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# Factors Explaining the Relationships between Industry and University in the Knowledge Economy

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### ABSTRACT

In this study, we sought to know what led to the creation of links between industry and academia in the Knowledge Based Economy for this purpose, a questionnaire was prepared to read relevant literature and the industry elite, elite university After collecting the necessary data parameters were identified.

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### Introduction

Iran is a developing and growing need society and Balanced and harmonious development, which can provided Prosperity and peace and better life for its member, for this purpose it is essential that systems and various social institutions have Dynamic coordination and communication and with their interactions will pave the way to achieve balanced development. University is a main system of each society in culture and science. The university undertakes the responsibility of pedagogy and education of young people and it should try to create and develop the scientific srecialists .the specialists who should undertake the responsibility of progress and development of today's Iran.

On the other hands, Every society needs to produce and manufactured goods, machinery and various equipment and Global experience has shown that Every country wants to prosperity and security access Must be strong and support the production , Industries in which the productive economy will be. The reason it will dictate what And experience of the advanced industrial countries also confirms Implies the necessity of continuous and strong communication between these two important social institution in any society is.(fayozat,Taslimi Tehrani,267-288,1386)

General, Nowadays academic institutions and industry in the creation and development of knowledge and technology into our territories have, In addition to maintaining its independence and between them there is overlapping missions and functions Traditional boundaries of these institutions are mixed. In addition to teaching and research functions of universities, entrepreneurship and technological innovation are at the heart of its mission has.

On the other hand, the emergence and development of key technologies such as Information Technology, Biotechnology, nano-technology and intellectual technology, Expansion of knowledge and knowledge-based development activities and inclusive globalization Interact with each other leading to a paradigm shift in economic and social development has been the

emergence of a new phase of the so-called knowledge economyHuynh. (Gibbons, France, 2009)

### The main research question

What factors led to the creation of links between industry and academia in the Knowledge Based Economy?

### Industry

Industry word Production is from the Arabic root, the concept of creating and building and its equivalent in English is industry. Industrial activity refers to the major activities which Change the physical, chemical materials and objects were and ultimately will lead to new products.

To make this change the tools and machines will be used. According to Michael Porter Industry consists of companies whose products are close substitutes for each other. In a classified divided into three groups: high-tech industries. In another category Light and heavy industries have been divided into two groups. Light industry production is consumed directly by end consumers while heavy manufacturing industries key to the final consumer is not directly usable Using light industry goods and should be finalized in the coming. There is a serious problem in the industry is that Due to the lack of qualified staff and strong Projects are defined generally and without staging And do all these steps are sometimes required to produce the University The University is also sometimes due to lack of experience and the time it actually leads to project failure. If any stage of the project Must be defined step by step and run an independent project Unless the Due to the nature of project work Staging does not permit such It is known that the evolution of. (Merdit, Borkel, 2008)

### University

University is Strong social institutions that at the Iran are about eighty years old. The institution in its early stages for a long time was the only educational activities Distribution and dissemination of knowledge and missions follow them. Anzkvytz showed Based on the internal dynamics of And effects on the structures of the world outside the academic The academic revolution has occurred in the world. (Webster and others, 2000).

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UNESCO World Outlook for Higher Education for the Twenty-first Century describes the new universities: "A place where entrepreneurial skills are developed in higher education In order to facilitate the ability of graduates And to become job creators." In accordance with this definition In addition to teaching and research functions of universities another important task is Educate individuals and firms that do not cause.

Graduate of individual entrepreneurs that Innovation in the workplace The best way is to make university-industry interaction The university itself is a knowledge-based entrepreneur and creator firm And create knowledge-based industries.( Talebi,1385)

**Knowledge Based Economy**

Knowledge Based Economy is Economic system in which the production and application of knowledge is the main source of wealth creation. Efficiency of the economic system requires the definition of mechanisms and factors Brtvlyd and applying knowledge That the association of these factors with each other, Increase the performance of other sectors is also.( Houghton,Sheehan, 2000).

