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## Investigating factors on commercializing ideas: Empirical study on SMEs in food industry

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### ABSTRACT

This paper presents an empirical study to investigate different factors for commercializing ideas in food industry. The study uses structural equation modeling, by designing a questionnaire in Likert scale, and distributes it among 218 randomly selected experts in food industry in city of Tehran, Iran. Cronbach alpha has been calculated as 0.864, which is well above the acceptable level. The study uses structural equation modeling as well as some descriptive tests to examine the hypotheses of the survey. The results confirm that management of ideas, the feasibility of the ideas, market research and advocacy strategies influence the most on commercializing ideas in food industry.

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## 1. Introduction

During the past few years, innovation has been primary key for market development in many countries. Market is witness of facing new innovative products such as Google glass from Google and Iphone from Apple, which have revolutionized the market (Kreiser et al., 2002; Nicholson & de Waal-Andrews, 2005; Gartner, 2007). Many people ask how to develop innovative ideas in one country and present it for world's market. In fact, when entrepreneurs learn more about the factors such as culture (Turró et al. 2013) influencing new product development, they may have a better chance to reach creative ideas (Hayton et al., 2002; Brinkley, 2006). There are several studies on learning more about the method for managing entrepreneurial economies. Audretsch and Thurik (2004), for example, studied the distinction between the models of the managed and entrepreneurial economies. They explained why the model of the entrepreneurial economy (Creswell, 2002; Sarasvathy & Venkataraman, 2011) could be a more appropriate reference than other methods. Hayton et al., (2002) studied entrepreneurship re-emerged as a key agenda item of economic policy-makers across Europe.

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Duane Ireland and Webb (2007) state that most companies face the need to be increasingly nimble and adaptive to have a competitive abilities to survive. They explained strategic entrepreneurship as the necessary tools through which firms concurrently exploit their current competitive advantages while exploring for some existing opportunities. Achieving a balance between exploration and exploitation includes more than merely assigning resources evenly between the two processes. The issue of entrepreneurship has evolved over time and many small business clearly changed (Verheul et al., 2002; Thurik & Wennekers (2004).

In some countries, governments start promoting entrepreneurship activities from high schools at early stages. Soysekerici and Erturgut (2010), for instance, discussed improvement of non-governmental organization entrepreneurship in vocational schools in Turkey. Danaei and Normohammadi (2013) studied the relationship between intellectual capital and organizational entrepreneurship and reported some positive correlation between the two factors. Derakhshandeh (2013) first studied the effect of entrepreneurship on growth of economy over the period 2005- 2011. Then they investigated the effect of four factors including Gross domestic product per worker, Growth in capital per worker, New firm creation and Technological innovation intensity on economic growth. They reported that gross domestic product per worker was the only variable, which was statistically meaningful and the impact of other three variables including growth in capital per worker, new firm creation and technological innovation intensity were not statistically meaningful.

Karimi et al. (2012) performed a comparative study on emotional intelligence and cognitive between successful and unsuccessful entrepreneurs and their survey indicated that emotional intelligence could substantially impact on the success of entrepreneurs. Nasrabadi et al. (2012) explained three entrepreneurship opportunities including universities, technical and vocational centers and women. Universities are capable of educating highly skilled people and send them to business and they have the ability to create new ideas. Technical and vocational centers are, in fact, the best place for training basic or recent advances in technological skills through short term or long term planning. This survey described that women could be considered as a good source of job creation.

## 2. The proposed method

This paper presents an empirical study to investigate different factors for commercializing ideas in food industry. The study uses structural equation modeling, by designing a questionnaire in Likert scale, and distributes it among some randomly selected experts in food industry in city of Tehran, Iran. The population of this survey includes all experts in governmental agencies and the sample size is calculated as follows,

