# Institutions and Innovation Systems: Future of the Business

# Dr. Vinit Harishchandra Rakibe

Loknete Vyankatrao Hiray Arts, Science and Commerce College, Panchavati, Nashik, India

### ABSTRACT

Innovation systems contributes vitally for developing new technology and knowledge. And the desire of institutions achieved via research programs has created a nexus between projects and organizations, enabling interchanging skill and information which is in turn understood a vital component for the development of innovation. Many studies are conducted by researchers related with the institutions and innovation system's efficiency. **Methodology:** This research work reviewed the literature related with the institutions, innovation systems and their relationship with the future prospects of business. **Findings:** Institutional desire finds the management of innovation system and interchange within the agents of innovation system actually which generates the knowledge and information are vital components for the innovation development. **Implications:** Innovation systems and desire of institutions provide an important basis for acquiring and transferring new information, knowledge, technology and skills. Creation of new information and knowledge and exchange of information and skills enables the organizations to achieve growth and working more efficiently. **Originality:** this research work is an original literature review work of author, in which all the references are justifiably cited.

Keywords: Institution, Innovation System, Technology

# **INTRODUCTION:**

The terminology of innovation has a traditional conception that it initiates from the development nations. But, passing decades significantly proved that majorly innovations are initiating from the developing nations. There are arguments that these changes are co related and are arising from abundant production to technological revolution, to be considered from perspective of historical and inter disciplinary orientation. This change has shifted the innovation context by the weak and poor, enabling varying production and universal grapevine access, opening current technological chances for producers of natural resources for coping with environmental threats. It has made available a number of tools for communication and processing of information, helping in trading, marketing, producing and designing even at global level and local level. (Perez, Carlota, 2013)

Innovation systems were regarded as organizational nexuses that grow, spread and utilize innovations by some researchers. (Jochen Markard & Bernhard Truffer, 2008)

Innovation systems and desire of institutions provide an important basis for acquiring and transferring new information, knowledge, technology and skills. Creation of new information and knowledge and exchange of information and skills enables the organizations to achieve growth and working more efficiently. Hence, this study reviews the literature related with institutions, innovation systems and their relationship with the future of business. This work includes introduction, review of literature related with topic and lastly conclusion of the study.

# LITERATURE REVIEW:

#### Conceptualising and Defining Institution and Innovation System:

The innovative systems has been defined in their study. They reviewed the definitions in context with the ecosystem and relevant concepts and proposed an integrated definition of innovation ecosystem. They analysed conceptually and identified that there was an imbalance focus on players, coordination and complementary things. In relation to concept of innovation ecosystem, they proposed additionally including artefacts, substitute and competition and provided a new definition consistent with concept of real ecosystem and innovation system. (Ove Granstrand & Marcus Holgersson, 2020).

Technology innovation is the definite path for expanding, transforming and restoring the markets. The business

expansion and market globalization have shown significance of local clusters of production resources. The geographical relativity linking finance, industry, technology and science is aiding in exposure of innovation. Inter connectivity is arranged by the mixed impact of both public and private institutions. Recently economists are regarding the concept of local economy as relevant to economic and geographical position of production organization, hence there is initiation of new activities related with revenues, jobs, services and goods. (Uzunidis, D. & Laperche, B., 2013)

The use of approaches related to systems in complex circumstances is an old attitude used in manifold disciplines. The scholars have continuously developed, modified and adopted the methods and concept of this approach. Popular acceptance of the approach developed new concepts with strict use and converting this into a phenomenon. In studies related with the innovation, the concept of the term innovation system is used extensively, many but with different adjunt like use of term national innovation system by scholars viz, (Freeman, R., Freeman, C., & Freeman, S., 1987), (Lundvall, B. A, 1992) and use of the term sectoral innovation system by scholars viz, (Breschi, S. & Malerba, F., 1997).

#### Effectiveness and Efficiency of Innovation Systems:

The concept of innovation system elaborates commercialisation of knowledge. There is a complex design where innovation transpires. (Deog-Seong Oh, Fred Phillips, Sehee Park, & Eunghyun Lee, 2016), (Johan Schot, 1998), (Moore, J. F., 1993), (Hannan, M. T. & Freeman, J., 1989). According to Jackson (2011), an innovation system is a complex association that are created among organizations or actors and their functional aim is enabling the technology growth and innovation.

