploiting opportunities: the implications of discovery and creation processes for entrepreneurial and organizational research. *Org. Sci.* 24 (1), 301–317.
- Azkarate, T.A., Croasdell, D., 2013. NASF in Twitter: An Entrepreneur's Community of Practice Using Electronic Networks of Practice. In: Proceedings of the 46th Hawaii International Conference on System Sciences (HICSS), p. 3488–3493.
- Berger, P.L., Luckmann, T., 1967. *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*. Anchor Books Doubleday, Garden City, NY.
- Boon, W.P.C., Moors, E.H.M., Kuhlmann, S., Smits, R., 2011. Demand articulation in emerging technologies: Intermediary user organisations as co-producers. *Res. Policy* 40, 242–252.
- Bowman, C., Ambrosini, V., 2000. Value creation versus value capture: Towards a coherent definition of value in strategy. *Br. J. Manag.* 11 (1), 1–15.
- Brown, J.S., Duguid, P., 1991. Organizational learning and communities-of-practice: Toward a unified view of working, learning, and innovation. *Org. Sci.* 2 (1), 40–57.
- Bruner, J.S., 1990. In: *Acts of Meaning* Harvard University Press, Cambridge, MA.
- Chandra, Y., Leenders, M., 2012. User innovation and entrepreneurship in the virtual world: a study of second life residents. *Technovation* 32, 464–476.
- Duncker, K., Lees, L.S., 1945. On problem-solving. *Psychol. Monogr.* 58 (5). (i).

- Fischer, E., Reuber, A.R., 2011. Social interaction via new social media:(How) can interactions on Twitter affect effectual thinking and behavior? *J. Bus. Ventur.* 26 (1), 1–18.
- Garud, R., Karnøe, P., 2003. Bricolage vs. breakthrough: Distributed and embedded agency in technology entrepreneurship. *Res. Policy* 32, 277–300.
- Garud, R., Giuliani, A., 2013. A narrative perspective on entrepreneurial opportunities. *Acad. Manag. Rev.* 38 (1), 157–160.
- Garud, R., Gehman, J., Giuliani, A., 2014. Contextualizing entrepreneurial innovation: a narrative perspective. *Res. Policy* 43 (7), 1177–1188.
- Gerber, E., Hui, J., 2013. Crowdfunding: motivations and deterrents for participation. *Trans. Comput.-Hum. Interact.* 20, 6.
- Grégoire, D.A., Shepherd, D.A., 2012. Technology-market combinations and the identification of entrepreneurial opportunities: aAn investigation of the opportunity-individual nexus. *Acad. Manag. J.* 55 (4), 753–785.
- Grégoire, D.A., Corbett, A.C., McMullen, J.S., 2011. The cognitive perspective in entrepreneurship: an agenda for future research. *J. Manag. Stud.* 48 (6), 1443–1477.
- Gregoire, D.A., Barr, P.S., Shepherd, D.A., 2010. Cognitive processes of opportunity recognition: Role of structural alignment. *Org. Sci.* 21 (2), 413–431.
- Khan, K.U., Sarv, H., 2013. From storytelling to story creation by the use of systemic meetings: The Swedish case. In: Müller, A.P., Becker, L. (Eds.), *Narrative and Innovation: New Ideas for Business Administration, Strategic Management and Entrepreneurship*, Springer, Wiesbaden, pp. p199–p223.
- Kodama, F., 1995. Emerging patterns of innovation: sources of Japan's technological edge, BostonHarvard Business School Press, MA.
- Müller, A.P., Becker, L., 2013. *Narrative and Innovation: New Ideas for Business Administration, Strategic Management and Entrepreneurship*. Springer VS, Wiesbaden.
- Markman, A.B., Gentner, D., 1993. Structural alignment during similarity comparisons. *Cognit. Psychol.* 25, 431–467.
- McCaffrey, T., 2012. Innovation relies on the obscure a key to overcoming the classic problem of functional fixedness. *Psychol. Sci.* 23 (3), 215–218.
- McMullen, J.S., Shepherd, D.A., 2006. Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur. *Acad. Manag. Rev.* 31 (1), 132–152.
- Mollick, E., 2014. The dynamics of crowdfunding: an exploratory study. *J. Bus. Ventur.* 29 (1), 1–16.
- Mortara, L., Parisot, N.G., 2016. How do fab-spaces enable entrepreneurship? Case studies of 'Makers' entrepreneurs. *Int. J. Manuf. Technol. Manag.* (forthcoming), 10.2139/ssrn.2519455.
- Muniz, A.M., O'Guinn, T.C., 2001. Brand community. *J. Consum. Res.* 27, 412–432.
- Parmentier, G., 2015. How to innovate with a brand community. *J. Eng. Technol. Manag.* 37, 78–89.
- Patel, P.C., Terjesen, S., 2011. Complementary effects of network range and tie strength in enhancing transnational venture performance. *Strateg. Entrepreneurship J.* 5, 58–80.
- Priem, R.L., 2007. A consumer perspective on value creation. *Acad. Manag. Rev.* 32 (1), 219–235.
- Priem, R.L., Li, S., Carr, J.C., 2012. Insights and new directions from demand-side approaches to technology innovation, entrepreneurship, and strategic management research. *J. Manag.* 38 (1), 346–374.
- Rayna, T., Striukova, L., Darlington, J., 2015. Co-creation and user innovation: The role of online 3D printing platforms. *J. Eng. Technol. Manag.* 37, 90–102.
- Read, S., Dew, N., Sarasvathy, S.D., Song, M., Wiltbank, R., 2009. Marketing under uncertainty: The logic of an effectual approach. *J. Mark.* 73 (3), 1–18.
- Stanko, M.A., Henard, D.H., 2016. How crowdfunding influences innovation. *MIT Sloan Manag. Rev.* 57 (3), 15.
- Stuart, T.E., Sorenson, O., 2007. Strategic networks and entrepreneurial ventures. *Strateg. Entrepreneurship J.* 1, 211–227.
- Teubal, M., Arnon, A., Trajtenberg, M., 1976. Performance in innovation in the Israeli electronics industry: a case study of biomedical electronics instrumentation. *Res. Policy* 5 (4), 354–379.
- Tripsas, M., 2008. Customer preference discontinuities: a trigger for radical technological change. *Manag. Decis. Econ.* 29, 79–97.
- Venkataraman, S., Sarasvathy, S.D., Dew, N., Forster, W.R., 2012. Reflections on the 2010 AMR Decade Award: Whither the promise? Moving forward with entrepreneurship as a science of the artificial. *Acad. Manag. Rev.* 37, 21–33.
- von Hippel, E., von Krogh, G., 2016. Identifying viable need-solution pairs: Problem solving without problem formulation. *Org. Sci.* 27 (1), 207–221.
- Wasko, M., Teigland, R., Leidner, D., Jarvenpaa, S., 2011. Stepping into the internet: new ventures in virtual worlds. *MIS Q.* 35 (3), 645–652.
- Wasko, M.M., Faraj, S., 2005. Why should I share? Examining social capital and knowledge contribution in electronic networks of practice. *MIS Q.* 35–57.
- Yli-Renko, H., Autio, E., Sapienza, H.J., 2001. Social capital, knowledge acquisitions, and knowledge exploitation in young technology-based firms. *Strateg. Manag. J.* 22 (6), 587–613.
- Zahra, S.A., Van de Velde, E., Larraneta, B., 2007. Knowledge conversion capability and the performance of corporate and university spin-offs. *Ind. Corp. Chang.* 16 (4), 569–608.