FOURTH INDUSTRIAL REVOLUTION AND ENTREPRENEURIAL SPIRIT WITH SPECIAL REFERENCE TO HIGH TECHNOLOGY INDUSTRY IN SRI LANKA

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ABSTRACT

Industrial sector has been the center of gravity in acceleration of economic growth and development in many countries. Industrialization expands the production frontiers of economies while generating new opportunities and creating spillover effects. The economic take-off is historically associated with the industrialization of transitional societies. The new phase of the global industrialization ushers through a high ground of intangible innovative solutions called intellectual asset based industrialization. This process is interpreted as the fourth industrial revolution. Sri Lanka is capable enough to exploit the opportunities offered by the 4th industrial revolution. The modern entrepreneurship associates with expert human capability to deliver the creativity in form of innovation for commercialization. The entrepreneurship is not merely a subject to learn but spiritual mind set of an individual called entrepreneurial spirit that essential for the intellectual innovative commercialized solutions. The scope of entrepreneurial spirit merged with high- industry enable to fulfill the requirements of niche markets locally and globally. The Z generation, high technology industry and entrepreneurial spirit, is recognized as the turning point of the industrial trajectory in the near future. Irrespective of the level of development, every country has to focus on the changing contours of the industry and entrepreneurial spirit to be competitive partners of the changing global economy. It will enhance the exiting comparative advantage further while opening up new avenues to meet the changing requirements. There are a few high technology Sri Lankan industries inspired by the entrepreneurial spirit of forth industrial revolution. These industries are catering to the global market competitively. There are a lot of untapped opportunities in artificial intelligence, nanotechnology, 3D printing and robotic industries. It is essential to invest in research and development both at national and individual level to exploit the warranted opportunities further.

Key Words: Fourth Industrial Revolution, Entrepreneurial spirit, High technology industry.

Introduction

Industrial sector has been the center of gravity in acceleration of economic growth and development in many countries. Traditional industries are no more supported to enhance the economic frontier of any economy. Structural transformation is therefore essential in the industrial sector to move forward in local and global markets. Structural transformations are lead by innovations serve niches become large markets later. The modern entrepreneurship associates with expert human capability to deliver the creativity in form of innovation for commercialization. The entrepreneurship is not merely a subject to learn but spiritual mind set of an individual called entrepreneurial spirit that essential for the intellectual innovative commercialized solutions. Fourth Industrial Revolution turned industrial sector in to industry version 4.0 coupled with artificial intelligence, emotional intelligence, biotechnology, nanotechnology, robotics and 3D printing related solutions. The Z generation, high tech industry and entrepreneurial spirit, are recognized as the turning points of the industrial trajectory in the near future. Irrespective of the level of development, every country has to focus on the changing contours of the industry and entrepreneurial spirit to be competitive partners of the changing global economy. It will enhance the exiting comparative advantage further while opening up new avenues to meet the changing requirements.

Justification

Industrial sector in Sri Lanka indicates few industries inspired by the Forth Industrial Revolution while lot of untapped opportunities in the field of artificial intelligence, emotional intelligence, biotechnology, nanotechnology, robotics and 3D printing industries. Industrial Sector in Sri Lanka requires structural diversification merged with intellectually innovative commercialized solutions in addition to existing comparative advantages. Government income in Sri Lanka numerically 87% out of total government income, (Annual Report, CBSL, 2016) stagnated on taxation with major expenditure commitments for recurrent and capital aspects while large provisions of transfers for the sake of poor population proving constraints to allocate funds straightway for industrialization. And also the inherent inefficiencies of the public sector in developing countries influenced by political interferences slower the growth of industrialization and cause to deviate the direction of industrialization. The involvement of private sector for industry establishments is needed due to major several reasons; capitalization, use of advanced technology, being dynamic for diversification necessary depending on environmental changes and to retain skilled and qualified labor with competitive remuneration packages etc. Therefore the encouragement of private sector enterprise initiations is needed region wise; in Sri Lanka district or provincial wise as per the examples by other economies in the recent past. Replicating the existing industries owned by strong economies in the world and being less competitive at the market is not recommended in entrepreneurship but recognizing opportunities and catering for niches are needed based on innovations in the industry version 4.0.

Related Literature Review

According to the Andrew Atherton and Paul D. Hannon, (2006), degree of health of the economy is depending on the birth of new enterprises in substantial numbers while many scholars have confirmed entrepreneurship as the engine of economic growth. However the entrepreneurial concept is not restricted to typical businesses as in the case of developing economies with merely objective of poverty alleviation but also extended towards creativity lead innovativeness. M.A Galindo and M.T.M.Picaso (2013) realized that innovation as one of the major elements of economic progress. The discussion further states that innovations and economic growth are positively correlated where entrepreneurships and innovations are also positively correlated. Klaus Schwab, *World Economic Forum* (2016) strongly pointed out that the fourth industrial revolution creates the world virtual and physical systems of manufacturing in global scenario. The 4IR especially affects the supply side; production and production related work initially.

Related Theories

Cantillon's Theory

The Cantillon's theory on entrepreneurship has basically explained entrepreneurs as those who have no guaranteed income like wage and working in uncertainties (Risk). Entrepreneurs are responsible for production, circulation and exchange of goods and services (Christopher Brown, Mark Thornton, 2013). As per the Cantillon, entrepreneurs collect goods and services from the villages at lower prices and sell them with a margin in the city.

