

Triple Helix Model's (THM) Impact on Enhancing Creativity and Skills within UAE Public and Private Sectors

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Abstract

Organizations and businesses cannot depend completely on their own to generate new ideas for innovation and development in present knowledge based societies. Consequently, the United Arab Emirates (UAE) announced 2015 as the Year of Innovation and excellence awards have been established aiming to boost cooperation between various sectors in the country. Therefore, the concept of the Triple Helix (university–industry–government) was found as a model of innovation. The aim of this research is to establish the impact of a Triple Helix approach on enhancing creativity and skills within UAE public and private sectors. It explores the concept of the Triple Helix Model (THM) in the context of the UAE public and private sectors focusing on its existence, implementation, barriers and drivers. Methods of analysis include both qualitative and quantitative approach in which a conceptual framework was derived from the literature review, a survey was developed and distributed to a sample of employees from different organizations, and follow-up interviews were carried out with key stakeholders (in which their departments are implementing/ involved in the THM). The findings exposed the stakeholders' perception about the importance of the concept and each actor's role in the THM, the limited utilization of the concept among the organizations, and the challenges in terms of relational barriers and knowledge sharing. The research findings reveal that TH approach has a positive influence on enhancing creativity and skills within UAE sectors and several recommendations have been proposed such as leadership involvement and support, designing organizational innovation strategy, and the addition of society helix.

Keywords: Triple Helix Model, innovation, challenges, United Arab Emirates.

1. Introduction

In today's knowledge based societies, organizations and businesses cannot depend completely on their own ideas for innovation and development. Creativity can be considered as a vibrant ingredient for the innovations needed for the knowledge societies (Lindberg, Danilda, & Torstensson, 2011) and as said by Prof. Henry Chesbrough: the traditional model

for innovation; being internally focused and away from outside ideas is becoming outdated (Chesbrough, 2003). Therefore, the Triple Helix Model (THM) was utilized as a spiral model of innovation that includes multiple joint relationships among institutional settings (government, private and academia) at different stages (Piaggese, Davis, & Castelnovo, 2012). The private is considered as the locus of production, the government as the source of contractual relations and the academia as a source of new technology and knowledge (Manoel & Etzkowitz, 2004). The interaction between the three actors is the key to innovation and growth in a knowledge based economy (Etzkowitz, 2008). Accordingly, the core function of Triple Helix (TH) system is generating, diffusing and utilizing knowledge and innovation (Etzkowitz & Ranga, 2013).

In the context of the United Arab Emirates (UAE), the government announced 2015 as the **Year of Innovation** (Eriksson, 2015). **Additionally**, the National Research Foundation was established in 2008 with the purpose of increasing and enhancing the research and innovation activities and concentrating on collaborating with the stakeholders (universities, federal and local governments, and industry) (Al-Ulama, 2008). Recently, the UAE leaders stated their goals to develop a knowledge-based economy through research and innovation (Bin Byat & Sultan, 2014) and Hamdan Bin Mohammed Award for Smart Government was established as one of the quality and excellence awards that aim to boost cooperation between service providers from various sectors (Dubai The Model Centre, 2015).

This research explores the concept of THM for enhancing innovation in the context of UAE public and private sectors. The aim of this research is to establish the impact of a triple helix approach on enhancing creativity, and skills within UAE public and private sectors with the following objectives:

- Exploring employees' insights about the THM existence, importance, barriers and drivers for its implementation
- Identifying cases where the THM has been implemented to evaluate its impact

The area of this research in the context of the UAE public and private sectors added value to the understanding of an import approach towards creativity and innovations. Also, there is scarcity of research in this area of THM impact on innovation. However, as this research is considered an exploratory study to answer the key research question (i.e. What is the impact of THM on enhancing creativity and skills in UAE public and private sectors?), a limitation of generalizing the findings exists.

