Business, Management and Economics Engineering
ISSN: 2669-2481 / eISSN: 2669-249X
2022 Volume 20 Issue 2

DO CLUSTER CHARACTERISTICS INFLUENCE EFFECTUAL BEHAVIOUR? – EVIDENCE FROM HIGH-TECH CLUSTERS OF KARNATAKA, INDIA

Dr Gururaj Phatak
Assistant Professor, Kirloskar Institute of Management, Harihar

Pushpa Hongal
Assistant Professor, Kousali Institute of Management Studies, Karnatak University, Dharwad

Abstract
Micro, Small and Medium Enterprises (MSMEs) are significant contributors to employment generation, economic growth and economic dynamics of both developing and developed economies. (Bala Subrahmanya, 2015). Industrial clusters facilitate innovation by promoting the networking of firms and associated institutions located in a specific geographic region and thereby enabling firms to mobilize resources (Chandrashekar & Bala Subrahmanya, 2019). The effectuation process is flexible and takes advantage of environmental opportunities as they arise. In other words, in their highly uncertain environment of creating new ventures, entrepreneurs learn as they go. (Brettel et al., 2014). The objective of this paper is to identify the association between the effectual behaviour attributes like partnership and flexibility to facilitate the antecedents of the entrepreneurs to build a better cluster support system (b) resource orientation and customer orientation within the cluster level facilitates positively to develop geographical orientation and (c) To identify the impact of Antecedents Industry Experience Market – Orientation on the competition. The study involved 64 Firms of two clusters i.e. Hubli-Dharawad Auto-component Cluster and Belgaum Foundry Cluster.
Keywords: High-Tech Clusters, Effectuation, Antecedents, MSMEs.

Introduction:

Both clusters and entrepreneurship are well-known among academics and policymakers because they result from similar historical circumstances. Resurgence and its alleged effects on employment would demonstrate their economic significance. In practice, clusters and entrepreneurship are complex phenomena that defy definition, undermining theory development and testing. Researchers studied specific types of clusters by using established small and medium-sized businesses (focus on size) as the unit of analysis rather than entrepreneurship (focus on new firms). The word effectuation and Latin root effect mean "to bring about" (The American Heritage Dictionary of the English Language, 2000). While the terms cause' and 'bringing about' differ slightly, the causal model explains that what entrepreneurs do is vastly different from what the effective model entails. Entrepreneurs that move causally frequently create an entrepreneurial strategy that includes an environmental evaluation, marketing research, financial preparations, and a documented company plan (Kuratko, 2008).

On the other hand, effectual entrepreneurs usually reject these formal frameworks in favour of an alternate logic and set of behaviours as the foundation for entrepreneurial action. On the other hand, a successful process is iterative and non-determinative rather than linearly oriented toward a specified objective. Environmental and marketing research may be neglected, financial planning is reduced to determining how much one can afford to lose, and the business strategy may be postponed or entirely replaced by a developing business opportunity and an ever-changing cast of stakeholders. This paper explores the impact of effectual behaviour on MSMEs in a Cluster environment in the Indian Industrial MSME Clusters Context. Total 64 MSMEs were Selected from Hubli-Dharwad Auto Component Cluster and Belgaum Foundry Cluster, Karnataka State.

Review of Literature

Cluster and High-Tech Clusters:

Since independence, one of the critical pillars of India's economic growth strategy has been creating Small-Scale Industries (SSI). Because of its significant contribution to output, exports, and employment, the SSI sector is now vital in the Indian economic system. (Bala Subrahmanya, 2005). Small-to-medium-sized companies (SMEs) attempt to build various forms of interfirm alliances that provide them with bundles of resources and network security to survive and flourish in twenty-first-century global network economies. As a result, developing and managing a lucrative and diversified alliance portfolio has emerged as a critical strategic problem for SMEs. (Tokman et al., 2020).

Clusters, defined as spatial concentrations of interconnected enterprises, specialised suppliers, service providers, firms in related industries, and affiliated institutions, have received much attention in the academic literature (Wennberg & Lindqvist, 2010). Industrial clusters, which foster innovation, encourage the networking of companies and related organisations in a given geographic region, allowing firms to mobilise resources. (Chandrashekar & Hillemane, 2018). A high-tech cluster characterized by a complex technology or innovation has been defined as a collection of firms and affiliated institutions co-located in a certain region that are mutually connected, complementary, and/or competing in the sphere of high-technology industries" (Wang and Yang, 2012).

Lin, Tung, and Huang (2006) elaborate on the system dynamics methodologies to search the elements which effect the industrial cluster consequences, which is essential in defining the economic benefits of national and business advantage. This review of the literature finds fewer investigations that use system dynamics to find factors affecting the industrial cluster consequences. The competition in the global business atmosphere is not only between stand-alone companies and supply chains but also among the businesses in regional clusters. The study creates a dynamic model of different elements of industrial cluster consequence through the causal loop diagram, which is also known as the cause-and-effect chain.

Boschma, Eriksson, and Lindgren (2009) delved into the effect of expertise collection and labour flexibility on plant performance applying an exceptional database which links the characteristics of individuals to geographies of plants for the entire Swedish economy. It was found that a collection of connected proficiencies at the level of plant considerably increase the development of the plants, compared to plant collections composed of either related or

unrelated skill. The study analysed 101,093 jobs, which resulted that entries of expertise that are similar to the existing information of the plant being found to be positive for the performance of the plant, whereas the entries of new employees with the knowledge already existed in the plant had an adverse effect. The analysis also illustrates that geographical proximity impacts the consequences of diverse skill entries.

