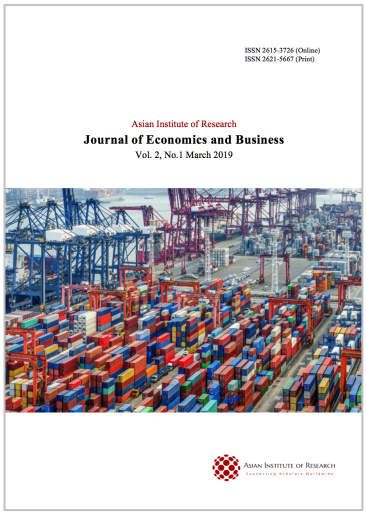

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Position Paper of Suggested Paradigm of the Know–How Gap between University and Industry inside Arab Countries – Researchers on the Horns of a Dilemma

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Abstract
The relationship between researches and industries in many Arab countries is characterized by a great deal of ambiguity and negativity. These characteristics create a big gap, especially in the transfer of Know-how. This research aims to clarify this relationship based on historical view and qualitative/descriptive analysis. We create a URI paradigm (University-Researchers-Industries), where we explained the interactions between the three players. We found three destructive spots and one constructive which called "Fertility Spot" which considered only hope to get out of the gap. We also tried to build a matrix of know-how between researchers and industries, which illustrate the only two positive cells out of sixteen, where we found the optimal interaction during the relationship. Finally, we illustrate in the agenda for future as a conclusion, set of limitations to be considered in future researches, to finalize the characteristics of a strategic road which can reduce the gap mentioned and make the relationship between research and industry more coherent.

Keywords: Know-How, Researches, University, Industry, Arab Countries

1. Introduction

The concept of universities and industries cooperation and collaboration is a vital social experiment for the development of any society. This position paper examines the different relationships between researches conducted by academic researchers and industries (private and public), especially in Arab countries. It focuses on the actual "give-and-take" process between faculty members and industrial firms. We used a preliminary qualitative/descriptive assessment through examining the relationships between three players (Universities-Researchers-Industries), and by focusing on what they actually get out of this relationships.

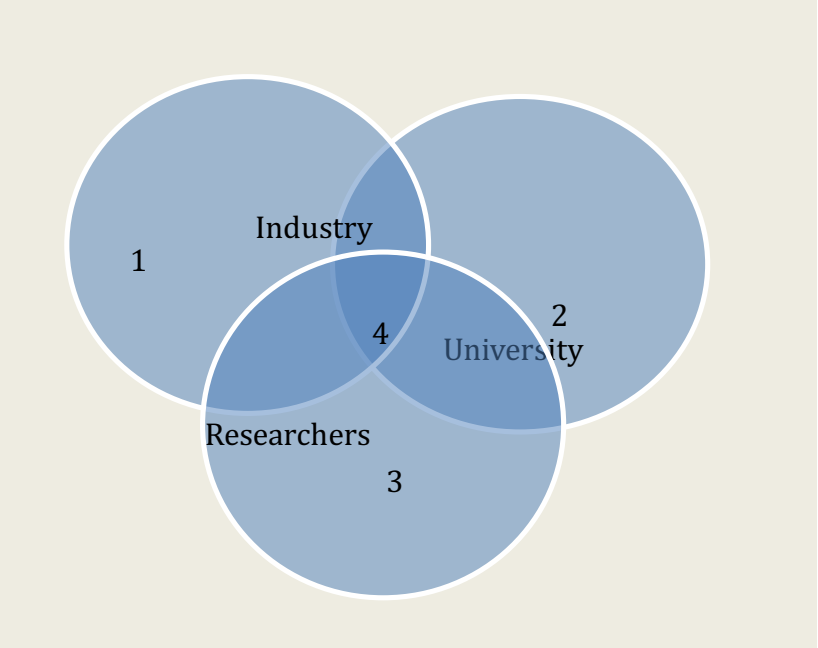
2. Literature Review

The majority of academic researchers identifying industrial and corporate problems or dilemmas with suspicious. With few exceptions, academic researchers had little effect on industries (especially in Arab countries).
Organizations, on the other hand, had little effect on academic life and universities, despite the increasingly clear evidence in the last ten years, regarding the social responsibility activities toward society.

Why do these things happen? It is really an intriguing question. Some of the reasons reflect subtle deep-routed suspicious. But many of the reasons reflect underlying differences regarding Personal and legal interests, reciprocity benefits, and sometimes only to earn the satisfaction of society and government.