Knowledge Based Economy to further elucidate the role of knowledge in economic growth and productivity indicators. Based on the organization of economic cooperation and development (OECD) Definition of knowledge based economy provides the directly and continuously distributed on the basis of economic production and application of knowledge. (Interview with Ahmed SHakiba, 1388)

**Typologies of research**

The aim of the present study can be considered from two angles development and application. This research is a study of development in that topic is completely new, especially in Management Studies Since the results of the analysis and findings of this study can be useful in practice this research can be applied in a study called.

This research is a descriptive research methodology is and the type of research method is correlation.

**Select Expert**

Due to the nature of the research topic and Based on the literature, the purpose of this study is available, 15 participants from industry experts and 15 participants from university experts to find the effective parameters on linking industry and academia in the Knowledge Based Economy comment and cooperate in the preparation of the report.

**Confirmatory factor analysis for construct validity (reliability)**

In this section we construct validity of the scale industry and academia Confirmatory factor analysis was used and the results are shown in tables.

Confirmatory factor analysis for industry and academia show questions Factor loadings of the questions q11, q20, q40, q42, q45, q46, q58, q62, q70 is below the acceptable level so removed Resulting in the elimination of 46 questions, 9 questions and 37 questions remain.

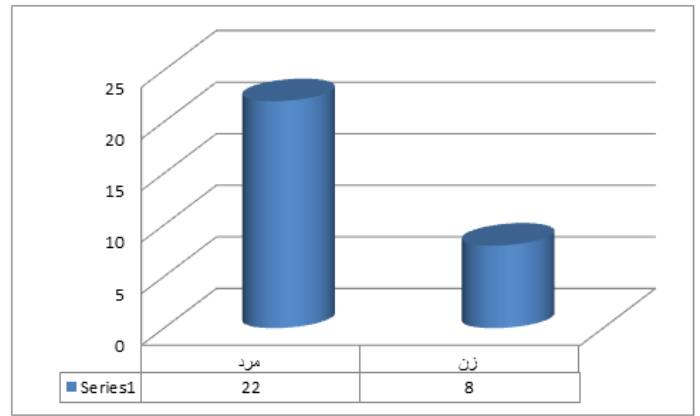
**Reliability or trustworthiness**

To determine the reliability of the data gathered in this study, Cranach's alpha reliability will be used.

**University and industry**

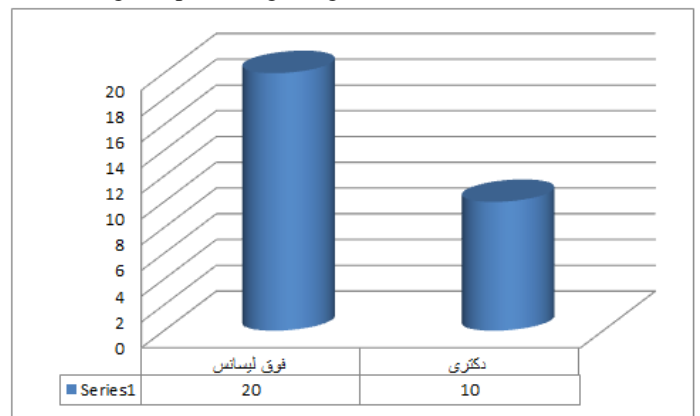
**Sex**

More than 70% of the samples were males as shown in the following diagram.



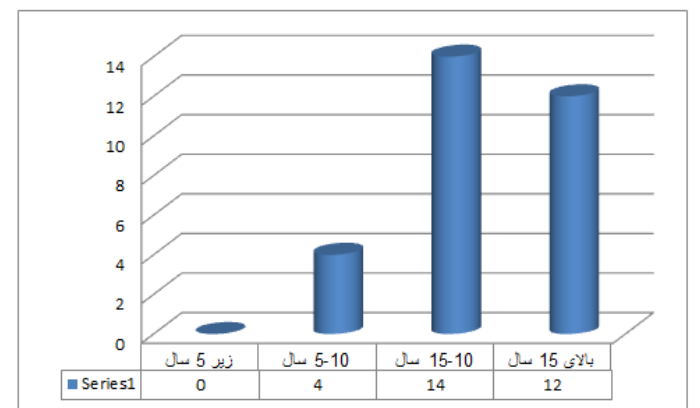
**Figure 1. shows the prevalence of gender-based sample Degrees**

Education into two categories, namely MA and a Ph.D. split that was the highest percentage of graduate



**Figure 2. Frequency of sample-based education Work Experience**

Maximum number of work experience related to the 1015 year class



**Figure 3. Frequency of sample based on work experience Normality test questions for each industry and academia**

The following table shows the goodness of fit test questions for industry and academia is Respectively, indicating the number of data, and the test shows a significant amount.. Given the significant level in all aspects of the test is less than 050, It can be concluded that the data distribution does not follow a normal distribution Therefore, further tests will be used binomial test.