$$N = Z_{\alpha/2}^2 \frac{p \times q}{e^2}, \quad (1)$$

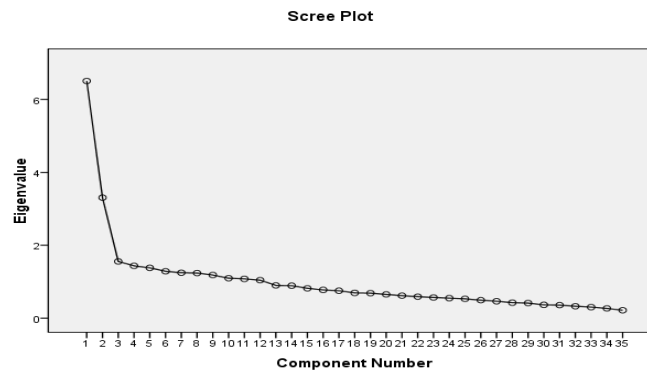
where  $N$  is the sample size,  $p = 1 - q$  represents the probability,  $z_{\alpha/2}$  is CDF of normal distribution and finally  $\varepsilon$  is the error term. For our study we assume  $p = 0.5$ ,  $z_{\alpha/2} = 1.96$  and  $e = 0.05$ , the number of sample size is calculated as  $N = 218$ . Kaiser-Meyer-Olkin Measure of Sampling Adequacy is equal to 0.795. In addition, Bartlett's Test of Sphericity represents a Chi-Square value of 2290.74 with  $df = 703$  and  $Sig. = 0.000$ . Table 1 demonstrates the results of some basic statistics associated with the survey.

The implementation of the proposed study of this paper applies structural equation modelling using LISREL software package and the method sensitive to skewness of the data. According to Table 1, all statistics are within acceptable levels and therefore, there is no need to remove any data from the survey. Table 2 presents preliminary results of our survey.

**Table 1**  
The results of some basic statistics

				Skewness		Kurtosis		
		N Statistic	Minimum Statistic	Maximum Statistic	Statistic	Std. Error	Statistic	Std. Error
q1	Other researchers have documented experience	218	1	5	- 0.468	0.165	- 0.768	0.328
q2	The success rate in the experimental stage	218	1	5	- 0.617	0.165	- 0.497	0.328
q3	Financial Feasibility	218	1	5	-	0.165	-0.86	0.328
q4	Technical and administrative aspects of the idea	218	1	5	- 0.548	0.165	- 0.621	0.328
q5	Industry	218	1	5	-	0.165	-	0.328
q6	Competitiveness of business	218	1	5	-	0.165	-	0.328
q7	Government incentives	218	1	5	-	0.165	-	0.328
q8	Analyze and evaluate the needs of the market	218	1	5	- 0.597	0.165	- 0.374	0.328
q9	Insurance Research	218	1	5	-	0.165	-	0.328
q10	Technical feasibility	218	1	5	-	0.165	-	0.328
q11	Identify the target market	218	1	5	-	0.165	-	0.328
q12	Rates in the commercialization of ideas	218	1	5	- 0.584	0.165	- 0.555	0.328
q13	Private sector participation	218	1	5	-	0.165	-	0.328
q14	Given the longevity of ideas	218	1	5	-	0.165	-	0.328
q15	Attractive for investment	218	1	5	-	0.165	-	0.328
q16	Strategic needs of the country	218	1	5	-	0.165	-	0.328
q17	Detection of new ideas	218	1	5	-	0.165	-	0.328
q18	Subject knowledge	218	1	5	-	0.165	-	0.328
q19	Participation in venture capital	218	1	5	-	0.165	-	0.328
q20	Share of researchers	218	1	5	-	0.165	-	0.328
q21	Protection of personal and spiritual Market	218	1	5	- 0.521	0.165	- 0.631	0.328
q22	Acceptance of commercial risk	218	1	5	-	0.165	-	0.328
q23	Innovation	218	1	5	-	0.165	-	0.328
q24	Administrative bureaucracy problems	218	1	5	-	0.165	-0.69	0.328
q25	Market demand for certain	218	1	5	-	0.165	-	0.328
q26	Identify effective marketing tool	218	1	5	-	0.165	-0.42	0.328
q27	Market-oriented research ideas	218	1	5	-	0.165	-0.44	0.328
q28	Pricing appropriate by the buyer Ideas	218	1	5	-	0.165	-	0.328
q29	The pattern of business process	218	1	5	-	0.165	-	0.328
q30	Sift Ideas	218	1	5	-	0.165	-	0.328
q31	The possibility of having an idea	218	1	5	-	0.165	-	0.328
q32	Responsibility in solving community problems	218	1	5	- 0.715	0.165	0.003	0.328
q33	CE	218	1	5	-0.41	0.165	-	0.328
q34	Learning organizations	218	1	5	-	0.165	-	0.328
q35	Participatory Management	218	1	5	-	0.165	-	0.328
q36	Interaction with industry and research teams	218	1	5	- 0.402	0.165	- 0.815	0.328
q37	Support the organization of ideas	218	1	5	-	0.165	-	0.328
q38	Interactions	218	1	5	-0.8	0.165	0.336	0.328

The results of Table 2 indicate that there were 12 factors out of 35 factors whose eigenvalues were above one and can be considered for the next step of the survey. In addition Fig. 1 shows details of Scree plot. In addition, Table 3 and Table 4 present detail of principal component analysis before and after rotation.



