

EFFECTS OF TECHNOLOGY AND INNOVATIONS ON CHANGE AND
SUSTAINABILITY

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Effects of Technological Innovations on Sustainable Change

Sustainable activities meet the current needs without adversely affecting the needs of future generations. Technological innovations have made an impact in regards to the sustainable changes. They have had both the positive and the negative effect on their utilization. In the last couple of years, there has been a rampant surge in environmental degradation (Cantoria 2010). Technology has subsequently led to the pollution of the coastal, surface, and underground water. Much of biodiversity has been lost because of technological innovations. This is bound to affect adversely future generations.

The current technological innovation trend poses a great danger to the future development of the environment. In this case, various organizations have a part to play in a bid to contain this situation before it gets out of hand. Researchers and policymakers have shown their support in trying to deliver future generations from the effects of technological innovations. This has been initiated through campaigning for the modernization of ecology (Lowe & Evans 1995, p. 2). This concept has been formulated in a way that technological innovations should not be abolished due to their obvious advantage to human beings, but emphasize the utilization of smart innovations and clean technology.

This move is aimed at maintaining and improving competitiveness of the economy and securing sustainability of the environment to allow the thriving of various sectors. This process will ensure that there is wealth creation through the utilization of minimal natural resources. This initiative will help in reducing the negative effects on the environment.

Numerous organizations have also been responsible for forming the strategy known as the Green Growth Strategy. The organizations seek to analyze the formation of the eco-innovations after which the best policy instruments would be formulated. These instruments

would assist in the promotion of a fair, competitive, and sustainable economy (Lopez 2009, p. 13). This move has led to the creation of policies governing the industries with regard to environmental conservation. It has also resulted in the creation of the environmental policy that stipulates the technological innovations that could be practiced in the environment. The other outcome is the formation of a science and technology policy.

The move to conserve the environment has led to the formation of three significant frameworks, namely (SSI) Sectoral System of Innovation, (ST-Systems) the Socio-Technical System, and (TIS) Technical Innovation Systems. The three systems bring about the innovations in approach.

The SSI's innovation is principally viewed as a media that various industries and firms would utilize in order to gain competitiveness (Welford & Gouldson 1993, p. 210). This competitiveness is defined as the capacity to produce services and goods that attain the requirement of the international market, while also maintaining an increase in the levels of sustainable income (Shrivastava 1995, p.189). The latest contributions in this research field address the creation of technologies that are clean and emphasize the problems of sustainability.

The ST-System is a framework that mainly concentrates on the latest configurations surrounding the emergence of big socio-technical systems and preservation in the society. This structure has mainly been applied to those systems that are linked to sustainability; for instance, mobility and energy (Kemp 1980, p. 20). This emphasis is highly strengthened in the application of transition management notion (Morgante, Raggi & Petti 2000, p. 1817). Transition broadly encompasses the latest technology co-evolution, the system-wide interaction, cultural and policy discourses, market dynamism, the practices of the user, and the governing institutions.

Innovation describes the improvement of intangible services and material goods. The widely known form of innovation is cleaner technologies (Rouatan, Laigo & Roulph 1996, p. 175). This is because they refer to institutional, technological, and organizational dynamisms of the existing knowledge base of the systems. The enactment of the innovations is performed through social co-existence networks, as opposed to individual's initiative. The system of innovation is the institutions and organization network that creates, diffuses, and utilizes innovations.

The method utilized in the discrimination between the environments and the systems can be divided depending on numerous factors, for instance, the geographical aspect. The second method is through the field of technology, activities, and area of the product. In a bid to avoid explosion of innovation drivers and other possible factors, it is extremely important to consider the innovation system's boundaries. The detachment of the system from its immediate environment leads to inaccuracy of the intended result.

The institutions are very significant in the process of curbing the problem resulting from technological innovations. The effectiveness of the institutions is utilized through creating awareness of the public concerning the adverse effects of technological innovations. Institutions offer this knowledge to the public through participating in social forums, conventions, and highlighting good examples for other organizations and individuals to follow. The utilization of regulative institutions describes the step of rules that control people's interactive behavior.

Cognitive institutions are the rules that develop the existing nature of reality and the structures that incorporate something. These include visions, perceptions, mental paradigms, and expectations. Varied levels of institution framework are assigned to varied levels of aggregation,

in which the institutions function. Therefore, institutions are viewed as individual rules that have an impact on economic and social characters.

From the perspective of system innovation, the most basic resource is knowledge. Knowledge comes in handy in the regulation of adverse technological innovations. Knowledge assists in differentiating between right and wrong, thereby taking an individual responsibility for conserving the environment. On the other hand, learning is regarded as a fundamental activity. An individual gets to know recent developments, their utilization, and access (Porter 1990, p. 855).

The existing difference between ST-Systems and other frameworks, as opposed to a single organization, assumes the inter-organizational field as an analysis entity under the nomenclature of social groups. The tools used in giving the group unique features are the shared perceptions, preferences, norms, and problem-agenda. The community, where ST-Systems exist, seeks its alignment with interrelated rules.

The existing difference also applies in the functioning of TIS/SSI and ST-Systems in relation to networks. The function of ST-System mainly gets the information from (ANT) Actor Network Theory. It shows a simultaneous relationship between things (Material) and something that exists between concepts (semiotic). It further analyzes the formation of these networks, destroyed or stabilized. The TIS and SSI have greatly concentrated on a wider perspective of informal and formal cooperation methods, as well as, inter-relationship between actors. These systems have clearly outlined that the significance of network from the integration of competence and knowledge is heavily shared in firms and organizations.

In conclusion, it is everyone's responsibility to help in sustainable development. Various institutions should come into play, and people should employ the entire knowledge faculty

acquired in sustainable development. Human beings play a very important role in triggering degradation, in the same way that they have the ability to stop wanton environmental destruction. Implementation is the biggest step; whatever has been learnt should be practiced for real. Recent innovations have to take into consideration the lives of the future generations. Finally, all technologies developed should have the least impact on the environment. The three frameworks, (SSI) Sectoral System of Innovation, (ST-Systems) the Socio-Technical System, and (TIS) Technical Innovation Systems should be adhered to if anything has to be done in saving the planet.

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