

## A Review of University Industry Linkages for Innovation and Entrepreneurship Development in the Milieu of Ethiopia



### Education

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### ABSTRACT

*Entrepreneurship and innovation are two of the most pervasive concepts, yet there are still gaps in understanding of the interactions between them particularly in upcoming countries. This paper attempts to fill this gap. It focuses on the entrepreneurship-innovation development through strong University-Industry linkage, drawing heavily on empirical evidence from Ethiopia. Effective and efficient University-Industry Linkage is necessary condition for knowledge and technology transfer from university to the industry and vice versa. In the context of Ethiopia, universities are playing an important role as an indigenous knowledge source. Fruitful University-Industry Linkages (UILs) help local firms to import, modify, and diffuse technology. The findings of this paper contribute to the debate on the extended role of universities in Ethiopia for technological change and economic development. This paper aims at reviewing the linkages and relationships between universities and industry in relation to the knowledge economy for development.*

### INTRODUCTION

UIL creates a bridge of link and supports the establishment of links between the university and external agencies and harmonizing the integration of mutual operations of the parties. The most important form of university and industry linkage is the flow of university graduates to the professional market as well as the flow of state-of-the-art knowledge generated by university-based research through public channels. Universities can excel molding their future generation at par with the industry needs.

Within the National Systems of Innovation (NSI) framework, innovation is viewed as a collective process in which firms do not innovate in isolation but within a larger system involving firms, universities, research centers, government agencies and other actors. Innovation is seen as a product of interaction between three main actors: university, industry and government. In this model, universities focus on establishing institutional interface structures including industry liaison/technology transfer offices, business and technology incubators, and fostering entrepreneurialism through various policies.

UIL refers to co-operation between university and industry treading forth hand in hand in terms of research, improving the product quality, production process, service quality, new product development, etc. for the company based on agreements between them.

Despite criticisms of the upcoming state of University-Industry Linkages in Ethiopia, Ethiopian universities are taking steps to initiate and accelerate measures to strengthen institutional capacity to support linkages with industry and the broader productive sector. The focus on university-industry linkages for innovation and entrepreneurship is becoming increasingly prominent in the discourse on higher education in Ethiopia. Relations between universities and industry are very much subject to the historical and cultural background of individual countries

Effective and efficient University-Industry Linkage is necessary condition for knowledge and technology transfer from university to the industry. The industry is also source of finance for university research activities and source of information for quality assurance so that graduates with high level of knowledge and skills as required by the industry can be produced. The outcomes of research undertaken in universities have to be transferred to the industry integrated to the products and services of

the industry and impact the living standard of the society.

### LITERATURE REVIEW

"Many higher education institutions in Africa lack an enabling environment for re-orienting their institutions towards a more entrepreneurial role. African universities, for example, face considerable constraints with regards to the structure of their economies, political environments, and institutional research capacity. Despite criticisms of the poor state of university-industry linkages in Africa, African universities are taking steps to initiate and accelerate measures to strengthen institutional capacity to support linkages with industry and the broader productive sector"[5]. Despite the challenges inherent in establishing linkages with the productive sector in Africa, numerous African universities are responding to these new roles and expectations. While most of the literature highlights the weak state of current linkages across the continent and the lack of conducive conditions, these criticisms neglect to highlight the ongoing re-conceptualization of the role of African universities and the corresponding measures being taken to strengthen institutional capacity to support such linkages with the productive sector.

An international conference was organized by Intelligence for Innovation held at Dire International Hotel on Nov 12<sup>th</sup> 2014, in Ethiopia, [3] attended by distinguished participants from Kenya, Uganda, Ghana, Tanzania, Germany, South Africa, India, and Ethiopia. The main objective of the conference is to implement knowledge and experience transfer among project partners in order to foster the establishment and further development of entrepreneurship promotion programs at universities. Prof. Utz-Dornberger from Leipzig University presented an introduction to Intelligence for innovation project. The project is intended to convey theoretical knowledge, application-oriented findings and practice relevant experience with regard to the management and promotion of innovation and entrepreneurship in Small and Medium sized Enterprises (SMEs). Prof. Se. Jang Yong, Expatriate Dean of School of Business and Economics, Adama Science and Technology University delivered a speech on the role of university and government for entrepreneurship development in Korea. Prof. Mammo Muche, also presented his ideas and foresight on innovation management.

The outcome of the conference indicates that commercialization of science and technology knowledge comprehended as necessary tool for economic development. Therefore, the role of higher

education institutions in fostering entrepreneurship must be strengthened.

Twelve African universities are working in partnership with advanced universities over the world so as to produce a collection of case studies highlighting successful African university-industry linkages in order to share lessons learned and innovativeness and entrepreneurial roles for development with the broader higher education community in Africa.[1]

#### **CURRENT STATE OF UNIVERSITY-INDUSTRY LINKAGE IN ETHIOPIA**

In countries like Ethiopia, where the culture of indigenous technology development and utilization is low and most industries are traditional trade based, formal university-industry linkage and technology transfer channels have to be pursued aggressively. In the formal channels, the University can initiate and work across the linkage for effective knowledge and technology transfer.

