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ORIGINAL ARTICLE

A Study on the Factors Influencing Innovation Management in the Food Industry in the province of west Azerbaijan, Iran

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ABSTRACT
The first step in devising the best incentives to support innovation is to investigate factors that affect the development of innovation management. This article contributes to exploring such factors in food industries in the rural areas of Azerbaijan province, Iran. Using a census sampling method, 208 managers of 46 active firms were interviewed In order to determine the validity of the questionnaire, the viewpoints and suggestions of experts were used. In order to evaluate the reliability of the questionnaire, a pilot test was conducted (n=28). Data were analyzed using SPSS Win software and Cranach's Alpha method. The results correlation analysis indicated relation between independent variables, economical, cultural, managerial, educational and technological factors was associated with innovation management as a dependent variable.The regression analysis revealed that factors which influence innovation management are only managerial, economical and educational factors Furthermore, Results from multiple regressions showed that 46.3% of variance of the dependent variable was identified by 3 factors. The results of this study were used to derive practical suggestions for managers and policymakers to increase innovation management in the studied industry.
Key words: *Agricultural development, innovation, innovation management, food industries.*

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INTRODUCTION

Innovations are one of the main sources of a competitive advantage and they are essential for a company growth. Companies put great effort in beating the competition and improvement in the market game by introducing innovations. Companies worldwide of different sizes and sectors are operating in an increasingly dynamic, complex and unpredictable environment. This suggests that many firms seek new ways of conducting their business through some kind of innovation to make a profit and stay ahead of the competition.

For food firms, innovation is important in order to cope with increasing competition, changing consumer behavior and rapid technological developments. Because the source of innovation is often found in the combination of knowledge and competencies of different organizations, this suggests that many firms seek new ways of conducting their business through some kind of innovation to make a profit and stay ahead of the competition. Innovation is more than simply coming up with good ideas; it is the process of developing them into practical use. Therefore, the real challenge in product innovation is not just coming up with good ideas but in making them work technically and commercially [1]. To this end, product managers must effectively manage a portfolio of innovations throughout the development process. Moreover, they must develop consistently above average performances, across several metrics, spanning critical areas of product innovation.

The aim of this study is to provide a comprehensive view of the factors which Influence an organizations ability to manage innovation.

Many researchers and theorists provide evidence to suggest that leaders have a significant impact on innovation [2, 3].
Innovation is not new and it comes in many forms. Also, as many authors argue, it is important for organizations to innovate [4-6].
Innovation management differs in many aspects regarding external factors like the economic sector, field of knowledge, type of innovation, historical period, and country concerned [7].
Innovation management differs in many aspects regarding external factors like the economic sector, field of knowledge, type of innovation, technical , and managerial [7].
The purpose of this study was to determine actors that affect on innovation management activities in food industries in rural areas of west Azerbaijan province. For this study, to conduct a systematic and organized review, the hypotheses were developed based on the previous studies which are as follows:
1. There is significant relationship between the manager's characteristics and the innovation management.
2. There is significant relationship between economic features and the innovation management.
3. There is significant relationship between educational features and the innovation management.
4. There is significant relationship between organizational features and the innovation management.
5. There is significant relationship between technological features and the innovation management.
6. There is significant relationship between cultural features and the innovation management.
7. There is significant relationship between managerial features and the innovation management.