There are regions, where industrial conditions have influenced cluster formation. The studies of Porter (2007) have found that the innovativeness of a nation makes it competitive in the business. On the other hand, a nation's innovative experience is based on three combinations of factors: (i) the strength of linkages between interconnected industries, (ii) common innovation infrastructure, and (iii) support of cluster-specific conditions. There are four determinants which are cluster-specific. According to the study of Porter (1999) on the topic "The New Challenge to America's prosperity: Findings from the Innovation Index" the first determinant was the fulfilment of positive input conditions, such as an adequate number of highly skilled human resources, would require primary research infrastructures such as universities, good quality information infrastructure and funds for investment purposes. The second determinant according to Porter (1999) was the rivalry and the context of the firm's strategy. The firm's context was influenced by whether an investment in innovation was motivated and whether there was vigorous competition between the local rivals. The third determinant focused on by Porter (1999) was the demand conditions. He stated that when there is a demand from local customers, the firms should be innovative and aggressive to face future demand. Lastly, the fourth determinant according to Porter (1999) was the condition of similar and supportive industries. He asserted that industry clusters and integrated businesses had a competitive advantage. Further, Debresson (1996) studied that according to what innovation came into being from normal economic activities and stated that despite the economic conditions, the time needed to permit the innovative agents and innovative actors to intensify their business movements. Certain innovative agents like government policy and wealth may need time duration to attain certain objectives.

Marshell 2003 holds that the advantages of clusters can be achieved from the partnership of firms, as competition was natural. On the other hand, present theories of clusters focus mainly on actions taken together. The study emphasises on the differences between the method of competition and cooperation in the clusters, by analysing various similar literatures. The differences have enhanced the applications for the type and measure of public policy.

The study conducted by Sarasvathy and Kotha 2001 state that in the effectual decision model, entrepreneur give emphasis on, "what we can do", starting with a what is there in hand and aims to invent new products with the present things The founders of the popular ice cream brand "Ben and Jerry´s", were successful in their venture, have used non-forecasting plans such as the means-driven principle to create new corner which was successful and profit oriented (Sarasvathy et. al., 2003). Sarasvathy et al, 2003 stated that the founders of "Ben and Jerry´s"launched an ice-cream shop, with no big investment, the reason was only that they knew how to prepare ice cream simply. It was their initial knowledge which helped them to start the business. They had no money to pay their stakeholders, instead they paid them with coupons for free icre cream. Ben and Jerry launched a new idea of starting business, they

introduced their company with the knowledge of who they were, what they knew and whom they knew, and they created network of faithful stakeholders interested to cooperate them in their business (Sarasvathy et. al., 2003). According to Dew et al, Sarasvathy's analysis of effectuation was pursued by many similar researches on effectuation. Dew (2003) highlighted on of new market formation, influenced the procedure model of effectuation, adopting historical and interview data. Subsequently, investigations by Gustavsson (2004) and Dew et al. (2006), continued the analysis on entrepreneurial expertise, and assured that efficient entrepreneurs proved notable dissimilarities in comparision to control groups, and they also encouraged the concept that factors of effectuation are essential despite of personality characteristics. Subsequently, Harmeling et al. (2004); Sarasvathy and Kotha (2001) and Harting (2004) conducted investigations and revealed that the effectual decision-making logic was found in many past event of new ventures. Additionally, a meta-analysis by Read and Song (2007) investigated by meta-analysis and created notable linkage among three core effectual elements, such as means-orientation, stakeholder partnering and contingency leveraging and new business. Dew et al. (2008) suggested a behavioral theory of the entrepreneurial firm, where they have introduced new undertakings from the researchers of entrepreneurial expertise to create a structure of a model of entrepreneurial firms behavior, which stresses on invention of new markets by modifying present realities, instead continuing with the existing markets They states that the decisions makers functions under the course of the "design" but not on "discovery, they stress on inventions instead of exploring in existing opportunities, thus they manage and convert their situations.

Research GAP:

1. Attempt also have been made to review the effectual behaviour of entrepreneur on marketing strategies, we studied the entrepreneur's effectual logic as the entrepreneurial abilities, their knowledge, and their connections. Expert entrepreneurs use these assets at the initial stage of the business, which is well explained in the literature as "*Bird in Hand"*. Entrepreneurs concentrate on expected loss which they can effort in a new venture, which is termed as "*Affordable loss".* The use of "*Lemonade Principle*", this principle explained about the flexible nature of the entrepreneurs, how they utilise the alternate opportunity during crises. The next behaviour of an entrepreneur is "*Patchwork Quilt*", which is found to be a nature of proficient entrepreneur where they use networking to enhance the business and they chose their business partners by interacting with different people with the same venture and takes their commitments in an advance to minimise the risk in future. Expert entrepreneurs focus on the activities in which they have their control and have knowledge of the result, and this behaviour is termed as "*Controlling the Future-Pilot in Plane*".

2. Furthermore, an elaborate attempt has not been made so far to determine the Effectual behaviour on cluster characteristics.

Research Methodology:

The Research is Exploratory in Nature. The population considered for the study consists of Micro, Small and Medium Enterprises associated with Hubballi-Dharwad Auto-

Component Cluster, Hubballi and Belgaum Foundry Cluster, Belagavi. The Size of the total population is 102 Micro, Small and Medium Enterprises associated with two clusters. Data has been collected form 64 Entrepreneurs using Stratified Random Sampling Technique for better Validation Statistical Analysis.