2. Literature Review

The concept of the Triple Helix started in the 1990s by Etzkowitz and further developed by Leydesdorff (Tveit & Webjørnsen, 2011). The TH system is defined as a set of components (university, industry and government), relationships between components (technology transfer, collaboration and conflict moderation, networking and collaborative leadership) and functions (competencies that define the system's performance). The THM involves different configurations (see Figure1) (Etzkowitz & Ranga, 2013):

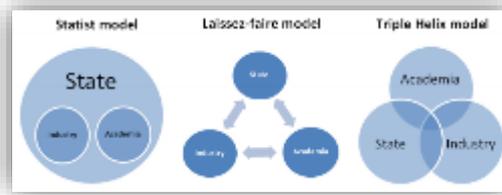


Figure 1: THM configurations

- A statist configuration: state plays the principal role in driving academia and industry (Etzkowitz, The Triple Helix, 2008).
- A laissez-faire configuration: state has limited intervention in the economy, with industry as the driving force.
- A balanced configuration: Academia act in partnership with industry and state.

In 2008, an article was published focusing on the importance of circulation between the TH components and highlighting several critics about the university systems in most developing countries. However, Konde (2004) stated that the weakness in TH could be from the actors who work in isolation. In Brazil, THM is utilized through the Innovation Law but the collaboration was not officially permitted (Dzisah & Etzkowitz, 2008). On the other hand, a successful implementation of the THM in Rural Community in Thailand contributes to the innovation and development through the integration of interaction and knowledge transfer. It was a key success to give good knowledge, and to increase the productivity and income (Chaisalee, Jongkaewwattana, Tanticharoen, & Bhumiratana, 2010). Therefore, understanding the points of successes and failures of others helps in implementing the proper strategy.

Furthermore, a study on University Business Cooperation (UBC) in the US looked at depth on the UBC using wide and diversified range of cases (ten case studies from the US and five case studies from Canada). The study covered UBC's forms, motivations, benefits, drivers and barriers. Based on the study findings, several recommendations were stated such as diversifying funding sources, facilitating business representatives' participation in universities, and academics and students' participation in business activities (Ranga, Hoareau, Durazzi, Etzkowitz, Marcucci, & Usher, 2013). Nevertheless, how the drivers could affect the performance of human could be another aspect. Interestingly, the employees' organizational commitment has vital role in reflecting the performance of the firms (Haque & Yamoah, 2014; Haque & Aston, 2016; and Haque, Aston, & Kozlovski, 2016). Additionally, in terms of gender, Haque, Faizan, & Cockrill (2017) had argued that firm's competitiveness increase due to females representation at strategic level because of culture formation of higher gender diversification and innovativeness.

The subject of TH application on developing countries is still fresh, with several research gaps and the research regarding its applicability in developing countries are limited (Tveit & Webjørnsen, 2011). More case studies are needed in order to highlight the challenges and required solutions to move forward especially in the developing countries. Also, the strengths and limitations of the triple helix approach need to be investigated in the context of the UAE to give insights for policy makers towards further improvement.

3. Methodology

This study was based on mixed methods approach (qualitative and quantitative) considering primary data collection since some of the previously conducted research used secondary data only (Gkikas, 2011). The conceptual framework was derived from the literature review. The quantitative section was based on survey addressed to sample of employees (using cluster sampling approach) in different units from different organizations in the UAE (public, private and academia). The sample size=50 (calculated from a population=60, with 90% confidence level and 5% margin of error). Data analysis was based on inductive approach as the subject of TH application on developing countries is still fresh (Tveit & Webjørnsen, 2011). The qualitative section was based on semi-structured interviews with key stakeholders (in which their department is implementing the THM) and with a key staff in the executive council involved in the excellence awards.

Data collection and analysis

Different resources of data and information have been used, such as:

1. Survey (adopted from different articles (Gkikas (2011), UNICREDS and Davey, Baaken, Galan Muros and Meerman (2012)).
2. Open questions based interviews with the following officials (designed based on the literature review (Tveit & Webjørnsen, 2011)):
 - a. Manager of Transport Integration section – Road and Transport Authority (RTA)
 - b. Media Professional & Arabic Copywriter – Mix FM
 - c. Senior Auditor - the Higher Colleges of Technology (HCT)
 - d. Senior Executive – The Executive Council
3. Academic scholars', practitioners' and experts' articles, books and reports

Descriptive statistics was used for survey analysis and a thematic analysis of the transcribed interviews was conducted.

4. Findings and Discussion

Triple helix approach has been discussed by different scholars and introduced in conferences as a way to facilitate collaboration between the public, private and academia to enhance innovation.

