Partnering the Ecosystem – Frameworks for ORICs

By Rahmat Ullah - Dr. Mir Dost - Aafia Khalid

- **The Challenge of Partnership**

The new phenomenon of Office of Research, Innovation and Commercialization (ORIC/TTOs) in Pakistan is facing challenge of the-best-fit in the existing ecosystem of development and growth. The ORICs are new kid on the block with less experience, resources, power and support infrastructure. Whereas, the industry and society is working their own way for last 5-6 decades and experienced a gradual growth. The industry has learned in 50 years to survive based on imported machinery, foreign technologies and consultants from abroad. They provide assured solutions in a very short time.

The call of ORICs for collaboration is totally new for the industry of Pakistan at the moment.

- **Technology Ecosystem and Role of ORICs in Pakistan**

Pakistan has recently started its innovation ecosystem after the initiatives taken by Higher Education Commission (HEC). Innovation ecosystem refers to the technology capacity of the country, technology adoption of the country and conducive regulatory framework which drives both academic and industry to work for innovation. Such innovation can be incremental and/or radical in nature. Incremental refers to slightly change in the existing products, processes, technology or services whereas radical makes the existing products, processes, technology or services obsolete. The role of higher education is considered as an important factor in the development of sustainable future (Cortese, 2003).

Well established research in the developed economies suggests that the technology from labs to the market requires the policy support that could attract investment, protection of incubation time period and extra incentives to grow up to viable and competitive level (Todeva, 2013). According to Evans (Evans, 1997) "The character of the business community can be reshaped by state policy". In different words, technology without flexible supporting system is bound to death after short period of its birth.

There is the importance of academia and industry linkages. Industry in Pakistan has poor or no experience of working with local academia for technology development. Both institutions need to have an adequate interaction, communication, networking and collaborations. The gap between both institutions is widening for certain reasons. For instance, it has been observed that the industry complains about the poor quality of graduates which become the pre-step of technology projects (Bok, 2009, p 208).

The offices ORICs have this ability to fill this growing gap by taking great deal of initiatives to perform. These offices can capitalize on this opportunity as 'blessing in disguise' to solve the problems faced by Pakistani innovation ecosystem. These offices can find certain innovative

ways and means to support innovation in their respective institutions (Bercovitz & Feldman, 2006).

The tested and certified solutions to these issues are triple bottom approach – academia, industry and public sector. In different words, the remedy lies only in strengthening of the offices of ORICs and also empowering them to play a role of catalysts between academia, industry and public sector. The academia has to respond to the challenges such as (1) developing relevant curriculum, (2) need based research and (3) transfer of technology for economic impact (Lin, 2004).

- **Technology Transfer Framework**

The most critical component in innovation management is technology transfer framework. In countries like Pakistan, it is highly ignored or misunderstood. The technology transfer framework presents the role of each stakeholder along the development stages of technology transfer (Bercovitz & Feldman, 2006). The framework of technology transfers for the ORICs has to loop through eleven steps between technology identification and successfully commercialization of end outcomes. Figure 1 presents the framework for the technology transfer.