Table 1: Sampling Details:

Cluster	Micro Enterprises	Small Enterprises	Medium Enterprises	Total
HDAC	14	16	2	32
BFC	8	18	7	32
	22	34	9	64

The population considered for the study consists of Micro, Small and Medium Enterprises associated with Hubballi-Dharwad Auto-Component Cluster, Hubballi and Belgaum Foundry Cluster, Belagavi. The Size of the total population is 102 Micro, Small and Medium Enterprises associated with two clusters. Data has been collected form 64 Entrepreneurs using Stratified Random Sampling Technique and Factor Analysis and Regression Analysis are used as statistical tools.

1. ***Hypothesis – Antecedent's of entrepreneurship in a cluster system is positively influenced by the effectual behaviour attributes like partnership and flexibility***

Ho: $\beta1\ (X) = \beta2\ (Y) = 0$

Ha: $\beta1 \neq \beta2 \neq 0$

A multiple regression was computed to determine whether Effectual Behaviour partnership and Flexibility could significantly predict Antecedents of entrepreneur in a cluster support system. Table 1 below shows the results of regression model.

Table 2: Showing the model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	F	Sig.
0.594	0.353	0.331	.81821815	1.318	15.564	0.000

Predictors: (Constant), Effectual Behaviour partnership and Flexibility

Dependent Variable: Antecedents of entrepreneur

From the above table 35% of the variance in the data can be explained by the predictor variables (Effectual Behaviour partnership and Flexibility). The table 2 below shows results of the overall model and tells us the extent of degree in which the Effectual Behaviour partnership and Flexibility variables contributes to the antecedents of entrepreneur. The observed correlation (r) is statistically significant. The results of the regression indicated that the model explained 33.3% of the variance and that the model was a significant predictor Antecedents of entrepreneur, $F\ (2,57) = 15.564$, $p = .001$.

Table 3: Shows the results of the standardised coefficients

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.

		B	Std. Error	Beta		
	(Constant)	-1.001E-013	.106		.000	1.000
	Effectual Behaviour partnership	.462	.108	.462	4.280	0.000**
	Effectual Behaviour - Flexibility	.458	.108	.458	4.241	0.000**
Dependent Variable: Antecedents of entrepreneur						

The table 2 below shows results of the standardised coefficients. By reading across the rows for each of the predictor variables, we can see that Effectual Behaviour partnership significantly contributed to the model (t= 4.280 p=.00) and Effectual Behavior – Flexibility (t =. .4.241, p0.00). The column of the table 3 provides the unstandardized beta coefficients for the model (the B values). This value tells the direction of relationship between the outcome and predictor variables, which means direction of relationship with respect to Antecedents of entrepreneur and effectual behaviour (partnership and flexibility). Since the observed Unstandardized Coefficients is positive, so are the relationships. This indicates that there is significant positive association between the effectual behaviour attributes like partnership and flexibility to facilitate the antecedents of entrepreneur to build a better cluster support system.

The antecedents' key factors include training centre for entrepreneurs, transportation facilities, common facility centre to assist business related activities and surrounded by industrial cluster if the effects of the other variables are held constant.

- Effectual behaviour-partnership (B1 = .4.62, p 0.00): as the effectual behaviour increases by one unit of influences higher on the antecedents of entrepreneur towards building cluster support system by 0.462 units.
- Effectual Behaviour on Flexibility (B2 = .458, p 0.00): as effectual behaviour increased by one unit influences higher on the antecedents of entrepreneur towards building the cluster support system by 0.458 units.

The final predictive model explaining the ***Antecedents of Entrepreneur = -1.001E-013. + (.462* Effectual Behaviour partnership) + (.458* Effectual Behaviour - Flexibility) with R^2 of 33.3%***.In other words, the results can be interpreted as effectual behaviour of partnership and flexibility positively facilitates to help the entrepreneurs on recent developments of the industry. to develop training Centre which provides training to entrepreneurs and employees on recent technologies, to invest Common Facility Centre which helps to my business-related activities.

Hypothesis 2 - ***Geographical Orientation in a cluster system is positively influenced by the competition effectual behaviour partnership, market orientation and customer orientation***

A multiple regression was computed to determine whether effectual behaviour partnership, market orientation and customer orientation influences the Geographical orientation in the cluster system. Table 1 below shows the summary of the model

Table 4: Showing the model summary

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	F	Sig.
0.751	0.563	0.532	.6843714 9	2.086	17.743	0.000**

From the above table 53% of the variance in the data can be explained by effectual behaviour partnership, market orientation and customer orientation. The table 2 below shows results of the overall model and tells us the degree to which the effectual behaviour partnership, market orientation and customer orientation contributes to the Geographical orientation. The observed correlation (r) is statistically significant. The results of the regression indicated that the model explained 53.2% of the variance and that the model was a significant predictor Geographical orientation, F (4,55) = 17.743, p = .001.

Table 5: Shows the results of the standardised coefficients

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.001E-013	.088		.000	1.000
Starting with Means of Effectual Behaviour – Resource Orientation	.392	.091	.392	4.284	0.000**
Starting with Means- Effectual Behaviour – partnership orientation	-.305	.094	-.305	-3.231	0.002**

	Antecedents -Industry Experience Market – Orientation	-.312	.093	-.312	-3.346	0.001**
	Antecedents -Industry Experience Customer Orientation	.275	.093	.275	2.968	0.004**

The table 4 above shows results of the standardised coefficients. By reading across the rows for each of the predictor variables, we can see that Starting with Means of Effectual Behaviour – Resource Orientation (t=4.284 p=.00) Starting with Means of Effectual Behaviour – partnership orientation (t= -3.231 p=.002), Antecedents of Industry Experience Market - Orientation (t = - 3.341, p=0.002) and Customer Orientation (t=-2.968 p=0.004) significantly contributed to the model. The beta value tells the direction of relationship between the outcome and predictor variables, which means direction of relationship with respect to effectual behaviour partnership, market orientation and customer orientation on Geographical orientation.