Survey Analysis

The questionnaire was distributed to 50 employees from different entities with a return rate of 90%. The questions were designed to provide information regarding participant's job title and entity, THM existence, importance, and the level of importance of each actor, and the barriers and drivers for THM implementation in the UAE. It is worth highlighting that the respondents can select multiple answers for each question. The answers tabulated using excel for analyzing the responses that can be described as follow:

The first two questions about employees' position and entity shows that 47% from non-managerial positions, 27% from low management, 13% from middle management and 13% from top management and that ensures the diversity of respondents' positions in order to get the opinion of a wider range of stakeholders. In addition, it is found that the majority of the respondents (79%) are from the public sector, while 14% and 7% are from the private and academia, respectively.

Regarding TH existence, the TH concept is applied in 40% of the entities of the respondents only and the government is the actor which is taking the role over other actors. This finding

reflects the limited use of the TH concept. More than 50% of the entities are not collaborating with the other two actors in the THM toward improving their services and innovation. Additionally, with the collaborating organizations, the overall processes are handled by the government. This adds on understanding the current situation in the UAE as the government is the main responsible party. However, all the actors need to participate equally in innovations and development.

All the respondents believe that TH approach is important for new ideas and creativity in the context of the UAE and the majority (87%) perceives that the government and academia have a very important role in helping to develop new ideas and innovations while 13% said that their role is fairly important. Those questions shows that the respondents from all sectors understands the importance of THM and the role of each actor and that will facilitate future cooperation as they can establish a culture of collaboration in their organizations.

In terms of barriers and drivers (see Figure5), relational barriers (73%) are considered the main barrier for implementing THM followed by funding barriers (60%) and usability of results (confidentiality of data, knowledge disclosure) (53%). On the other hand, the main drivers to support better links between public bodies, local businesses and regional universities to stimulate innovative development ideas in UAE include leadership support and increased communication (86%). The second important driver is about understanding local needs. Lower percentage of 27% goes for increased funding and awareness activities. However, in the context of Europe, the main two drivers involve increased communication and awareness activities (UNICREDS). Thus, every region has its own characteristics, barriers and drivers. Those drivers can be used to overcome the stated barriers. Leaders understanding and support contribute to changing the culture towards cooperation and knowledge transfer and sharing.

Interviews Analysis

Semi-structured interviews were conducted with key stakeholders from the public, private, academia and excellence awards; in which a THM is utilized, to further understand the TH concept within UAE public and private sectors and to find out the experienced challenges that will help in future policy making and development towards enhancing creativity and innovation.

TH model in the UAE

As per the Manager of Transport Integration section - RTA: RTA is providing the requirements of transport to Dubai through public private partnerships and trying to get researches from universities that serve transport planning and provisions. The collaborative relationship is managed via Memorandum of Understanding (MoU), meetings and communications.

As per the Media Professional & Arabic Copywriter, Mix FM: the entity is connected to public entities in terms of sponsorship and permissions of media coverage. Regarding business connections, it has occasional collaborative events with tourism entities. Many employees in the organization are recruited through university career services.

As per the Senior Auditor - HCT: the college is collaborating with the banking sector in terms of employment and exhibitions and with the public organizations in terms of employment by receiving the organizations required qualifications. Also, the HCT is collaborating with TANMIA (The National Human Resource Development and Employment Authority) to conduct workshops for knowledge transfer about the labor market.

Challenges

In RTA: one of the greatest challenges is providing the right study to RTA within the required time and quality.

In media: most of the times the organization needs to move faster than the learning rhythm of fresh graduates.

In the HCT: complete cooperation either from the public or private sectors regarding data sharing with the students for their projects.

TH Outcome and Ways Forward

In the case of RTA, good communication, understanding, and collaboration with other universities and research centers to increase transport efficiency is required. From the media sector, their goal is to lead in the new speedy world, not only to cope with it.

TH and Excellence Awards

As per the Senior Executive – The Executive Council: Hamdan Bin Mohammed Award encourages the entities to improve their services in innovative ways via partnerships with the public and private sector and services' coproduction with the customer. The call for innovation and meeting customers' demand is their motive.

