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A network analysis of the individual – opportunity nexus: Convergence in entrepreneurship research?

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A network analysis of the individual – opportunity nexus: Convergence in entrepreneurship research?

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Abstract

This paper analyses the citation pattern around the single most cited article in the entrepreneurship discipline in the last decade – 'The promise of entrepreneurship as a field of research' by Shane & Venkataraman (2000). Using a quantitative network analysis five clusters pertaining to different areas of research disseminating from, or somehow inspired by, Shane & Venkataraman (2000) is identified. After performing a simple literary content analysis of the various articles in each cluster, five relatively diverse research areas or clusters emerge. Using measures of centrality it is argued that two of these clusters are relatively more central in the citation network: 1) A cluster associated with aspects of individual cognition and entrepreneurial opportunities, and 2) A cluster associated with meta-theoretical aspects of the entrepreneurship discipline. The final part of the paper performs a literature review of both the Shane and Venkataraman article itself and a number of articles from the two clusters mentioned above. From this analysis two conclusions can be drawn about the citation pattern around Shane & Venkataraman (2000). The article have produced agreement on the idea of an individual-opportunity nexus as the defining aspect of entrepreneurship research, but it has produced fundamental disagreement concerning the particular content of this nexus.

INTRODUCTION

For a number of years the entrepreneurship discipline has been characterized by definitional struggles. Answers to “what is entrepreneurship”, have been widespread, covering areas such as the start up of companies, innovation, the characteristics of entrepreneurs and many others. Around the year 2000 this seemed to change. A number of publications reoriented the entrepreneurship discipline towards an agreement on individuals and opportunities as the central phenomena of study. Especially one article by Shane and Venkataraman, ‘The promise of entrepreneurship as a field of research’, in *Academy of Management Review* (2000) seemed to be a turning point. Not only is it the most cited article in entrepreneurship in the last decade, but also a host of seminars and special issue journals, suggest its popularity and high status among scholars in entrepreneurship. In fact, considering the centrality of the article with the fact that entrepreneurship during the latest decades has become one of the fastest growing research areas of the social sciences – ‘The promise of entrepreneurship as a field of research’ is without any doubt at highly influential article in the vast area of social science.

This paper analyzes the importance of the Shane and Venkataraman (2000) article in two ways. The first analysis is a quantitative social network analysis of the citation patterns around Shane and Venkataraman’s article. In recent years, a series of papers in entrepreneurship journals – especially a special issue in *Entrepreneurship Theory and Practice* (may 2006) – have used various bibliometric techniques to define in what scientific journals issues on entrepreneurship are published, how entrepreneurship is related to other journals and topics in management and whether entrepreneurship is gaining increased legitimacy in the wider field of management (e.g. Aldrich and

Baker 1997; Shane 1997; Huse and Landström 1998; Landström and Johannisson 2001; Busenitz et al. 2003; Fried 2003; Gartner et al. 2006; Schildt et al. 2006).

Contrary to these studies, this paper describes the citation pattern around a single article and how the ideas of a single article diffuse into the larger network of entrepreneurship articles. Hence, articles that cite Shane & Venkataraman (2000) were obtained from the Social Science Citation Index (SSCI). From the citations in each of these separate articles various sub-areas or clusters were identified using a clustering technique from social network analysis. Although a quantitative social network analysis is able to identify different arrays of research emanating from Shane & Venkataraman (2000), it gives no insight into the particular theoretical discourses that have evolved as a consequence of the article. To gain this insight a literary analysis of communalities inside each cluster were performed. Finally, each of these clusters was then given a label based on the dominant area of research and focus in each cluster.

The final part of this paper determines the centrality of the identified clusters and their corresponding research themes emanating from the citation pattern around Shane & Venkataraman (2000). Using different measures of centrality it is suggested that two clusters: “The Individual Cognition and Entrepreneurial Opportunities Cluster” and “The Meta-theoretical Surveillance Cluster” are relatively more central. A central theme within these two clusters is the individual-opportunity nexus as presented in Shane & Venkataraman (2000). From this analysis it is concluded that “The promise of entrepreneurship as a field of research” has produced both agreement on the idea of an individual-opportunity nexus as the defining aspect of entrepreneurship research – but has produced fundamental disagreement concerning the particular content of this nexus.

THE CORNERSTONE ARTICLE IN ENTREPRENEURSHIP

In this first section we explore the ranking of different articles in the domain of entrepreneurship in order to answer “what is the most influential article in the domain of entrepreneurship in recent times?” and to legitimize the use of Shane & Venkataraman as a cornerstone article in entrepreneurship research.