We have observed Unstandardized Coefficients positive with Means of Effectual Behaviour – Resource Orientation and customer orientation of entrepreneur with geographical orientation, were as effectual behaviour partnership orientation and market orientation has a negative association with Geographical orientation. This indicates that market orientation and partnership is not a favourable factor to developing geographical orientation towards building cluster support systems. This draws research interest and future research implication. Further the result indicates that resource orientations like common facility centres, labour availability and customer orientation within the cluster level facilitates positively to develop geographical orientation.

The key factors of geographical orientation are Innovative, ability to build own brand in competition with small industries in the cluster, good transportation facilities to access raw material in creating or developing new products, Surrounded by Banks and other Financial Institutions and hassle-free loan facilities. if the effects of the other variables are held constant

- As the Effectual behaviour-partnership (B2 =-3.231, p 0.01)increases by one unit diminishes geographical orientation by 0.323 units, and Market Orientation (B3= -3.346, 0.01) increases by one unit diminishes geographical orientation by 0.343 units respectively
- As the resource orientation (B1 =4.284, p 0.00) increased by one-unit influences to boost on geographical orientation inbuilding cluster support system by 0.428 units and as the Customer orientation (B4=2.968, p=0.04) increased by one-unit influences to boost on geographical orientation toward building cluster support system by 2.968 units respectively

The final predictive model explaining the Geographical Orientation is = ***1.001E-013. + (.392*Means of Effectual Behaviour – Resource Orientation) + (. -305*Effectual Behaviour partnership orientation) + (-.312* Antecedents -Industry Experience Market Orientation Market Orientation) + (0.275* Antecedents -Industry Experience Market Orientation Customer Orientation) with R^2 of 53.2%.***

Hypothesis 3 – ***Competition level in clusters has positively influenced by the Antecedents - Industry Experience Market - Orientation***

A multiple regression was computed to determine Antecedents -Industry Experience Market Orientation market could significantly predict competition in cluster. Table 1 below shows the summary of the model. From the model it is clear that only >1% of the variance in the data can be explained by competition.

Table 6: Showing the model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	F	Sig.
0.329	0.108	0.093	0.95257054	1.503	7.022	0.010**

The table 6 below shows results of the overall model and tells us the degree to which the Antecedents -Industry Experience Market contributes to the Competition. The observed correlation (r) is statistically significant. The results of the regression indicated that the model explained >1% of the variance and that the model was a significant predictor Geographical orientation, F (1,58) = 7.022, p = .001

Table 7: Shows the results of the standardised coefficients

Variables		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	1.002E-013	.123		.000	1.000
	Antecedents -Industry Experience Market - Orientation	.329	.124	.329	2.650	0.010**
Dependent Variable: Competition						

The table 3 above shows results of the standardised coefficients. From the table we can see that Antecedents -Industry Experience Market - Orientation (t=2.650 p=.01) significantly

contributed to the model. The final predictive model explaining the Competition is = ***1.002E-013+ (.329)*** *antecedents Industry Experience Market ***with R^2 of <0.1%.*** The beta value tells the direction of relationship between the outcome and predictor variables, which means direction of relationship between the competition and antecedents Industry Experience Market – Orientation. We have observed Unstandardized Coefficients positive with antecedents Industry Experience Market – Orientation with competition. As the Industry experience (B1 =3.239, p 0.01) increases by one unit enhance the competition level by 0.329 units.

Discussion

A. Antecedent's of entrepreneurship

Drawing findings from a German pilot study on Cluster role in industry 4.0 confirmed that clusters offer conducive environment facilitating the emergence, testing, and development of I4.0 specific solutions. Study highlighted the need of more flexible attitude which perceives errors as valuable lessons, need for higher flexibility in situation of different local environments and the unprecedented uncertainty involved in digital transformation in the current the business models have to be adequately adjusted (2020).

B. Geographical Orientation

The results can be interpreted as resource and customer orientation positively facilitates to help the entrepreneurs to build their own brand in this cluster and innovate new business ideas. Whereas effectual behaviour partnership and market orientation negatively influences entrepreneurs act as a barrier to entry of new firms, access to raw materials for new products. Which is line with the study on Innovation obstacles in an emerging high-tech sector by Lachman, Jeremias, and Andrés López. (2019). The study showed that the market and cost factors negatively affect firms' growth and innovation, while institutional obstacles reduce the amount of innovation efforts.

With respect to the positive association of customer and resource orientation to geographical orientation. In a study on Linking entrepreneurial and market orientation to the SME's performance growth by Presutti, M., & Odorici, V. (2019) suggested that SMEs, which develop social networks, may enjoy considerable advantages from entrepreneurial and market orientation, improving their performance benefits. Emphasis role social networking directing towards customer orientation shows a positive impact of entrepreneurial and market orientation on firms' performance growth. (Presutti, M., & Odorici, V., 2019). It was determined that market and cost factors negatively affect firms' growth, while institutional obstacles reduce the amount of innovation efforts Presutti, M., & Odorici, V. (2019).