The conducted interviews reveal some of the TH aspects and challenges within the different actors. Raised challenges can be considered for resolution while innovative strategies are agreed on. The stakeholders' understanding of the importance of having a collaborative model such as the TH reflects their readiness to cooperate and overcome the challenges as the UAE is focusing on innovations. In addition, academic achievements and R&D are important to improve the way services and products are delivered and accordingly, the contribution of the other parties is needed to direct future research. Also, the employment processes which demands talented candidates with certain experience or skills make such collaboration with ideas and people circulation as a way to overcome this issue and share the knowledge toward economic development. With the call for innovation, the research provides recommendations for decision and policy makers.

5. Conclusion and Recommendations

Overall, as the whole world is focusing on providing innovative services that assures high quality standards to satisfy customer need, THM implementation has an important impact on development and innovation. The conducted research contributes to the contemporary academic body of knowledge and practice as there is a scarcity of research about TH implementation in the developing countries in general and in the UAE in specific. The research findings from the visited literature, questionnaire and interviews reveal that THM has a positive impact on enhancing creativity, and skills within UAE public and private sectors. The conducted research contributes to the contemporary academic body of knowledge and practice as there is a scarcity of research about TH implementation in the developing countries in general and in the UAE in specific. The research findings displayed all participants' perception of the importance of the THM, the limited implementation of the concept among the organizations (40%) with improper responsibility allocation where implemented and the main challenges in terms of relational barriers and knowledge sharing. Therefore, the visited literature, questionnaire and interviews reveal that THM has a positive impact on enhancing creativity, and skills within UAE public and private sectors. Based on the research results,

future research can be conducted with a larger sample size and exploring in depth cases where the TH existed highlighting the strengths and weaknesses of such approach. Having the concept of TH investigated in the context of the UAE raises several recommendations including: leadership involvement and support since all the respondents believe that TH approach is important and the leaders can initiate the change in their organizations based on the country direction towards innovative future. Also, motivating the TH actors is needed to engage in joint projects through utilizing excellence awards as an incentive and that will help improving the improper cooperation and coordination exist in the current situation as explained by the interviewees. In addition, benchmarking with best practices in terms of TH (Ex. In Brazil and Ethiopia, new universities were built on research institutes (Dzisah & Etzkowitz, 2008) can be considered as that will facilitate knowledge sharing. For communication enhancement, Ministry of higher education can be involved in regulating the process of research in public organizations through record keepings and regulations to facilitate students' research and enhance the culture of R&D (Ex. Assigning each entity for a number of projects and having an integrated online link to receive students' visit requests). Designing organizational innovation strategy that implies the TH concept as that will provide a clear directions for all the involved stakeholders regarding the requirements and objectives. Finally, adding society helix (Rosenlund, 2015) is important since the second important driver in the research is about understanding local needs and expectations that will help in driving innovations.

References

- Al-Ulama, H. (n.d.). Director's Message. Retrieved July 16, 2015, from National Research Foundation: <http://www.nrf.ae/directormessage.aspx>
- Bin Byat, A., & Sultan, O. (2014). The United Arab Emirates: Fostering a Unique Innovation Ecosystem for a Knowledge-Based Economy. Retrieved August 4, 2015, from World Intellectual Property Organization: http://www.wipo.int/export/sites/www/econ_stat/en/economics/gii/pdf/2014/gii_2014_chapter_6.pdf
- Chaisalee, W., Jongkaewwattana, A., Tanticharoen, M., & Bhumiratana, S. (2010). Triple Helix System : The Heart of Innovation and Development for Rural Community in Thailand. Retrieved July 30, 2015, from Leydesdorff: http://www.leydesdorff.net/th8/TRIPLE%20HELIX%20-%20VIII%20CONFERENCE/PROCEEDINGS/0021_Chaisalee_Wissara_O-113/The%20heart%20of%20Innovation%20and%20development%20for%20rural%20community%20in%20Thailand.pdf
- Chesbrough, H. W. (2003). Open innovation: the new imperative for creating and profiting from technology. Boston: Harvard Business School Publishing.
- Davey, T., Baaken, T., Galán Muros, V., & Meerman, A. (2012). Barriers and Drivers in European University-Business Cooperation. Germany: Science Marketing.
- Department of Electrical, Management and Mechanical Engineering. (2008, December 11). CREATIVITY AND INNOVATION. Retrieved July 26, 2015, from Creativity Management: http://www.diegm.uniud.it/create/Handbook/management/1_3Creativity&Innovation3.htm
- Dubai The Model Centre. (2015). Hamdan Bin Mohammed Award for Smart Government. Retrieved July 26, 2015, from Dubai The Model Centre: <https://www.dtmc.gov.ae/hbmasg/apply/about.php>