The concept of innovation system has gained attention by the scholars as a means in governing and understanding the advent of new technologies, especially in the relation to sustainable development, (Chou, Hu, & shih, 2019) studied technological innovation in the context of renewable energy development, (Yufang Chen & Boqiang Lin, 2020) investigated the elements impacting on the spreading of technologies related with renewable energy in China's 28 provinces with innovation system perspective, (Alexander Brem & Petra A. Nylund, 2021) studied impacts of technological centrality and home bias in the procedure of innovation on the arrival of supreme designs in electric vehicle industry, (Rosa Livia Gonçalves Montenegro, Leonardo Costa Ribeiro, & Gustavo Britto, 2021) aimed at identifying technological and scientific areas which promoted development of environmental technology, and (Yinyin Zhao, Benhong Peng, Ehsan Elahi, & Anxia Wan, 2021) studied about the green technological innovation of enterprise.

The innovation system is constructed as a correlative process initiating from creation of knowledge and finishing with delivering innovation successfully in the market. (Chaminade, C. & Esquist, C., 2010), (Lynn K. Mytelka & Keith Smith, 2002).

In this structure the interchange among the institutions enhances industrial performance by boosting innovation capacities (Cheng, C.C.J. & Chen, J., 2013), making able in order to having access to market, technology and new in information, time reducing for exploitation, and resources and risks sharing (Parida V., Oghazi P., & Ericson A., 2014), (Ades, C., et al., 2013), (Enkel, Gassmann, & Chesbrough, 2009)

#### Institutions and Achievement of Institutional Policy Goals:

Innovation systems function in particular social, political, economic, legal and regional conditions and impacted by the surroundings they operate in. All these conditions and circumstances play a compounding role for growth of innovation system. These factors may be interlinking, overlapping, carrying different loads and growing over time. (Adriaan van der Loos, Håkon E. Normann, Jens Hanson, & Marko P. Hekkert, 2021).

Institution related theories elaborate about how institutions in an innovation system observe general rules and practices of organization. Some countries are encouraging more competitive form of innovation system by considering the adoption of general procedures and practices by institutions. (Gallego-Alvarez, I., Ortas,, Vicente-Villardón, & Etxeberr, 2017), (Scott, W. R., 2005).

Institutions desire is highlighted as avital component for innovative capability of the systems. This provides institutions incentives for the growth and coordination of innovative collaboration for attaining objectives and reaching towards the targets of organization. (Dolphin, T., 2012).

As institutions and firms coordinate in the system, the interplay among the actors of the system is considered as an important component and their relationships and connections are analysed by the innovation system (Lundvall, 2007).

Institutions play an important role in terms of norms and rules related to the management of organizational and individual bevioural styles in the innovation system.

#### **Criticism to the System:**

This paper criticises the framework of innovation system because changes in current system is not evolving according to the processes of change in technology. Innovation systems are vital part of technological change. Paper proposes a structure focusing on the actions which are vital for best execution of innovation system. These actions were named as functions of innovation system. Study proposed a methodology for systematic aligning of these actions taking place in the innovation systems and driving changes in technology. (M.P. Hekkert, R.A.A. Suurs, S.O. Negro, S. Kuhlmann, & R.E.H.M. Smits, 2007).

Instead of this criticism, many scholars have studies the shift in innovation system in many nations, keeping trust on the concept of function terminology, which is thought as a decisive action that promotes the making and advancing a technology. (Johnson, A. & Jacobsson, S., 2001), (Floortje Alkemade, Chris Kleinschmidt, & Marko Hekkert, 2007), (Simona O. Negro, Roald A.A. Suurs, & Marko P. Hekkert, 2008), (Staffan Jacobsson, 2008), (M.P. Hekkert, R.A.A. Suurs, S.O. Negro, S. Kuhlmann, & R.E.H.M. Smits, 2007). Inside functional analysis, external as well as internal structural components impacting the growth of innovation systems are contemplated. (Staffan Jacobsson & Anna Bergek, 2011).

#### CONCLUSION:

Studies pointed out that there are many considerations about the innovation system. The institutional scope are very importantly taken under consideration by the concept on innovation system, though along with geographical scopes. The institutional aspects notably impact the innovation system. Geographical aspect finds the implemented public policies and configuration of institutions. Hence, in distinct geographical dimensions, dissimilarities may emerge in the institutional desire impacting the efficiency of innovation system. (Papaioannou, David W, & Chataway J, 2009). It may be said that there are two components of innovation system. Institutional desire finds the management of innovation system and interchange within the agents of innovation system actually which generates the knowledge and information are vital components for the innovation development.