Adding to this a study using phenomenological approach and Creswell model analysis, Sulistiyani, R., & Harwiki, W. (2016) investigated how SME build innovation capability based on knowledge sharing behaviour, the study revealed that attitude of toward knowledge sharing behaviour is addressed as a spirit to move forward, obligation, sharing and embedded value towards customers from the SME owners. The perceived behaviour knowledge was determined by learning together, willingness and understanding together. In the case Karnataka cluster, it clearly indicates that customer orientation and knowledge sharing together enables SME to

take advantage of geographical factors in enhancing the cluster support systems. (Sulistiyani, R., & Harwiki, W., 2016). Sulistiyani, R., & Harwiki, W. (2016).

C. Competition

Though observed R^2 is less than the marginal but we cannot overlook at this observation, rather in draws research attention that why this marginal influence of competition on Industry Experience Market – Orientation. According to Porter's (1999) findings from the Innovation Index" indicated that one of determinants was the rivalry and the context of the firm's strategy. The firm's context was influenced by whether investment in innovation was motivated and whether there was a vigorous competition between the local rivals. Further Tung, and Huang (2006) emphasised how competition in the global business atmosphere is not observed only between stand-alone companies and supply chains, but also in regional clusters. This was not here in the case of Karnataka cluster.

Adding to this a study using phenomenological approach and Creswell model analysis, Sulistiyani, R., & Harwiki, W. (2016) investigated how SME build innovation capability based on knowledge sharing behaviour, the study revealed that attitude of toward knowledge sharing behaviour is addressed as a spirit to move forward, obligation, sharing and embedded value towards customers from the SME owners. The perceived behaviour knowledge was determined by learning together, willingness and understanding together. In the case Karnataka cluster, it clearly indicates that customer orientation and knowledge sharing together enables SME to take advantage of geographical factors in enhancing the cluster support systems. (Sulistiyani, R., & Harwiki, W., 2016). Further in a comparative study by Gustavsson (2004) and Dew et al. (2006), which they found that entrepreneurial expertise and efficient entrepreneurs have notable dissimilarities and also encouraged the concept that factors of effectuation are essential despite of personality characteristics along with competition.

Conclusion

The objective of the study is to determine the Impact of affectual behaviour and cluster characteristics on entrepreneurial firms from High-tech cluster of Karnataka, India. The results shows that the(a) This indicates that there is significant positive association between the effectual behaviour attributes like partnership and flexibility to facilitate the antecedents of entrepreneur to build a better cluster support system (b) the result indicates that resource orientation and customer orientation within the cluster level facilitates positively to develop geographical orientation and (c) Antecedents Industry Experience Market – Orientation with has positive impact on competition.

References:

Brockman, B. K., Jones, M. A., & Becherer, R. C. (2012). *Brockman2012*. *50*(3), 429–446.

Alecke, B., Alsleben, C., Scharr, F., & Untiedt, G. (2006). Are there really high-tech clusters? The geographic concentration of German manufacturing industries and its determinants. *Annals of Regional Science*, *40*(1), 19–42. https://doi.org/10.1007/s00168-005-0014-x

Dawson, C., & Henley, A. (2015). Gender, Risk, and Venture Creation Intentions. *Journal of Small Business Management*, *53*(2), 501–515. https://doi.org/10.1111/jsbm.12080

Liñán, F., Paul, J., & Fayolle, A. (2020). SMEs and entrepreneurship in the era of globalization: advances and theoretical approaches. *Small Business Economics*, *55*(3), 695–703. https://doi.org/10.1007/s11187-019-00180-7

Rocha, H. O., & Sternberg, R. (2005). Entrepreneurship: The role of clusters theoretical perspectives and empirical evidence from Germany. *Small Business Economics*, *24*(3), 267–292. https://doi.org/10.1007/s11187-005-1993-9

Asia, E. (2015). *Promoting Industrial Clusters: Review of Experiences and India*.

Martina, R. A. (2020). Toward a theory of affordable loss. *Small Business Economics*, *54*(3), 751–774. https://doi.org/10.1007/s11187-019-00151-y

Porter, M. E. (2008). Clusters and Competition. *On Competition, Updated and Expanded Edition*, 213–304.

Keh, H. T., Foo, M. Der, & Lim, B. C. (2002). ean Tat Keh; Maw Der Foo; Boon Chong Lim (2002) Opportunity evaluation under risky conditions the cognitive processes of entrepreneurs. ETP. *Entrepreneurship Theory and Practice*, 125–148.

Agogué, M., Lundqvist, M., & Middleton, K. W. (2015). Mindful Deviation through Combining Causation and Effectuation: A Design Theory-Based Study of Technology Entrepreneurship. *Creativity and Innovation Management*, *24*(4), 629–644. https://doi.org/10.1111/caim.12134

Grewal, R., Chandrashekaran, M., Johnson, J. L., & Mallapragada, G. (2013). Environments, unobserved heterogeneity, and the effect of market orientation on outcomes for high-tech firms. *Journal of the Academy of Marketing Science*, *41*(2), 206–233. https://doi.org/10.1007/s11747-011-0295-9

Weekly, P. (2013). *and Globalisation Prospects*. *39*(18), 1826–1834.