In order to obtain articles on entrepreneurship issues, a Boolean search was performed on Web of Science from the Social Science Citation Index (SSCI). If the title, abstract, or keywords contained the words entrepreneur* OR new venture creation OR new venture emergence OR emerging venture* OR founder*, these were included in the list. These search expressions are almost identical with earlier search expressions used to search for entrepreneurship articles. For example, the only difference between this search string and the search string used by Busenitz et al. (2003) is that we did not include ‘small businesses’ in our search, since this paper is ultimately about entrepreneurship. With this search string and looking at the period of the last ten years (April 1997- March 2007 both included), a total number of approximately 4100 articles were obtained. Taking the average number of citations per year since the year of publication – from journals represented in the Social Science Citation Index – given to each of these articles as an indication of research impact, we obtain the top 5 list indicated in table 1.

Table 1: The 5 most cited entrepreneurship articles from the latest 10 years

<i>No.</i>	<i>Article</i>	<i>average number of citations</i>
1	Shane, S & S. Venkataraman (2000) The Promise of Entrepreneurship as a Field of Research, <i>Academy of Management Review</i> , Vol. 25	27
2	Stuart, TE; H. Hoang, H & R.C. Hybels (1999) Interorganizational Endorsements and the Performance of Entrepreneurial Ventures, <i>Administrative Science Quarterly</i> , Vol. 44	16
3	Shane, S (2000) Prior knowledge and the discovery of entrepreneurial opportunities, <i>Organization Science</i> , Vol 11	13
4	Amit, R & C. Zott (2001) Value Creation in e-business, <i>Strategic Management Journal</i> , Vol 22	12
5	Hitt, MA; M.T. Dacin & E. Levitas et al. (2000) Partner Selection in Emerging and Developed Market Contexts: Resource-based and Organizational Learning Perspectives, <i>Academy of Management Journal</i> , Vol. 43	10

As suggested in table 1, Shane & Venkataraman (2000) is by far the most cited article in the domains of entrepreneurship with 27 average numbers of citations – almost twice as many as the second most cited article by Stuart et al. (1999). Having established the dominance of this article, we now look at the citation pattern emerging from the article.

CITATION PATTERNS AROUND THE SHANE & VENKATARAMAN

ARTICLE

In order to obtain the citation pattern from the Shane & Venkataraman article, we used the ISI web of knowledge database – called web of science, which includes the Social Science Citation Index (SSCI). Articles that cite Shane & Venkataraman was obtained along with each of these articles' citations to other articles. In March 2007 214 articles cited Shane & Venkataraman (2000). From the collected data, the raw number of citations (>6000) was sorted alphabetically and checked for inconsistency in use of abbreviations. However, instead of using the raw citation counts to evaluate the citation pattern among these articles, we use a methodology from social network analysis. Accordingly, the citations from each of the 214 articles were transformed into an adjacency matrix with either absent or observable ties between each article. From doing this we obtain information as to how the 214 articles are related to one another, i.e., if one article cites another article, we say that there is a relationship between these two articles otherwise not. Among the 214 articles, only 72 cited another article in the complete network. Hence, the remaining articles were isolates, i.e., not cited by other articles in the network. In order to obtain a citation pattern these 'isolates' were then removed because they were not related to the rest of the network.

Our major interest with this network is whether we can discern any common research themes (or clusters) from this citation pattern. Since we are initially dealing with relational data, a research theme or a cluster corresponds to a collection of articles with a high frequency of citations. One common way of measuring the extent to which a network displays clustering is to examine the local neighborhood of entities, in this case articles, and to calculate the density in this neighborhood (Wasserman and

Faust 1994; Scott 2000). The density of a concrete neighborhood is simply the proportion of all possible ties that are actually present in the neighborhood. In other words, the density is defined as the number of relationships among the selected articles in a certain neighborhood as a proportion of the maximum possible number of relations in the same neighborhood. The more relationships in the neighborhood, the higher the density of that particular neighborhood. Hence, if all the articles in a particular neighborhood are connected the density would be 1.

After doing this for all 72 articles in the whole network, we can characterize the degree of clustering as an average of all the neighborhoods. To perform this procedure, the cluster optimization procedure in UCINET, using the maximum density as the fit criterion, was used to identify the clusters in the network (Borgatti, Everett, and Freeman 2002). From this operation, 5 clusters with a relatively high density inside each cluster, i.e., citations among journals, were identified in the larger network of articles ($r\text{-square} = 0.126$). This suggests that a fairly large proportion of the total number of journals are clustered into 5 local neighborhoods or related sub-areas. The clustering of the articles is shown in appendix 1 to this paper.