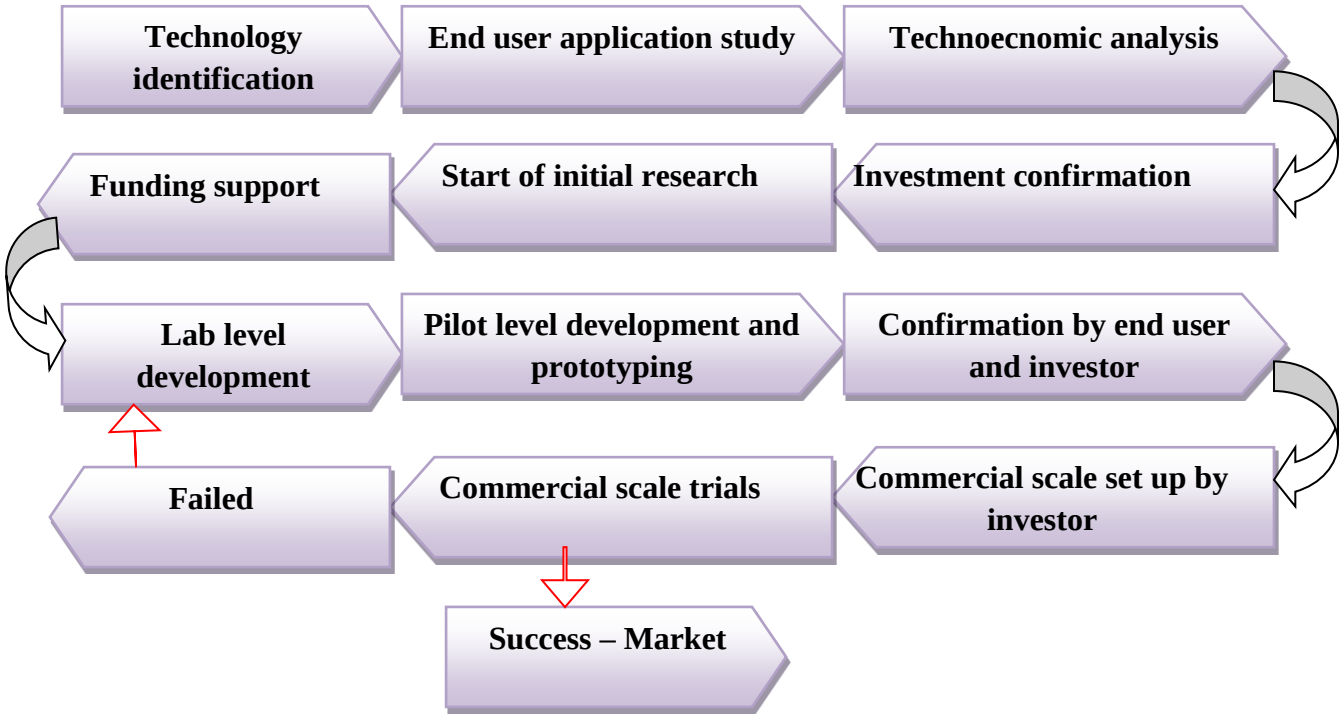

Figure 1: The Technology Transfer Framework for the ORICs

The offices of ORICs are unable to partner with ecosystem of industry due to poor understanding of this tech transfer framework and roles. These offices also need to develop orientation in the university and educate faculty researchers on the management perspective of technology. The success of technology embeds in the acceptance of end users. Usually, scientists run after the

investors for the funding which is a wrong approach. The investors will run after the technology if it has appreciation by the end user who ultimately has hands at the technology.

Similarly, the grant proposals are submitted at idea stage. There is need to do little research like one or two Masters of Sciences (MSc) thesis to understand basics of target technology. This landscaping research will help to gain industry trust on technology, inspire donors to fund and encourage end users to support in consumer trials.

The research process currently lacks lots of components like techno-economic analysis, investment confirmation, commercial trials by the investors and continues struggle to achieve technology success.

- **Economic Cycle of Technology Project**

The offices of ORICs need to plan and understand that how they can promote contract research and revenue from technology sales. This process potentially could help universities to become economically sustainable. The authors of this piece propose that within three years' time period, the offices ORICs must start earning from industry through contract research or sale of technology. Figure 2 presents the illustration as a process economic cycle of technology projects.

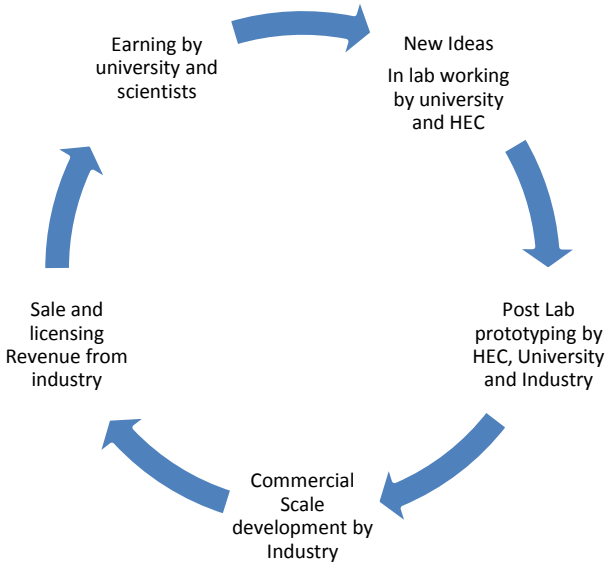

Figure 2: Financial Cycle across Technology Framework

The offices of ORICs and policy makers must understand the Pakistan does not have industries which can invest at idea stage. Pakistani industry can invest at pilot and commercial scale. The pre pilot phase of lab experiments and technology development has to be finance by public money.