**Hypotheses test questions, industry and academia**

Given that a significant amount of test in the table for question q7, q21, q23, q24, q25, q27, q35, q36, q44, q48, q54 is less than 050, Therefore, it follows that these factors are a major factor in the relationship between industry and academia.

✓ academic entrepreneurs in industrial sector

**Table 1. Confirmatory factor analysis results for questions related to industry and academia**

Industry and university options	Load Factor	Industry and university options	Load Factor
q2	0.35	q36	0.76
q5	0.55	q39	0.78
q6	0.71	q40	0.26
q7	0.47	q42	0.21
q8	0.66	q44	0.51
q9	0.69	q45	0.27
q10	0.52	q46	0.10
q11	0.16	q48	0.48
q12	0.31	q49	0.80
q14	0.33	q50	0.75
q20	0.00	q52	0.37
q21	0.50	q53	0.61
q22	0.43	q54	0.33
q23	0.71	q57	0.56
q24	0.33	q58	0.28
q25	0.66	q60	0.44
q27	0.31	q61	0.51
q28	0.50	q62	0.21
q29	0.58	q64	0.48
q30	0.76	q66	0.51
q32	0.42	q67	0.39
q33	0.51	q68	0.42
q35	0.34	q70	0.27

Number of options	Cronbach's alpha for the entire scale industry and academia
37	0.934

**Table 2. university-industry reliability**

Cronbach's alpha if deleted items desired	Options	Cronbach's alpha if deleted items desired	Options	Dimensions
.933	q33	.934	q2	Industry and university
.934	q35	.932	q5	
.930	q36	.931	q6	
.930	q39	.933	q7	
.933	q44	.931	q8	
.933	q48	.931	q9	
.930	q49	.933	q10	
.931	q50	.935	q12	
.934	q52	.934	q14	
.932	q53	.933	q21	
.934	q54	.933	q22	
.932	q57	.931	q23	
.934	q60	.934	q24	
.933	q61	.932	q25	
.933	q64	.935	q27	
.933	q66	.933	q28	
.934	q67	.932	q29	
.934	q68	.930	q30	
		.933	q32	

**Table 3. shows the prevalence of gender-based sample**

	Frequency	percent
Males	22	73.3
Females	8	26.7
Total	30	100

**Table 4. Frequency of sample-based education**

	frequency	percent
M.A	20	7.66
PHD	10	3.33
Total	30	100.0

**Table 5. Frequency of sample based on work experience**  
frequency percent

Under 5 years	0	0
5-10 years	4	13.3
10-15 years	14	46.7
Over 15 years	12	40.0
Total	30	100

**Table 6. Results of goodness of fit test, Kolmogorov - Smirnov industry and academia to questions**

Sig	numbers	questions	sig	numbers	Questions
0.080	30	q33	0.204	30	q2
0.042	30	q35	0.061	30	q5
0.015	30	q36	0.138	30	q6
0.013	30	q39	0.076	30	q7
0.181	30	q44	0.113	30	q8
0.007	30	q48	0.123	30	q9
0.020	30	q49	0.061	30	q10
0.070	30	q50	0.193	30	q12
0.074	30	q52	0.047	30	q14
0.025	30	q53	0.009	30	q21
0.006	30	q54	0.109	30	q22
0.026	30	q57	0.011	30	q23
0.138	30	q60	0.011	30	q24
0.034	30	q61	0.046	30	q25
0.193	30	q64	0.041	30	q27
0.018	30	q66	0.043	30	q28
0.074	30	q67	0.083	30	q29
0.033	30	q68	0.031	30	q30
			0.020	30	q32

