

The role of R & D in the value creation poultry industry

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Abstract: Industrial development requires research and innovation in them and research and development is informative light for each industry, including poultry industry. The aim of this article is investigate the role of research and development in the poultry industry and determine R & D priorities which lead to value creation in the industry. Research method in this paper is descriptive-survey and statistical community considered consists of experts the industry such as employees, managers and owners in the industry and research and development experts such as researchers, scholars, students and individuals who have some familiarity with R & D and poultry industry. For this purpose a questionnaire has designed and for increase reliability in the form of interviews - questionnaire acted to gather information from 12 cases from group workers and the owners of the industry, and 51 students from Ferdowsi University of Mashhad. In this study examined and proposed number of 10 hypotheses and by using correlation test is taking action ranking their impact on value creation in the poultry industry. This article specifies that R & D in this industry with using of new ways the product supply leads to more value creation and this subject as a suggestion for research and development of this industry can forgive more impact on their activities.

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Introduction

History poultry industry and research on the industry: Throughout history, human beings to provide fresh meat and eggs and feather attempted for maintenance and development of the poultry especially chicken. At present, the poultry industry, provide the needs meat and eggs of families. Time domestication of chicken's home from the forest is about four thousand years ago in 2100 to 2500 years BC in Punjab at the northern Pakistan today for religious ceremonies related to tribal Harapan.

81 years ago America built the first electronic device hatching and about 70 years ago the first system entered in Iran. In 2011, According to statistics Food and Agriculture Organization, Iran located in ninth rank chicken meat producers. Industry modern incubation in Dlavar American region began 1930 years. During World War II the Dlavar area supply a half of chicken meat United States. In the '60s with increase the production of poultry establishments were made automatic packaging and slaughter. 19th century, various breeds of chickens gradually enter in world that successful example is included race Plymouth Rock and New Hampshire.

In 2007 in Iran amount of 15.1 million tons of chicken meat produced amounting to 7.1 percent of global poultry production. In 2006, per capita meat consumption in urban areas was more than 17 kilos and in rural areas more than 16 kg, while global per capita consumption of poultry was an average of 9.12 kg.

Some experts and researchers poultry industry focused their studies on Nutrition and its effects on the performance and efficiency. One of study done in 2001 can be cited Research Owhadi Haeri, Sadeghi and Ansari. Mohammadpour (2002) researched effect of increase protein in nutrition chicken on increase egg weight. Effects of Salt water consumption are another study that was done by Mirabdolbaqi (2007). Hashemi (2007) searches on effect of egg shell in time soybean oil consumption.

Advances in genetic science, is caused studying unique nutrition birds with the best performance. In the '50s, European researchers especially the French become responsible for the transmission of information from the US to factories preparation feed poultry.

Leung et al (2007) focused their research on drinking water and to prevent the avian influenza have. *Soy Kaskas* (2007) review on literature R & D and to name from R & D as a valuable asset.

Jamali et al (2011) investigate problems poultry industry in Pakistan and of referred results is a negative impact unskilled labor on the poultry industry.

The importance of research and development in various industries including poultry industry is represented well in Tertel and Piz paper (2010) and Concerns of feeding 9 billion people by 2050 is of concerns two researchers.

Statement of the problem

For the effective and efficient investigate in research and development in various industries, we need to identify effective and efficient ways.

Considering the good rank of Iran in world's poultry industry feel need to find ways to increase products exports. Research and development to explore new markets can play a significant role.

1. **The importance and necessity of research**

Considering the importance of providing the required liquidity, especially in the current situation of the country that is facing approach to resistance economy against imposed sanctions, identify the most effective paths causes saving and increased the productivity of capital. This problem can also reduce costs lower production cost and with increase the return on investment and value creation causes growth and prosperity of the market products. The task of finding the paths in the industry is on the shoulders of Research and Development.

2. **Literature Review**

Research and development is activity that a solution from the realm of fantasy to the realm of reality brings as according to great inventor Thomas Edison, the invention of 1 percent inspiration and 99 percent trying formed.

Study performed in research and development show a relationship between these factors and the nature of technical and economic environment of industry on production efficiency with regard to quantitative measurement of consumed power.

Research and development caused increase prosperity, innovation and reduction of costs for firms that investments in this field, this is reason to create solutions for the protection of research and development, including the use of software locks and security code and non-disclosure agreements between companies cooperating in research and development.