Moreover, as indicated by the density matrix in table 2, the clusters in the network are differently related to each other. For example, according to the density matrix, we should expect for example cluster 5 to be more related to cluster 1 than to cluster 4 since citations between articles in cluster 5 and cluster 1 appear more often.

**Table 2: Density matrix
(as a percentages of maximum density in the group)**

CLUSTER	1	2	3	4	5
1	19	2	2	2	2
2	2	25	0	0	1
3	2	0	20	0	1
4	2	0	0	15	0
5	2	1	1	0	24

In order to give a visual presentation of the data and the clusters, we made a multidimensional scaling of each article with its corresponding clustering label.

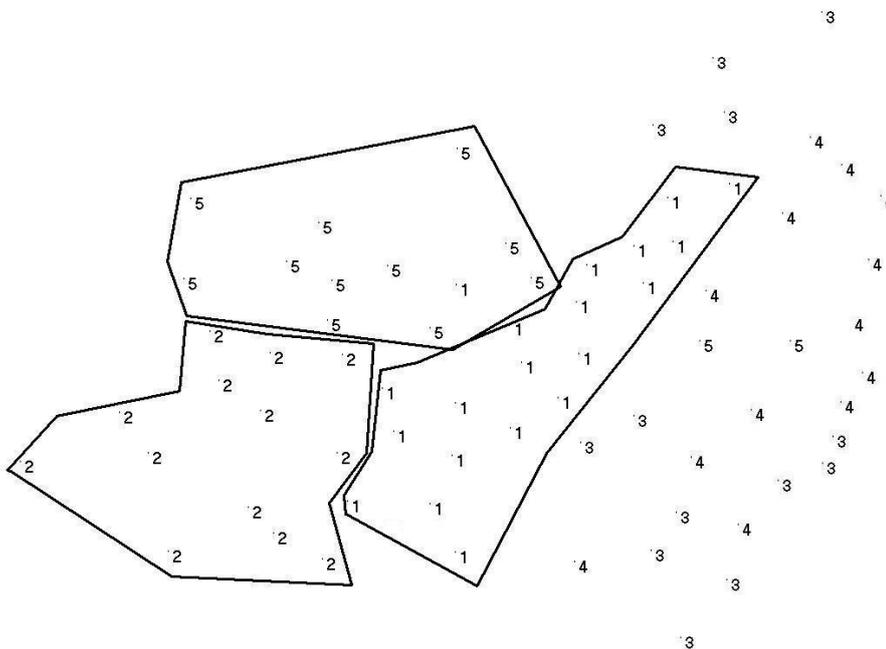


Figure 1: A multidimensional scaling of the network of articles

As indicated by figure 1, cluster 1 is the most central cluster in the network followed by cluster 5. This is equally reflected in the Freeman degree centrality measure, reflecting the number of citations given to each article, as well as the Bonancich eigenvector centrality in which an article's centrality is its summed connections to others, weighted by their centrality. The average measure of degree as well as Bonancich eigenvector centrality in each cluster is shown in table 3.

Table 3. Centrality of each cluster

Cluster	1	2	3	4	5
Average degree centrality	5,3	3,9	2,7	1,8	4
Average rank of Bonancich Eigenvector centrality	21	41	49	53	26

IDENTIFICATION OF CLUSTER CONTENT

Although a quantitative social network analysis is able to identify different arrays of research emanating from Shane & Venkataraman 2000, it gives no insight into the particular theoretical discourses that have evolved as a consequence of the article. To gain this insight we conducted a literary analysis for communalities inside each cluster. Based on the reading of keywords and abstracts of all articles, each of these clusters was given a label based on the dominating area of research topic and focus in each cluster when such existed. This procedure enabled us to see the different arrays of research emanating from Shane & Venkataraman 2000 and also see which of these arrays of research dominate the mainstream of entrepreneurship research.

Cluster 1: Individual cognition and entrepreneurial opportunities

As shown in figure 1, cluster 1 is placed at the center of the network, and the articles in this cluster are explicitly concerned with an individual-opportunity nexus. Some articles primarily study the individual-opportunity nexus from a cognitive knowledge based perspectives associated with the individual entrepreneur. Others primarily study the nature and form of entrepreneurial opportunities from the perspective of new venture creation or from the perspective of a resource based view, agency theory or other economics and management perspectives.

Cluster 2: The interface of strategic management and entrepreneurship

As shown in table 3 and in figure 1, Cluster 2 has a high density, suggesting a high degree of common research themes. Articles in this cluster are mainly associated with aspects of strategy and the research commonality between strategic management and entrepreneurship. The latter is often referred to as strategic entrepreneurship.