There is another wrong practice of insisting industry to give investment confirmation at idea stage.

The offices of ORICs can bring non-financial industry collaboration at idea stage and develop the technology in association with industry. The post lab works can be transferred to industry for commercial trials and further investment.

- **The Role of Players in Technology Development Stages**

The common reason in technology failure is expecting everything from scientists to do from idea generation to setting up a plant. The technology projects have roles of various players at various phases and stages. The clear understanding of these roles along with stages will lead to successful technology development. The ORICs have to be along with industry and scientists in all the stages. The collaboration has to sustain in all phases between the office of ORIC, scientist and industry. The initial planning is up to confirmation level of what to do is part of the offices of OIRCs focused job. Trails, research and proving the concept is part of researcher's job. The up scaling at pilot and commercial level is primary job of industry.

Table 1: The Role of Various Players in the Technology Stages

Role	Scientists	Investor Industry	User Industry	ORIC
• Technology identification				✓
• End user application and confirmation				✓
• Technoecnomic analysis				✓
• Confirmation of funding, investment and related support				✓
• Start of research and development	✓			
• Extermination and meeting tech requirements	✓			
• Lab level development	✓			
• Patent filing	✓			
• Confirmation by end user				
• Pilot level development and testing		✓		
• Confirmation by the investor		✓		
• Product development		✓		
• Engineering and plant design/fabrication		✓		
• Commercial scale trails and product testing		✓		
• Production and marketing		✓		

- **Conclusion**

The understanding of existing ecosystem of industry and society will help both the offics of ORICs and scientists to develop effective partnership. The 5-6 decades' experience of industry of buying technology from foreign markets cannot be ignored. We cannot undo the existing practices without proving alternative successful technology models.

The offices of ORICs and academic scientists also need to understand the policy ecosystem of industry with respect it governs the practices and priorities. The academia must advocate for economic policy changes from trade friendly to innovation and production friendly. The policy needs to

There must be good incentives in eco system for both academia and industry to work with each others.

Note: The digest is developed from Manual for ORICs (Offices of Research Innovation and Commercialization) of Pakistan.

Authored by

- Rahmat Ullah, Chief Coordinator Institute of Research Promotion (IRP), Secretary General South Asia Triple Helix Association (SATHA), Manager ORIC, UMT – rahmat@irp.edu.pk
- Dr. Mir Dost, Director ORIC, Lasbela University of Agriculture, Water and Marine Sciences (LUAWMS) - pandrani_md@yahoo.com / director.oric@luawms.edu.pk
- Aafia Khalid, Research Associate South Asia Triple Helix Association (SATHA), Office of Research Innovation and Commercialization (ORIC), University of Management and Technology (UMT), Lahore - satha@satha.org ; aafia.khalid@umt.edu.pk

References

Bercovitz, J., & Feldman, M. (2006). Entpreprenerial universities and technology transfer: A conceptual framework for understanding knowledge-based economic development. *The Journal of Technology Transfer, 31*(1), 175-188.

Bok, D. (2009, p 208). *Universities in the marketplace: The commercialization of higher education*: Princeton University Press.

Cortese, A. D. (2003). The critical role of higher education in creating a sustainable future. *Planning for higher education, 31*(3), 15-22.

Evans, P. (1997). *State structures, government-business relations, and economic transformation*.

Lin, T.-C. (2004). The role of higher education in economic development: an empirical study of Taiwan case. *Journal of Asian Economics, 15*(2), 355-371.

Todeva, E. (2013). Governance of innovation and intermediation in Triple Helix interactions. *Industry and Higher Education, 27*(4), 263-278.