New companies able to discover new technologies, create marginal markets for themselves that company's whit old technology not can present in them. The new company needs to find a market that to keep them dynamic enough so that their new technology can develop at any time. Nietzsche markets or experimental users can prepare this space.

Creativity within organizations refers to produce new ideas, approaches and modern production methods and innovation process of converting ideas into new products and services in companies and organizations. In process innovation, creativity is a necessary step because the starting point of innovation is creativity.

Many differences between industries there are in field of number and impact of innovation. Innovation as complexity factor and different forces selection to form conventional environment, operate.

Knowledge transfer from R & D to the marketing groups reduces the costs of new product development. Supply curve consists of four stages: planning, development, marketing and commercial

supply. Many studies have reached the same conclusion shared expertise and experience between units of research and development and marketing will help a lot to product development.

Many of the researches and research carried out in universities that is origin of researches, too much, is theoretical and more includes basic researches and applied research very little has been done, the problem clarify necessity of research and development by organizations companies in order to their goals. Some studies done by universities in fields where the private sector is not willing to research is very valuable, this researches is to improve the performance of those sectors.

Research scientists, professors and experts in various fields such as genetics, nutrition and... in poultry industry has been lead to phenomenal results that can mention cases such as high production of eggs from hens with small size and or decrease the time in weight increase broiler.

Research and development through technologies increase the quantity of products and quality of product. Consider issues related to aircraft safety, with the help of research and development, them quality and security during the past 20 years has grown tremendously. The issue of mass production, increasing the volume of storage and increasing access to existing technologies such as e-banking connection is indicator of research and development with products quantity.

The usual method, the academic community is the source of many of the suggestions research and development. The primary researches are source of applied research organizations and institutions and units of research and development of company. One other difference between academic research and the organizational research is academic research is individual, whereas researches follow in form of a team and a group in companies and organizations.

Company's marketing strategy is based on two pillars: quality and price of products. Companies that choose quality strategy in the market competition than companies that select price strategy are more successful.

With regard to general competitive strategy Porter-strategy focus, differentiation and cost - can research and development in companies be described such that some companies with researches realize to the common points a group of consumers, a specific geographical area or similar effect a group from raw materials to replace in the production and it use for the value creation. Another group of companies with the help of R & D, a special technology, design, service after sales, unique distribution and supply new ways to differentiate themselves from other competitors and for themselves value creation.

Research and development in group of companies with a focus on costs attempted to managing costs and with innovative approaches of production and increasing of productivity resource attempted to control variable costs and overheads and in this way attempted to attract price-sensitive consumers and cause value creation in these companies.

Unit's research and development not only is units of knowledge transfer but also known as unit's knowledge creation, and research and development with the use of this knowledge benefit for implementation of innovation in their organization. Access to advanced technologies by investing in research and development is possible.

One of the important outputs of the research and development in any industry is productivity. By analyzing the amount of investment in research and development in macroeconomic can realized it positively associated with increasing total factor productivity of production.

Sadrynia and Ravani in their research in 2008 positive relationship research and development of companies with access to new ways of marketing sales, generating new ideas about supply of new products, achieve superior technology for provide better products and lower production costs proved it.

3. Research hypotheses

The assumptions in this paper are:

- Research and development in the poultry industry with the creation of a new idea has positive relationship.

- Research and development in the poultry industry by creating creativity in organization has a positive relationship.

- Research and development in the poultry industry to test ideas obtained have a positive relationship.

- Research and development in the poultry industry to transform an idea into a new product has positive relationship.

- Research and development in the poultry industry has a positive relationship with the quantity of products.

- Research and development in the poultry industry has a positive relationship with the quality of products.

- Research and development in the poultry industry with new ways of product supply has positive relationship.

- Research and development in the poultry industry with the discovery of new markets has a positive relationship.

- Research and development in the poultry industry has positive relationship with a reduction in production costs.

- Research and development in the poultry industry has positive relationship with increasing productivity.

Model of above assumptions can be drawn well in Number 1 is shown.