Cluster 3: Corporate entrepreneurship

Articles in the third cluster are mainly associated with corporate entrepreneurship, i.e., entrepreneurship in existing ventures. This is sometimes also referred to as intrapreneurship. Some of the articles in this group show an overlap with cluster 1 looking primarily at individual effects from a network point of view.

Cluster 4: Culture and different aspects of opportunities exploitation

The fourth cluster holds the lowest density (15%). As equally suggested by the density matrix and figure 1, articles in the fourth cluster are spread across the entire network. However, two subgroups were identified within the cluster. One group of articles in this cluster mainly considers cultural effects from an institutional perspective. Another group of articles considers different individual aspects of exploiting opportunities and how this is related to network characteristics.

Cluster 5: Meta-theoretical surveillance cluster

Like cluster 1, cluster 5 has a high density, and high centrality with research concentrated near cluster 1. Cluster 5 is evidently surveying and critically discussing what is going on in cluster 1 – in particular concerning the individual opportunity nexus. Moreover, a large part of the articles in cluster 5 are meta-theoretical and ontological studies of the entrepreneurship discipline, others analyze citation patterns in the field of entrepreneurship.

RESEARCH INSPIRED BY THE INDIVIDUAL-OPPORTUNITY NEXUS

As suggested by the citation pattern and the centrality of cluster 1 and cluster 5 the focal inspiration from Shane & Venkataraman (2000) is the definition of entrepreneurship as an individual-opportunity nexus. On the one hand, most articles in the ‘individual cognition and entrepreneurial opportunities cluster’ build explicitly on the nexus, whereas, on the other hand, several articles in the ‘meta-theoretical surveillance cluster’ discuss the specific content of the nexus and its consequences for entrepreneurship research. Hence, on the outset, as suggested by Grégoire et al. (2006), it appear that Shane & Venkataraman (2000) has brought a convergence in entrepreneurship research around the individual-opportunity nexus as the most influential and most cited entrepreneurship-specific article. However, even though the citation pattern around Shane & Venkataraman (2000) appear to support this convergence, the article has evidently produced both agreement on the idea of an individual-opportunity nexus as the defining aspect of entrepreneurship research, as well as a fundamental disagreement concerning the particular content of this nexus.

Venkataraman actually foresees this tension in his foreword to Scott Shanes book “A general Theory of Entrepreneurship – The Individual-opportunity Nexus” (Shane

2003). Accordingly, Venkataraman expects a vigorous debate among entrepreneurship scholars between the ‘discovery view’ as represented by Shane and Venkataraman’s individual-opportunity nexus, and an alternative ‘creative view’, where opportunities are *merely* a social construction. In “The Language of Opportunity”, Gartner et al. (2003), makes a similar distinction between the dominant opportunity discovery perspective used in most economic literature emphasizing alertness and informational asymmetries – and an alternative opportunity enactment perspective. Moreover, it is evident from reading the articles in the two dominant clusters that a third view of the individual-opportunity nexus is present – what we will refer to as the individual view.

In table 4, these positions are ordered under the headline of discovery view, discovery view, and the individual view.

Table 4: Three views of the individual-opportunity nexus

<i>Discovery view</i>	<i>Creative view</i>	<i>Individual view</i>
Opportunities already exist and are seen by alert individuals	Opportunities are socially enacted by sense-making of embedded individuals	Opportunities are created by autonomous individuals

These three views explicitly refer to Shane and Venkataramans formulation of the nexus. In the following we shall briefly elaborate on each of these views.

Three views of the individual-opportunity nexus

In general, articles within the *discovery view* argue that opportunities exist “Out there” independently of the individual as every price, every invention, every bit of

information engenders within itself opportunities (e.g. Shane 2000, 2003; Venkataraman 2003). As the objective opportunities lack agency, specific individuals with creativity are required in order to bring the objective opportunity to life. Using phrases such as opportunity recognition, opportunity identification or opportunity discovery implicitly indicates that the opportunity exists by itself “out there” somewhere in the environment of the entrepreneur. It is basically asymmetric information waiting to be observed by individuals. Hence, in this view, individuals may not know what the specific opportunity is, but know what an opportunity is in general and be able to identify an opportunity if they see one (Sarasvathy 2001, 2002). The individual thus has to recognize, identify or discover the opportunity. To do that, it is necessary to analyze the environment where the opportunity is supposed to present itself.