Theory of J.B. Say

Jean Baptiste Say (J.B Say) introduced entrepreneurship as the fourth factor of production for the first time. However as Say described entrepreneurship success depends on various factors as predictability and judgment of demand, selection of necessary inputs timely, optimum estimation of production cost and selling price and capability towards administration and supervision in business aspects which ultimately determines the survival of any entrepreneur.

The discovery and opportunity theory of entrepreneurship (Schumpeterian Theory)

According to Schumpeter in his Schumpeterian theory that the entrepreneur is the one who move the existing economy to a change deviating from its static equilibrium. Therefore his view purely stresses that the entrepreneur is not an imitator but innovator. Entrepreneurs not merely working hard for economic profits but also enjoy themselves serving to the society at large. (Hannah Orwa Bula, 2012).

Biological Theory of Entrepreneurship

Biological theory of entrepreneurship addresses on gender differences of individuals of that intension is to become an entrepreneur. Scholars such as Richard Cantillon and Joshep Schumpeter mentioned in the study so far the entrepreneurship is about working on uncertainties lead to risk taking and managerial activities within the established firms or businesses. According to psychological studies carried out that there are differences between men and women in terms of the risk taking behavior. As per the Hannah Orwa Bula, (2012), that men are seems to be more risk takers even if the end is clear as good or bad comparing to the women as per the study carried out with 150 studies and quantitatively 14 types of risk activities out of 16. As cited by Hannah Orwa Bula, (2012), according to Powel and Ansic, (1997), women prefer lesser risk to be borne than the men in case of business decision making in financial aspects.

Kirzner's "alert" entrepreneur approach

Kirzner also focused on disequilibrium of economy to explain the opinion in entrepreneurship in 1997. Kirzner agrees on Schumpeter's entrepreneurial view on disequilibrium, confirmed by Shultz, Kirzner further narrowed that not all entrepreneurs but alert entrepreneurs will be able to move the economy towards equilibrium.

Objectives of the study

The main objective of the study is to analyze entrepreneurial spirit in promoting high tech industrial sector in Sri Lanka. The specific objectives are to explore the existing entrepreneurial profile in the high technology industrial sector in Sri Lanka, to identify determinants of entrepreneurial spirit in the high technology industrial sector in Sri Lanka, to identify entrepreneurial opportunities available in the high technology industrial sector in Sri Lanka, to investigate challenges to develop entrepreneurial spirit in the high technology industrial sector in Sri Lanka and to analyze possible strategies to promote high technology industrial entrepreneurial spirit.

Research Design/Materials and Methods

Data collection is constrained to Sri Lanka context only. Individuals engage with high technology entrepreneurial solutions related to industry version 4.0 are determined as the population of the study. The size of the population is countable number and therefore scope has not specified to provinces. The population was identified under several stratums such as nature of the entrepreneurial engaged with, type of the market served (local/global), annual income or the size of the market share. The snowball technique was used for sampling. The selected and interviewed entrepreneurs were asked to nominate at least two more entrepreneurs in the same nature. The minimum annual income of three million per annum with intellectual innovative commercialized economic efforts is recognized as the main stratums to determine the scope of the population. Primary data collection was mainly done through interviews align with specific research objectives and secondary data also supported by the findings. Selected entrepreneurs were individually questioned to evaluate objectives of the study lead by research questions. Data bases of chamber of Commerce, officials of leading apparel firms and industrial specialists were consulted to reach primary data sources and secondary data as well.

Findings

As per the theories and approaches discussed above entrepreneurial spiritual is considerably limited in Sri Lanka with special reference to high technology industry. Entrepreneurship is merely not a subject. The spiritual aspirations are not seen in industrial practices except automobile electronic equipment and software applications. Innovations are essential to initiate a change instead of replicating existing practices in the industrial sector.

Lack of Investment on technology, reluctance to bear risk, less or no education on high technology industry, lack of entrepreneurial spirit, and less government as well as private sector sponsorships on high technology entrepreneurship are key challenges to promote entrepreneurial spirit in Sri Lanka. The identification and guiding individuals to wake up the real intellectual strength should be the key to open up new avenues to high technology industry in Sri Lanka.

The relatively higher literacy among Sri Lanka population (93.1% in 2016) -Annual report, (2017), CBSL and existing potentials to launch intellectual innovative due to absence of the same would be the main opportunity for initiation and the expansion in the long run. Potential opportunities are freely available to investigate trial versions in the selected fields as transportation, communication and manufacturing. The related academic programmes implemented should be directly linked so that technical literacy and knowhow can be matched together to serve Z generation who will be the youth soon in the world.

Conclusion

The successful efforts on high technological industrial developments by domestic entrepreneurs at their spiritual level are limited in numbers; indirectly open up potentials for untapped avenues in high tech industry in order to move ahead with fourth industrial revolution. Replicating existing businesses and defining business activities as entrepreneurship should be revised with the real meaning of entrepreneurship while promoting technological applications in day to day activities for a socio cultural structural transformation at large. Smart life for smart people should be promoted via the expansion of entrepreneurial spirit on high technology industry in the form of public private ownerships.

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