Kerr, W. R., & Robert-Nicoud, F. (2019). Tech Clusters. *SSRN Electronic Journal*, *34*(3), 50–76. https://doi.org/10.2139/ssrn.3491774

Sudhir Kumar, R., &Bala Subrahmanya, M. H. (2010). Influence of subcontracting on innovation and economic performance of SMEs in Indian automobile industry. *Technovation*, *30*(11–12), 558–569. https://doi.org/10.1016/j.technovation.2010.06.005

Porter, M. E. (2007). Clusters and Economic Policy: Aligning Public Policy with the New Economics of Competition. *Business*, *November*, 1–12. http://www.isc.hbs.edu/pdf/Clusters_and_Economic_Policy_White_Paper.pdf

Sunny, S. A., & Shu, C. (2019). Investments, incentives, and innovation: geographical clustering dynamics as drivers of sustainable entrepreneurship. *Small Business Economics*, *52*(4), 905–927. https://doi.org/10.1007/s11187-017-9941-z

Moretti, E. (2019). The Effect of High-Tech Clusters on the Productivity of Top Inventors. *NBER Working Paper*, *12610*, No. 26270. http://www.nber.org/papers/w26270

Zhao, Y., Zhou, W., Hüsig, S., & Vanhaverbeke, W. (2010). Environment, network interactions and innovation performance of industrial clusters: Evidences from Germany, The Netherlands and China. *Journal of Science and Technology Policy in China*, *1*(3), 210–233. https://doi.org/10.1108/17585521011083111

Capó-Vicedo, J., Expósito-Langa, M., & Molina-Morales, F. X. (2008). Improving SME competitiveness reinforcing interorganisational networks in industrial clusters. *International Entrepreneurship and Management Journal*, *4*(2), 147–169. https://doi.org/10.1007/s11365-007-0059-7

Moretti, E. (2021). Non-Climate but Interesting - The Effect of High-Tech Clusters on the Productivity of Top Inventors (Location of inventors). *NBER Working Paper*, *12610*, No. 26270. http://www.nber.org/papers/w26270

Zhu, X., Liu, Y., He, M., Luo, D., & Wu, Y. (2019). Entrepreneurship and industrial clusters: evidence from China industrial census. *Small Business Economics*, *52*(3), 595–616. https://doi.org/10.1007/s11187-017-9974-3

Perry, J. T., Chandler, G. N., & Markova, G. (2012). Entrepreneurial Effectuation: A Review and Suggestions for Future Research. *Entrepreneurship: Theory and Practice*, *36*(4), 837–861. https://doi.org/10.1111/j.1540-6520.2010.00435.x

Rocha, H. O. (2004). Entrepreneurship and development: The role of clusters. *Small Business Economics*, *23*(5), 363–400. https://doi.org/10.1007/s11187-004-3991-8

Bodlaj, M. (2010). The impact of a responsive and proactive market orientation on innovation and business performance. *Economic and Business Review*, *12*(4), 241–261.

Joshi, M. P., Das, S. R., & Mouri, N. (2015). Antecedents of innovativeness in technology-based services (TBS): Peering into the black box of entrepreneurial orientation. *Decision Sciences*, *46*(2), 367–402. https://doi.org/10.1111/deci.12126

van Dijk, M. P. (1995). Flexible specialisation, the new competition and industrial districts. *Small Business Economics*, *7*(1), 15–27. https://doi.org/10.1007/BF01074313

He, J., & Fallah, M. H. (2011). The typology of technology clusters and its evolution - Evidence from the hi-tech industries. *Technological Forecasting and Social Change*, *78*(6), 945–952. https://doi.org/10.1016/j.techfore.2011.01.005

Dhewanto, W., Prasetio, E. A., Ratnaningtyas, S., Herliana, S., Chaerudin, R., Aina, Q., Bayuningrat H., R., & Rachmawaty, E. (2012). Moderating Effect of Cluster on Firm's Innovation Capability and Business Performance: A Conceptual Framework. *Procedia - Social and Behavioral Sciences*, *65* (ICIBSoS), 867–872. https://doi.org/10.1016/j.sbspro.2012.11.212

Coviello, N. E., & Munro, H. J. (1995). Growing the entrepreneurial firm. *European Journal of Marketing*, *29*(7), 49–61. https://doi.org/10.1108/03090569510095008

Alsos, G. A., Clausen, T. H., Mauer, R., Read, S., & Sarasvathy, S. D. (2020). Effectual exchange: from entrepreneurship to the disciplines and beyond. *Small Business Economics*, *54*(3), 605–619. https://doi.org/10.1007/s11187-019-00146-9

Constantine, B. (2016). Of Competition. *Prairie Schooner*, *89*(4), 118–120. https://doi.org/10.1353/psg.2016.0022

Goetz, S. J., & Rupasingha, A. (2002). Agricultural & Applied Economics Association High-Tech Firm Clustering : Implications for Rural Areas Author (s): Stephan J . Goetz and Anil Rupasingha Source : American Journal of Agricultural Economics , Vol . 84 , No . 5 , Proceedings Issue Published. *American Journal of Agricultural Economics*, *84*(5), 1229–1236.