**Table 7. shows the results of binomial tests for university and industry questions.**

Binomial test						
		class	Number	Than the observed	Ratio Test	sig
q2	Group 1	<= 3	12	.40	.50	.362
	Group 2	> 3	18	.60		
	total		30	1.00		
q5	Group 1	<= 3	12	.40	.50	.362
	Group 2	> 3	18	.60		
	total		30	1.00		
q6	Group 1	<= 3	16	.53	.50	.856
	Group 2	> 3	14	.47		
	total		30	1.00		
q7	Group 1	<= 3	8	.27	.50	.016
	Group 2	> 3	22	.73		
	total		30	1.00		
q8	Group 1	<= 3	11	.37	.50	.200
	Group 2	> 3	19	.63		
	total		30	1.00		
q9	Group 1	<= 3	15	.50	.50	1.000
	Group 2	> 3	15	.50		
	total		30	1.00		
q10	Group 1	<= 3	12	.40	.50	.362
	Group 2	> 3	18	.60		
	total		30	1.00		
q12	Group 1	<= 3	10	.33	.50	.099
	Group 2	> 3	20	.67		
	total		30	1.00		
q14	Group 1	<= 3	10	.33	.50	.099
	Group 2	> 3	20	.67		
	total		30	1.00		
q21	Group 1	<= 3	7	.23	.50	.005
	Group 2	> 3	23	.77		
	total		30	1.00		
q22	Group 1	<= 3	13	.43	.50	.585
	Group 2	> 3	17	.57		
	total		30	1.00		

q23	Group 1	<= 3	4	.13	.50	.000
	Group 2	> 3	26	.87		
	total		30	1.00		
q24	Group 1	<= 3	3	.10	.50	.000
	Group 2	> 3	27	.90		
	Total		30	1.00		
q25	Group 1	<= 3	6	.20	.50	.001
	Group 2	> 3	24	.80		
	total		30	1.00		
q27	Group 1	<= 3	8	.27	.50	.016
	Group 2	> 3	22	.73		
	total		30	1.00		
q28	Group 1	<= 3	15	.50	.50	1.000
	Group 2	> 3	15	.50		
	total		30	1.00		
q29	Group 1	<= 3	14	.47	.50	.856
	Group 2	> 3	16	.53		
	total		30	1.00		
q30	Group 1	<= 3	17	.57	.50	.585
	Group 2	> 3	13	.43		
	total		30	1.00		
q32	Group 1	<= 3	17	.57	.50	.585
	Group 2	> 3	13	.43		
	total		30	1.00		
q33	Group 1	<= 3	14	.47	.50	.856
	Group 2	> 3	16	.53		
	Total		30	1.00		
q35	Group 1	<= 3	6	.20	.50	.001
	Group 2	> 3	24	.80		
	total		30	1.00		
q36	Group 1	<= 3	6	.20	.50	.001
	Group 2	> 3	24	.80		
	total		30	1.00		
q39	Group 1	<= 3	13	.43	.50	.585
	Group 2	> 3	17	.57		
	total		30	1.00		
q44	Group 1	<= 3	9	.30	.50	.043
	Group 2	> 3	21	.70		
	total		30	1.00		
q48	Group 1	<= 3	3	.10	.50	.000
	Group 2	> 3	27	.90		
	total		30	1.00		
q49	Group 1	<= 3	13	.43	.50	.585
	Group 2	> 3	17	.57		
	total		30	1.00		
q50	Group 1	<= 3	14	.47	.50	.856
	Group 2	> 3	16	.53		
	total		30	1.00		
q52	Group 1	<= 3	11	.37	.50	.200
	Group 2	> 3	19	.63		
	total		30	1.00		
q53	Group 1	<= 3	10	.33	.50	.099
	Group 2	> 3	20	.67		
	total		30	1.00		
q54	Group 1	<= 3	7	.23	.50	.005
	Group 2	> 3	23	.77		
	total		30	1.00		
q57	Group 1	<= 3	19	.63	.50	.200
	Group 2	> 3	11	.37		
	total		30	1.00		
q60	Group 1	<= 3	17	.57	.50	.585
	Group 2	> 3	13	.43		
	total		30	1.00		
q61	Group 1	<= 3	18	.60	.50	.362
	Group 2	> 3	12	.40		
	total		30	1.00		
q64	Group 1	<= 3	10	.33	.50	.099