Finally, as suggested by Compans & McMullen (2007), scholars who share this view tend, like Shane and Venkataraman, to come from an economic school of thought. This is hardly a surprise since the discovery view is explicitly adopted this approach from Kirzners (1973, 1997) understanding of entrepreneurial activity. Markets are in disequilibrium, but opportunity-seeking individuals cannot start an active search process as the opportunity cannot be clearly defined *ex ante*. Instead they have to keep their eyes and ears open – i.e. they need alertness – for yet unspecified opportunities. Even though they do not actively search for them, alertness allows entrepreneurial actors to see opportunities that are embedded or latent. Opportunity identification is thus often related to situations of asymmetric information, combined with the entrepreneur’s particular information sensitivity that allows him to see opportunities he is not actively searching for. The potential opportunity exists as a previously unrecognized pattern of stimuli. However, the opportunity is only potential in the

sense that the individual is needed in order to recognize the pattern (Gaglio & Katz, 2001).

Another group of articles sees opportunities as emerging from within the individual (e.g. Gaglio & Katz, 2001; Baron 2004) what we might call the *individual view*. If the opportunity is “in here”, individual creativity is necessary in order to express the opportunity. The phrase ‘opportunity creation’ is an example of such ontology. By way of mental simulation or contra-factual thinking (Gaglio & Katz, 2001; Baron 2000), the individual can imagine new combinations of his own and other actors’ resources (Schumpeter, 1934) that can establish a new supply which the market will demand. Opportunity creation thus seems to be based on particular cognitive characteristics within the individual, and entrepreneurs are characterized by having different mental models than non-entrepreneurs (Ward, 2004; Gaglio & Katz, 2001). Both the discovery and the individual ontology operate with a strong distinction between the individual and the environment. In the first perspective the opportunity is in the world, but separated from the entrepreneur. Due to idiosyncratic knowledge or a particular constellation of human capital, the individual may or may not have access to the relevant information. In the second perspective the opportunity is within the entrepreneur, who is gifted with a special ability to perform a conceptual extension. Yet, the opportunity remains separated from the world until the entrepreneur transcends the distinction.

The *creative view* or the enactment and sensemaking view of the individual-opportunity nexus sees opportunities as coming into existence in a mutual process between the environment and the individual (e.g. Gartner et al. 1992; Sarasvathy et al., 2002; Gartner et al. 2003). Hence, contrary to the discovery and the individual view, the creative view does not assume that given ends exist before action is taken

(Sarasvathy 2001; Sarasvathy et al. 2002). As an alternative, Sarasvathy presents a creative view working under the logic of effectuation, where neither end nor opportunities exist in advance. Instead opportunities are created in a process where values, ends and meanings emerge. The perspective holds both an internal reflexive element of standing back and evaluating new observations in the light of past experiences in a way that makes sense - and an element of active experimental action, where new experiences are incorporated into new actions - resulting in new observations to be made sense of. Opportunity is thus conceptualized as something that is given existence when the entrepreneur is thrown into a sense making process (Weick 1995, Gartner et al. 2003; Weick et al, 2005) and emerges out of the imagination of individuals by their actions and their interaction with others. This is prompted by changes, either in the individual's life, or in the environment. Hence, opportunities arise out of the imaginative ability of individuals, through their actions and interplay with other actors (Gartner et al, 2003).

CONVERGENCE – TO AGREE WHAT TO DISAGREE ABOUT

The central point spurring the various clusters of research from Shane and Venkataraman (2000) is the definition of entrepreneurship as: "...the nexus of two phenomena: the presence of lucrative *opportunities* and the presence of enterprising *individuals*" (218). The question is then; how can one definition of entrepreneurship unite scholars of entrepreneurship and create an apparent convergence around the individual-opportunity nexus while at the same time create a vigorous ontological debate?

We argue that a fundamental reason for this situation is that the definition may be read in several ways depending on whether you focus on the nouns or the adjectives. Shane

and Venkataraman’s definition contains a particular ontology in the sense that they emphasize the *presence* of opportunities and *enterprising* individuals. The term ‘presence of’ indicates that opportunities already exist independently of the individual – just waiting to be discovered by someone. The term ‘enterprising individual’, on the other, hand indicates that the behavior of entrepreneurial individuals is not determined by the outside world, but is instead a result of autonomous individuals acting within the realm of existing opportunities. As suggested in figure 3, this ontological conception of the individual and the opportunity emboss a particular individual-opportunity nexus. As a result, the individual may obtain entrepreneurial alertness to start a search for opportunities and possibly discover opportunities that already exist in the marketplace.