In this article, we highlight some existing and potential breakthroughs which occur continuously and permanently, especially from the side of researchers as individual players. We will take a quasi-historical approach and provide clear paradigm and create a new suitable matrix in order to explain and examine the extent of Know-How gaps between three involved groups in the process Figure 1: (URI - University-Researchers-Industry). The aim of this research will also be supplying an agenda for future progress, contains a list of tips which present the hope to achieve from the side of all involved, responsible persons, Managers, Deans, Heads of Departments, DVCs, and sure by researchers by themselves. We need to flip the table! to draw a comprehensive plan which transfer researches from destructive status to a constructive one.

Figure 1: URI Relationships



Source: Kahwaji A. T., Relationship between URI Groups, 2019.

This position paper focuses on the relationship between Universities/Researchers/Industries, that we notice in Arab zone not to have very clear evidence, and almost suffer many defects, which create gaps and obstacles to innovation and creativity in all fields, and finally, many negative effects to the economy and society.

Such relationships are different from generic 'Links' as graduate recruitment or sometimes related to the exploitation of scientific publications or university-generated patents within firms. Therefore, in this regard, it is Legitimate to ask ourselves: What we know about such relationships? in what forms they appear and what effects they have on industries.

3. URI Paradigm

Using the paradigm illustrated in Figure 1, we note the interaction relationships between the three players, which can create four types of interrelations (we called it spots), describe in the following:

Relation 1: University-Industry (MOUs Spot)

Many empirical studies have analyzed the process of know-how transfer between universities and firms. Academic researches like publication and patents seem to be the most important input to industry (Narin et al., 1997; Mc Millan et al., 2000; Cohen et al., 2002).

Zucker et al. 2002 described transfer Know-How from universities to firms as an effective way by conducting many types of transfer. The importance of Universities' researches for the process of industry innovation also has been widely studied. Majority of researchers have shown a positive impact in this regard (Salter and Martin, 2001).

Moreover, Cohen et al., (2002) find that the most important channels for universities to have an impact on industries R&D are published papers, reports, public conferences, the mobility of students, meeting, etc. In fact, Meyer-Krahmer and Schmoch (1995) find that collaborative research is the most widespread form of Know-How transfer. However, not all sciences and majors are involved in this process, as Schrtinger et al., (2002) described that some fields of science are relevant to a large number of industries, which others are not. For instance, contract research and collaborative research are expected to be important in the engineering fields, while for the other types of science have less effect.

Usually, organizations rely on universities as sources of innovation and development via inter-organizational network relationship (Ceombs et al., 2003; Powell et al., 1996). Firms, in general, should get out monetary benefits, which are very hard to define, especially in the short-run. It depends on the findings of the researches, which could differ from one science to another. For instance, if the finding is incorporated into new products or services, saving costs and time, or improving the production process, in that time the benefits appear clearly.
Yong S. L. (2000) identified reasons for building the relationship between universities and industries.

- To create student internship and job placement opportunities
- To support the projects by firms.

But the question is: how many universities' projects are funded by firms in Arab countries?

In many cases, the relationship between universities and industries remains a formal one, which is signing of agreements and memorandums of understanding, which in turn remain "Ink on paper," and does not make both parties benefit from each other. Perhaps the main objective is to polish the mental image of these parties to win the public and governments satisfaction within the concepts of social responsibility of companies and universities. This is one of the gaps that we mean in our research. The problem remains and is aggravated in the industries and universities, which cannot provide the appropriate solutions.

Relation 2: University – Researcher (Score Spot)
Despite the missions of the universities, which beautify its image in the eyes of the public internal and external, almost of time is not rosy for most academics. The relationship between the university and academic researchers is not as it appears. Universities are always seeking to empower themselves through academic researches to occupy a prestigious position among competitors.

This often imposes a heavy burden on academic researchers, who often do not have enough time to conduct research that is capable of solving the problems of industries in Arab economies. Even the research they provide is rare and of poor quality in general, relying on questionnaires that are often unreliable for many reasons. The members of the academic and teaching staff are mostly busy. Teaching, serving the community, meetings of different committees All these reduce the time allocated to research and follow-up of everything new in scientific research.