#### **REFERENCES:**

- Ades, C., Figlioli, A., Sbragia, R., Porto, G., Ary Plonski, G., & Celadon, K. (2013). Implementing open innovation: The case of natura, IBM and Siemens. *Journal of technology management & innovation*, 8, 57-57.
- Adriaan van der Loos, Håkon E. Normann, Jens Hanson, & Marko P. Hekkert. (2021). The co-evolution of innovation systems and context: Offshore wind in Norway and the Netherlands. *Renewable and Sustainable Energy Reviews*, 138. doi:https://doi.org/10.1016/j.rser.2020.110513.
- Alexander Brem, & Petra A. Nylund. (2021). Home bias in international innovation systems: The emergence of dominant designs in the electric vehicle industry. *Journal of Cleaner Production*, 321. doi:https://doi.org/10.1016/j.jclepro.2021.128964.
- Breschi, S., & Malerba, F. (1997). Sectoral innovation systems: technological regimes, Schumpeterian dynamics, and spatial boundaries. *Systems of innovation: Technologies, institutions and organizations, 1*, 130-156.
- Chaminade, C., & Esquist, C. (2010). Rationales for public policy intervention in the innovation process: Systems of innovation approach. In Kuhlmann S., Shapira P., & Smits R. (Eds.), *The theory and practice of innovation policy : An International research handbook*. Edward Elgar Publishing.
- Cheng, C.C.J., & Chen, J. (2013). Breakthrough innovation: the roles of dynamic innovation capabilities and open innovation activities. *Journal of Business & Industrial Marketing*, 28(5), 444-454. doi:https://doi.org/10.1108/08858621311330281
- Chou, J. C.-P., Hu, M.-C., & shih, T. T.-Y. (2019). Green transformation: Lessons from the fuel cell innovation system in Taiwan. *Journal of Cleaner Production*, 240. doi:https://doi.org/10.1016/j.jclepro.2019.118182.
- Deog-Seong Oh, Fred Phillips, Sehee Park, & Eunghyun Lee. (2016). Innovation ecosystems: A critical examination. *Technovation*, 54, 1-6. doi:https://doi.org/10.1016/j.technovation.2016.02.004.
- Dolphin, T. (2012). Translating new economic thinking into public policy. British Politics and Policy at LSE.
- Enkel, E., Gassmann, O., & Chesbrough, H. (2009). Open R&D and open innovation: exploring the phenomenon. *R & D management*, 39(4), 311-316.
- Floortje Alkemade, Chris Kleinschmidt, & Marko Hekkert. (2007). Analysing emerging innovation systems: a functions approach to foresight. *International Journal of Foresight and Innovation Policy*, 3(2), 139-168. doi:https://doi.org/10.1504/IJFIP.2007.011622
- Freeman, R., Freeman, C., & Freeman, S. (1987). Technology, policy, and economic performance: lessons from Japan. *Burns & Oates*.