The university industry linkage (UIL) office is responsible for collaborations between the institute of technology and industries. They strive hard to work with industries ultimately contributing to the national development. The UIL office also administers and facilitates trainings and consultancies like student internships, industrial trainings, staff industry attachment, and consultancy.

"A problem of mismatch between University products (graduates) and labour market needs to be reoriented in the country" [5]. "The universities and the industries are dependent on each other as the university's role is to produce human capitals to work at the industries, and the industries on the other hand need human capitals to run their business" [4]. "The university and industry linkage is vital to students as they would get the opportunity to apply theory into practice, says the Minister of Science & Technology", Her Excellency W/ro Demitu Hambisa.

Adama Science and Technology University (ASTU) Vice President for Research and Graduate Studies Dr. LemiGuta said: "The involvement of Adama University in collaboration with the Mekalle University in the execution of Adama - I Wind Farm Project generating 153 MW and the consultancy service it offered to Derba Cement Factory with over four million birr budget shows the contribution of universities to the growth of industry."

"As center of education, training and research, universities are expected to generate scientific techniques and knowledge that are required by and applicable to manufacturing and service enterprises apart from producing quality and skilled manpower," said Technology Transfer and Development Director Eng. Teshome Sahle-Mariam. As the players were lenient and there was not such a strong linkage among them, it is now believed that making the link among the players, i.e. educational institutes and the industry, will enhance the technology transfer among the entities, Eng. Teshome added.

In Adama Science and Technology University entrepreneurial director is newly assigned to facilitate the graduates to be entrepreneur. In the year 2006 E.C incubation center for innovativeness and entrepreneurial activities is also established. Two universities, ASTU and MU become center for entrepreneurial and innovation purpose in the recent years at the national level and came to consciences to conduct trainings concerning these aspects not only for the local communities and their students but also for anybody who have the idea and willingness.

Currently every university in Ethiopia is coming forward to formulate a committee to deal with this issue with an in-depth review focusing two major questions -How university industry linkages work? Which area is focused and what condition shall be improved?

#### **BARRIERS FOR THE EFFECTIVE ESTABLISHMENT OF UIL**

All universities have the dream to produce the most knowledgeable and competitor graduates in the global market. The university and industry linkage is vital to students as they would get the opportunity to apply theory into practice. This in turn leads to innovativeness and entrepreneurial manpower that foster knowledge and skill economy for development of the country. Some of the barriers are

- The university structure is not adapted to the needs of industrial collaborations
- University norms, procedures and policies hamper collaboration with industry
- Geographical location of the university results in less access to the industry
- Lack of autonomy to work with industry, Lack of motivation and entrepreneurial spirit among faculty
- Collaboration with industry has a negative influence on the pedagogic mission of a university
- Generally the government industries are only the respondents to the linkages, but not the private ones.
- Time stands as one of the constraint due to heavy teaching and administrative work.

#### **FUTURE PERSPECTIVES**

##### **Foresight of Government of Ethiopia:**

Industries need to be brought on board at the inception stage as active partners, while governments need to take responsibility for architecting a national innovation system and entrepreneurship with appropriate frameworks and policies that govern and incentivize university-industry interactions. The goal of supporting university-industry linkages is to promote the relevance and contribution of universities to socio-economic development. The Science, Technology & Innovation Council lead by H.E. Demeke Mekonnen, Deputy Prime Minister of Federal Democratic Republic of Ethiopia adopted a Science Technology Innovation Policy Strategy and its guidelines following thorough deliberations at its annual regular session. H.E. Demeke said that the MoST must exert efforts to identify the core areas in which innovative approach is decisive contextualizing the realities in the country. To this effect, he said the achievements in realizing university and industry linkage following year could be cited as an example to help create means for close and interactive collaboration. "To make it practical, universities and industry sector are expected to have a common space to plan and work the latter taking responsibility in recruiting skilled manpower," Ato. Demeke said [4].

##### **Optimistic foresight of Universities:**

In the view of Universities, the research outputs can be commercialized, graduates can get employment opportunity, professors can interact with their peers getting comments on their works, etc. [9]. Vice President of ASTU for Research and Graduate Studies Dr. LemiGuta underscored the need for changing the attitude of the industries so that they will take universities as partners in the area that needs to be dealt with. Besides, he said that limitation with regard to skilled manpower and infrastructure in the universities are challenges that need to be tackled. As the future plan, Adama Science and Technology University is willing to continue the talks with Ministry of industry regarding the issue putting forth the future directions for strong university industry linkages.

#### **CONCLUSION**

Universities are recognized as sources of knowledge creation, innovation and technological advances. Across the globe, they are being positioned as strategic assets in innovation and economic competitiveness, and as problem-solvers for socio-economic issues affecting their countries. Synergies between universities and industry (and other players in the productive sector) can play a crit-

ical role in securing and leveraging additional resources for higher education, promoting innovation and technology transfer, and ensuring that graduates have the skills and knowledge required to effectively contribute to the workforce. And so universities have to work on building a better ecosystem for entrepreneurship and innovation.

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