MATERIALS AND METHODS

This paper reports a mainly quantitative research which is conducted in west Azerbaijan province, Iran. Manufactures in food sector are located in rural areas must obtain two licenses from the Ministry of Agriculture; first license is a permission for establishment (of construction) and the other is for starting production. To date, 61 firms in the food industry have registered in MOA formally in west Azerbaijan province from which 46 firms were active at the time when the research was conducted (2013- 2014). Other 15 firms were not in business any more. The total population of respondents in this study was 208 Managers (production managers, marketing managers, human resource managers and vice managers) in 46 food industries in west Azerbaijan province who agreed to participate in the interview. Data were collected through questionnaires. The main goal of this study in measuring respondents' attitudes Towards the Factors Influencing Innovation Management in the Food Industry has been achieved largely through structured questionnaire survey. The questionnaire evaluated in this study is composed of 7 parts. In the first part of the questionnaire there are information and descriptive about the demographic characteristics of the sample. In the second part of the questionnaire there are 15 statements for the economical factor. In the third part of the questionnaire there are 15 statements for the definition of organizational factor. For the measurement of cultural, educational, managerial and technical factors used of 15 statements in other part of questionnaire. Likert scale from 1 to 5 has been used to measure the constructed variables (where 5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree).
Content and face validity of questionnaire were established by a panel of experts consisting of faculty members at Islamic Azad University, Science and Research Branch and some specialists in the Ministry of Agriculture. Some wording and structuring of the instrument were made based on the recommendation of the panel of experts. A pretest was conducted with 28 managers to determine the e reliability of the questionnaire for the study. Computed Cranach's Alpha score was acceptable for different parts of the questionnaire (Alpha> 0.7), which indicated that the questionnaire was reliable. Data analyzed through SPSS/Win software.

RESULTS

Findings Related to Demographic Characteristics

As to the descriptive statistics, 208 questionnaires were collected from west Azerbaijan province. 170 of managers have a college degree, 27 of them have a high school degree and the others have a primary school degree. The average age of firms was 10.1years. Sixty-eight firms were approximately profitable in the last year, while other thirty-two firms did not report any profit in the past 12 months.
About 23% of the firms had R and D unit, 53% employed a personnel to be in charge of R and D activities (informal R and D) while the rest did not have any R and D activities in their firms.
Managers of 46 firms reported innovations in different areas in this food firms.

Table 1: Innovation rate in the studied firms.

Types of innovation	No. of innovative firms	No. of innovations
Product/services	15	12
Process	11	6
Technology	10	5
Marketing	3	3
Organization	2	2
Strategy	3	2
Total	-	44

Among different types of innovation, the highest number of innovations was 36 cases for product, services, process and technology and the lowest number was 5 cases for Innovation in Strategy and Organization. Table 2 shows the number of Innovative firms and number of innovations in each of the six areas of innovation.

Managers definitions of innovation management show their attitude of innovation concept and innovation effect in food firms performance.

Table2: Manager Definition of innovation management

Definition of innovation management	No.	(%)
Successful transformation of new idea to innovations	35	16.8
Transformation of new idea to useful output	40	19.2
Transform of new idea to profitable product and services	70	33.6
New idea transform to effective profitable innovation	63	30.2

Data source: our survey

Table 2 displays the four different definitions about innovation management. Among different responses about 34% of managers selected transform of new idea to profitable product and services definition.

Table 3: The Factors influencing Innovation on descriptive statistics

Factors	Mean	S.D.
economical	3.77	0.81
managerial	3.90	0.78
educational	3.95	0.72
cultural	3.83	0.79
organizational	3.80	0.82
technological	3.79	0.84

Data source: our survey

According to Table 3, it is shown the mean and standard deviation of all interested factors. The factors that influenced the innovation include economical, managerial, educational, cultural, organizational and technological. The majority of the samples find the educational as the most influential factors to develop innovation management at the average score of 3.95 followed by managerial factor at the average score of 3.9. The samples also suggest that cultural and organizational are also important which a little lower average score of 3.83 and 3.80 respectively. The technology factor has the average score of 3.79.economical factor has the average score of 3.77.

Most of researchers use correlations to summarize the association between two scale variables. The correlation between two variables reflects the degree to which the variables are related [8]. Generally, when discussing on correlations, it refers to Pearson's correlation coefficient. This value measure the strength of the linear relationship between variables.

In this study correlation analysis was performed, in order to examine the relation between survey independent variables and innovation management.

Table 4: The correlation between independent variable and it's effected on Innovation management.