- Gallego-Alvarez, I., Ortas,, E., Vicente-Villardón, J., & Etxeberr, I. (2017). Institutional Constraints, Stakeholder Pressure and Corporate Environmental Reporting Policies. *Business Strategy and the Environment, 26*(6), 807-825. doi:https://doi.org/10.1002/bse.1952
- Hannan, M. T., & Freeman, J. (1989). Organizational ecology. Harvard university press.
- Jochen Markard, & Bernhard Truffer. (2008). Technological innovation systems and the multi-level perspective: Towards an integrated framework. *Research Policy*, 37(4), 596-615. doi:https://doi.org/10.1016/j.respol.2008.01.004.
- Johan Schot. (1998). The usefulness of evolutionary models for explaining innovation. The case of the Netherlands in the nineteenth century. *History and Technology*, 14(3), 173-200. doi:DOI: 10.1080/07341519808581928
- Johnson, A., & Jacobsson, S. (2001). Inducement and blocking mechanisms in the development of a new industry: the case of renewable energy technology in Sweden. *Technology and the market: demand, users and innovation*, 89-111.
- Lundvall, B. A. (1992). National systems of innovation: towards a theory of innovation and interactive learning. In B.-Å. L. (Ed.) (Ed.). London: Printer Publishers.
- Lynn K. Mytelka, & Keith Smith. (2002). Policy learning and innovation theory: an interactive and co-evolving process. *Research Policy*, 31(8-9), 1467-1479. doi:https://doi.org/10.1016/S0048-7333(02)00076-8.
- M.P. Hekkert, R.A.A. Suurs, S.O. Negro, S. Kuhlmann, & R.E.H.M. Smits. (2007). Functions of innovation systems: A new approach for analysing technological change. *Technological Forecasting and Social Change*, 74(4), 413-432. doi:https://doi.org/10.1016/j.techfore.2006.03.002.
- Mohammad Esmailzadeh, Siamak Noori, Hamidreza Nouralizadeh, & Marcel L.A.M. Bogers. (2020). Investigating macro factors affecting the technological innovation system (TIS): A case study of Iran's photovoltaic TIS. *Energy Strategy Reviews*, 32. doi:https://doi.org/10.1016/j.esr.2020.100577.
- Moore, J. F. (1993). Predators and prey: a new ecology of competition. Harvard business review, 71(3), 75-86.
- Ove Granstrand, & Marcus Holgersson. (2020). Innovation ecosystems: A conceptual review and a new definition. *Technovation,* 90-91. doi:https://doi.org/10.1016/j.technovation.2019.102098.
- Papaioannou, T., David W, & Chataway J. (2009). Knowledge Ecologies and Ecosystems? An Empirically Grounded Reflection on Recent Developments in Innovation Systems Theory. *Environment and Planning C: Government and Policy*, 27(2), 319-339. doi:https://doi.org/10.1068/c0832
- Parida V., Oghazi P., & Ericson A. (2014). Realization of Open Innovation: A Case Study in the Manufacturing Industry. *Journal of Promotion Management*, 20(3), 372-389. doi:DOI: 10.1080/10496491.2014.908801
- Perez, Carlota. (2013). Innovation Systems and Policy for Development in a Changing World . In J. Fagerberg, B. R. Martin, E. S. Andersen, Jan Fagerberg, Ben R. Martin, & Esben Sloth Andersen (Eds.), Innovation Studies: Evolution and Future Challenges (Oxford, 2013; online edn, Oxford Academic, 23 Jan. 2. Oxford: Perez, Carlota, 'Innovation Systems and Policy for Development in a Changing World', in Jan Fagerberg, Ben R. Martin, and Esben Sloth Andersen (eds), Innovation Studies: Evolution and Future Challenges (Oxford, 2013; online edn. Oxford Academic. 23 Jan. 2. doi:https://doi.org/10.1093/acprof:oso/9780199686346.003.0004
- Rosa Livia Gonçalves Montenegro, Leonardo Costa Ribeiro, & Gustavo Britto. (2021). The effects of environmental technologies: Evidences of different national innovation systems. *Journal of Cleaner Production, 284*. doi:https://doi.org/10.1016/j.jclepro.2020.124742.
- Scott, W. R. (2005). Institutional theory: Contributing to a theoretical research program. Great minds in management. *The process of theory development*, 37(2), 460-484.
- Simona O. Negro, Roald A.A. Suurs, & Marko P. Hekkert. (2008). The bumpy road of biomass gasification in the Netherlands: Explaining the rise and fall of an emerging innovation system. *Technological Forecasting* and Social Change, 75(1), 57-77. doi:https://doi.org/10.1016/j.techfore.2006.08.006.
- Staffan Jacobsson. (2008). The emergence and troubled growth of a 'biopower' innovation system in Sweden. *Energy Policy*, *36*(4), 1491-1508. doi:https://doi.org/10.1016/j.enpol.2007.12.013.
- Staffan Jacobsson, & Anna Bergek. (2011). Innovation system analyses and sustainability transitions: Contributions and suggestions for research. *Environmental Innovation and Societal Transitions*, 1(1), 41-57. doi:https://doi.org/10.1016/j.eist.2011.04.006.
- Staffan Jacobsson, & Anna Bergek. (2011). Innovation system analyses and sustainability transitions: Contributions and suggestions for research. *Environmental Innovation and Societal Transitions*, 1(1), 41-57. doi:https://doi.org/10.1016/j.eist.2011.04.006.
- Uzunidis, D., & Laperche, B. (2013). Innovation Systems and Entrepreneurship. In Carayannis, E.G., & E. Carayannis (Ed.), *Encyclopedia of Creativity, Invention, Innovation and Entrepreneurship*. New York,

NY., New York, NY.: Springer. doi:https://doi.org/10.1007/978-1-4614-3858-8\_424

- Yinyin Zhao, Benhong Peng, Ehsan Elahi, & Anxia Wan. (2021). Does the extended producer responsibility system promote the green technological innovation of enterprises? An empirical study based on the difference-in-differences model. *Journal of Cleaner Production, 319.* doi:https://doi.org/10.1016/j.jclepro.2021.128631.
- Yufang Chen, & Boqiang Lin. (2020). Slow diffusion of renewable energy technologies in China: An empirical analysis from the perspective of innovation system. *Journal of Cleaner Production, 261*. doi:https://doi.org/10.1016/j.jclepro.2020.121186.

\*\*\*\*\*