The research provided is often intended to maintain prestige, or for purposes related to the academic promotion. For all these reasons, academic research has widened the gap between universities and industries, because it has not essentially come to solve the problems of industry, except that the findings and recommendations are often not binding on companies. Thus, the gap between academics and university reflected the gap between universities and industries

The individual characteristics of researchers also seem to matter for the process of Know-How transfer. Zucher et al., 2002; D'Este and Patel, 2005; Lam, 2005 ensured that the experience of researchers plays a vital role in developing the relationships between universities and researchers.
Relation 3: Researchers – Industry (Individual Benefit Spot)

After all, it is the individual faculty member, not the university, who conducts research. Similarly, university-industry links often rely on formal social links like contracts, agreements, MOUs, conferences, but also sometimes rely on informal social links. In other words, we should know to what degree such inter-organizational relationships between academic and industrial organizations exist, and to identify the main forms in which the relationships are practiced. In fact, given the faculty member job responsibilities (Teaching, community service, and researches), the collaboration with industry essentially is a matter of personal choice.

There are reciprocity benefits for both. Yong S. L. (2000) identified many reasons for academic collaboration with industry, for instance

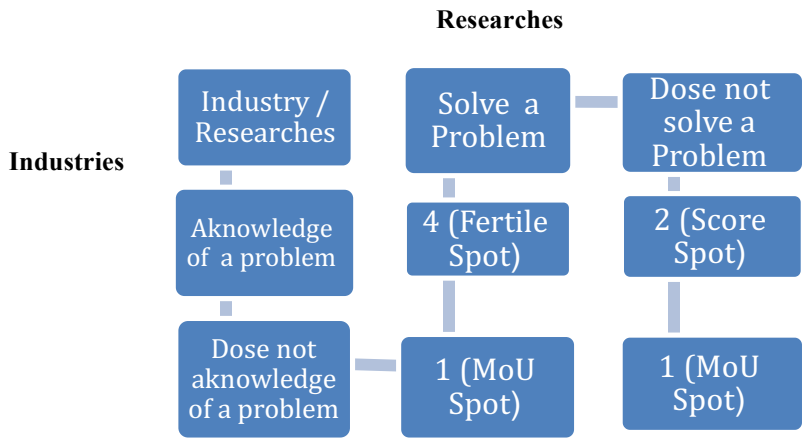
- To supplement funds for one's own academic research
- To test the practical application of one's own research
- To gain insights into the area of one's own research
- To look for a business opportunity

Also, Yong S. L. (2000) listed reasons firms seek collaboration with university faculty, like

- To solve specific technical or design problems
- To develop new products and processes and improve quality
- To lead to new products or services
- To recruit university graduates

But researchers often tend to provide consulting and research services to the industry. Not all academics have the knowledge necessary to solve industrial problems with their multiple facets, and sometimes they have the knowledge but do not have the possibility to apply it. Here we can distinguish between applied research and theoretical research, for example, managerial problems. The directors at their "Ivory Palace" think they have all the solutions**.** This also creates a gap between researchers and industries. (See figure 2).

Figure 2: Researches\Industries Matrix



Source: Kahwaji A. T., 2019

Relation 4: Fertility Spot (Benefits for All)

Through the three relations formed between the three players (see Figure 1), many factors can widen the gap between completed research and industries, especially in Arab countries. The state of the fertility spot between the three players is an ideal situation that everyone wants and can only be reached through fruitful cooperation between them. Contractual agreements and memorandums of understanding between universities and industry must involve solutions to problems in the industry.

Researchers on their part, those who have the knowledge and how should be helped by universities to use their abilities and skills to solve those problems. According to the return on investment, the three players will be in a real profit situation, industry profit will increase, the university will have led its community function, and The

researcher also has achieved success and profit morally and materially. The interest will be shared not only by the three players but by the entire economy

4. Know-How Matrix

In the proposed matrix (see Table 1), which illustrates the relationship between researchers at universities and different industries in terms of know-how, there are two cells that represent the fertility spot, when the players (researchers and industrialists) possess the knowledge and how it will create the desirable benefits.

Table 1: Know-How Intensity Matrix

Researchers

Industry

Know/ How	+ How	+ Know	- How	- Know
+ Know	+	-	-	-
+ How	-	+	-	-
- How	-	-	-	-
- Know	-	-	-	-

Source: Kahwaji A. T., 2019

5. Conclusion: Agenda for the Future

It is important to note, that there are some limitations to be clarified:

- We have to differentiate between researches related to applied sciences and theoretical sciences.
- We have to differentiate between private and public industries and their contributions.
- We should know that there is a lack of resources, especially the lack of required data for the research.
- Agreements and MOU should be at the level of departments, not universities.
- The main reason for the current financial crisis in private and public universities is related to the little number of investments in projects with industries.
- Firms should help researchers to conduct researches, and help graduate by recruiting and encourage to find solutions for the industrial dilemmas.
- We should ensure the role of government in Arab countries which can contribute to the growing involvement of universities in industries.

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