Factors		Innovation management
Economical	Pearson Correlation	0.341
	Sig	0.00
Managerial	Pearson Correlation	0.324
	Sig	0.00
Educational	Pearson Correlation	-0.361
	Sig	0.02
cultural	Pearson Correlation	0.473

	Sig	0.00
organizational	Pearson Correlation	0.231
	Sig	0.14
technological	Pearson Correlation	0.237
	sig	0.06

Data source: our survey

From Table 4, shown the correlation result, which displays correlations among every factors specified and innovation. The last column shows the relationship between factors and innovation management; which are economical, managerial, educational, cultural, organizational and technological. There are all positive correlation between factors and innovation management with the difference strength. Another value to confirm the linear relationship is the value of sig. 0.000 or 0.001 which are statistically significant relationship.

The results show the strongest positive relationship between innovation management and cultural factor with coefficient 0.473, followed by 0.341 for economical factor, 0.324 for managerial factor, 0.237 for technology, 0.231 for organizational, -0.361 for educational.

In an attempt to identify which factors significantly lead to successful/unsuccessful innovation management, a stepwise multiple regression analysis was performed, with dependent variable the innovation management index and independent variables the key items of the questionnaire. The results regarding the total sample appear in Table 4.

Table 5: The Multiple Regression Findings Related to the Effects of the Independent Variable (Stepwise, Whole Sample)

Variables	B	B Std. Error	Beta	t	Sig.	R	R2	R2ADJ	Sig.
Fixed value	1.048	0.144	-	7.256	0.000	-	-	-	-
Managerial characteristics	0.327	O.21	0.65	4.234	0.000	0.44	0.411	0.3	0.000
Economical characteristics	0.13-	0.05	-0.10	2.219	0.011	0.45	0.432	0.2	0.004
Educational characteristics	0.041	0.16	0.11	3.168	0.010	0.47	0.463	0.1	0.01

a. Dependent Variable: Innovation management

Regarding the above coefficients, the multivariate regression linear equation in the third step will be as follows:

Y= 1.048+0.327 (managerial features) - 0.130 (economic characteristics) + 0.041 (educational features) and the standardized equation will be:

Y= 0.651(managerial features) - 0.108 (economic characteristics) + 0.111 (educational features)

The results of regression analysis showed that the factors that significantly lead to successful innovation management, in order of importance (as indicated by R square change), are : 1) Managerial factor(b=3.27, sig=0.000), where the positive coefficient shows that when Managerial index increases by 1 unit, then innovation management index increases by 3.27 units. 2) If the firms has a suitable economical condition for managing innovation (b= -0.13, sig= 0.004). The negative coefficient shows that if the firm does not have a suitable economical condition for managing innovation then the innovation index decreases. 3) Educational factors (b=0.041, sig=0.01), where the positive coefficient shows that when Educational index increases by 1 unit, then innovation index increases by 0.041 units. The final R square of the model is 46.3%. The most important variable is "Managerial" (it explains 41.1% of the variation).

DISCUSSION AND CONCLUSIONS

If managers want to survive in the age of globalization in the current industrial climate, they must adopt management techniques suitable for each situation. This study indicated that the success of food enterprises depends on the following factors: educational, economical and managerial. This paper offered a view of influential factors affecting food enterprises as a way to help practitioners choose and analyze factors and attributes concerning their businesses. Using these factors for consideration, practitioners can make better decisions and obtain better results from their businesses. This study discovered that the management of enterprises helps industrial firms survive in the global market.

Multiple Regression analysis led to third independent variables explaining innovation management .The results of multiple regression analysis on the research independent variables effects on the innovation management specified that the educational characteristics, and managerial characteristics had a positive

impact on the innovation management but the economic characteristics had an inverse negative impact on the innovation management.

Based on the findings of the study, the following recommendations to enhance the innovation management rate among food firm's managers which consider in innovation management were as follows:

1. Educational: managers with higher education are likely had improved managerial skills and a better understanding of market opportunities and an increase in the return from self-employment.
2. Economical and capital: Many business owners believe that finances are the most important factor for determining success. However, this study shows that if a business does not have competency-especially capital-the small business cannot succeed. The business investment depends on the type of business. Some businesses require a lot of capital, and some small businesses do not require much money to set up.
3. Managerial: Manager's whit higher management style and risk acceptance and other Unpredictable situation have significant effect on innovation management.

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