**Fig. 1.** The summary of Scree plot

**Table 2**

The summary of some preliminary results of the implementation of structural equation modelling

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.508	18.594	18.594	6.508	18.594	18.594	3.258	9.307	9.307
2	3.308	9.451	28.045	3.308	9.451	28.045	2.257	6.447	15.755
3	1.556	4.445	32.49	1.556	4.445	32.49	2.088	5.965	21.72
4	1.435	4.101	36.591	1.435	4.101	36.591	1.963	5.608	27.327
5	1.38	3.943	40.534	1.38	3.943	40.534	1.853	5.294	32.621
6	1.286	3.674	44.208	1.286	3.674	44.208	1.763	5.038	37.659
7	1.246	3.561	47.77	1.246	3.561	47.77	1.737	4.962	42.621
8	1.237	3.534	51.304	1.237	3.534	51.304	1.717	4.907	47.527
9	1.183	3.379	54.683	1.183	3.379	54.683	1.514	4.327	51.854
10	1.096	3.132	57.815	1.096	3.132	57.815	1.489	4.255	56.109
11	1.077	3.078	60.894	1.077	3.078	60.894	1.372	3.92	60.029
12	1.043	2.979	63.873	1.043	2.979	63.873	1.345	3.844	63.873
13	0.899	2.567	66.44						
14	0.89	2.544	68.984						
15	0.818	2.337	71.321						
16	0.775	2.214	73.535						
17	0.752	2.15	75.685						
18	0.693	1.979	77.665						
19	0.686	1.959	79.624						
20	0.651	1.861	81.484						
21	0.617	1.763	83.247						
22	0.589	1.684	84.931						
23	0.567	1.619	86.551						
24	0.548	1.566	88.117						
25	0.53	1.514	89.631						
26	0.493	1.408	91.039						
27	0.463	1.324	92.363						
28	0.424	1.212	93.575						
29	0.414	1.184	94.759						
30	0.365	1.042	95.8						
31	0.357	1.021	96.821						
32	0.327	0.934	97.755						
33	0.302	0.864	98.619						
34	0.267	0.763	99.382						
35	0.216	0.618	100						

**Table 3**  
The summary of principal component analysis before rotation

	Factor	Component Matrix											
		1	2	3	4	5	6	7	8	9	10	11	12
q3	Financial Feasibility	0.547					-0.334						
q19	Participation in venture capital	0.547											
q29	The pattern of business process modeling	0.541											-0.462
q17	Detection of new ideas	0.538											
q1	Other researchers have documented experience	0.536											
q21	Protection of personal and spiritual Market	0.532											
q12	Rates in the	0.523											
q2	The success rate in the experimental stage	0.508						0.373					
q23	Innovation	0.498											
q4	Technical and administrative aspects of the idea	0.495								-0.433			
q11	Identify the target market	0.481		-0.394									
q9	Insurance Research	0.474									-0.335		0.34
q30	Sift Ideas	0.468											
q10	Technical feasibility	0.462											
q18	Subject knowledge	0.447								-0.395			
q15	Attractive for investment	0.443										0.331	
q8	Analyze and evaluate the needs of the market	0.442									0.435		
q27	Market-oriented research ideas	0.442		-0.418									
q16	Strategic needs of the country	0.426				0.409		0.364					
q14	Given the longevity of ideas	0.425			0.337			-0.396					
q6	Competitiveness of business	0.404				-0.375							
q31	The possibility of having an idea	0.399				0.33						0.332	0.335
q34	Learning organizations		0.787										
q33	CE		0.769										
q36	Interaction with industry and research teams		0.766										
q35	Participatory		0.763										
q32	Responsibility in solving community problems		0.656										
q37	Support the organization of ideas		0.563										
q22	Acceptance of commercial risk	0.466		0.493									
q7	Government incentives	0.46		0.471									
q5	Industry	0.368		0.439	-0.35								
q20	Knowledge sharing	0.461			0.522								
q24	Administrative bureaucracy problems	0.434			-0.343	0.458							
q26	Identify effective marketing tool	0.395		-0.352					0.458				
q25	Market demand for certain	0.461									0.591		