Opportunity	<i>A conception of opportunities as having a presence</i>
Individual	NEXUS an <i>autonomous</i> individual become entrepreneurially - alert and recognize - opportunities that already <i>exists</i> independently of this individual
<i>A conception of individuals as enterprising</i>	

Figure 2: The particular nexus of Shane and Venkataraman

Whereas a focus on the adjectives (presence of lucrative - presence of enterprising) presents a very particular definition, a focus on the nouns (opportunity - individual)

presents a broad definition of entrepreneurship. Focusing on the nouns means that you draw your attention to the interaction between the individual and the opportunity. In this sense the nexus works as a quite broad definition of entrepreneurship where individuals and opportunities as well as the interplay between these two constructs may be understood in many different ways. What is clear with this broad definition of entrepreneurship is that the important aspect is neither the individual nor the opportunity but the hybrid itself. This interpretation then becomes very suitable for the creative view that does not converge with the framework initially put forth by Shane & Venkataraman (2000).

CONCLUSION

From this analysis we conclude that “The promise of entrepreneurship as a field of research” is the last decade’s most central research paper within entrepreneurship research. It is the most cited entrepreneurship article and the idea of an individual-opportunity nexus has served as input not only for entrepreneurship scholars, but also for researches in other related clusters of research such as strategic management.

Within the entrepreneurship area the article has produced agreement on the idea of an individual-opportunity nexus as the defining aspect of entrepreneurship research. However, it has also produced a fundamental disagreement concerning the particular content of this nexus. The narrowing ontological stance taken by Shane & Venkataraman 2000, does not comply with a number of new approaches to entrepreneurship research. These accept the idea of a nexus, but have other conceptions of both the opportunity and the individual that differ significantly from the mainstream conception advocated by Shane and Venkataraman.

What is central in this delineation of the field is that what appears to be a nexus or a hybrid is in fact two interdependent constructs. However, accepting this part of the nexus does not automatically lead to the acceptance of the narrowing parts of Shane and Venkataraman's suggestions indicated by the adjectives "enterprising" and "presence". Indeed, the history of entrepreneurship research suggests that diverging ontological approaches exist with direct consequences for the conceptualization of both opportunities and individuals. For example, some scholars see the origin of ideas and beliefs as determined by environment, while others focus on the creative minds and acts of autonomous individuals. Some of these combinations of the individual and the opportunity may be meaningful in the sense that they provide a different but plausible understanding of entrepreneurship. Even so, it appears that Shane & Venkataraman (2000) created convergence in the sense that it spurred a legitimate area of research in entrepreneurship, where entrepreneurship researchers could agree what to agree or disagree about.

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Appendix 1 Articles in five different clusters

	Article
1	Lichtenstein, B. M. B. Emergence as a process of self-organizing - New assumptions and insights from the study of non-linear dynamic systems, <i>Journal of Organizational Change Management</i>
1	Alvarez, S. A. and Busenitz, L. W. The entrepreneurship of resource-based theory, <i>Journal of Management</i>
1	Erikson, T. The promise of entrepreneurship as a field of research": A few comments and some suggested extensions, <i>Academy of Management Review</i>
1	Zahra, S. and Dess, G. G. Entrepreneurship as a field of research: Encouraging dialogue and debate, <i>Academy of Management Review</i>
1	Baker, T., Miner, A. S., and Eesley, D. T. Improvising firms: bricolage, account giving and improvisational competencies in the founding process <i>Research Policy</i>
1	Eckhardt, J. T. and Shane, S. A. Opportunities and entrepreneurship <i>Journal of Management</i>
1	Garud, R. and Karnoe, P. Bricolage versus breakthrough: distributed and embedded agency in technology entrepreneurship <i>Research Policy</i>
1	Baron, R. A.: Potential benefits of the cognitive perspective: expanding entrepreneurship's array of conceptual tools, <i>Journal of Business Venturing</i>
1	Baron, R. A. and Ward, T. B.: Expanding entrepreneurial cognition's toolbox: Potential contributions from the field of cognitive science, <i>Entrepreneurship-Theory and Practice</i>
1	Baron, R. A.: The cognitive perspective: a valuable tool for answering entrepreneurship's basic "why" questions <i>Journal of Business Venturing</i>
1	Gedajlovic, E., Lubatkin, M. H., and Schulze, W. S. Crossing the threshold from founder management to professional management: A governance perspective <i>Journal of Management Studies</i>
1	Mitchell, R. K., Busenitz, L., Lant, T., McDougall, P. P., Morse, E. A., and Smith, J. B. The distinctive and inclusive domain of entrepreneurial cognition research <i>Entrepreneurship-Theory and Practice</i>
1	Baker, T. and Nelson, R. E. Creating something from nothing: Resource construction through entrepreneurial bricolage <i>Administrative Science Quarterly</i>
1	Baker, T., Gedajlovic, E., and Lubatkin, M. A framework for comparing entrepreneurship processes across nations <i>Journal of International Business Studies</i>
1	Corbett, A. C. Experiential learning within the process of opportunity identification and exploitation <i>Entrepreneurship Theory and Practice</i>
1	Lumpkin, G. T. The role of organizational learning in the opportunity-recognition process <i>Entrepreneurship Theory and Practice</i>