Galkina, T., & Lundgren-Henriksson, E. L. (2017). Coopetition as an entrepreneurial process: Interplay of causation and effectuation. *Industrial Marketing Management*, *67*(September), 158–173. https://doi.org/10.1016/j.indmarman.2017.09.004

Harms, R., Alfert, C., Cheng, C. F., & Kraus, S. (2021). Effectuation and causation configurations for business model innovation: Addressing COVID-19 in the gastronomy industry. *International Journal of Hospitality Management*, *95*(January), 102896. https://doi.org/10.1016/j.ijhm.2021.102896

Block, J., Sandner, P., & Spiegel, F. (2015). How do risk attitudes differ within the group of entrepreneurs? The role of motivation and procedural utility. *Journal of Small Business Management*, *53*(1), 183–206. https://doi.org/10.1111/jsbm.12060

Lee, H., Kelley, D., Lee, J., & Lee, S. (2012). SME survival: The impact of internationalization, technology resources, and alliances. *Journal of Small Business Management*, *50*(1), 1–19. https://doi.org/10.1111/j.1540-627X.2011.00341.x

Tolstoy, D., Nordman, E. R., Hånell, S. M., & Özbek, N. (2021). The development of international e-commerce in retail SMEs: An effectuation perspective. *Journal of World Business*, *56*(3). https://doi.org/10.1016/j.jwb.2020.101165

Hauser, A., Eggers, F., & Güldenberg, S. (2020). Strategic decision-making in SMEs: effectuation, causation, and the absence of strategy. *Small Business Economics*, *54*(3), 775–790. https://doi.org/10.1007/s11187-019-00152-x

Bellotti, E., Guadalupi, L., & Conaldi, G. (2016). Comparing Fields of Sciences: Multilevel Networks of Research Collaborations in Italian Academia. In *Multilevel Network Analysis for the Social Sciences*. https://doi.org/10.1007/978-3-319-24520-1_9

PIEPER, D.-K. U. (1996). Competing for the future. *R&D Management*, *26*(2), 183–184. https://doi.org/10.1111/j.1467-9310.1996.tb00945.x

Götz, M. (2021). Cluster role in industry 4.0 – a pilot study from Germany. *Competitiveness Review*, *31*(1), 54–82. https://doi.org/10.1108/CR-10-2019-0091

Berends, H., Jelinek, M., Reymen, I., & Stultiëns, R. (2014). Product innovation processes in small firms: Combining entrepreneurial effectuation and managerial causation. *Journal of Product Innovation Management*, *31*(3), 616–635. https://doi.org/10.1111/jpim.12117

Romero-Martínez, A. M., & Montoro-Sánchez, Á. (2008). How clusters can encourage entrepreneurship and venture creation. Reasons and advantages. *International Entrepreneurship and Management Journal*, *4*(3), 315–329. https://doi.org/10.1007/s11365-008-0079-y

Kotabe, M., Mol, M. J., Murray, J. Y., & Parente, R. (2012). Outsourcing and its implications for market success: Negative curvilinearity, firm resources, and competition. *Journal of the Academy of Marketing Science*, *40*(2), 329–346. https://doi.org/10.1007/s11747-011-0276-z

McKelvie, A., Chandler, G. N., DeTienne, D. R., & Johansson, A. (2020). The measurement of effectuation: highlighting research tensions and opportunities for the future. *Small Business Economics*, *54*(3), 689–720. https://doi.org/10.1007/s11187-019-00149-6

Presutti, M., & Odorici, V. (2019). Linking entrepreneurial and market orientation to the SME's performance growth: the moderating role of entrepreneurial experience and networks. *International Entrepreneurship and Management Journal*, *15*(3), 697–720. https://doi.org/10.1007/s11365-018-0533-4

Brown, P., McNaughton, R. B., & Bell, J. (2010). Marketing externalities in industrial clusters: A literature review and evidence from the Christchurch, New Zealand electronics cluster. *Journal of International Entrepreneurship*, *8*(2), 168–181. https://doi.org/10.1007/s10843-010-0053-y

Porter, M. E. (2000). Location, competition, and economic development: Local clusters in a global economy. *Economic Development Quarterly*, *14*(1), 15–34. https://doi.org/10.1177/089124240001400105

Chandrashekar, D., & Hillemane, B. S. M. (2018). Absorptive capacity, cluster linkages, and innovation: An evidence from Bengaluru high-tech manufacturing cluster. *Journal of Manufacturing Technology Management*, *29*(1), 121–148. https://doi.org/10.1108/JMTM-05-2017-0087

D, U. D. O. D., Ri, V., Frp, W., Whfk, D. K., Edvhg, V., Dplqhg, E. H., Lq, H. W., Sdvw, W. K. H., Ri, F., Qdwxuh, G. Q., Vpdoo, R. I., Vxuylydo, E., Jurzwk, D. Q. G., Sodlq, W. H., Jurzwk, W. K. H., Vpdoo, R. I., Ilup, V., Dqg, V., &Hqylurqphqw, H. W. (2014). *+ RZ D RHV E IIHFWXDO L RJLF I PSDFW S XUYLYDO RI H LJK WHFK S WDUWXSV LQ DQ Emerging E FRQRP \" (YLGHQFH IURP WHVWV FRP C DVH S WXG* \. 230–235.

Krishna, H. (2015). Transnational Entrepreneurship and Indian High-Tech Start-Up Survival: An Empirical Investigation [Dagger]. *South Asian Journal of Management*, *22*(2), 81.

Ajith, P., Madhani, P. M., Maheshwari, N., Pinto, P., Guruprasad, K., Talwar, S., Bhattacharya, N. G.-, Saxena, S., Chadha, N., Mathew, M., Gupta, K. S., Arora, N., Gupta, A., Irisappane, A., Sundar, V., Sinha, A., & Kothari, T. P. (2015). *of Indian Management*.