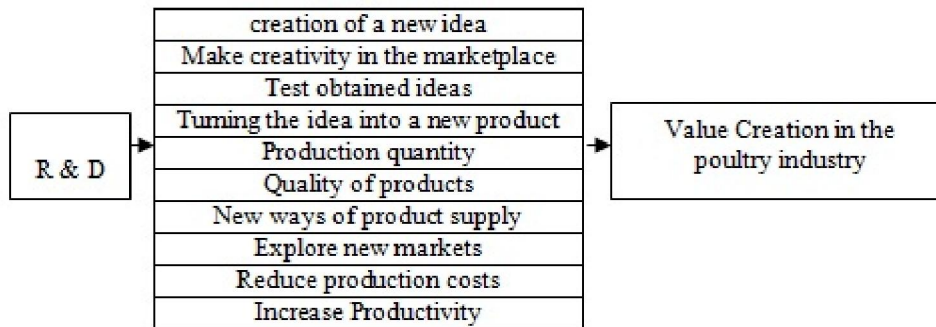


Figure 1: model of Review in the present paper

4. Research Method

Base any scientific method is its cognition and research method is set of credible and systematic rules and tools for investigating the facts, the discovery of unknown and achieving solutions of problems. In the humanities research study usually with three quantitative method, qualitative and mixed.

Quantitative method that is famous to discovery method attempts to find solutions based on experience and observation. Qualitative method is

following Problem analysis. Mix methods create with the desired combination from two methods mentioned above, too.

Research method the main paper that has been considered is descriptive research method of kind of survey. This method describe below.

Descriptive study is set of methods that its purpose describing situation or studied phenomenon. Implementation of this type of research is for better understanding and helping decision-making process. In fact, in this type of research questions such as how

much? Who? What is happening? The answer is given. The aim of this study is real describe of situation or a subject.

Main purpose and subsidiary of article

The main purpose of this paper is to identify the impact of research and development on activity poultry industry. These effects are including:

- The impact of R & D on increase productivity of factors of production (labor, capital, etc.)
- the impact of R & D on innovation and New Products invention
- The effect of research and development on invention of modern methods of performing the tasks
- the impact of R & D on providing products to new methods
- R & D effect on reducing production costs
- the impact of R & D on the use of modern methods of marketing
- The effect of applying research and development on new ways of distributing products
- R & D effect on the growth of market products the industry

5. Statistical Society of Paper

Statistical population called the number of people, objects and phenomena that have a common feature.

According to the survey research methods, this study Statistical population has composed of two

groups. The first group consists of employees, managers and owners of the industry that are representative of experts poultry industry. The second group is included researchers, students and honorable professors of the university who are representative of the research experts.

According to widespread presence of products the industry in the consumer market and family of various sectors related to the industry can use from other groups in the statistical population that including retailers and distribution of products in the industry and individuals who are somehow familiar with the industry.

With regard to the enlargement of above statistical population for this study and lack of access to all of it and not affordable has been acted to sampling.

The number of samples in this study of a group of expert’s poultry industry in the North East of Iran 12 people, and of group of experts study and familiar to the poultry industry of 51 people including students and graduates of the University of Mashhad were studied. In total Statistical sample including 63 questionnaires of 100 questionnaires is distributed. Spss software obtained for analysis of data was used.

6. The validity and reliability of study

Table 1: Cronbach's alpha questionnaire of Research and Development

Number of samples	Number of questions	Cronbach's alpha
63	10	0.725

7. The results of research

Regard to Table 2, 79.1 percent of all participants in research above have a bachelor's degree is higher.

Table 2: Agreement table between the level of education and gender

Academic degree	Agreement Table	Gender		Total
		Man	Woman	
Diploma and under Diploma	Abundance	6	0	6
	Percent per row	100%	0%	100%
	Percent per column	9.8%	0%	9.5%
Associate Degree	Abundance	7	0	7
	Percent per row	100%	0%	100%
	Percent per column	11.5%	0%	11.1%
Bachelor Degree	Abundance	26	2	28
	Percent per row	92.9%	7.1%	100%
	Percent per column	42.6%	100%	44.4%
Master's degree and higher	Abundance	22	0	22
	Percent per row	100%	0%	100%
	Percent per column	36.1%	0%	34.9%
Total	Abundance	61	2	63
	Percent per row	96.8%	3.2%	100%
	Percent per column	100%	100%	100%

For increasing validity of the questions, completion questionnaire in the form of verbal and

interview with participants in this study has been done. Also valid questionnaires last articles are inspired to design questions.