1	Park, J. S. Opportunity recognition and product innovation in entrepreneurial hi-tech start-ups: a new perspective and supporting case study Technovation
1	Shepherd, D. A. and DeTienne, D. R. Prior knowledge, potential financial reward, and opportunity identification Entrepreneurship Theory and Practice
1	Hmieleski, K. M. and Corbett, A. C. Proclivity for improvisation as a predictor of entrepreneurial intentions Journal of Small Business Management
1	Corbett, A. C. Learning asymmetries and the discovery of entrepreneurial opportunities Journal of Business Venturing
2	Zahra, S. A., Ireland, R. D., Gutierrez, I., and Hitt, M. A. Privatization and entrepreneurial transformation: Emerging issues and a future research agenda Academy of Management Review
2	Amit, R. and Zott, C. Value creation in e-business Strategic Management Journal
2	Brush, C. G., Greene, P. G., and Hart, M. M. From initial idea to unique advantage: The entrepreneurial challenge of constructing a resource base Academy of Management Executive
2	Hitt, M. A., Ireland, R. D., Camp, S. M., and Sexton, D. L. Guest editors' introduction to the special issue - Strategic entrepreneurship: Entrepreneurial strategies for wealth creation Strategic Management Journal
2	Daily, C. A., McDougall, P. P., Covin, J. G., and Dalton, D. R. Governance and strategic leadership in entrepreneurial firms Journal of Management
2	Aldrich, H. E. and Cliff, J. E. The pervasive effects of family on entrepreneurship: toward a family embeddedness perspective Journal of Business Venturing
2	Florin, J., Lubatkin, M., and Schulze, W. A social capital model of high-growth ventures Academy of Management Journal
2	Hoang, H. and Antoncic, B. Network-based research in entrepreneurship - A critical review Journal of Business Venturing
2	Ireland, R. D., Hitt, M. A., and Sirmon, D. G. A model of strategic entrepreneurship: The construct and its dimensions Journal of Management
2	Steward, W. H. and Roth, P. L. Data quality affects meta-analytic conclusions: A response to Miner and Raju (2004) concerning entrepreneurial risk propensity Journal of Applied Psychology
2	Kuratko, D. F. The emergence of entrepreneurship education: Development, trends, and challenges Entrepreneurship Theory and Practice
2	Skuras, D., Meccheri, N., Moreira, M. B., Rosell, J., and Stathopoulou, S. Business growth and development trajectories in lagging and remote areas of Southern Europe European Urban and Regional Studies
2	Lichtenstein, B. B., Dooley, K. J., and Lumpkin, G. T. Measuring emergence in the dynamics of new venture creation Journal of Business Venturing

3	Brown, T. E., Davidsson, P., and Wiklund, J. An operationalization of Stevenson's conceptualization of entrepreneurship as opportunity-based firm behavior <i>Strategic Management Journal</i>
3	Shane, S. and Venkataraman, S. Entrepreneurship as a field of research: A response to Zahra and Dess, Singh, and Erikson <i>Academy of Management Review</i>
3	Yli-Renko, H., Autio, E., and Sapienza, H. J. Social capital, knowledge acquisition, and knowledge exploitation in young technology-based firms <i>Strategic Management Journal</i>
3	Miles, M. P., Munilla, L. S., and Covin, J. G. The constant gardener revisited: The effect of social blackmail on the marketing concept, innovation, and entrepreneurship <i>Journal of Business Ethics</i>
3	Davidsson, P. and Honig, B. The role of social and human capital among nascent entrepreneurs <i>Journal of Business Venturing</i>
3	Miles, M. P., Paul, C. W., and Wilhite, A. Modeling corporate entrepreneurship as rent-seeking competition <i>Technovation</i>
3	Wiklund, J. and Shepherd, D. Knowledge-based resources, entrepreneurial orientation, and the performance of small and medium-sized businesses <i>Strategic Management Journal</i>
3	Van de Ven, A. H. and Engleman, R. M. Event- and outcome-driven explanations of entrepreneurship <i>Journal of Business Venturing</i>
3	Arenius, P. and De Clercq, D. A network-based approach on opportunity recognition <i>Small Business Economics</i>
3	Darroch, J., Miles, M. P., and Paul, C. W. Corporate venturing and the rent cycle <i>Technovation</i>
3	Jones, M. V. and Coviello, N. E. Internationalisation: conceptualising an entrepreneurial process of behaviour in time <i>Journal of International Business Studies</i>
3	Ravasi, D. and Turati, C. Exploring entrepreneurial learning: a comparative study of technology development projects <i>Journal of Business Venturing</i>
3	McMullen, J. S. and Shepherd, D. A. Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur <i>Academy of Management Review</i>
4	Baron, R. A., Markman, G. D., and Hirska, A. Perceptions of women and men as entrepreneurs: Evidence for differential effects of attributional augmenting <i>Journal of Applied Psychology</i>
4	Lounsbury, M. and Glynn, M. A. Cultural entrepreneurship: Stories, legitimacy, and the acquisition of resources <i>Strategic Management Journal</i>
4	Singh, R. P. A comment on developing the field of entrepreneurship through the study of opportunity recognition and exploitation <i>Academy of Management Review</i>
4	Baron, R. A. and Markman, G. D. Beyond social capital: the role of entrepreneurs' social competence in their financial success <i>Journal of Business Venturing</i>
4	Katila, R. and Mang, P. Y. Exploiting technological opportunities: the timing of collaborations <i>Research Policy</i>