Brettel, M., Bendig, D., Keller, M., Friederichsen, N., & Rosenberg, M. (2014). Effectuation in manufacturing: How entrepreneurial decision-making techniques can be used to deal with uncertainty in manufacturing. *Procedia CIRP*, *17*, 611–616. https://doi.org/10.1016/j.procir.2014.03.119

Chandrashekar, D., & Bala Subrahmanya, M. H. (2019). Exploring the factors of cluster linkages that influence innovation performance of firms in a cluster. *Economics of Innovation and New Technology*, *28*(1), 1–22. https://doi.org/10.1080/10438599.2017.1384102

Chandrashekar, D., & Bala Subrahmanya, M. H. (2017). *Does Patent Activity Affect Firm-level Innovation and Firm Performance in a Cluster ? An Evidence from Bengaluru High-tech Manufacturing Cluster*. *December*, 13–24.

Bala Subrahmanya, M. H. (2015). Innovation and growth of engineering SMEs in Bangalore: Why do only some innovate and only some grow faster? *Journal of Engineering and Technology Management - JET-M*, *36*, 24–40. https://doi.org/10.1016/j.jengtecman.2015.05.001

Bala Subrahmanya, M. H. (2005). Small-scale industries in India in the globalisation era: performance and prospects. *International Journal of Management and Enterprise Development*, *2*(1), 122–139. https://doi.org/10.1504/ijmed.2005.006034

H Bala Subrahmanya, M. (2017). Comparing the Entrepreneurial Ecosystems for Technology Startups in Bangalore and Hyderabad, India. *Technology Innovation Management Review*, *7*(7), 47–62. https://doi.org/10.22215/timreview1090

Bala Subrahmanya, M. H. (2005). Technological innovations in Indian small enterprises: Dimensions, intensity and implications. *International Journal of Technology Management*, *30*(1–2), 188–204. https://doi.org/10.1504/IJTM.2005.006350

BalaSubrahmanya, M. H. (2007). Development strategies for Indian SMEs: Promoting linkages with global transnational corporations. *Management Research News*, *30*(10), 762–774. https://doi.org/10.1108/01409170710823476

Bala Subrahmanya, M. (2017). How did Bangalore emerge as a global hub of tech start-ups in India? Entrepreneurial ecosystem -Evolution, structure and role. *Journal of Developmental Entrepreneurship*, *22*(1), 1–22. https://doi.org/10.1142/S1084946717500066

Bala Subrahmanya, M. H. (2013). External support, innovation and economic performance: What firm level factors matter for high-tech SMEs? How? *International Journal of Innovation Management*, *17*(5). https://doi.org/10.1142/S1363919613500242

Chandrashekar, D., & Hillemane, B. S. M. (2018). Absorptive capacity, cluster linkages, and innovation: An evidence from Bengaluru high-tech manufacturing cluster. *Journal of Manufacturing Technology Management*, *29*(1), 121–148. https://doi.org/10.1108/JMTM-05-2017-0087

Chandrashekar, D., & Bala, B. S. (2019). Determinants of firm's propensity to patent its inventions: An evidence from Bengaluru high-tech manufacturing cluster. *Competitiveness Review*, *29*(4), 375–400. https://doi.org/10.1108/CR-02-2018-0011

Pan, X., Song, M. L., Zhang, J., & Zhou, G. (2019). Innovation network, technological learning and innovation performance of high-tech cluster enterprises. *Journal of Knowledge Management*, *23*(9), 1729–1746. https://doi.org/10.1108/JKM-06-2018-0371

Lumpkin, G. T., Steier, L., & Wright, M. (2011). in Family Business Business and Strategic. *Strategic Entrepreneurship Journal*, *306*, 285–306. https://doi.org/10.1002/sej

Tokman, M., Mousa, F. T., & Dickson, P. (2020). The link between SMEs alliance portfolio diversity and top management's entrepreneurial and alliance orientations. *International Entrepreneurship and Management Journal*, *16*(3), 1001–1022. https://doi.org/10.1007/s11365-019-00597-2

Qureshi, S., & Mian, S. (2010). Antecedents and outcomes of entrepreneurial firms marketing capabilities: An empirical investigation of small technology based firms. *Journal of Strategic Innovation and Sustainability*, *6*(4), 28.

Bala Subrahmanya, M. H. (2009). Nature and strategy of product innovations in SMEs: A case study-based comparative perspective of Japan and India. *Innovation: Management, Policy and Practice*, *11*(1), 104. https://doi.org/10.5172/impp.453.11.1.104

Delgado, M., Porter, M. E., & Stern, S. (2010). Clusters and entrepreneurship. *Journal of Economic Geography*, *10*(4), 495–518. https://doi.org/10.1093/jeg/lbq010

Wennberg, K., & Lindqvist, G. (2010). The effect of clusters on the survival and performance of new firms. *Small Business Economics*, *34*(3), 221–241. https://doi.org/10.1007/s11187-008-9123-0

Subrahmanya, M. H. B. (2006). Energy intensity and economic performance in small scale bricks and foundry clusters in India: Does energy intensity matter? *Energy Policy*, *34*(4), 489–497. https://doi.org/10.1016/j.enpol.2004.06.016

Harms, R., & Schiele, H. (2012). Antecedents and consequences of effectuation and causation in the international new venture creation process. *Journal of International Entrepreneurship*, *10*(2), 95–116. https://doi.org/10.1007/s10843-012-0089-2

Miles, M. P., & Morrison, M. (2020). An effectual leadership perspective for developing rural entrepreneurial ecosystems. *Small Business Economics*, *54*(4), 933–949. https://doi.org/10.1007/s11187-018-0128-z

Rothgang, M., Dehio, J., & Lageman, B. (2019). Analysing the effects of cluster policy: What can we learn from the German leading-edge cluster competition? *Journal of Technology Transfer*, *44*(6), 1673–1697. https://doi.org/10.1007/s10961-017-9616-6