- Dzisah, J., & Etzkowitz, H. (2008). Triple helix circulation: the heart of innovation and development. *International Journal of Technology Management and Sustainable Development*, 101-115.
- Eriksson, J. (2015, January 2). 2015 – Innovation Year in United Arab Emirates. Retrieved July 26, 2015, from Bearing Constructing LTD: <http://blog.bearing-consulting.com/2015/01/02/2015-innovation-year-in-united-arab-emirates/>
- Etzkowitz, H. (2008). *The Triple Helix*. New York: Routledge.
- Etzkowitz, H., & Ranga, M. (2013). Triple Helix systems: an analytical framework for innovation policy and practice in the Knowledge Society. *Industry and Higher Education*, 237-262.
- Gkikas, A. (2011, July). Triple Helix Dynamics in Peripheral Regions: Evidence from Wales. Retrieved August 3, 2015, from leydesdorff: http://www.leydesdorff.net/th9/ST-029_Gkikas_Triple%20Helix%20Metrics.pdf
- Haque, A. U., Faizan, R., & Cockrill, A. (2017). The Relationship between Female Representation at Strategic Level and Firm's Competitiveness: Evidences from Cargo Logistic Firms of Pakistan and Canada, *Polish Journal of Management Studies*. Vol. 15(2), 69-81.
- Haque, A. U., & Aston, J. (2016). A Relationship between Occupational Stress and Organizational Commitment of I.T Sector's Employees in Contrasting Economies. *Polish Journal of Management Studies*. Vol. 14 (1), 95-105.
- Haque, A. U., Aston, J., & Kozlovski, E. (2016). Do causes and consequences of stress affect genders differently at operational level? Comparison of the IT sectors in the UK and Pakistan. *International Journal of Applied Business*. Vol. 1 (1), 1-7.
- Haque, A.U., & Yamoah, F. (2014). "Gender Employment Longevity: I.T Staff Response to Organizational Support in Pakistan," *International Journal of Academic Research in Business and Social Sciences*, 4 (12), 324-347.
- Lindberg, M., Danilda, I., & Torstensson, B.-M. (2011). Women Resource Centres—A Creative Knowledge Environment of Quadruple Helix. *Journal of the Knowledge Economy*, 1-17.
- Manoel, J. C., & Etzkowitz, H. (2004). The rise of a triple helix culture: Innovation in Brazilian economic and social development. *International Journal of Technology Management and Sustainable Development*, 159-171.
- Melo, A., & Rodrigues, C. (2012). The Triple Helix Model as an Instrument of Local Response to the Economic Crisis. *European Planning Studies*, 1483-1497.
- National Research Foundation. (2015, March 31). The Ministry of Higher Education and Scientific Research announces the launch of 2015 research funding competitions. Retrieved July 18, 2015, from National Research Foundation: <http://www.nrf.ae/announcements2015.aspx>
- Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company*. New York: Oxford University Press.
- Piaggese, D., Davis, D., & Castelnovo, W. (2012). A Sleeping Giant: the Triple Helix approach for Effective International Cooperation for Development. *Triple Helix Association*, pp. 1-15.
- Ranga, M., Hoareau, C., Durazzi, N., Etzkowitz, H., Marcucci, P., & Usher, A. (2013). *Study on University-Business Cooperation in the US*. London: LSE Enterprise.
- Rosenlund, J. (2015). *An Interactive Research Approach to the Triple Helix Model in Environmental Science*. Retrieved August 3, 2015, from Licentiate thesis in environmental science:

file:///C:/Users/User/Desktop/TQM%20Project/Assignment%202/triple%20helix%20fourth%20actor.pdf

Tveit, G. M., & Webjørnsen, E. K. (2011, June). University-Industry Interaction and its Contribution to Economic Development in Uganda. *Industrial Economics and Technology Management*, pp. 1-82.

UNICREDS. (n.d.). Questionnaire Results . Retrieved August 1, 2015, from UNICREDS: http://www.unicreds.eu/documents/doc_download/appendix-1-questionnaire-results.pdf