	Group 2	> 3	20	.67		
	total		30	1.00		
q66	Group 1	<= 3	12	.40	.50	.362
	Group 2	> 3	18	.60		
	Total		30	1.00		
q67	Group 1	<= 3	11	.37	.50	.200
	Group 2	> 3	19	.63		
	total		30	1.00		
q68	Group 1	<= 3	15	.50	.50	1.000
	Group 2	> 3	15	.50		
	total		30	1.00		

Table 8 . Descriptive statistics for questions of industry and academia

SD	average	number	questions	SD	Average	number	Questions
.92227	3.6667	30	q33	.97143	3.7667	30	q2
.76112	4.2000	30	q35	.92227	3.6667	30	q5
.97143	4.2333	30	q36	.96431	3.3667	30	q6
1.12444	3.3333	30	q39	.98261	4.0000	30	q7
.78784	4.0000	30	q44	.92476	3.8000	30	q8
.69893	4.1667	30	q48	1.04221	3.5000	30	q9
.90019	3.5000	30	q49	.92227	3.6667	30	q10
.81368	3.6000	30	q50	.86834	3.9333	30	q12
.74664	3.8333	30	q52	.79148	3.8333	30	q14
.76112	3.8000	30	q53	.82768	3.9333	30	q21
.82768	4.2667	30	q54	.84418	3.6667	30	q22
.95893	3.3333	30	q57	.98786	4.3000	30	q23
.91539	3.3000	30	q60	.63968	4.2667	30	q24
.96847	3.4000	30	q61	.80301	4.1000	30	q25
.86834	3.9333	30	q64	.81931	4.1333	30	q27
.71116	3.6667	30	q66	.73108	3.5000	30	q28
.74664	3.8333	30	q67	1.16264	3.4000	30	q29
.88992	3.3667	30	q68	1.01483	3.2667	30	q30
				.72397	3.4000	30	q32

Plan on spending a sabbatical improve communication with industry and university professors in industrial units

✓ Implement Internship (This plan is generally a short-term relationship between the tripartite students, faculty members and professionals in the industry is established In this course, students in systems with multiple orientations, so familiar with the problems of industrial units, will attempt to resolve these problems)

✓ Implement Externship (This program allows students to closely observe and explore different career to see their future career choices open to them. The period can vary from a day to a month)

✓ Co-app. plan (The project is designed in such a way that Five semesters of full-time students in their education and gain experience in the industry to pay, It semester by semester, something known)

✓ Create Parks for knowledge transfer between industry and university investigators

✓ balance in supply and demand for specialists trained by the University

✓ revival Normal University and Industry Innovation

✓ open university system in basic investigators and industry

✓ universities move towards job creation and support

✓ Establishing Knowledge Based Companies

### Conclusions

Scale industry and academia that were used in this study seventy includes components that were extracted according to the papers read. After compiling the seventies components to further investigate some of the counselors and teachers were sent Seventy question of the number of twenty-four questions that were identical in concept to the other components were removed. After a number of questions remain to be put at the disposal of industry and university leaders after collecting the responses and the results of these tests were obtained

▪ these factors are a major factor in the relationship between industry and academia

▪ academic entrepreneurs in industrial sector

▪ Plan on spending a sabbatical improve communication with industry and university professors in industrial units

▪ Implement Internship (This plan is generally a short-term relationship between the tripartite students, faculty members and professionals in the industry is established In this course, students in systems with multiple orientations, so familiar with the problems of industrial units, will attempt to resolve these problems)

▪ Implement Externship (This program allows students to closely observe and explore different career To see their future career choices open to them. The period can vary from a day to a month)

▪ Co-ap plan (The project is designed in such a way that Five semesters of full-time students in their education and gain experience in the industry to pay, It semester by semester, something known)

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▪ balance in supply and demand for specialists trained by the University

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▪ open university system in basic investigators and industry

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▪ Establishing Knowledge Based Companies

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