**Table 4**  
The summary of principal component analysis after rotation

	Factor	Rotated Component Matrix <sup>a</sup>											
		1	2	3	4	5	6	7	8	9	10	11	12
q33	CE	0.807											
q34	Learning organizations	0.803											
q35	Participatory Management	0.777											
q36	Interaction with industry and research teams	0.754											
q32	Responsibility in solving community problems	0.631											
q37	Support the organization of ideas	0.504											
q20	Knowledge sharing		0.729										
q30	Sift Ideas		0.615						0.355				
q17	Detection of new ideas		0.592										
q14	Given the longevity of ideas		0.55										
q12	Rates in the commercialization of ideas			0.701									
q2	The success rate in the experimental stage			0.64									
q3	Financial Feasibility			0.473									
q10	Technical feasibility			0.435									
q8	Analyze and evaluate the needs of the market				0.696								
q27	Market-oriented research ideas				0.573								
q25	Market demand for certain				0.57	0.331							
q11	Identify the target market				0.477							0.4	
q19	Participation in venture capital												
q6	Competitiveness of business					0.701							
q4	Technical and administrative aspects of					0.699							
q9	Insurance Research						0.632		0.403				
q7	Government incentives		0.379					0.576					
q21	Protection of personal and spiritual Market					0.448	0.571						
q5	Industry								0.721				
q16	Strategic needs of the country								0.703				
q24	Administrative bureaucracy problems								0.678	0.333			
q23	Innovation								0.583				
q31	The possibility of having an idea									0.718			
q15	Attractive for investment									0.612			0.382
q18	Subject knowledge										0.722		
q1	Other researchers have documented experience			0.342								0.522	
q26	Identify effective marketing tool												0.733
q22	Acceptance of commercial risk								0.359				-0.513
q29	The pattern of business process modeling												0.751

According to the results of Table 4, we may extract the necessary factors and Table 5 summarizes the results of our survey.

**Table 5**  
The summary of the results of factors influencing SMEs promotion

Variable	Question	Components	Factor loading
Organizational learning strategy	q33	CE	0.807
	q34	Learning organizations	0.803
	q35	Participatory Management	0.777
	q36	Interaction with industry and research teams	0.754
	q32	Responsibility in solving community problems	0.631
	q37	Support the organization of ideas	0.504
Management idea	q20	Knowledge sharing	0.729
	q30	Sift Ideas	0.615
	q17	Detection of new ideas	0.592
	q14	Given the longevity of ideas	0.55
The feasibility of the idea	q12	Rates in the commercialization of ideas	0.701
	q2	The success rate in the experimental stage	0.64
	q3	Financial Feasibility	0.473
	q10	Technical feasibility	0.435
Market research	q8	Analyze and evaluate the needs of the market	0.696
	q27	Market-oriented research ideas	0.573
	q25	Market demand for certain	0.57
	q11	Identify the target market	0.477
Advocacy strategies	q9	Insurance for research	0.632
	q7	Government incentives	0.576
	q21	Protection of personal and spiritual Market	0.571

According to the results of Table 5, there are five factors associated with the proposed study including, organizational learning strategy, management of idea, the feasibility of the idea, market research and advocacy strategies.

#### 4. Discussion and Conclusion

Export has been the primary source of economic development and it is always important to find important factors influencing on creating new ideas to boost export activities. This paper has presented an empirical investigation to find important factors influencing on development of commercializing new ideas for business development in SMEs in Iran. The study has used structural equation modelling to investigate the effects of various factors and has detected five factors. The first item, organizational learning strategy, consists of five sub-components including CE, learning organizations, participatory management, Interaction with industry and research teams, Responsibility in solving community problems and Support the organization of ideas. The second factor, management idea, consists of four factors where knowledge sharing is the most important one followed by shift ideas and detection of new ideas. The feasibility of the idea is the other important factor where rates of commercializing the idea is the most important factor followed by the success rate in the experimental stage as well as financial and technical feasibility. Market research is another important factor in our survey, which consists of four factors where market assessment is the most important one followed by market oriented research ideas. Finally, advocacy strategies are the last item of the survey where having insurance for research is the most important factor.

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