4	Nerkar, A. Old is gold? The value of temporal exploration in the creation of new knowledge Management Science
4	Shook, C. L., Priem, R. L., and Mcgee, J. E. Venture creation and the enterprising individual: A review and synthesis Journal of Management
4	Ahuja, G. and Katila, R. Where do resources come from? The role of idiosyncratic situations Strategic Management Journal
4	Choi, Y. R. and Shepherd, D. A. Entrepreneurs' decisions to exploit opportunities Journal of Management
4	Maguire, S., Hardy, C., and Lawrence, T. B. Institutional entrepreneurship in emerging fields: HIV/AIDS treatment advocacy in Canada Academy of Management Journal
4	Politis, D. The process of entrepreneurial learning: A conceptual framework Entrepreneurship Theory and Practice
4	Zhao, H., Seibert, S. E., and Hills, G. E. The mediating role of self-efficacy in the development of entrepreneurial intentions Journal of Applied Psychology
4	Dean, T. J. and McMullen, J. S. Toward a theory of sustainable entrepreneurship: Reducing environmental degradation through entrepreneurial action Journal of Business Venturing
5	Shane, S. and Cable, D. Network ties, reputation, and the financing of new ventures Management Science
5	Shepherd, D. A. and Levesque, M. A search strategy for assessing a business opportunity IEEE Transactions on Engineering Management
5	Busenitz, L. W., West, G. P., Shepherd, D., Nelson, T., Chandler, G. N., and Zacharakis, A. Entrepreneurship research in emergence: Past trends and future directions Journal of Management
5	Elfring, T. and Hulsink, W. Networks in entrepreneurship: The case of high-technology firms Small Business Economics
5	Stuart, T. E. and Sorenson, O. Liquidity events and the geographic distribution of entrepreneurial activity Administrative Science Quarterly
5	Alvarez, S. A. and Barney, J. B. Organizing rent generation and appropriation: toward a theory of the entrepreneurial firm Journal of Business Venturing
5	Phan, P. H. Entrepreneurship theory: possibilities and future directions Journal of Business Venturing
5	Dutta, D. K. and Crossan, M. M. The nature of entrepreneurial opportunities: Understanding the process using the 4I organizational learning framework Entrepreneurship Theory and Practice
5	Ireland, R. D., Reutzel, C. R., and Webb, J. W. Entrepreneurship research in AMJ: What has been published, and what might the future hold? Academy of Management Journal
5	Gregoire, D. A., Noel, M. X., Dery, R., and Bechar, J. P. Is there conceptual convergence in entrepreneurship research? A co-citation analysis of Frontiers of Entrepreneurship Research, 1981-2004 Entrepreneurship Theory

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5	Reader, D. and Watkins, D. The social and collaborative nature of entrepreneurship scholarship: A co-citation and perceptual analysis Entrepreneurship Theory and Practice
5	Schildt, H. A., Zahra, S. A., and Sillanpaa, A. Scholarly communities in entrepreneurship research: A co-citation analysis Entrepreneurship Theory and Practice
5	Styles, C. and Seymour, R. G. Opportunities for marketing researchers in international entrepreneurship International Marketing Review

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- 2006-4: Niels Stender: Expected Present Value of a Customer.
- 2006-5: Niels Stender: A Quantitative Model of Dynamic Customer Relationships.
- 2006-6: Niels Stender: Fast Kernel Regression.
- 2006-7: Niels Stender: Analyzing Customer Lifetime Value using Tree Ensembles.
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