Stability research that indicates the validity of measurement tools, and use for generalize the results to the statistical population of studied with test Cronach's alpha for the questionnaire from Likert spectrum with multiple choice responses are examined, Cronbach's alpha of present questionnaires regard to table 11 is equal to 0.725.

Reviewing expert opinion the poultry industry and research and development experts that was

determined in Table 3 with name of working and non-working groups and since a meaningfulness level Leon test is equal to 0.219 and is larger from 0.05, assumption equality variance of the two groups can not be denied. So test statistic is equal to 0.596 with 61 degrees of freedom. Since meaningfulness level the independent t-test is equal to 0.553 and is bigger from 0.05, with confidence 95 percent between views of employees and non-employees (students) about the role of research and development in value creation in the poultry industry there is not meaningfulness difference.

Table 3: Comparison of the views employees and non-employees in the poultry industry about the role of research and development

Comparison of employees and non-employees				Leven's Test		Independent t-Test			
Employment Status	No.	Ave.	S.D.	Assumptions	F statistics	Sig. Level	t statistics	d.f.	Sig. Level
employee	12	37.5	7.61	Assuming equal variances	1.546	0.219	-0.596	61	0.553
non-employee	51	38.529	4.751	Assuming equal variances			-0.448	13.086	0.661

Based on the analysis done and determine correlation coefficient and the Meaningfulness level of assumptions (Table 4 and 5) can express results as follow:

Since the meaningfulness surface between the role of research and development and the creation of a new product is equal to 0.011 and from 0.05 is smaller, between role of research and development and the creation of a new product there is a meaningfulness relationship with intensity 0.319. The intensity of the relationship is relatively modest and direction relationship is positive.

Since the meaningfulness surface between the role of research and development and the creation of creativity is smaller from 0.0001, between role of research and development and the creation of creativity there is a meaningfulness relationship with intensity 0.439. The intensity of the relationship is relatively modest and direction relationship is positive.

Since the meaningfulness surface between the role of research and development and test obtained ideas is smaller from 0.0001, between role of research and development and test obtained ideas there is a meaningfulness relationship with intensity 0.540. The intensity of the relationship is relatively modest and direction relationship is positive.

Since the meaningfulness surface between the role of research and development and turning the idea into a new product is smaller from 0.0001, between role of research and development and turning the idea into a new product there is a meaningfulness relationship with intensity 0.540. The intensity of the relationship is relatively modest and direction relationship is positive

Since the meaningfulness surface between the role of research and development and Production quantity is equal to 0.002 and from 0.05 is smaller, between role of research and development and the production quantity there is a meaningfulness relationship with intensity 0.377. The intensity of the relationship is relatively modest and direction relationship is positive.

Since the meaningfulness surface between the role of research and development and quality of products is smaller from 0.0001, between role of research and development and quality of products there is a meaningfulness relationship with intensity 0/658. The intensity of the relationship is relatively strong and direction relationship is positive.

Since the meaningfulness surface between the role of research and development and new ways of product supply is smaller from 0.0001, between role of research and development and new ways of product supply there is a meaningfulness relationship with intensity 0.664. The intensity of the relationship is relatively strong and direction relationship is positive.

Since the meaningfulness surface between the role of research and development and the discovery of new markets is smaller from 0.0001, between role of research and development and the discovery of new markets there is a meaningfulness relationship with intensity 0.627. The intensity of the relationship is relatively strong and direction relationship is positive.

Since the meaningfulness surface between the role of research and development and reduce production costs is smaller from 0.0001, between role of research and development and reduce production

costs there is a meaningfulness relationship with intensity 0.530. The intensity of the relationship is modest and direction relationship is positive.

Since the meaningfulness surface between the role of research and development and increase productivity is smaller from 0.0001, between role of research and development and increase productivity

there is a meaningfulness relationship with intensity 0.580. The intensity of the relationship is modest and direction relationship is positive.

The analysis is indicant of confirmation all the proposed assumptions and indicates a positive relationship with research and development in the poultry industry.

Table 4: Pearson correlation coefficient between the role of R & D and its subscales

Pearson correlation coefficient	creation of a new idea	Make creativity in organizations	Test new ideas	Ideas into new products	Production quantity	Quality of products	New ways of product	Explore new markets	Reduce production costs	Increase Productivity	Role of R&D
creation of a new idea	1	0.205	0.145	0.205	0.083	0.007	0.026	0.201	0.008	0.247	0.319
Make creativity in organizations	0.205	1	0.248	0.355	0.049	0.213	0.208	0.090	0.003	0.43	0.493
Test new ideas	0.145	0.248	1	0.243	0.008	0.363	0.154	0.29	0.064	0.378	0.54
Ideas into new products	0.205	0.355	0.243	1	0.068	0.355	0.329	0.13	0.028	0.27	0.54
Production quantity	0.083	0.049	0.008	0.608	1	0.151	0.255	0.191	0.139	0.014	0.377
Quality of products	0.007	0.213	0.363	0.355	0.151	1	0.437	0.246	0.374	0.181	0.658
New ways of product	0.026	0.208	0.154	0.329	0.255	0.437	1	0.534	0.330	0.136	0.664
Explore new markets	0.201	0.09	0.29	0.13	0.191	0.246	0.534	1	0.353	0.291	0.627
Reduce production costs	0.008	0.003	0.064	0.028	0.139	0.374	0.33	0.353	1	0.296	0.53
Increase Productivity	0.247	0.43	0.378	0.27	0.014	0.181	0.136	0.291	0.296	1	0.58
Role of R&D	0.319	0.493	0.54	0.54	0.377	0.658	0.664	0.627	0.53	0.58	1

Table 5: meaningfulness level between the role of R & D and its subscales

Significant level	creation of a new idea	Make creativity in organizations	Test new ideas	Ideas into new products	Production quantity	Quality of products	New ways of product	Explore new markets	Reduce production costs	Increase Productivity	Role of R&D
creation of a new idea	0	0.107	0.257	0.106	0.518	0.958	0.841	0.113	0.949	0.051	0.011
Make creativity in organizations	0.107	0	0.05	0.004	0.703	0.093	0.102	0.481	0.981	0.000	<0.0001
Test new ideas	0.257	0.05	0	0.055	0.948	0.003	0.229	0.021	0.617	0.002	<0.0001
Ideas into new products	0.106	0.004	0.055	0	0.594	0.004	0.009	0.31	0.83	0.032	<0.0001
Production quantity	0.518	0.703	0.948	0.594	0	0.236	0.044	0.134	0.277	0.912	0.002
Quality of products	0.958	0.093	0.003	0.004	0.236	0	0.000	0.52	0.003	0.155	<0.0001
New ways of product	0.841	0.102	0.229	0.009	0.044	0	0	<0.0001	0.008	0.289	<0.0001
Explore new markets	0.113	0.481	0.021	0.31	0.134	0.052	<0.0001	0	0.005	0.021	<0.0001
Reduce production costs	0.949	0.981	0.617	0.830	0.277	0.003	0.008	0.005	0	0.018	<0.0001
Increase Productivity	0.051	0	0.002	0.032	0.912	0.155	0.289	0.021	0.018	0	<0.0001
Role of R&D	0.011	<0.0001	<0.0001	<0.0001	0.002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0

Based on information related to the correlation coefficient is shown in Table 4 can rank assumptions confirmed about rate effectiveness of them in the value creation of research and development in the

poultry industry. This rating been done in the Table 6 indicates which of the scales correlated more with R & D and as a result higher intensity in value creation plays the role.

Table 6: Ranking of factors effective R & D in value creation poultry industry

Relationship of R&D and Scale	creation of a new idea	Make creativity in organizations	Test new ideas	Ideas into new products	Production quantity	Quality of products	New ways of product	Explore new markets	Reduce production costs	Increase Productivity
correlation coefficient	0.319	0.493	0.54	0.54	0.377	0.658	0.664	0.627	0.53	0.58
Significance level	0.011	<0.0001	<0.0001	<0.0001	0.002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Rank	10	8	6	5	9	2	1	3	7	4

8. Conclusion

In current condition on the one hand country is facing sanctions imposed and on the other hand international economic crisis, available resources including capital and financial resources should suitable orientation be used in the best form. Using the results of this study can effective ways in which research and development can be effective by focusing on them in the value creation the poultry industry such say that research and development with

a focus on modern methods of supply products such as changes in packaging, distribution method and sales and increase the quality of products, including enhance standards relating to environmental issues and human health And explore new markets and increase exports and eventually increase productivity of production resource can cause the value creation in this industry. This subject is shown well in Figure 2.



Figure 2: more effective factors R & D in value creation in the poultry industry

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